Community Assistantship Program

Blandin Community Investment Partnership: Networking for the Future

Blandin Community Investment Partnership: Networking for the Future

Prepared in partnership with
The Blandin Foundation

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BLANDIN COMMUNITY INVESTMENT PARTNERSHIP

NETWORKING FOR THE FUTURE

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EXECUTIVE SUMMARY

The Blandin Community Investment Partnerships (BCIP) is a partnership between the Blandin Foundation and communities throughout Minnesota. The goal of the program is to build the capacity of local citizens to create healthier communities in which to live, work, and play. BCIP wants to foster connections between the communities involved in the program, and more effectively link these communities with Blandin staff. But because these communities are spread from border to border across the state, building meaningful connections between them is challenging. It was issue that led to the Networking for the Future research project. In this age of information technology, the Internet seemed like an obvious solution for building bridges between these geographically distant communities. This project explores BCIP's options for using new communications technologies to improve communication among people involved in the BCIP Program.

The first section of this report provides an overview of the BCIP program. It explains the philosophy of the program, the process in which communities engage, and lists the Minnesota communities involved in BCIP. This section also presents some scenarios of how BCIP hopes that information technologies can help to better connect the people involved in the program.

The second section of the report provides an overview of five potentially useful information technologies, reviews the technological environment in Minnesota both in terms of infrastructure and attitudes, and presents information on telecommunications infrastructures within each BCIP community.

The third through seventh sections of this report examine five Internet technologies that BCIP can use to increase communications: websites, threaded discussions, desktop videoconferencing, multi-site videoconferencing and webcasting. In each of these sections there is a definition of the technology, an example of how others are using it, costs associated with the technology, and information that can help the Blandin Foundation make informed decisions about using each technology.

The eighth and final section of the report provides observations and recommendations for moving forward in connecting the BCIP communities using information technologies.

In addition to this report, there are two supplemental Project Binders. These Project Binders contain all of the information collected by the project researcher including printouts of web pages, copies of reports and articles, a diskette with electronic copies of this report and other research documents, and Hi-8 and VHS copies of an event that was videotaped.

PROJECT OVERVIEW

The mission of the Blandin Foundation is to strengthen rural Minnesota communities. In early 1999, the Blandin Foundation initiated a program in Minnesota called the Blandin Community Investment Partnership (BCIP). BCIP builds the capacity of local citizens to create healthier communities in which to live, work, and play. The basic philosophy of the BCIP Partnership is one of mutual investment.

Communities participating in the BCIP program employ a nine-step process to build healthier communities. These nine steps are:

Step 1:	Train Core Team and Recruit Volunteers
Step 2:	Assess Your Community
Step 3:	Create a Vision and Set Priorities
Step 4:	Explore the Possibilities
Step 5:	Design a Project
Step 6:	Build a Case for Support
Step 7:	Implement the Action Plan
Step 8:	Communicate Results
Step 9:	Celebrate and Share Lessons Learned

The success of BCIP requires that communities have a strong base of leaders to recruit a diverse, multi-generational group of individuals and major stakeholders. These members must be willing to explore new ways of looking at and/or taking action on community issues. They also must be committed to measuring and communicating results in partnership with the Foundation. In return for a community's commitment to this process, the Blandin Foundation will invest in the community by providing: technical assistance, meeting facilitation, assessment tools, resource materials, and financial resources. The Blandin Foundation will also convene multiple communities to share lessons learned.

Fifteen communities are active in the BCIP process and several other communities are scheduled to begin in 2002. The table below shows the communities currently working with BCIP and where they are in the process.

Community	Status as of June 2001
1. Bemidji	Scheduled for 2002
2. Big Stone Lake Area	Active (at Step 5 or higher)
3. Blackduck	Scheduled for 2002
4. Brainerd/Baxter/Nisswa	Active (at Step 5 or higher)
5. Cambridge	New
6. Cuyuna Range	New
7. Fairmont	Active (at Step 5 or higher)
8. International Falls	Active (at Step 5 or higher)
9. Little Falls	Active (at Step 5 or higher)
10. Luverne	Active (at Step 5 or higher)
11. Morris	Active (at Step 5 or higher)
12. North Itasca County	New
13. Sibley County	Active (at Step 5 or higher)
14. Thief River Falls	Scheduled for 2002
15. Todd County	Active (at Step 5 or higher)
16. Traverse County	New
17. Walker	Scheduled for 2002
18. Waseca	Active (at Step 5 or higher)
19. Wilmar	New
20. Winona	Scheduled for 2002

BCIP wants to build connections between the communities involved in the program, and between BCIP staff and community members. This presents a challenge because the communities are spread from border to border across the state. In this information age, the Internet seems like an obvious solution for building bridges between these geographically distant communities. Can communities better use their current Internet systems to have a dialogue across communities on issues and opportunities they are facing? Can a member of a BCIP community who winters in Arizona participate in community meetings even when he or she is thousands of miles away? Can BCIP staff in Grand Rapids have virtual meetings with community representatives, consequently reducing travel time and costs? It is these sorts of questions that prompted the Networking for the Future research project.

The two goals to the Networking for the Future research project are:

1) to explore ways of using emerging Internet technologies to link BCIP communities together, provide better communication to residents within participating communities, and identify ways for staff to communicate more efficiently and effectively; and

2) to provide sufficient background information so the Blandin Foundation can make informed decisions about using Internet technologies to link BCIP communities and staff

The remainder of this report presents information that was gathered to meet these goals. The following section provides a technological overview of potentially useful Internet technologies, reviews the technological environment in Minnesota, and reviews the technological infrastructure of BCIP communities. The next sections examine five potentially useful Internet tools: websites, threaded discussions, desktop videoconferencing, multi-site videoconferencing and webcasting. The final section of the report provides observations, summaries and recommendations.

In addition to this report, there are two supplemental Project Binders. These Project Binders contain all of the information collected by the project researcher including printouts of web pages, copies of reports and articles, a diskette with electronic copies of this report and other research documents, and Hi-8 and VHS copies of an event that was videotaped.

TECHNICAL OVERVIEW

A vast number of Internet communication tools exist and new technologies are continuously being developed. Because BCIP has specific objectives in connecting communities, this report focuses on five Internet technologies that will be most useful to achieve these objectives.[1] These tools include web sites, threaded discussions or forums, desktop videoconferencing, multi-site videoconferencing, and webcasting. While each of these tools is explored in detail later in this report, they are each briefly described in the following table:

Internet Tool	Definition
Web Site	A Web Site is a related collection of World Wide Web (WWW) files that can contain many types of information including text, graphics, photos, tables, sound, and links. A web site includes a beginning file called a home page. From a home page, one can get to all the other pages of an organization or individual's web site.
Threaded Discussion or Forum	Threaded discussions, also known as forums, are a method for carrying out text-based discussions on the Internet. A user starts a "thread" by posting a message with a title that identifies the topic of the message. Anyone who visits the discussion can view earlier topics and messages, reply to specific messages, or start new topics of discussion. When other users reply to specific messages, the reply stays connected or "threaded" to the original message.
Desktop Videoconferencing	Desktop videoconferencing enables two or more people to interact with each other through a video and audio connection made via standard desktop computers.
Multi-site Videoconferencing	Multi-site videoconferencing is a technology where multiple sites can have audio and video connections to either a central videoconference or to each other. This tool requires specially equipped rooms.
Webcasting	Webcasting involves using the Web to deliver live or delayed versions of sound or video broadcasts.

Before entering into a detailed discussion of the Internet technologies listed above, it is important to understand the technical environment in Minnesota. While Minnesota has an impressive history of utilizing emerging technologies to increase communication and reduce travel costs for state agencies, K-12 schools, libraries, and higher education institutions, and while interest in using Internet technologies is high, the ability to successfully use these technologies can be limited by the telecommunications infrastructure available in an area. This section describes the technical environment in Minnesota, primarily as it relates to the Internet tools that are examined in this report.[2] Information presented here was gathered from a variety of reports and state offices.

[1] Email and listservs, which are excellent Internet communications tools, are not discussed here because most Internet users are familiar with them.

[2] There is an extensive glossary at the end of this document and in Section 9 of the Project Binder. Every effort has been made to define terms within the text of the document, however, the reader is encouraged to both examine the glossary and become familiar with new terminology as needed.

Discussions on telecommunications infrastructure often revolve around the term bandwidth. Bandwidth is the capacity of a transmission channel to move data between locations and is a measure of the amount of data that can fit on a network. Regular telephone lines have low bandwidths compared to cable lines, DSL (digital subscriber line) lines, or T1 lines. Transmission channels that have high (or broad) bandwidths are called broadband.

Users who can only access the Internet through modems and phone lines (which have low bandwidths) are limited in the Internet technologies they can use successfully. While these users can send and receive email, participate in threaded discussions, and access low-graphic web sites, they will not be able to adequately participate in activities that require accessing video files. According to *The Videoguys Streaming Media Handbook*,[3] "a good experience with video technologies requires at least a high-speed ISDN, DSL, or cable modem Internet connection. With a 56k or less modem connection, users will see thumbnail size images, poor image quality, and/or jerky video."

The Governor's office outlined the "Minnesota Broadband Internet Initiative" in a report published in the summer of 2001.[4] According to the report, surveys were conducted in 1999 and 2000 to explore the "existing connectivity infrastructures in Minnesota" and "to determine the extent to which high-speed, bi-directional network connectivity (minimum residential: 256 kpbs, minimum business: 512 kbps) and associated Internet access services are possible in rural areas of the State." Several key findings of the survey include.

- 60% of **Metro** households are estimated to have access to high-speed digital services at 256 kbps or greater
- 75% of **Metro** communities have cable companies providing high-speed Internet access via cable modems
- 30% of **Greater Minnesota** households are estimated to have access to high-speed digital services at 256 kbps or greater
- 84% of **Greater Minnesota** communities have cable services, however only 5% of these communities have cable companies providing high-speed access via cable modems
- 33% of **Greater Minnesota** communities have DSL service (256 kbps or greater) provided by the incumbent telephone company

Based upon these findings, the Governor's office has established projects and funding mechanisms to increase connectivity in Greater Minnesota. Most of the funding is directed

[3] The entire *Videoguys Streaming Media Handbook* can be found in Section 7 of the Project Binder or at http://www.webvideoguys.com/handbook.html

[4] The full text of the report is available in Section 2 of the Project Binder or at http://www.admin.state.mn.us/broadband_initiative.html

toward infrastructure improvements. The strategic funding initiatives are called the Broadband Internet Development Fund and the State Sponsored Technology Enterprise Fund.[5]

According to the "Minnesota Integrated Network" report, provided by the Minnesota Higher Education Services Office (MHESO), Minnesota currently spends approximately $30,000,000 a year on a network and infrastructure for connecting higher education institutions, public schools, libraries, and state agencies. A portion of this funding provides Interactive Television (ITV) connections between these institutions. The ITV network is used to connect remote locations to each other via videoconferencing in order to conduct distance education, virtual field trips, conferences, and meetings for both public and private sector users. (More detailed information about how BCIP could utilize the State's videoconferencing network will be discussed later in this report.)[6]

Another report provided by the MHESO, "Video Systems – A Snapshot," explains how a joint planning process was established to "develop a framework to guide future development of the video infrastructure" in Minnesota. The Joint Powers Group, a collaboration of the University of Minnesota, Minnesota State Colleges and Universities (MnSCU), and the Department of Administration of the State of Minnesota, sponsored the video project. The higher education, K-12 and library, and state agency networks are all working to upgrade their technology, increase bandwidth, and explore streaming video[7] for webcasting live events. Beyond the creation and maintenance of the physical structures, MHESO realizes the importance of learning how best to use these new technologies. MHESO is working on a plan for "collecting, discussing, communicating, and sustaining best practices developed by one entity for use by the others."

While the discussion in this section in regard to technical environment has focused on the physical infrastructures, it is important to also address people's ability and interest in using these technologies. In January and February 2001, the Center for Rural Policy and Development conducted a study entitled, "Internet Use Patterns of Rural Minnesotans."[8] This study found that:

- 60% of rural Minnesota households possess a working computer
- 80% of Greater Minnesota households with a computer have access to the Internet
    - These households are online an average of 8 hours per week

[5] BCIP may find it useful to read the full-text of this report or contact the Governor's office to determine the specific details of how these funds are being distributed. BCIP could discover if these funds may be available, in any way, shape, or form, to complement technology initiatives that are underway or being planned in BCIP communities.
[6] The full text of the report can be seen in Section 2 of the BCIP Project Binder.
[7] Streaming video technology lets a video clip begin playing within a few seconds after a user chooses to download the file rather than having the user wait for the whole file to download. This provides the user with a seamless video transmission, as long as as the user has a high-speed Internet connection.
[8] The full text of the study is in Section 2 of the Project Binder.

- 94% regularly send email messages to friends and relatives
- 78% connect with a dial-up connection
- 8% connect with high-speed DSL
- 5% connect with high-speed cable modem
- 35% reported that they would upgrade to a high-speed connection if the monthly costs were less than $30
- 10% reported that they would upgrade to a high-speed connection if the monthly costs were between $30 and $60
- 55% reported that they were happy with their dial-up service and were not interested in upgrading their connection

These numbers indicate that Internet access is popular, but currently there is not a great demand for high-speed access among rural households. However, as high-speed access becomes available and affordable, and as people experience or hear about the improved service, the demand may increase.

A group that is working to increase the use of emerging technologies in Greater Minnesota communities is the University of Minnesota's College of Continuing Education (CCE) Strategic Goal Team. This group conducted a project that involved planning and developing a curriculum that integrates civic engagement, community and rural development, and communications/information technology. The goal of the curriculum was to help communities formulate and implement technology strategies." Once this curriculum was developed, it was delivered at a series of Community Technology Leadership Seminars across Minnesota in the fall of 2001.[9] These seminars were well attended indicating an interest at the community level for using information technology.

BCIP Community Technical Readiness

Since this report is concerned with the particular communities involved in the BCIP program, information was gathered from several sources to assess what type of Internet access was available in each of these communities. The sources of information included Community Profiles[10] available through the Minnesota Department of Trade and Economic Development, web pages from some communities, a BCIP Technology Questionnaire that was sent to BCIP communities in November 2000, and telecommunications and cable coverage maps (effective

[9] A full copy of the Civic Engagement Seed Grant Proposal that provided a portion of the funds for this curriculum development is included in Section 2 of the Project Binder.

[10] Available through the MN Department of Trade and Economic Development, Community Profiles offer informational reports on a city's economic development, demographics, workforce, employers, utilities, transportation, education, and business and community services. These profiles can be viewed at www.mnpro.com.

January 1, 2000) from the Minnesota Department of Commerce Telecommunications Division.[11] The information is summarized below:

Community	Current Technologies	Data Source
Bemidji	DSL, ISDN, T1, Fiber optics wired building	Community Profile (CP)
Big Stone Lake Area/Ortonville	56K to T1	Community Profile (CP)
Blackduck		No CP available
Brainerd/ Baxter/ Nisswa	Brainerd-Up to DSL; 750 MHZ in Cross Lake, Fifty Lakes, and Nisswa, ISDN in western Crow Wing County	BCIP Tech Questionnaire No CP for Brainerd/Baxter/Nisswa Dept of Commerce Maps
Cambridge	ISDN in all but the northern rim of Isanti County	No CP available
Cuyuna Range	56K, DSL expected by 06/01	BCIP Tech Questionnaire No CP available
Fairmont	ISDN equipped near Granada	No CP available Dept of Commerce Maps
International Falls	56K	BCIP Tech Questionnaire No CP available
Little Falls		No CP available
Luverne	56K and above	BCIP Tech Questionnaire No CP available
Morris		No CP available
North Itasca County	56K	BCIP Tech Questionnaire *16 CPs within Itasca County. Researcher did not know which one(s) were part of the BCIP process*
Sibley County		*7 CPs within Sibley County. Researcher did not know which one(s) were part of the BCIP process*
Thief River Falls	Up to T1	Community Profile
Todd County	56k, limited DSL	BCIP Tech Questionnaire *10 CPs within Todd County. Researcher did not know which one(s) were part of the BCIP process*
Traverse County	ADSL in Brown's Valley	Dept of Commerce Maps *4 CPs within Traverse County. Researcher did not know which one(s) were part of the BCIP process*
Walker	Not listed in profile	Community Profile
Waseca	ISDN	Community Profile
Wilmar	ISDN, T1, Fiber Optics	Community Profile
Winona	56k, 256k, 512k ISDN	BCIP Tech Questionnaire Community Profile

From the information that the project researcher was able to gather, approximately half of the BCIP communities have access to high-speed (ISDN, DSL, or faster) Internet connections. The remaining communities either rely on dial-up service (56k or less) and/or insufficient information was found about their connection speeds.

[11] Copies of these documents are included in Section 3 of the Project Binder.

While information technologies continue to change, as does the state of technology in Minnesota, there are several resources that are useful for staying abreast of statewide technology efforts. They are summarized in the table below:

Resource	Provides	website
Greater Minnesota Technology Trends	A newsletter of Minnesota Technology Inc. that highlights technology initiatives and innovations throughout Greater Minnesota.	www.minnesotatechnology.org/ publications/newsletter/ The January/February 2001 edition of their newsletter is included in Section 2 of the Project Binder.
MN Department of Trade and Economic Development (DTED)	DTED maintains a Rural Investment Guide on its web site that includes information and links on telecommunications and technology for rural Minnesota and lists telecommunications consultants.	www.dted.state.mn.us/02x00f.asp
MN Department of Commerce, Telecommunications Division	Provides maps of telecommunications and cable infrastructure for the state.	www.commerce.state.mn.us/pages/Telecom/TcomPDF/allcablemaps.pdf www.commerce.state.mn.us/pages/Telecom/TcomPDF/alltelcomaps.pdf

FIVE COMMUNICATION TOOLS FOR BCIP

This section explores five technologies BCIP might use to improve and facilitate communications within a particular BCIP community, amongst the BICP communities, and between staff and communities. The technologies reviewed here include web sites, threaded discussions (also called forums), desktop videoconferencing, multi-site videoconferencing and webcasting. For each of these technologies, this report provides a description of the technology, an overview of costs, possible scenarios for using this technology, and next steps for considering implementing this technology.

The first two tools, web sites and threaded discussions, involve sharing information through text (and photos in the case of web sites). They can be successfully used with dial-up connections to the Internet. The final three tools presented here include video components, and can be classified as videoconferencing. According to the online *Videoconferencing Manual* produced by Lews Castle College, "Videoconferencing technology connects two or more sites with a video and audio signal."[12] In some videoconferencing configurations, participants at each site can simultaneously hear and see each other via TV or computer monitors. This type of videoconferencing is a useful medium when discussion or demonstration is important. In other types of videoconferencing, such as webcasting, the video and audio signals only go one way, i.e. a video is broadcast over the Internet much as a news program is broadcast over television waves. Information technologies with a video component require high-speed access to the Internet for adequate performance.

The information presented in this section provides a more comprehensive framework from which BCIP can consider these technologies.

[12] A copy of the manual is available in Section 11 of the Project Binder and at: www.lews.uhi.ac.uk/vcman/s1.htm.

WEB SITES

Definition

A web site is a related collection of World Wide Web (WWW) files that can contain many types of information including text, graphics, photos, tables, sound, and links. A web site includes a beginning file called a home page. From a home page, one can get to all the other pages on a particular site. Web sites have become a means of effective communication for countless organizations and individuals. Web sites are easy to use and a growing number of people are learning how to develop and maintain them.

A Successful Example

This city of Bakersfield, California, developed a web site that contains the entire city code and city ordinances, real estate and tax records, minutes of council meetings, and details of the city budget. Most new records and information is available in both English and Spanish. Citizens can tap into more than 100,000 pages of information—12,300 individual documents—dealing with all functions of the city government. The city scanned documents and transferred them to the city's web site to make the switch over from paper to electronic records. With information now on the web, the city now avoids many time-consuming and costly research chores, copying charges, and postal fees.[13]

Scenarios for BCIP

BCIP communities can use web sites as a way to share information. A community considering the BCIP program may want to know how the BCIP process worked in other communities or what sorts of projects were funded. A community involved in the BCIP process may want to share information from meetings with members who cannot attend. BCIP staff may want to be able to follow what a BCIP community is doing without attending all meetings. In these instances, web sites can be great tools for sharing information.

BCIP communities can use their web sites to communicate amongst themselves and with other BCIP communities by adding useful information to their web sites. As community members assess the issues in their community and select, develop, and implement solutions, they develop a wealth of information that is often captured in documents they have prepared or photos and video they have taken at events. They also gain valuable insights about community building as they progress through the nine steps of the BCIP process.

By converting some of these documents and images to a digital format and placing them on a community web site, and by including information on insights learned, a community can

[13] From the *National League of Cities* newsletter, August 16, 1999.

keep its own members informed and simultaneously provide useful advice and information to new communities who are just beginning the process. Since this information can be accessed from anywhere and at anytime (with a computer and access to the Internet) people can stay connected to the process, even when they are not able to participate in all aspects of it. Furthermore, including this information on a web site provides an easily accessed historical record that can be important in understanding how the community has developed through the process.

Overview of Costs

Costs associated with web sites include storage of world wide web files, and design and maintenance of the web site. The files that are part of a web site have to be stored on a "server" — a computer that can be accessed to "serve up" the files. Any computer can be used as a server if it has the appropriate software and is connected to the Internet. Many organizations, however, use a host company's server because these companies offer services superior to those that can be maintained in-house and they are generally very affordable. The costs associated with housing a web site on another company's server ranges from free to hundreds of dollars per month depending on the number if files that need to be stored. Most web sites can be hosted very inexpensively (i.e. less than $100 per month). Other costs associated with web sites include design and maintenance of the site. These costs also vary enormously, but generally a community web site can be designed and maintained for a reasonable cost.

Recommendations

According to the Minnesota Department of Trade and Economic Development, *Guide to Electronic Commerce Community Readiness*, "The 'bells and whistles' of the Internet continue to change but the axiom that 'content is what counts' could never be more true. Local government web sites need to keep in mind that the aesthetic appearances of a site will not matter to users if there is no valuable and usable information as a foundation." [14] This axiom is true for any type of web site. With this in mind, following is a list of essential content items that could be displayed on a BCIP community web site:

- Vision statement
- Overview or community story
- Stage in BCIP process
- Assessment summaries
- Priorities for action
- Project status reports (posted at least monthly)
- Contact information for committee chairs and/or members
- Calendar of upcoming meetings or events
- Invitation for new volunteers to join in the process

[14] Full text of the *Guide* is in Section 3 of the Project Binder or at http://www.dted.state.mn.us/PDFs/ecomm-gd.pdf).

Using a web site in this way helps communities tell their stories. In addition, like the citizens in Bakersfield, CA, both community volunteers and BCIP staff can save considerable time when conducting research and reduce copying charges and postal fees that would be required if all of this information were sent out by mail. These benefits could occur if even a small-scale effort were undertaken to scan documents, convert documents to PDF format, and place minutes and other pertinent information about the BCIP process on the community and BCIP web sites.

BCIP Communities' Web Sites

Many communities involved in BCIP have one or more web sites to communicate their community's activities and objectives. The table below lists the community web sites that were located during this project and notes which communities have established information sections on their web site to describe the BCIP process and which communities have a link to the main BCIP web site.[15]

Community	Community Web Site	BCIP Link	BCIP Mentioned on Web Site
Bemidji	http://www.bemidji.org	No	
Big Stone Lake Area	http://www.bigstonelake.com http://www.ortonville.net	No No	Ortonville homepage links to extensive information about Blandin/RCAP. www.ortonville.net/blandin_rcap_project.htm
Blackduck	http://www.blackduckmn.com	No	
Brainerd/Baxter/ Nisswa	http://www.explorebrainerdlakes.com http://www.nisswa.com	No No	
Cambridge	http://www.cambridge-chamber.com	No	BCIP meetings were listed in the calendar of events.
Cuyuna Range	http://www.cuyunarange.com	No	
Fairmont	http://www.fairmont.org	No	
International Falls	http://www.intlfalls.org	No	
Little Falls	http://www.littfallsmn.com http://members.dencity.com/lfcp/	No Yes	The second URL links to extensive information about the BCIP process in Little Falls.
Luverne	http://luvernemn.com	No	
Morris	http://www.infolink.morris.mn.us/users/chamber http://www.info-link.net/morrisbcip/macip.html	No Yes	In the Chamber's "community info" section there is a link to Ctr for Small Towns where CUP-Community University Partnership and BCIP are mentioned and the Morris BCIP is well described.
North Itasca County	http://www.co.itasca.mn.us	No	
Sibley County	http://www.co.sibley.mn.us	No	"News and Events" section describes the telecomm/infotech project with BCIP.
Thief River Falls	http://www.ci.thief-river-falls.mn.us	No	
Todd County	http://www.co.todd.mn.us	No	Their "comprehensive plan" describes working with BCIP.
Traverse County	http://www.traversenet.com/City/default		Many pages, photos, etc. describing the BCIP

[15] An alphabetical list of Minnesota Chambers of Commerce, and links to their web sites, can be found at http://www.2chambers.com/minnesot2.htm. A list of Minnesota cities and counties, and links to their web sites, can be found at http://www.state.mn.us/local/.

	.htm		process.
Walker	http://www.leech-lake.com	No	
Waseca	http://www.ic.waseca.mn.us	No	Jan/Feb Newsletter mentioned BCIP award.
Wilmar	http://www.kandiyohi.com	No	
Winona	http://www.cityofwinona-mn.com http://www.winonachamber.com/Home page%20info.htm	No No	

Eight out of twenty or approximately 40% of the BCIP communities have brief or detailed information about their partnership with BCIP on their community web site, or a separate web site dedicated to providing information about the BCIP process. The BCIP web site (http://www.bcip.org) also captures some of this information. The BCIP web site contains three key pieces of information about every community: stage in the process, priority areas, and community contacts. Some of the BCIP community pages also have stories and links.

The BCIP web site should be updated to include links to all communities. This will allow communities to easily access the web sites of other communities. With easy access they will be more likely to explore what other communities are doing and can also see how other communities display information about the BCIP process on their web sites. Ideally, there would be links on both the community sites to BCIP and on the BCIP site to the communities, so that there is a circular, linking relationship that reinforces the partnership and information exchange.

THREADED DISCUSSIONS OR FORUMS

Definition

Threaded discussions[16] are a method for carrying out text-based discussions on the Internet. A user starts a "thread" by posting a message with a header or title that identifies the topic of the message. Anyone who visits the forum at any time can view earlier topics and messages, reply to specific messages, or start new topics of discussion. When other users reply to specific messages, the reply stays connected or "threaded" to the original message. Threads can then be expanded and collapsed to skip through some messages or read the detail of others. Threaded discussions help one follow a discussion over the course of several weeks, months, or even years. Threaded discussions are widely recognized as a useful tool to build online communities.

Example

In college classes, teachers often use forum discussions as a way to engage students in dialogue over certain topic areas. For instance, students in an environmental ethics course could be divided into groups and each assigned a topic, e.g. biotechnology, endangered species, population issues, and environmental justice. The students then have discussions online about their issue. The online discussion provides a means for exchanging ideas and sharing information. Since the comments in a threaded discussion are archived, students from one group can read the other groups discussion to learn about that topic.

Scenarios for BCIP

When BCIP launched its new web site (http://www.bcip.org) in the spring of 2001, one feature that was added to the site was a section for forums/threaded discussions. Since the tool is in place, BCIP could find ways to use it more effectively. Threaded discussions could be used within a particular BCIP community to have a dialogue around an issue of interest or concern. Say, for example, that a community wants to explore ways to increase interactions between older adults and youth. The community could use a threaded discussion as a way to brainstorm ideas, share stories, and build momentum. Because a user can access the conversation at any time, a threaded discussion is a way to include more people in the dialogue than might be able to attend any particular meeting.

BCIP could also have threaded discussions on issues of interest to several BCIP communities. For instance, multiple communities may be interested in building recreational trails in their communities. A threaded discussion could occur among communities that have already begun the process and those just starting the process. The experienced community could

[16] The term threaded discussion and forum refers to the same technology and will be used interchangeably.

share what they know, how they have dealt with issues that have arisen, who has been helpful, etc. This enables communities to learn from each other and be supportive in the process. And because threaded discussions leave a written record of the information shared and lessons learned, this information can be used in the future by communities who become interested in similar endeavors.

Overview of Costs

Implementing threaded discussions requires the use of special software and a server that hosts the discussion. An organization can purchase this software and run it on their own server or they can use one of the many services that host discussion forums. The cost of implementing and maintaining threaded discussions range from free to several thousand dollars, but perfectly good options are available for very low costs. A list of options for forum software or forum hosting services can be found at www.thinkofit.com/webconf/index.htm. Thinkofit.com is a web site that helps organizations find the right tools to build online space for virtual communities.

Recommendations

A key to the success of threaded discussions is getting enough people to use the tool to make the dialogues useful. Because this is a tool that people may not be familiar with, it might require both some instruction on how to use the tool and a compelling reason to do so. One way to get people to use the tool would be for BCIP to have monthly or bi-monthly discussion forums hosted on the BCIP web site. Based on frequently asked questions, BCIP staff might select a topic for the monthly discussion and send an email to all community contacts inviting them to participate in a discussion with all BCIP communities over the course of a 1-2 week period. If BCIP begins to encourage additional use of these communication technologies, the BCIP communities will continue to grow in their technological awareness and skill.

Tips on Web Sites and Threaded Discussions

There is no guarantee that communities will learn from each other or interact with each other just because the communications technology is available. The technology is not an end in and of itself. People must use the technology and they are more likely to do so if they are comfortable with it and if they have a compelling reason to use it.

Web pages and threaded discussion forums are readily accessible to all BCIP communities. Using them will lay the preparatory groundwork for BCIP communities to be ready to use more advanced video communication technologies.

In an article titled, “Community and Computer-Generated Distance Learning Environments,” in the fall 1995 edition of *New Directions in Adult and Continuing Education*,

Dale Cook offers several suggestions for developing community with Internet technologies.[17] One suggestion is to use small group activities, even across distance learning settings where people are spread out across a geographic area. Two communication teams – one from a community well into the BCIP process and another new to the process – could work in a small group to discuss ways to more effectively communicate the status of the BCIP process to their community members. They could do this via email or the threaded discussion section of the BCIP web site.

Learning partners could also be used "as a means of helping inexperienced learners become comfortable with the medium." This medium could be the use of threaded discussions, getting documents into digital format for a web site or any number of technical issues. With BCIP's emphasis on intergenerational connections, and with young people's adeptness at these technologies, linking a young technology expert with an older learner may be an appealing scenario. Again, members from within or between communities could use the threaded discussion section to share information and promote learning about and comfort with new technologies.

[17] A copy of the article is in Section 3 of the Project Binder.

DESKTOP VIDEOCONFERENCING

Definition

Desktop videoconferencing is essentially establishing a connection between computers so that virtual meetings can occur. Using a desktop computer, webcam (i.e. a small video camera mounted on top of a computer monitor), computer microphone, the Internet, and appropriate software, individuals can see and talk to each other while sitting at remote computer stations. The video portion of this technology provides for more interactive participation than can occur through a conference call.

Example

Desktop videoconferencing is being used to provide follow up care to burn patients in Minnesota, Iowa, Wisconsin, North and South Dakota, and Montana. Using a "take home" computer system that runs over a normal residential phone line, burn patients are able to go home sooner because physicians can consult with them on a routine basis and can "see" how they are progressing.[18]

Scenarios for BCIP

One use of desktop videoconferencing is to connect a few people (two to four) together at separate computers to conduct an online meeting. BCIP could conduct meetings between BCIP field staff and BCIP staff located in Grand Rapids using this technology. In this scenario, each individual would sit at their own computer station and join the meeting through their computer. In a videoconference between two people, the individuals would see and hear each other on their computer screens. With more than two people, each computer screen would have multiple windows open, one for each person participating.

Another way desktop videoconferencing can be used is to connect one or two individuals in a remote location to a group of individuals. For example, an individual in a remote location could sit in front of a computer that has been equipped for desktop videoconferencing and give a presentation to a group of people in a different location. The group at the second location would see and hear the lecture through a computer at their location. If the group at the second location was large, a projector could cast the image on the computer monitor to a bigger screen so that the group could see the individual. In this situation, there would also be a connection from the group to the individual, but because of the size of the webcam, the individual would likely only be able to see part of the group – or see them from a distance.

Overview of Costs

[18] For more information see: http://www.regionshospital.com/Regions/Menu/0,1592,4825,00.html and http://www.mainserver.state.mn.us/intertech/vc_aug98.pdf.

Desktop videoconferencing systems can range in price from $100 to several thousand dollars depending on the type of software or services used and the features desired. Getting started using desktop videoconferencing systems can be as simple as purchasing an Internet camera or webcam ($40-300) and downloading free videoconferencing software. However, this simple solution is only simple if the user has a fairly new multimedia computer that has a lot of memory. Newer computers (i.e. manufactured in 2000 or later) generally have built-in sound and video cards. On older systems, these cards would have to be purchased and installed. Additionally, videoconferencing from desktop to desktop computer will only work well with a high-speed Internet connection, i.e. 128 K minimum.

With a good multi-media computer and a fast Internet connection, an upfront investment of approximately $500 per computer will get a computer ready for most desktop videoconferencing scenarios. This figure will cover the cost of Internet camera (webcam), headset (to reduce feedback), and videoconferencing software. Sound or video cards and operating system software upgrades, if the user has an older model computer, would cost extra. Recurring monthly costs (per user) might range from $30-$100 for a high-speed Internet connection – if such a connection is available in the area.

More Technical Details

Reasonably priced, quality videoconferencing products and software are available that are compatible with both PC and Macintosh computers. It is important to invest in good products to ensure higher quality video transmission. Headsets are optional. While they can add to the cost of getting started by $50-$300 per computer, they increase the quality of voice transmissions. For a cost of nearly $1,000, companies such as Polycom (www.polycom.com) offer hardware-based personal videoconferencing devices for personal desktop systems.

To conduct desktop videoconferencing, users do not need to have identical computers, however, it is wise to select one videoconferencing software package that is compatible with both PC and Macintosh computers. All of the Macintosh users should get the same camera and headset, and all of the PC users should get the same camera and headset. This will help reduce nuisance problems with equipment and software compatibility. In lieu of videoconferencing software, there are also pay-per-use videoconferencing services that work much like a teleconference. Whereas in a teleconference an individual calls into a single phone number and is placed in the conference call by an administrator, with videoconferencing services an individual goes to a specific URL, types in the password for the videoconference, and can then

enter the online conference room.[19] While these services eliminate the need for software, users' computers must still be equipped with video and sound cards, a webcam, and a microphone.

If BCIP decides to use desktop videoconferencing software, the project researcher's first choice for software, based on independent reviews and product information available, is iVisit.[20] This software is free and can be used for multi-party videoconferencing and voice and text chat over intranets and the Internet. iVisit supports color video, allows multiple connections, and has a "no-risk installation and setup," according to the manufacturer. It also has a built-in directory service that helps users find each other. Ivisit requires a webcam and sound card and works with Windows 95, Windows NT, and Macintosh systems. The product materials state, "iVisit is simple to use, making it easy to connect to and chat face-to-face over the Internet with co-workers, friends, and family." iVisit users can become members of multiple communities, where they can create their own password-protected "rooms" and invite others to join and participate.[21]

In order to implement the iVisit desktop solution, BCIP will need to do a more comprehensive technical survey to determine what systems and software are on the computers of the people who would use desktop videoconferencing, such as field staff members or coordinating committee members located in BCIP communities around the state.[22] Once the inventory is completed, the iVisit web site would need to be examined to determine if the iVisit software will work with existing desktop systems, and if not, to identify what additional equipment or software would need to be installed on these machines to make them ready to use iVisit. Again, iVisit is just one of a number of software products and desktop videoconferencing services that can be used, and the specific computer configurations of the machines to be conferenced might suggest that another option is a better match. Information on other products is available in Section 9 of the Project Binder.[23]

[19] Section 9 contains a list, a brief description, and some web pages of videoconferencing products that were examined for this project. Some of the products were for state of the art systems; some geared toward home desktop users, and others were pay-per-use videoconferencing services.
[20] None of the software products available were tested firsthand and therefore the performance of different products could not be evaluated by the project researcher.
[21] Further documentation on the product can be found in Section 10 of the Project Binders.
[22] It was hoped that the project researcher could do this assessment, however, she did not possess the specific technical expertise for conducting a hardware/software inventory. A technical consultant or staff person could conduct such an assessment.
[23] Additional information about the general topic of desktop videoconferencing is located in Section 5 of the Project Binder.

MULTI-SITE VIDEOCONFERENCING

Definition

Multi-site videoconferencing is a technology where multiple sites have audio and video connections to either a central videoconference or to each other. In multi-site videoconferencing, two or more sites are connected together and TV monitors at each site show the view from the other sites' selected cameras. In this type of videoconferencing, the monitor could show the image of the speaker, audience, graphics on a document camera, computer graphics or a video clip (depending on what peripheral equipment is available). When three or more sites are connected, the monitor is usually divided into four quadrants (or windows) and in each quadrant one of the distant sites is shown. The participants all appear smaller than when shown full screen, but this option allows participants to see everyone involved. Multi-site videoconferencing requires specially equipped rooms.

Example

Students at Southwest State University (SSU) can now get a degree in agronomy through a program that links SSU and the University of Minnesota via videoconferencing (or ITV). Students in the program have access to the institutional resources of both the U of M and SSU. Students regularly interact with University of Minnesota teaching, research, and extension faculty through videoconferencing, as well as through on-campus lectures and seminars.

In a second example, a South Carolina company demonstrated packaging equipment to another division of their company in South Africa. Rather than spending $20,000-25,000 for transporting equipment and a team of employees to Johannesburg, they conducted their demonstration via Internet. They reserved a videoconferencing room in Johannesburg and demonstrated the equipment remotely. The total cost of their remote demonstration and training was $2,400.

Overview of Costs

State of the art videoconferencing systems are generally implemented in conference room or educational settings and are used to connect multiple sites to each other or to a single videoconference. The cost for these systems ranges from $5,000 to 50,000 for boardroom or classroom-based systems that have multiple cameras and microphones. Since there are networks of established videoconferencing sites across Minnesota, an affordable alternative to implementing one's own system is to rent the use of these existing facilities.

Installing a Room-Based Videoconferencing System

An initial focus of this report was to explore equipping the Blandin Foundation's boardroom with a videoconferencing system that could be used to deliver trainings or conduct meetings with a larger audience via the Internet. As this option was explored, it became clear that installing a videoconferencing system was a very expensive endeavor. In addition to purchasing tens of thousands of dollars of equipment, running such a system requires a dedicated ISDN or T1 line which involves an upfront cost of installing such a line and then monthly charges associated with such lines.

If the Blandin Foundation decides to invest in a state of the art videoconferencing system, it should consult with Intertech. Intertech is a division of the State of Minnesota Department of Administration. Intertech provides videoconferencing services and facilities to state and local government agencies and therefore has extensively tested a number of room-based video systems. Intertech recommends installing video systems that are compatible with the other major videoconferencing systems in the state (i.e., higher education systems, K-12/library systems). Choosing compatible systems will increase the number of sites one can link to for multi-site videoconferencing. Intertech currently recommends three vendors: PictureTel, Tandberg, and Polycom. Systems from these vendors cost from $4,000 to $30,000.[24] In addition to Intertech, another resource for information on videoconferencing systems is the Minnesota Education Telecommunications Council (METC). More information on METC is provided later in this section.

Renting Existing Videoconferencing Facilities

Since the cost for the Blandin Foundation to equip its own facility is cost prohibitive, and since several videoconferencing networks are already established in the state, the option of renting these facilities is explored here.[25]

Videoconferencing sites are located all over Minnesota in higher education institutions, K-12 institutions, libraries, and at state agencies. The Minnesota Higher Education Services Office (MHESO) administers the Minnesota Education Telecommunications Council (METC), "a statewide body responsible for the Learning Network of Minnesota." The Network connects all public campuses via two-way interactive video in order to increase the availability of educational degrees and programs throughout the state. This Network represents 73 videoconferencing sites across the state.[26] While educational offerings and courses have first

[24] More detailed information is available at http://www.mainserver.state.mn.us/intertech/video_news.html.
[25] According to a June 26, 2001 email from Deb Stockey, the Computer Administrator for the Blandin Foundation, high-speed access is currently limited in the Grand Rapids area and would require an additional investment of approximately $1,000 per month for a dedicated ISDN or T1 connection. Due to these prohibitive costs, the project researcher was asked to explore other options, such as whether there were existing videoconferencing facilities in the Grand Rapids area that BCIP could rent.
[26] In addition to the work they do to make interactive video available throughout the state, the METC also uses the technology for their regular meetings—allowing regional coordinators to attend meetings without the expense or time of travel.

priority for scheduling at these sites, the sites can be rented by organizations outside of the Network. With early planning, it should be relatively easy to reserve these facilities for videoconferences.

METC has six higher education regional coordinators and nine K-12/library coordinators. Each of these coordinators is responsible for regions or subsets of the Network.[27] The six higher education networks are listed in the following table.

CMDLN	Central Minnesota Distance Learning Network http://www.cmdln.stcloudstate.edu/
COMET	Southeastern MN http://www.cmdln.stcloudstate.edu/itv/regional/comet.htm
METNET	Metropolitan Educational Telecommunications Network http://www.metnet.edu/
NEAT	Northeast Alliance for Telecommunications http://www.neat.nu/
NETS	Northwest Educational Technology System http://www.crk.umn.edu/nets/homenets.htm
SHOT	Southwest/West Central Higher Education Organization for Telecommunications http://www.southwest.msus.edu/shot/shot.htm

Appendix B provides a list of all of the METC higher education sites and contact information for these sites. To use these sites, one can simply contact the coordinator at the desired "primary" location of the videoconference, fill out a request to reserve a room, and then the coordinator at that site will assist in reserving rooms at the other locations throughout the state which will participate in the videoconference. The cost for renting the facilities is approximately $25 to $50 dollars per hour—plus some incidental fees for set-up, etc. The videoconference facility staff handle technical issues—making the process of using these facilities almost as seamless as any conference room meeting.[28]

Scenario for BCIP

BCIP could use these existing videoconferencing facilities to conduct meetings remotely. For example, Blandin staff and representatives from the Waseca BCIP community could meet

[27] Emily Kissane, a staff member to the METC, was a wonderful resource for information and she also suggested that the higher education regional coordinators would be very helpful. More information about the METC, and contact information for Ms. Kissane and the regional coordinators is included in Section 6 or the Project Binders.

[28] It was hoped that the project researcher could help pilot a videoconference, however the process of finding the information about the public videoconferencing facilities took considerably longer than was anticipated.

via videoconference. This would provide an opportunity for the community to report on their activities and have an interactive dialogue with Blandin staff.

To orchestrate this videoconference, BCIP staff would locate an METC site in Grand Rapids by referring to the list in Appendix B. (Itasca Community College is an METC site.) BCIP staff would then contact the coordinator for that site to find a date when the facilities in Grand Rapids and Waseca would be available. The site coordinator would assist BCIP staff in scheduling the rooms. On the date of the meeting, Blandin staff would meet at the Grand Rapids site, and representatives from the Waseca community would meet at the Waseca site. Technical staff at these sites would handle linking the two sites by videoconference.

More Details

In addition to the METC higher education sites, there are also K-12/library sites as part of the METC network. All of these sites were not located as part of this project, but web page printouts for one of the nine K-12/library regions known as NWLINKS are available in Section 6 of the Project Binder. Furthermore, there are videoconferencing sites across the state affiliated with Intertech. While these facilities and services are only available to state and local government agencies, if BCIP events were hosted by or co-sponsored with one of these agencies (e.g. a city, county, or Chamber of Commerce) it may be possible to rent and access these facilities as well.

Tips for Videoconferencing

As videoconferencing will be a new technology to many, it is important to remember that participants will need some time to become familiar and comfortable with this new way of communicating. Some people will initially feel uncomfortable in an environment mediated by cameras and microphones. The videoconferencing literature suggests that participants are more comfortable in these situations if the basic operation of the equipment is explained to them, and if they have a chance to familiarize themselves with the equipment. As with any new technology, the more experience people have with it, the more comfortable they will be with using it.[29]

[29] Lews Castle College *Videoconferencing Manual*. See footnote 12.

WEBCASTING

Definition

Webcasting refers to the streaming of audio and video over the Internet. Streaming technology lets an audio or video clip begin playing within a few seconds after a user chooses to download the file, rather than making them wait for the whole file to download. This provides users with a seamless audio or video transmission as long as they have high-speed connections. Another way to think of webcasting is that it is basically broadcasting a video (either live or archived) over the Internet.

Examples

Any event that can be videotaped can be webcast. Webcasting has been used by the Union Bank of California to present an investing seminar to their customers; by the First Church of Christ Scientist to transmit their annual meeting in Boston in multiple languages to a worldwide audience, and by the National Association of Broadcasters to stream all of the meetings, lectures, luncheons, and seminars at their 2001 annual convention in Las Vegas to broadcasters around the world.

Scenarios for BCIP

BCIP may want to hold an event and have a lot of people participate, but they may want to minimize travel costs or have a backup plan for bad weather, a common occurrence in Minnesota. A good example is the annual meeting. BCIP's second annual meeting included workshops, networking, and a "Land of Oz" awards ceremony. Using a webcasting vendor, the awards ceremony at the next BCIP annual meeting could be webcast live and/or recorded in streaming media so that community members who were unable to attend due to scheduling or weather issues could also share in the festivities. BCIP could also record the workshops at the annul meeting using streaming media and this video could be archived on the BCIP web site so that people who did not attend in person could view the workshops at their own leisure.

Overview of Costs

Webcasting requires capturing video, converting it to a digital format, possibly editing that video, and then broadcasting it over the web. The content that is webcast can be developed using several different methods. A technically adept individual can outfit a desktop computer to capture video, place it on their computer hard drive, convert it to an editable digital format, and then add and edit text, effects, and transitions. This type of dedicated, in-house digital video creation can be costly. A fully equipped computer system that can create digital video ranges from $5,000 to $15,000. The cost of a dedicated staff person to take the video and manage the editing and webcasting process costs a significant amount more.

There are other options for producing video in order to webcast events and these options may be more reasonably priced, especially if one is only interested in webcasting and archiving a small number of events. Numerous companies provide services to produce, videotape, webcast live events, archive, and host streaming media content. Using any combination of Internet search engines and entering the keyword "webcasting" will yield a variety of companies from which BCIP could comparison shop for a vendor to meet any future webcasting needs. In addition, Bill Angelos from Little Falls, who has worked with BCIP for several years and served as a technical mentor to the project researcher, is knowledgeable about video communication and has equipment to produce a variety of video communication technologies. He may be able to identify reputable Minnesota webcasting or video technology vendors or provide services himself.

Pilot Project

The project researcher attempted to conduct a pilot project for webcasting a BCIP event. The event selected was the "Funding Resources to Promote Rural Entrepreneurship" where BCIP community representatives met with representatives from funding agencies to discuss opportunities. It was thought that the information from this meeting could be useful to other people in BCIP communities. The plan was to have the meeting, or highlights from it, archived on the BCIP web site.

The meeting was held on May 2, 2001 in Little Falls, Minnesota, and 22 people attended.[30] A Hi-8 video camera was used to tape the meeting and efforts were made to convert the contents from the Hi-8 tapes to a digital format. However, the project researcher's home computer did not have appropriate software or hardware to do this more technical work and BCIP was not ready to invest in several hundred dollars worth of equipment for a pilot project.

The project researcher recently found an inexpensive way to convert the Hi-8 or VHS tapes to a digital format and have them placed on a CD. A company called YesVideo (http://www.yesvideo.com) will transfer tapes onto CD or DVD for approximately $50 per two hours of tape. An individual drops the video at a Target or Walgreen's location (several are near Grand Rapids in Brainerd and Duluth) and picks up the DVD/CD's in about 2 weeks.[31]

[30] A seating chart, materials that were distributed at the meeting, and two Hi-8 tapes, (and one VHS copy of the Hi-8 tapes) are included in Section 7 of the Project Binders.
[31] More information about YesVideo is included in Section 7 of the Project Binders.

Issues

Despite the many opportunities that exist for using emerging technologies, the concern about bandwidth in the BCIP communities remains an issue. In addition, in order to display some types of streaming media on the BCIP web site, it might be necessary for BCIP to host their web site on a server from which that video content can be streamed. Archives of streaming video and audio content take up a considerable amount of storage space, which could increase the costs for BCIP to host their web site.

BCIP's use of webcasting is likely to be limited by bandwidth concerns. However, it is worth further exploration to identify ways in which BCIP could begin to utilize the technology, help communities become familiar with it, and begin developing compelling streaming content that will get dial-up users interested in upgrading to high-speed connections as these connections become available in their communities.

Further Resources

Information technologies are always changing, so keeping up with what is current is challenging. The following resources and websites are currently good resources for keeping track of what is occurring in the industry.

Resource	Provides	website
Video Conferencing Cookbook	A 94 page document which provides detailed information on video-conferencing	www.vide.gatech.edu/cookbook2.0/ (A full copy of this resource is included in Section 11 of the BCIP project binder.)
Network World Fusion	A website that provides extensive information on video technologies	www.nwfusion.com
International Webcasting Association	A website that provides extensive information about webcasting	www.webcasters.org

Recommendations

Web sites – opportunity is for communities to get in the habit of using the web site as a means of sharing information generated throughout the process – and in turn, getting community members to rely on the site as a way to keep up to date, to learn what is going on, etc. Value of this is internal communication within a community, and an archive of key information that new communities can explore to help them navigate through the process, learn from others experience. Better communication. Information is located in a central location and easily accessible anywhere, anytime, and some cost savings in terms of decreasing copying and mailing costs.

Threaded discussions – Threaded discussions are a fantastic tool for fostering dialogue within or among communities. The technology is easy to use and because it can be accessed at anytime and anywhere it enables a larger group of people to be involved in the dialogue. An initial barrier is getting people comfortable with the technology. Group or one-on one tutorial sessions would be useful to get people familiar with it. Furthermore, getting people engaged in the discussion is key. Having some planned discussions with a focus and over a short period of time, and then having staff or community members encourage people to join, would be a way to test the usefulness of the technology and get them familiar with using it.

Issues with all of these. Building comfort level of those using it. Realizing that people have different means of communicating. While some people may open up in a written dialogue over the internet, others might be much more comfortable speaking out in a group meeting.

APPENDIX A

GLOSSARY

Glossary	
All definitions are from the following sources: http://www.videoguys.com/glossary.htm http://www.videoguys.com/handbook.html http://www.vide.gatech.edu/cookbook2.0/printit.html http://www.nwfusion.com/reviews/0921bg.html http://www.videoconference.com/glossary.htm http://www.dted.state.mn.us/PDF's/ecomm-gd.pdf http://www.dslreports.com/faq http://www.whatis.com	
ATM	Asynchronous Transfer Mode. High speed (up to 155 Mbps), high bandwidth, low-delay, transport technology, integrating multiple data types (voice, video, and data). May be used in the phone and computer networks of the future.
Audio	In video communications, electrical signals that carry sounds. The term is also used to describe systems concerned with sound with recording and transmission; speech pickup systems, transmission links that carry sounds, amplifiers and the like.
Bandwidth	In casual use, the amount of information that can be transmitted in an information channel. High bandwidth Internet access means that web graphics load quickly on Netscape Navigator. High bandwidth videoconferencing means that the picture and sound will be clear. In computers, the speed at which data can be transmitted on a communications frequency. In telecommunications, the maximum frequency (spectrum) measured in Hertz or cycles per second, between the two limiting frequencies of a channel. A measure of spectrum (frequency) use or capacity. For instance, a voice transmission by telephone requires a bandwidth of about 3000 cycles per second (3KHz). A TV channel occupies a bandwidth of 6 million cycles per second (6 MHz) in terrestrial Systems. In videoconference based systems a larger bandwidth of 17.5 to 72 MHz is used to spread or "dither" the television signal in order to prevent interference.
Bit Rate	The speed of a communication channel, usually when referring to modems. Most new modems follow the V.90 standard, which has a bit rate of 56kbps (56,000 bits per second, bits/sec). The average video call requires about 700K bit/sec to run at acceptable levels.
bps	Bits per second, a unit of measurement of the speed of data transmission and thus of bandwidth.
Broadband	The term applied to networks having bandwidths significantly greater than that found in telephone networks. Broadband systems are capable of carrying a large number of moving images or a vast quantity of data simultaneously. Broadband techniques usually depend on coaxial or optical cable for transmissions. They utilize multiplexing to permit the simultaneous operation of multiple channels or services on a single cable.
Byte	A group of eight bits; usually the smallest addressable unit of information in a data memory storage unit.
CODEC	COmpression/DECompression. The algorithm used to capture the moving video onto your hard drive.

Compression	The process of reducing the information content of a signal so that it occupies less space on a transmission channel or storage device and a fundamental concept of video communications. An uncompressed NTSC signal requires about 90 Mbps of throughput, greatly exceeding the speed of all but the fastest and shortest of today's networks. Squeezing the video information can be accomplished by reducing the quality (sending fewer frames in a second or displaying the information in a smaller window) or by eliminating redundancy.
Data compression	Reducing the size of a data file by reducing unnecessary information, such as blanks and repeating or redundant characters or patterns.
Desk Top Video (DTV)	Use of a desktop computer for video production.
Dial-up Internet Access	Obtaining connectivity to the Internet by using a modem and standard telephone line to connect to an Internet Service Provider or other provider of Internet service.
Digital	Conversion of information into bits of data for transmission through wire, fiber optic cable, videoconference, or over air techniques. Method allows simultaneous transmission of voice, data or video.
Domain Names	The unique names that give each Internet site its own address or identity. For example, www.dted.state.mn.us
DSL (Digital Subscriber Line) ADSL xDSL	DSL is an *always-on* internet connection that ends in a socket on your wall that looks much like a phone socket. At least in the US, the socket is exactly a phone socket, and, for the popular residential DSL, (ADSL), the same house wiring does indeed carry phone and data! DSL is billed per month, usually for a fixed price, and for the majority of providers, for unlimited usage. In other words, whether you use it for email once a day, or you are a net addict and use it constantly, your bill is always the same. The key advantage of DSL over modem is speed. DSL is from several to dozens of times faster than a modem connection. A complex web page that could take up to a minute to finish loading can appear in just seconds over DSL. Connection speed, reliability, and the 'always-on' nature of DSL, are the main reasons it is so popular. For small businesses, DSL is also a great way to save money compared to pay per minute ISDN service, or expensive T1 lines. xDSL: Digital subscriber lines (including ADSL, asymmetric digital subscriber lines, and other related technologies.)
Electronic Commerce	All commercial and non-commercial activities facilitated through the use of information technology and network technologies, such as the Internet, intranets and extranets.
Ethernet	A LAN running on coaxial or twisted pair wiring, at 1 or 10 Mbps.
Fast ethernet	A way to run ethernet at 100Mbps on one or two pairs of standard, unshielded telephone copper wire.
Full-motion video	Video reproduction at 30 frames per second (fps) for NTSC signals or 25 fps for PAL signals. Also known as continuous-motion video. In the videoconferencing world, the term "full-motion video" is often used, and often misunderstood. Videoconferencing systems cannot provide 30 fps for all resolutions at all times nor is that rate always needed for a high-quality, satisfying video image. Picture quality must sometimes be sacrificed to achieve interactive visual communication across the telephone network economically. Videoconferencing vendors often use "full-motion video" to refer to any system that isn't still-frame. Most videoconferencing systems today run 10 to 15 frames per second at 112 Kbps.

Internet	The network of public computer networks using a common operating protocol.
ISDN - Integrated Services Digital Network.	A service available from the phone company in many areas that allows for higher data transmission speeds and is capable of handling at least two services over one line at the same time (i.e., voice and fax or voice and data). A set of protocol and interface standards that effectively constitute an integrated (voice, video, and data) telephone "network." These standards promote global availability and compatibility of ISDN products and services.
ISP	Internet Service Provider. A company or organization that provides a user with a connection to the Internet. This could include a local telecommunications provider or a cable company.
JPEG	ISO Joint Picture Expert Group standard for the compression of still pictures.
Kbps	Kilobits per second. Refers to transmission speed of 1,000 bits per second. 1 Kbps equals 1,000 bits per second. The technological standard is presently (1999) 256 Kbps for residential service and 512 Kbps for business.
LAN	Local Area Network, a computer network linking workstations, file servers, printers, and other devices within a local area, such as an office. LANs allow the sharing of resources and the exchange of both video and data.
Linear (Assembly) Editing	Copying wanted footage from one videotape to another, in any order, end to end, for a finished product.
Mbps	Mega bits per second. A measurement of the rate of speed that data is being transferred. 1 Mbps equals 1 million bits per second.
Megahertz (MHz)	Refers to a frequency equal to one million Hertz, or cycles per second.
Microsoft Windows Media http://www.microsoft.com	According to the Microsoft, Microsoft Windows Media is the leading digital media platform, providing unmatched audio and video quality to consumers, content providers, solution providers, software developers and corporations. Windows Media offers the industry's only integrated rights-management solution and the most scalable and reliable streaming technology tested by independent labs. Windows Media Technologies includes Windows Media Player for consumers, Windows Media Services for servers, Windows Media Tools for content creation, and the Windows Media Software Development Kit (SDK) for software developers. Windows Media Player, available in 26 languages, is the fastest-growing media player.
MPEG	Moving Picture Experts Group. MPEG has established standards for compression and storage of motion video.
Multipoint	Communication configuration in which several terminals or stations are connected. Compare to point-to-point, where communication is between two stations only.
Multipoint Control Unit	(MCU) A device that bridges together multiple inputs so that more than three parties can participate in a videoconference. The MCU uses fast switching techniques to patch the presenters or speaker's input to the output ports representing the other participants.
Non Linear Editing (NLE)	Video is digitized and stored on your hard drive using video compression technology. You can then access any part of the video and edit the footage just like re-arranging paragraphs in a word processing program.
Network	A group of stations (computers, telephones, or other devices) connected by communications facilities for exchanging information. Connection can be permanent, via cable, or temporary, through telephone or other communications links. The transmission medium can be physical (copper, wire, fiber optic cable, etc.) or wireless, for example via satellite.

Networked Technologies	Technological devices, such as computers, set-top boxes, phones, and faxes that are interconnected via networks, wired and wireless, so that the devices can communicate with one another.
PDF (Portable Document Format)	PDF is a file format that has captured all the elements of a printed document as an electronic image that can be viewed, navigated, printed, or forwarded to someone else. PDF files are created using Adobe Acrobat, Acrobat Capture, or similar products. To view and use the files requires a copy of the free Acrobat Reader, which can be easily downloaded.
Private or leased lines	A dedicated transmission channel between any two points in the network, typically charged to the user based upon bandwidth and distance.
QuickTime http://www.apple.com	QuickTime, Apple's industry-leading multimedia software for both Macintosh and Windows platforms, features streaming of live and stored audio and video over the Internet, seamless ad insertion and support of synchronized multimedia integration language (SMIL). QuickTime is also the first Internet streaming solution to use non-proprietary industry-standard RTP and RTSP protocols. QuickTime is the only digital media architecture that allows content providers to create, edit and distribute audio and video in a single format.
Real-Time	The processing of information that returns a result so rapidly that the interaction appears to be instantaneous. Telephone calls and videoconferencing are examples of real-time applications. These kinds of real-time information not only need to be processed almost instantaneously, but it also needs to arrive in the exact order it's sent. A delay between parts of a word, or the transmission of video frames out of sequence, makes the communication unintelligible. The telephone network is designed for real-time communication.
RealVideo http://www.real.com	RealNetworks is a leading provider of media delivery and digital distribution solutions designed for the Internet. Its solutions enable consumers to experience and content providers to deliver a broad range of multimedia content, including audio, video, text and animation. It pioneered the development and commercialization of "streaming media" systems that enable the creation, real-time delivery and playback of multimedia content. There are more than 60 million registered users of its RealPlayer product and it has recently released RealJukebox, a digital music management system for personal computers.
Streaming Media	Sending video or audio over a network as needed, such as Real Audio/Video or Microsoft NetShow, instead of forcing the user to download the entire file before viewing it. Typically a few seconds of data is sent ahead and buffered in case of network transmission delays. (Although some data is buffered to the hard drive, it is written to temporary storage and is gone once viewing is complete.)
Streaming Video	New technologies used to send video information over the Internet. Rather than wait for the whole file to download, the video streaming technology lets the clip begin playing after only a few seconds. The key to streaming video over the web is bandwidth. If your users do not have ISDN lines or faster, then streaming video to them is a low-resolution novelty that will not impress anybody. Video can be streamed to a 56k modem but image size is small, image quality is poor, and video is jerky.

Switched or dial-up access	The transmission channel is established by “dialing up” the remote computer (Internet) and, once connection is established, transmitting via the modem. The phrase also is used to mean that Internet access requires that data transit though the central switching facilities in a local telephone company’s wireline network.
T1	The transmission bit rate of 1.544 millions bits per second. This is also equivalent to the ISDN Primary Rate Interface for the U.S. The European T1 or E1 transmission rate is 2.048 million bits per second.
T3 Channel (DS-3)	In North America, a digital channel which communicates at 45.304 Mbps.
Telecommuting	Using networked technologies to perform work-related activities away from the office or business using information and communications technologies.
Teleconferencing	Two or more people who are geographically distant having a meeting of some sort across a telecommunications link. Includes audio conferencing, video conferencing, and or data conferencing.
Video Capture Card (Dazzle, Pinnacle, ADS Pyro: price range $100-$250)	Video capture cards let you record video onto your computer’s hard drive. These cards use hardware and/or software compression (CODEC) to digitize the video onto your hard drive. You can then edit the video and play it back to tape or display the finished movie on your computer screen.
Video Compression (M-JPEG / MPEG / MPEG2)	Both these standards use special hardware and software to store video directly on your hard drive. Video compression is done in various ratios (e.g. 10:1, 5:1). The higher the ratio, the more video can be stored per meg, and conversely, the lower the compression the higher the video quality. See CODEC.
Voice-grade	The capacity of regular copper telephone lines.
WAN	Wide Area Network. A communications network that services a geographic area larger than that served by a local area network or metropolitan area network. WANs include commercial or educational dial-up networks such as CompuServe, InterNet and BITNET.
Whiteboarding	A term used to describe the placement of shared documents on an on-screen "shared notebook" or "whiteboard." Desktop videoconferencing software includes "snapshot" tools that enable you to capture entire windows or portions of windows and place them on the whiteboard. You can also use familiar Windows operations (cut and paste) to put snapshots on the whiteboard. You work with familiar tools to mark up the electronic whiteboard much like you do with a traditional wall mounted board.
Wireless	Transmission via radio waves or satellite. Wireless transmission is likely to be used in many computer networks of the future.

APPENDIX B

REVIEW OF WEBCONFERENCING PRODUCTS

As I searched for Webconferencing solutions, I found the following website that is devoted to providing information about companies with Webconferencing products. There were 33 products listed. http://www.webconference.org/products_results.asp

I read the brief descriptions that were provided, found those with a focus that included video, chose to examine the following 8 products / companies. My goals were to (1) find a product (software) that BCIP could purchase and install on their staff computers that would allow interactive Webconferencing, (2) find a service that BCIP could purchase (through annual or per/use user fees) that would allow interactive Webconferencing through a web browser and would not require that any software be installed on computers, (3) find a product or service that would allow BCIP to Webcast major events such as trainings through a web browser.

APPENDIX B

METC HIGHER EDUCATION VIDEOCONFERENCING SITES

SORTED BY LOCATION

Town	Network	Site Name	Contact Name	Contact Number	Contact Email
Albert Lea	COMET	Albert Lea Campus- Riverland Community College	Jim Schneider	507-379-3345	Jschneid@river.cc.mn.us
Alexandria	CMDLN	Alexandria Technical College	Sheree Cochran	320-762-4696	shereec@alx.tec.mn.us
Anoka	METNET	Anoka- Hennepin Technical College	Bruce Anderson	763-576-4816	banderson@ank.tec.mn.us
Austin	COMET	Austin Campus- Riverland Community College	Gregg Gaffney	507-433-0678	ggaffney@wolf.co.net
Bemidji	NEAT	Bemidji State University	Leo Morgan	218-755-2759	rgrouse@bemidjistate.edu
Bemidji	NETS	Bemidji State University	Leo Morgan	755-2759	
Bemidji	NETS	Bemidji Technical College	Shelia Lapp, Ann Campbell	755-4270	
Bloomington	METNET	Normandale Community College	Karen Ross	952-487-8176	k.ross@nr.cc.mn.us
Brainerd	CMDLN	Central Lakes College/ Brainerd Campus	Kelly McCalla	218-855-8212	kmccalla@gwmail.clc.mnscu.edu
Brooklyn Park	METNET	Hennepin Technical College- Brooklyn Park	Greg Pedersen	952-550-2176	greg.pedersen@htc.mnscu.edu
Brooklyn Park	METNET	North Hennepin Community College	Jane Wilson	763-424-0740	jwilson@nh.cc.mn.us
Cambridge	METNET	Anoka-Ramsey Community College- Cambridge Campus	Doug Allen	763-689-7024	allendo@cc.cc.mn.us
Canby	SHOT	Minnesota West Community and Technical College- Canby Campus	Nadine Sorby	507-223-7252, ext. 138	
Chisholm	NEAT	NHED	Linda Danielson	218-254-7977	linda.danielson@ironworld.com
Cloquet	NEAT	Fond du Lac Tribal and Community College	Loran Wappes	218-879-0839	loran@ezigaa.fdl.cc.mn.us
Coon Rapids	METNET	Anoka Ramsey Community College- Coon Rapids Campus	Dave Hellmich	612-422-3326	hellmida@an.cc.mn.us
Crookston	NETS	University of Minnesota, Crookston	Jeff Sinks, Mike Hanson	281-8405, 281-8406	
Detroit Lakes	NETS	Detroit Lakes Technical College	Karen Merry	846-7472	
Duluth	NEAT	College of St. Scholastica	John Schottenbauer	218-723-6027	jschotte@css.edu
Duluth	NEAT	Lake Superior College	Bill Berg	218-733-5946	b.berg@lsc.mnscu.edu

Duluth	NEAT	University of Minnesota-Duluth	Jay Opela	218-726-8844	jopela@d.umn.edu
Duluth	NEAT	CED Duluth (UMD)	Aaron Slotness	218-726-7298	aslotnes@umdced.com
East Grand Forks	NETS	East Grand Forks Technical College	Milt Kinzler, Geri Hodge	773-3441 ext 526	
Eden Prairie	METNET	Hennepin Technical College- Eden Prairie	Greg Pedersen	952-550-2176	greg.pedersen@htc.mnscu.edu
Ely	NEAT	Vermilion Community College	Karen Maddern	218-365-7268	k.maddern@mail.vcc.mnscu.edu
Eveleth	NEAT	Mesabi Range College Eveleth	Ray Bennick	218-744-7464	r.bennick@mail.mr.mnscu.edu
Fairmont	COMET	Fairmont High School	Doug Bancks	507-238-4411, ext 219	Dbancks@fairmont.k12.mn.us
Faribault	COMET	Faribault Campus- South Central Technical College	Ala Garlinska	507-332-5883	GarlinsA@sctc.mnscu.edu
Fergus Falls	NETS	Fergus Falls Community College	Larry Haus	739-7487	lhaus@mail.ff.cc.mn.us
Grand Rapids	NEAT	Itasca Community College (Blandin)	Lori Kent	218-327-6683	Lori.Kent@upm-kymmene.com
Grand Rapids	NEAT	Itasca Community College	Rick Nadel	218-327-4385	rnadel@it.cc.mn.us
Grand Rapids	NEAT	North Central Research and Outreach Center	Dave Hyland	218-327-4186	dhyland@extension.umn.edu
Granite Falls	SHOT	Minnesota West Community and Technical College-Granite Falls Campus	Scott Renneke	320-564-4511, ext. 131	
Hibbing	NEAT	Arrowhead University Center		218-263-2951	
Hibbing	NEAT	Hibbing Community College		218-263-2951	
Hutchinson	CMDLN	Ridgewater College/ Hutchinson Campus	Bill Dingwall, Yvonne Johnson	320-234-0262, 320-231-6014	bdingwall@ridgewater.mnscu.edu yjohnson@ridgewater.mnscu.edu
International Falls	NEAT	Rainy River Community College	Mike Blesi	218-285-2268	mblesi@rrcc.mnscu.edu
Inver Hills	METNET	Inver Hills Community College	David Shupe	651-450-8689	dshupe@ih.cc.mn.us
Jackson	SHOT	Minnesota West Community and Technical College-Jackson Campus	Tim Akers	507-847-3320, ext. 169	
Lamberton	SHOT	University of Minnesota, Southwest Research and Outreach Center at Lamberton	Molly Werner	507-752-7372	
Mankato	COMET	Mankato Campus- South Central Technical College	Lee Sutton	507-389-7245	LeeS@tc-mankato.scm.tec.mn.us

Mankato	COMET	Minnesota State University, Mankato	Joe Nechanicky	507-389-5947	Joseph.Nechanicky@mankato.msus.edu
Marshall	SHOT	Southwest State University	Stu Galstad	507-537-7127	
Minneapolis	METNET	Minneapolis Community and Technical College	Rod Minnich	612-359-1516	minnicro@mctc.mnscu.edu
Minneapolis/St. Paul	METNET	University of Minnesota-Twin Cities	Lyn Weiler	612-625-4315	weile001@umn.edu
Moorhead	NETS	Minnesota State University, Moorhead	Bob Schieffer	236-2337	itv@mnstate.edu
Moorhead	NETS	Moorhead Technical College	Perry Werner, Marlyce Likness	299-6531, 299-6530	
Moose Lake	NEAT	Moose Lake Corrections	Karen Moser		kkmoser@ml.doc.state.mn.us
Morris	SHOT	University of Minnesota, Morris	Karen Johnson, Ron Rosen, Roger Boleman	320-589-6461, 320-589-6155, 320-589-6166	
Owatonna	COMET	Owatonna Campus-Riverland Community College	Steve Bowron	507-433-0600	Sbowron@river.cc.mn.us
Perham	NETS	Perham Technology Center	Cathy Fah, Lynne Brokke	218-347-6207, 218-347-6300	
Pine City	CMDLN	Pine City Technical College	Lynette Olson	320-629-5101	olsonl@ptc.tec.mn.us
Pine City	NEAT	Pine Technical College	Judy Adams	320-629-5145	AdamsJ@ptc.tec.mn.us
Pipestone	SHOT	Minnesota West Community and Technical College-Pipestone Campus	Richard Spark	507-825-6800	
Plymouth	METNET	Intermediate School District 287- Plymouth	Mike Burger	612-550-7134	mburger@int287.K12.mn.us
Red Wing	COMET	Minnesota State College- Southeast Technical, Red Wing Campus	Mohamed Elhindi	507-453-2726	melhindi@win.tec.mn.us
Rochester	COMET	UCR/Rochester Community and Technical College	Jon Krusmark	507-285-7228	Jon.Krusmark@roch.edu
Rosemount	METNET	Dakota County Technical College	Linda Foster	651-423-8439	linda.foster@dctc.mnscu.edu
St. Cloud	CMDLN	St. Cloud State University	Patricia Kallevig	320-255-3082	pakallevig@stcloudstate.edu
St. Cloud	CMDLN	St. Cloud Technical College	Cindy Kantor	320-529-6641	cik@cloud.tec.mn.us
St. Paul	METNET	Metropolitan State University	Carroll Partridge	651-772-7634	carroll.partridge@metrostate.edu
St. Paul	METNET	St. Paul Technical College	Shelley Bibeau	651-221-1313	sbibeau@stp.tec.mn.us
Staples	CMDLN	Central Lakes College/ Staples Campus		1-800-247-6836	

Thief River Falls	NETS	Northland Community Technical College	Jackie Cross, John Bohnenkamp	683-7066, 681-0785	
Two Harbors	NEAT	CED Two Harbors	Michael Valentine	218-834-3489	thdc@lakenet.com
Virginia	NEAT	Mesabi Range College Virginia	Richard Alto	218-749-7775	r.alto@mail.mr.mnscu.edu
Wadena	NETS	Wadena Technical College	Christa Peterson, Laurie Harper	631-3530, ext. 300	
While Bear Lake	METNET	Century College	Dean Bartsch	651-779-3271	d.bartsch@cctc.cc.mn.us
Willmar	CMDLN	Ridgewater College/ Willmar Campus	Mike Boehme	320-234-0256	mboehme@ridgewater.mnscu.edu
Willmar	SHOT	Ridgewater College: A Community and Technical College	Ralph Nesset, Shirley Evans	320-231-6069, 320-231-5103	
Winona	COMET	Winona State University	Tom Hill	507-457-5571	Thill@wind.winona.msus.edu
Winona	COMET	Minnesota State College- Southeast Technical, Winona Campus	Mohamed Elhindi	507-453-2726	melhindi@win.tec.mn.us
Worthington	SHOT	Minnesota West Community and Technical College- Worthington Campus	Dennis Hebig	507-372-3453	