

ARRA Broadband Technology Opportunities Program (BTOP) Proposals

Executive Summaries of

Madison Broadband Initiative (MBI) & Madison Unified Fiber Network (MUFN)

There are two joint proposals for which the Madison Metropolitan School District was included as a partner within ARRA BTOP funding. These 2 proposals, MUFN and MBI will cover approximately 90% of all community anchor institutions, public safety entities and critical community organizations in the greater metropolitan area. These competitive grants focus on the following goals within the District's recently approved Information (Library Media) & Technology Plan:

Goal Area A: 21st century Learning Skills Context and Content – by increasing use of Internet accessible resources and mobile devices through a wireless infrastructure

Goal Area D: Planning & Allocating – major enhancements to our entire network system infrastructure, including implementation of a secure wireless network and increasing our disaster recovery preparedness

Goal Area F: Access & Opportunity - creates opportunities to extend access to parents and decreasing the digital divide

Goal Area H: Partnerships – these projects are collaborations between many government, public, private non-profit, and private entities, thereby lowering the overall costs to the MMSD

Value to MMSD from these joint projects is approximately \$9,000,000, including the following direct benefits:

- ~\$3,000,000 in infrastructure costs (fiber to buildings, switches, controllers, access points, etc.) – all MMSD facilities would be affected by this project
- ~\$6,000,000 in broadband access costs no longer needed
- Additional telecommunications savings
- Significant reduction of work involving federal E-rate processing
- Much improved processing times for all functions performed by users on our network

Additional benefits from these projects include:

- Free or reduced broadband rates for eligible families
- Significant upgrades in video surveillance capabilities due to increased bandwidth capacity

Investments being made include:

- \$78,000 contribution
- Use of MMSD building roofs for antennae
- Staff time associated with wireless infrastructure management

Fiber coverage period is 20 years.

Madison Broadband Initiative (MBI)

The purpose of MBI is to provide free, low-cost or competitively priced broadband service to partner locations and households through fiber deployment and a Wi-Fi mesh network. It is a total \$20,600,000 proposal for which 77 percent is being requested from ARRA. Partners include the City of Madison, the Madison Metropolitan School District, Dane County, Xicom, University of Wisconsin-Madison and DANEnet. Eighty miles of fiber will provide connectivity to 82 anchor public sector facilities and close access for over 200 non-profit entities. Thirty-eight MMSD facilities would be connected via the MBI project.

The 80-mile fiber route reaches an additional 60,000 residents, 24,000 households and passes about 3,000 employers. The high-speed Wi-Fi mesh network covers 28 square miles and will reach 35,128 households and 3,703 businesses in areas where 40% or more of the population is underserved. The service areas include areas

of high-intensity poverty, high participation in income-qualified assistance programs and large numbers of families with children as determined by the City of Madison's Neighborhood Indicators Project.

The anchor institutions and public safety entities to be served via MBI include 43 City of Madison sites including 4 fire houses, a fire training center, 3 police stations, 26 water wells and towers, and 3 city bus transfer sites, plus 35 schools that provide public education and serve as Red Cross emergency shelters, and the Dane County Job Center. The 5 critical organizations involved with MBI design are City of Madison, Madison Metropolitan School District, Dane County, University of Wisconsin-Madison, DANENet and Xicom/MCB. The MBI project is estimated to create 1,026 jobs.

Madison Unified Fiber Network (MUFN)

The MUFN proposal enables last mile broadband deployment to underserved areas. Overall, the cost of the MUFN broadband system is \$10.4 million with cash and in-kind contributions of conduit and fiber totaling \$3.75 million. MUFN requests an NTIA BTOP grant of approximately \$6.65 million. Thirteen MMSD buildings are connected via MUFN.

The project identifies the following as benefits:

- Provides anchor institutions with affordable, scalable broadband to address rapidly increasing data transport requirements for delivery of education, health care, public services, safety, library and economic growth
- Supports critical public safety initiatives including expanded use of remote surveillance equipment and sensor monitoring to improve water quality, fire and police protection
- Enhances crisis communication and remote training opportunities for county local public health departments and physicians with the WI State Laboratory of Hygiene
- Develops underlying infrastructure for implementation of electronic health record, low income and emergency health response service projects by a consortium of the University of Wisconsin (UW) School of Medicine and Public Health, UW Hospital and Clinics, UW Medical Foundation and Meriter Hospital
- Facilitates job creation via broadband to business incubators and job training facilities
- Connects dozens of community organizations serving vulnerable populations to enhance service offerings, reduce duplication of non-core activities and improve service quality
- Demonstrates effective public/private collaboration of government, education, library and health care institutions with a private sector local Internet service provider and integrator

The MUFN project identifies six proposed funded service areas that specifically cover a 22 square mile area serving approximately 4985 businesses, over 106,000 people in more than 47,000 households, a quarter of which reside in under served areas. The service areas predominantly include the City of Madison, City of Middleton and City of Monona with coverage reaching into the Village of Shorewood Hills, the City of Fitchburg and the Towns of Madison, Burke, Blooming Grove and Middleton. The MUFN project is estimated to create or save 516 jobs.

The MUFN project has been crafted through a collaborative effort that includes: 3 hospitals (Meriter Hospital, University of Wisconsin Hospital and Clinics, American Family Children's Hospital), a private medical foundation (University of Wisconsin Medical Foundation), 2 municipal governments (City of Madison and City of Middleton), 3 school districts (Madison Metropolitan, Monona Grove and Middleton-Cross Plains), as well as Dane County, the South Central Library System, a public university (the University of Wisconsin-Madison), a community college (Madison Area Technical College), over two dozen community support organizations aggregated together in 9 locations by an organization called DaneNet, and other participants such as the Wisconsin State Lab of Hygiene and the University of Wisconsin Extension Geological and Natural History Survey.

MB1



**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 3:10:30 PM		Easygrants ID: 3116	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: City of Madison	
Task: Submit Application - Infrastructure Programs		Applicant Name: Mr. Richard A Beadles	

Budget	Loan Request	Grant Request	Equity	Debt	Bond	Other
Network & Access Equipment (switching, routing, transport, access)		5,303,178				460,214
Outside Plant (cables, conduits, ducts, poles, towers, repeaters, etc.)		573,033				2,176,000
Buildings and Land – (new construction, improvements, renovations, lease)						
Customer Premise Equipment (modems, set-top boxes, inside wiring, etc.)						
Billing and Operational Support Systems (IT systems, software, etc.)		450,000				
Operating Equipment						

**Broadband Infrastructure Application
Submission to RUS (BIP) and NTIA (BTOP)**

Submitted Date: 8/20/2009 3:10:30 PM		Easygrants ID: 3116	
Funding Opportunity: Broadband Initiatives Program and Broadband Technology Opportunities Program		Applicant Organization: City of Madison	
Task: Submit Application - Infrastructure Programs		Applicant Name: Mr. Richard A Beadles	

(vehicles, office equipment, other)						
Engineering/ Professional Services (engineering design, project management, consulting, etc.)		1,805,350				99,200
Testing (network elements, IT system elements, user devices, test generators, lab furnishings, servers/computers, etc.)						
Site Preparation		5,055				
Other		7,903,214	1,823,586			
TOTAL BROADBAND SYSTEM		16,039,830	1,823,586			2,735,414

Total \$20,598,830

Metropolitan Unified Fiber Network (MUFN)						
Project Budget (per segment)						
8/14/2009						
	University Ave	Mineral Point Rd	E. Washington Blvd	Northport	Monona	S. Park St
Fiber laterals	\$ 280,000	\$ 460,000	\$ 440,000	\$ 140,000	\$ 300,000	\$ 340,000
Fiber backbone	\$ 283,047	\$ 730,764	\$ 485,511	\$ 672,413	\$ 573,035	\$ -
Collocation site prep	\$ 10,000					
DWDM Hardware				\$ 58,493	\$ 73,271	
Engineering/proj mgnt	\$ 71,067	\$ 71,067	\$ 71,067	\$ 71,067	\$ 71,067	\$ 71,067
Project cost	\$ 644,114	\$ 1,261,830	\$ 996,578	\$ 941,972	\$ 1,017,373	\$ 411,067
UW 26% R&D Admin Fee	\$ 167,470	\$ 328,076	\$ 259,110	\$ 244,913	\$ 264,517	\$ 106,877
Total build cost (per segment)	\$ 811,583	\$ 1,589,906	\$ 1,255,688	\$ 1,186,885	\$ 1,281,889	\$ 517,944
Metropolitan Unified Fiber Network (MUFN)						
Conduit/Fiber Install Details						
8/14/2009						
Service Area	New conduit (in miles)	Existing conduit (in miles)	New fiber (in miles)	Fiber cable size (# strands)		
University Ave (Map ID #1)	1.5	5.75	1.5	96		
Mineral Point Rd (Map ID #2)	2.5	10	12.5	144		
East Washington Blvd (Map ID #3)	2.5	6.25	8.75	144		
Northport Area (Map ID #4)	3.5	0.5	4	96		
Monona Drive (Map ID #5)*	2.25	3.25	7.3	144		
S. Park St. (Map ID #6)	0	16	0	mix (48/96/144c +FOC)		
Total existing/new conduit/fiber	12.25	41.75	34.05	N/A		
Metropolitan Unified Fiber Network (MUFN)						
Total Project Fiber Build Cost Summary						
8/14/2009						
Fiber laterals	\$ 1,960,000					
Fiber backbone	\$ 2,744,769					
Collocation site prep	\$ 10,000					
DWDM Hardware	\$ 131,764					
Engineering/proj mgnt	\$ 426,400					
UW 26% R&D Admin Fee	\$ 1,370,963					
Total fiber build project cost summary	\$ 6,653,896					
Metropolitan Unified Fiber Network (MUFN)						
Project Financing (all sources)						
8/14/2009						
BTOP Stimulus Grant Request	\$ 6,653,896					
MUFN Partner Cash Contribution	\$ 530,000					
City of Madison Existing Conduit	\$ 3,223,537					
Total Project Cost	\$ 10,407,433					
MUFN (Madison Unified Fiber Network)						
BTOP Cash Match Contribution Levels						
8/14/2009						
Institution Name	Total Cost allocations	Cost allocations Spread over 10yrs				
UW-Madison (DoIT)	\$ 84,000	\$ 8,400				
UW-Health (UWMF, UWHC)	\$ 84,000	\$ 8,400				
State Lab of Hygiene	\$ 41,750	\$ 4,175				
UW-Madison (Medical School)	\$ 41,750	\$ 4,175				
Dane County	\$ 41,750	\$ 4,175				
University Research Park	\$ 41,750	\$ 4,175				
Madison Area Technical College	\$ 41,750	\$ 4,175				
City of Madison	\$ 41,750	\$ 4,175				
Madison Metropolitan School District	\$ 41,750	\$ 4,175				
Monona Grove School District	\$ 14,000	\$ 1,400				
Middleton Cross Plains Area SD	\$ 14,000	\$ 1,400				
South Central Library System	\$ 14,000	\$ 1,400				
JW-Madison (Graduate School)	\$ 14,000	\$ 1,400				
UW-Extension (WGNHS)	\$ 14,000	\$ 1,400				
DaneNet	\$ -	\$ -				

MUFN