



Community Area Networks (CANs)

WISCNET CAN ADVISORIES WHITE PAPER

WISCNET CONNECTIONS, MAY 8TH & 9TH

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ADVISORY SUMMARY

WiscNet's goal for the Community Area Network (CAN) Advisory was to take people from the WiscNet community passionate about CANs and have them learn with others who have the same interest, ideas, and questions. The purpose of this advisory was three-fold: 1) Provide guidance and support to the WiscNet membership around the topic of CANs; 2) Be a link and foster leadership and development for those passionate about CANs; 3) Teach and learn to represent the interest of WiscNet and keep CANs engaged. Not only did these conversations help discover tools and strategies around the topic of CANs, it enabled others to use the knowledge, skills, and experience for others to learn as well. This white paper is an attempt to share some of that collective knowledge and help you connect with others paving the way with their own CANs.

Twenty WiscNet members (refer to Table 1) from different Community Anchor Institutions (CAIs) provided insight into the CAN conversations. These advisory members can be a resource for ongoing CAN support. The advisory will continue to meet; WiscNet members who wish to join this group should contact Jill Hietpas, *Community Area Network Liaison* at 608-210-3956 or jillhietpas@wiscnet.net to become a member.

At the onset of CAN discussions, the CAN advisory addressed the following questions:

1. What is a CAN?
2. Why I Strongly Believe in the CAN Concept?
3. How can I/We Foster a WN Community?
4. What is the number 1 challenge you face as a CAN Leader?
5. What would make the most difference to the future of your CAN?

Because each CAN is different and each is community dependent, the challenge to define a CAN resulted in a general definition; however, from members both experienced and new to the CAN concept and development process, three things were clear: a CAN is a data network, not just access to the Internet; success of a CAN is dependent on the people, their commitment to community, and collective knowledge; and, innovative

Can [kan]

When two or more community anchor institutions (CAIs) work collaboratively to create a high-speed, reliable network that fosters the sharing of resources (infrastructure, knowledge, applications, and cost) to benefit a community for the common good.

ideas and needs to serve constituents result in shared applications and enable new opportunities for the betterment of a community. In essence, a network is stronger if it can reach everybody. It's also worth noting that the formality of a CAN may alter the generic definition; in other words, when or if a CAN files to be a not-for-profit organization (i.e. unincorporated association, 501c3, or 501c4), Wisconsin state statutes define a nonprofit association consisting of three or more members, and thus the "definition" will differ.

Conversation and workgroups around the other four questions resulted in the following themes and outcomes in which the advisory focused its efforts in subsequent meetings:

- Building a CAN
- CAN Membership
- Governance and Legality
- Sustainability and Building the Next Leaders

The CAN concept can be difficult to grasp and a challenge to explain to others. However, benefits and people who believe in this concept do so because:

- CANs can be a good business decision for lower costs
- CANs can be an efficient use of public resources
- CANs create opportunities to be competitive, remain visible, solve problems and encourage a collaborative process to strategize how to get things done
- Collaboration and cooperation between community organizations lead to greater technical expertise and shared costs

The following sections of this whitepaper provide the findings and discussion from this advisory group. This interactive paper is available to WiscNet members at <https://tinyurl.com/n8laemd>; each link in this paper provides resources and examples from the CANs represented on this advisory; use these as a guide for the work needed to support your CAN and inquire with the leaders on this advisory for additional information and ideas.

Table 1. CAN Advisory Members

NAME	ORGANIZATION	EMAIL
Chris Lewinski	Sheboygan County	chris.lewinski@sheboygancounty.com
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BUILDING COMMUNITY AREA NETWORKS

CANs don't just happen; there's a process almost always driven by the need for sharing data or applications or having more robust, reliable, and affordable network access. It should also be noted that almost every CAN happens through public/private partnerships (P3). Additionally, CANs require strong leadership with a passion for collective and collaborative initiatives that benefit the common good.

Figure 1 illustrates a typical process for determining if a CAN is right for your organization or community and, if so, what steps to take to both garner support for a community network and the process and considerations for building a CAN ([Click here](#) or on the figure to download the process chart).

MEMBERSHIP

It's often asked, "how do we recruit new members?" or "Who can be a CAN member?" While these are great questions, the question that really needs to be addressed is Why; Why does the CAN want this organization to be on their network? And, why does the organization want to join the CAN? CANs are not "free" internet and thus the reason the "Why" question is important for both the CAN and potential members. While one benefit of a CAN is shared cost, members need to focus on a collaborative model with high sensitivity to each other, and ensure economic and social justice now and in the future.

Social capital and a culture of helpfulness appears to hold especially true with established CANs in which many members are collaborative in decision making and investments. However, this can be a difficult concept when/if a few organizations have invested thousands to build a network, and a new entity is interested in becoming a member after the initial build. When this occurs, it's important for the CAN to agree on a fee structure and process model to add new members that benefit the CAN and community.

With some of the more established CANs, the focus isn't on expanding membership as much as it is connecting CANs. Therefore, beyond the initial formation of the CAN, discussion may evolve around the effort of joining CANs together with the idea that each CAN knows the needs of its own community best. The benefit of connecting a CAN to an adjoining CAN reaps benefits in new and exciting ways.

Building Community Area Networks

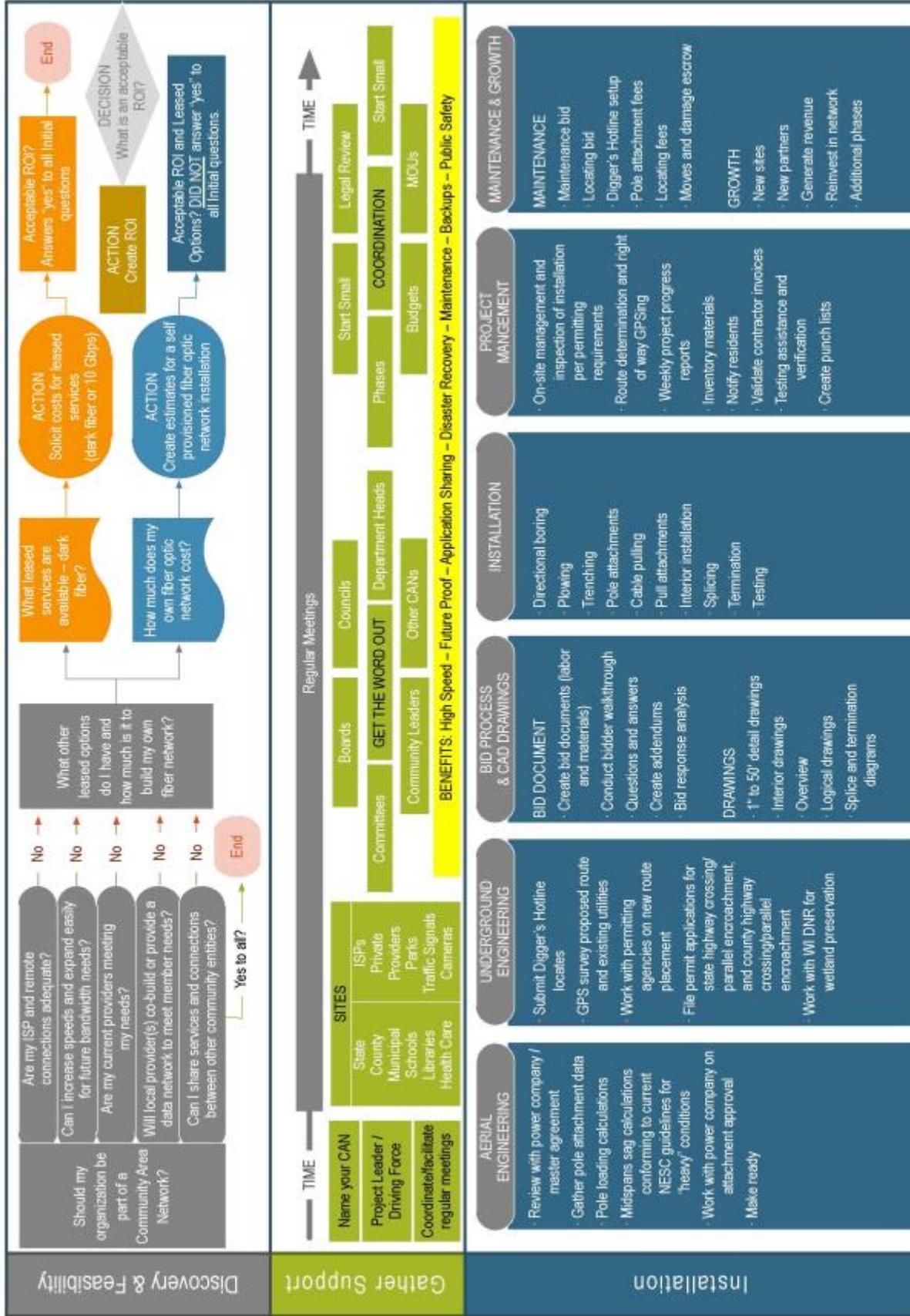


Figure 1. Building Community Area Networks (click on the image to download a full size chart)

Membership is defined by the CAN and acknowledged or outlined in either an MOU or articles of association when or if the CAN establishes formal governance and becomes a non-profit organization (refer to Table 2). Community Anchor Institutions (CAIs) (schools, counties, cities, libraries, healthcare) normally originate a CAN, but membership opportunities should not exclude an economic development concept, member-owned financial institutions, sponsorships or member affiliates that associate with the CAIs, or public or private universities if they fit into the mission of the CAN and adhere to state legislation.

In most CANs, members of the CAN are members of WiscNet for Internet access and other WiscNet services. WiscNet can also be a member of a CAN when there is both benefit to the CAN and to WiscNet.

GOVERNANCE

Formal governance as a non-profit entity for a CAN often comes after the CAN has been established and results in the formality of bylaws and membership agreements in which the CAN engages legal professionals. However, the advisory noted that it may be best for the CAN to consider formal governance earlier in the development process before the CAN is established.

Organizational structure and membership is outlined in the Bylaws and Agreements of Association. When drafting agreements of association, it's advised to list initial members in an Exhibit so that new members can be easily added to the agreement when or if the CAN membership expands. Additionally, process for adding, withdrawing or removing members, assets of the association, maintenance of the network, meeting governance, financial association and dissolution of the association is defined in the Agreement of Association. The Bylaws define the membership and meeting structure and voting, executive committee, qualifications, and appointments and requirements and special committees, officers, indemnification and any day-to-day rules guidelines to keep the CAN running smoothly.

CANs legally protect themselves by having intergovernmental agreements between the parties accessing fiber. After agreements are in place, the CAN writes a Request For Proposal (RFP) and then selects fiber providers. The advisory also noted that a CAN has a better chance to overcome misunderstanding related to legislation if the CAN fiber benefits

the greater good of the community and that the service is not readily or reasonably available from commercial providers.

While each CAN is different, examples and questions to consider related to governance of CANs include examples of bylaws, agreements of association, MOUs, RFPs, etc. that are out outlined in Table 2 through Table 4.

SUSTAINABILITY AND BUILDING FUTURE LEADERS

The sustainability of a CAN entails two major concepts: a collaborative leadership model with a focus on “the public good” and ensuring a return on investment (ROI) for individual organizations; and a cost benefit to the collective group. While many CANs begin because of cost savings with an ROI by amortizing over a selected time-period (5, 10, 15 years), sustainability of a CAN is the result of collaborative teamwork by passionate leaders that focus on the collective needs of all involved. While organizations are silos unto themselves, it’s the benefit to the public good and belief of “how to make life better in the community” that will sustain a CAN (refer to Figure 2).

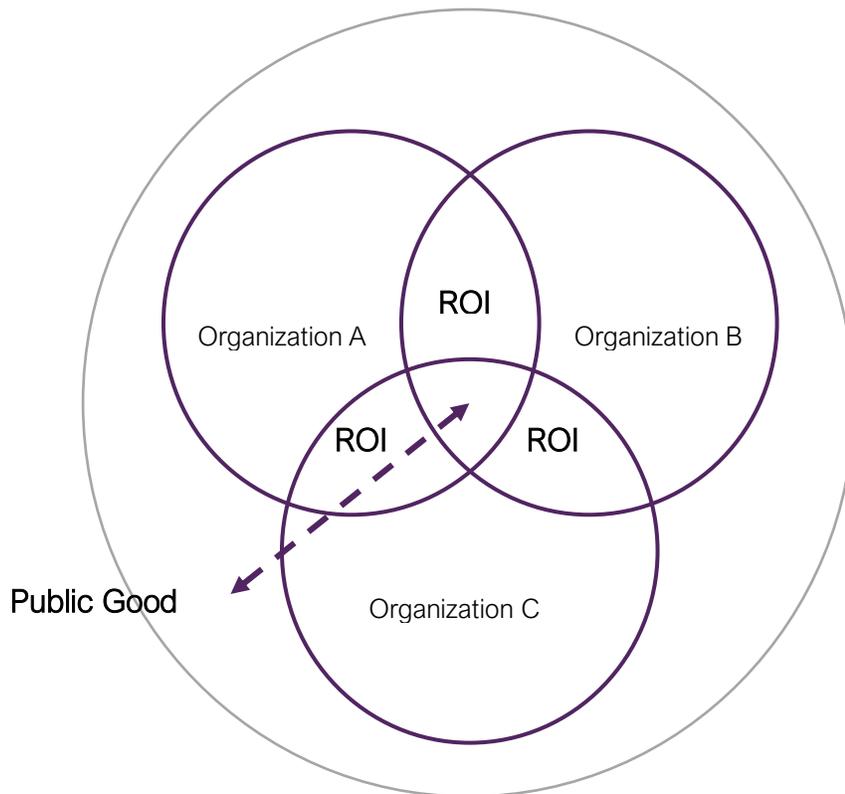


Figure 2. CANs for the Public Good

Table 2. Membership Topics and Examples

	TOPIC	QUESTIONS/THOUGHTS TO CONSIDER	RESOURCES/EXAMPLES
MEMBERSHIP	Define CAN Membership	<ul style="list-style-type: none"> ▪ Draft interagency agreements that can grow with new members 	<ul style="list-style-type: none"> ▪ CINC Agreement of Association ▪ PCAN Network Agreement of Association ▪ MUFN Agreement of Association
	Process for adding new members	<ul style="list-style-type: none"> ▪ Why does an entity want to join your CAN? ▪ How will this member benefit your CAN? What is the benefit to the new member ▪ What is the collective "We" so the addition isn't about "free" Internet? ▪ What is the joining fee? ▪ How will the CAN structure membership fees? 	<ul style="list-style-type: none"> ▪ CINC Membership Application ▪ Sample Tier Structure for Membership and Joining Fees
	Identify CAN Members	<ul style="list-style-type: none"> ▪ Who is in "your neighborhood" that might benefit from a data network? ▪ Do you serve the same people? ▪ Who do your agencies (i.e. ADRC, Schools, Birth-to-3, etc. serve that may need access or need a supporting agency? ▪ Who's along your fiber route? ▪ Will new/more members benefit your CAN? Your Community? 	<ul style="list-style-type: none"> ▪ Fiber Mapping ▪ Vendor Fairs
	Sponsored or Affiliate Members	<ul style="list-style-type: none"> ▪ Will the sponsoring organization provide services at the member site? ▪ Is the sponsored organization a WiscNet member? 	<ul style="list-style-type: none"> ▪ Letters of Support
	Engage the UW System as a partner	<ul style="list-style-type: none"> ▪ Does your CAN adhere to current Legislation that prohibits a University of Wisconsin campus to be on WiscNet and grant-funded networks? ▪ Have you considered a UW campus to be a partner rather than a member? ▪ Is language Included in the CAN agreement indicating that the UW could continue to use any fiber in the event they are legally stripped of their involvement in the CAN. 	<ul style="list-style-type: none"> ▪ MOU Examples (WiscNet) ▪ Wisconsin Telecommunications Legislation

Table 3. Governance Topics and Examplesⁱ

GOVERNANCE	TOPIC	QUESTIONS/THOUGHTS TO CONSIDER	RESOURCES/EXAMPLES
	Bylaws	<ul style="list-style-type: none"> ▪ Engage lawyers to draft or finalize bylaws ▪ Include a right to refuse service statement to avoid self-serving entities from connecting to the fiber. 	CINC PCAN MUFN
	Membership Structure and Fees	<ul style="list-style-type: none"> ▪ How are membership fees structured? Annual fees, initial costs, recurring maintenance fees? ▪ How to allocate shared costs. ▪ Will there be a formula and what is it based on? Need as soon as possible ▪ What is the cost? Determine costs early. Budget is loose initially but after 3 to 4 years of operation a CAN will have more detailed numbers. 	PCAN CINC
	Service Level Agreements	<ul style="list-style-type: none"> ▪ Who is in charge to ensure the network works? ▪ What agreements exist and where are they housed? 	Maintenance Agreements
	Member Assets	<ul style="list-style-type: none"> ▪ Create an Inventory of current member assets; physical and services 	Fiber, towers
	In-kind services	<ul style="list-style-type: none"> ▪ Identify services that can be trading for services 	Engineering services, administrative services, fiscal agent
	Mission	<ul style="list-style-type: none"> ▪ Define the goal of the CAN ▪ Consider the Four Pillars: Healthcare, Education, Government, and Libraries ▪ Include digital equity (availability and affordability) ▪ Sponsored members-orgs that have/fulfill the mission statement 	
	Fiscal Agent	<ul style="list-style-type: none"> ▪ Who is the fiscal agent of a CAN? (Municipalities and government agencies require fiscal approval for any investment which could be a hindrance as fiscal; agents; CESAs are a cooperative and fiscally manage services) 	
	Name of CAN	<ul style="list-style-type: none"> ▪ Name the CAN to foster identity for the group and with other partners needed to make the CAN succeed; political, etc.. 	
	Organizational Structure	<ul style="list-style-type: none"> ▪ What is the organizational structure? ▪ Who is and what is the process for an executive committee, a work group, voting/non-voting members ▪ What are terms and voting process for Executive and committee members 	Bylaws and Articles of Association CINC

Table 4. Infrastructure Topics and Examples

INFRASTRUCTURE/CAN SUSTAINABILITY	TOPIC	QUESTIONS/THOUGHTS TO CONSIDER	RESOURCES/EXAMPLES
	Dark Fiber Use	<ul style="list-style-type: none"> ▪ What is the process to acquire dark fiber? ▪ What if an entity asks about a CANs dark fiber? 	Dark Fiber Use Agreement BCCAN CTC Technology Dark Fiber Lease Considerations
	Partnership Fiber Request Process	<ul style="list-style-type: none"> ▪ What and where is the specific fiber path that the proposed partner is requesting (conceptual/physical maps)? ▪ How would the acquisition impact the network (technical impact/approval)? ▪ Would exchange of this fiber impact any member organizations (CAN approval)? 	Process for sharing fiber CINC Partnership Request Green Bay RFP Example
	Determine shared infrastructure costs	<ul style="list-style-type: none"> ▪ What portion of the network plan impacts you? ▪ How can you share the cost? ▪ What's the "common good?" ("Equity" vs "Equality"?) ▪ What is this worth to each entity? <ul style="list-style-type: none"> ○ Direct fiscal benefit (ROI)? ○ What is the "non-financial" benefit? 	CINC Bubble Map
	ROI of Fiber Builds/CANs	<ul style="list-style-type: none"> ▪ What is the 5-year amortization of fiber investment? 10? 30? ▪ Did you calculate costs for current services for comparison? ▪ What (and when) will your ROI be? 5 years? 10?, 30? 	DYI Fiber Estimating Broadband Communities CAN Flow Process
	Expanding or building a Network	<ul style="list-style-type: none"> ▪ Who wants fiber and how would it benefit the CAN? ▪ What is the legal process for an ISP to access municipally-owned fiber? ▪ How does a CAN avoid access for "free internet"? 	CAN Flow Process Process for sharing fiber CINC Partnership Request

INFRASTRUCTURE/CAN SUSTAINABILITY	TOPIC	QUESTIONS/THOUGHTS TO CONSIDER	RESOURCES/EXAMPLES
	Insurance Plans	<ul style="list-style-type: none"> ▪ What coverage/insurance does the CAN have for infrastructure (repair and maintenance)? ▪ Do you utilize a third party locate service? Do they also have insurance? 	
	Documentation	<ul style="list-style-type: none"> ▪ Where is the central location for members to access and store documentation (member information, agreements, maps, MOUs, RFPs, conceptual plans, etc.)? ▪ What information is shared/accessible? ▪ Who maintains documentation and access to it? ▪ Implied documentation... that is, where are the providers? Use the information available (eg. permitting documentation, digger's hotline). ▪ Start collecting detailed information for all new permitted work, utilize permitting process to learn as much as possible. 	SharePoint, Dropbox, Maintenance ISP
	Fiber Maintenance Service Agreements/Contracts	<ul style="list-style-type: none"> ▪ Who is responsible for fiber maps and documentation (locates)? ▪ What insurance coverage does the CAN have? ▪ Who contacts Diggers Hotline for projects/maintenance? ▪ How often does a CAN review its maintenance plan? ▪ What's a recommended formula for maintenance expenses? ▪ What triggers increased maintenance fees? ▪ How is maintenance reported to members? ▪ Who is responsible for locate services and emergency fiber restoration? 	AAMFON Construction and Certification Standards
	Project Funding	<ul style="list-style-type: none"> ▪ How much is set aside for contingency funds? ▪ Maintenance funds? ▪ Is the CAN Prepared for breaks and replacements (fiber moves) and ensure that enough funds are in reserve? ▪ What are the "rules" for a contingency fund? ▪ Is your CAN proactive with growth funding? 	<p><i>Transport Expenses</i> (Fiscal agent, attorney fees, insurance, maintenance, lease agreements, locate fees, diggers hotline)</p> <p><i>Transport Revenues</i> (circuits, fiber use fees, admin fees)</p>
	Future Proofing	<ul style="list-style-type: none"> ▪ Build for scalability ▪ Plan for probable growth, consider sustainability challenges in cases of down-scaling. 	

ACKNOWLEDGEMENTS

A special thank you to the following CANs who have shared examples and resources to this advisory group and the WiscNet Membership and to MC&E for the creation of the CAN Development Process; your efforts and commitment to benefitting others does not go unnoticed.

- Appleton Area Metropolitan Fiber-Optic Network (AAMFON)
- Brown County Community Area Network (BCCAN)
- Chippewa Valley Internetworking Consortium (CINC)
- Madison Unified Fiber Network (MUFN)
- Platteville Community Area Network (PCAN)
- Green Bay Area Public School District

ⁱResources and Example documents are provided as a guide for CANs as they confront the needs related to governance, sustainability and membership; they are not an open door for the providing agency to give support to CAN initiatives; contact WiscNet to help with additional CAN service and support.