

Submitted to:

**Milwaukee County Automated Mapping
and Land Information System
(MCAMLIS)**

Five-Year Work Plan

Submitted by:



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Executive Summary

Work Plan Background

The Milwaukee County Automated Mapping and Land Information System (MCAMLIS) has been providing location-based products and services (Data, Collaboration, and Capabilities) in various and growing capacities to its Partners for more than two decades (see Figure 1). More recently, several influencing factors provided MCAMLIS with the opportunity to improve the value it provides to its Partners.

Among these factors are industry advances in location-based data and technologies (LBDT), such as data services and mobile device capabilities. As such, MCAMLIS has begun to take advantage of these technologies to improve its value to MCAMLIS Partners, and needs to continue to do so.

Another factor is that MCAMLIS Partner organizations are changing. Partners themselves are adapting advances in LBDT and need to quickly react to the implementation of LBDT when necessary. In addition, Partner LBDT abilities now vary from rudimentary to highly advanced. Again, MCAMLIS needs processes and capabilities that quickly adjust to changing and varied Partner requirements.

Finally, the MCAMLIS Program could increase its value to Partners by implementing improvements to MCAMLIS Program data and processes that are driven by the needs of its Partners.

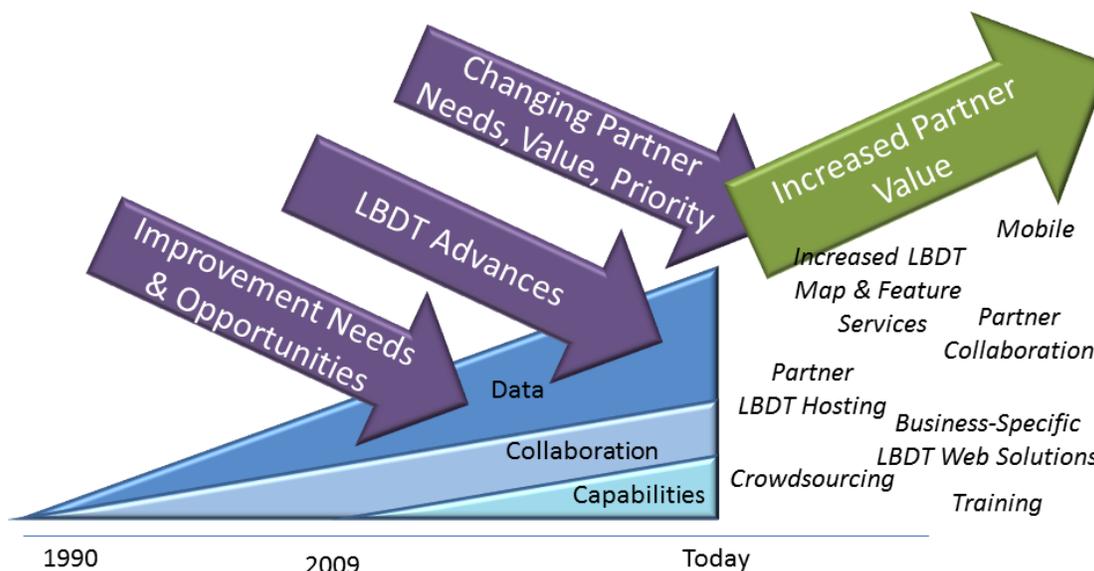


Figure 1: MCAMLIS Direction

In March 2013, the MCAMLIS consortium of Partners initiated a Business Needs Assessment (BNA) Project. The ultimate goal of this project was to foster improvements in effective and efficient management of LBDT across as many MCAMLIS Partners as can be engaged to do so, and to the extent that each Partner or group of Partners finds value in its participation. The MCAMLIS Program anticipated these improvements would include improved access to MCAMLIS location-based data and Partner data, and would facilitate access to LBDT consulting services and core LBDT applications and services. Ultimately, the BNA Project results set the direction for MCAMLIS for the next five years, including both partner-driven and program-driven projects and tasks.

The BNA Project was broken into several key phases:

- Project Initiation and Awareness** – During this phase, MCAMLIS Partner organizations established a person in an Organization Representative role as the primary project liaison, and, if possible, one or two people as Target Area Representatives from each of six business areas within each organization (Administration, Enterprise IT/GIS, Organizational/Consumer Services, Public Safety and Security, Public Works/Parks, and Water/Wastewater Infrastructure Management) to offer needs from their perspectives. This phase included a kick-off meeting for people in these roles that defined MCAMLIS, LBDT, and the BNA Project, and described their participation in the project. The MCAMLIS Partner organizations are listed below.

MCAMLIS Partner Organizations		
AT&T	City of St. Francis	Village of Fox Point
City of Cudahy	City of Wauwatosa	Village of Greendale
City of Franklin	City of West Allis	Village of Hales Corners
City of Glendale	Milwaukee County	Village of River Hills
City of Greenfield	MMSD	Village of Shorewood
City of Milwaukee	SEWRPC	Village of West Milwaukee
City of Oak Creek	Village of Bayside	Village of Whitefish Bay
City of South Milwaukee	Village of Brown Deer	WE Energies

- Business Needs Identification** – During this phase, MCAMLIS Partners provided what they believed were their most important LBDT-related needs for the next few years, as well as their opinions on how MCAMLIS can provide increased value by extending or improving services. A series of tasks were carried out to gather, analyze, and document the needs. The list of needs was obtained by engaging people from MCAMLIS Partners that were identified in the previous phase.

In the information-gathering task, the project team employed an array of tools to gather these needs: online surveys, face-to-face interviews with Partner organization leadership and business areas, and collaboration workshops. In the business needs identification task, the needs were then analyzed and distilled into a discrete set of needs. In the business needs prioritization tasks, MCAMLIS Partner representatives ranked them by their relevance to their organizations and MCAMLIS in the next few years.

- **Five-Year Program Task Analysis** – This phase detailed the program initiatives and improvement tasks derived from the needs identified during the previous phase. The BNA Subcommittee prioritized the program initiatives and improvement tasks based on implementation criteria such as whether they address the ranked needs, the level of development effort, risks of implementation, and benefits to stakeholders.
- **Five-Year Program Development** – This phase created a Five-Year Work Plan (including initiative sequencing and cost estimation) based on MCAMLIS program cycles and budget. The Five-Year Work Plan projects and tasks were derived from the initiatives and improvement tasks from the previous phase. The project team worked with the MCAMLIS Project Manager to develop a proposed sequencing of 23 tasks over the next five years. The BNA Subcommittee reviewed the proposed schedule and the Work Plan was finalized based on its input. This BNA Work Plan document (along with the final presentation to the MCAMLIS Steering Committee) is the final deliverable for this project.

The MCAMLIS Program, Defined

A key but subtle result of the BNA Project is a way to describe what the MCAMLIS Program is. The MCAMLIS Program activities can be organized into five key categories, which are illustrated in Figure 2. The Project Team used these categories to solicit input from Partners and to perform analyses on Partner needs and requirements. The Work Plan includes one or more Project Tasks that improve each Program Category (see the Benefits section of each Project Task description). The MCAMLIS Program managers and MCAMLIS Partner Organizations can use these categories to communicate program services and activities to MCAMLIS stakeholders. Each MCAMLIS Program Category is described briefly below:

- **MCAMLIS Portal** – The MCAMLIS Portal is the online, one-stop access to all that is MCAMLIS. The Portal provides MCAMLIS stakeholders one place to go to learn about what MCAMLIS is; who is a part of MCAMLIS; what data, capabilities, and collaboration activities are provided through MCAMLIS; and how one obtains access to or gets involved with MCAMLIS. Initially, the Portal may be a website with links to other websites, but eventually, it will be the place to come for most MCAMLIS information.
- **Data Products and Services** – Essentially, there are two types of location-based data: Business Data and Reference Data. Location-based Business Data is the essential data created and applied by Partner organizations. Examples include permits, safety-related incidents, and capital roadway improvement projects. Location-based Reference Data gives context to the Business Data. MCAMLIS has been providing Reference Data and support services since its inception, including aerial photography, road layers, parcel layers, contours, and political boundaries. MCAMLIS Partners typically manage their own location-based Business Data. However, more recently, MCAMLIS has begun hosting Partner Location-based Business Data upon request, typically when more than one Partner is involved.
- **Capability Products and Services** – Capabilities refer to location-based technology and applications, and related support services. MCAMLIS may be best known for the MCLIO Web Mapping Application, which offers a version to the public as well as a secured version offered to MCAMLIS Partners. With advances in location-based

technologies and the requirements of MCAMLIS Partners, additional capabilities – such as map services – are now available, allowing Partners to add MCAMLIS-hosted data into their own mapping applications. Other capabilities are possible, including data services and having MCAMLIS host Partners’ solutions for them.

- Collaboration Products and Services** – MCAMLIS has coordinated several forums for MCAMLIS Partners to exchange LBDT ideas and even solutions, most notably the Milwaukee Municipal GIS User Group meetings. However, MCAMLIS could do much more to improve the value of LBDT for certain business functions or other LBDT-based solutions (e.g., a commonly invested asset management solution).
- Program Management** – This category represents MCAMLIS activities to plan, budget, operate, and improve on the delivery of MCAMLIS products and services, including information technology, data management, MCAMLIS governance, staff management, and process management.

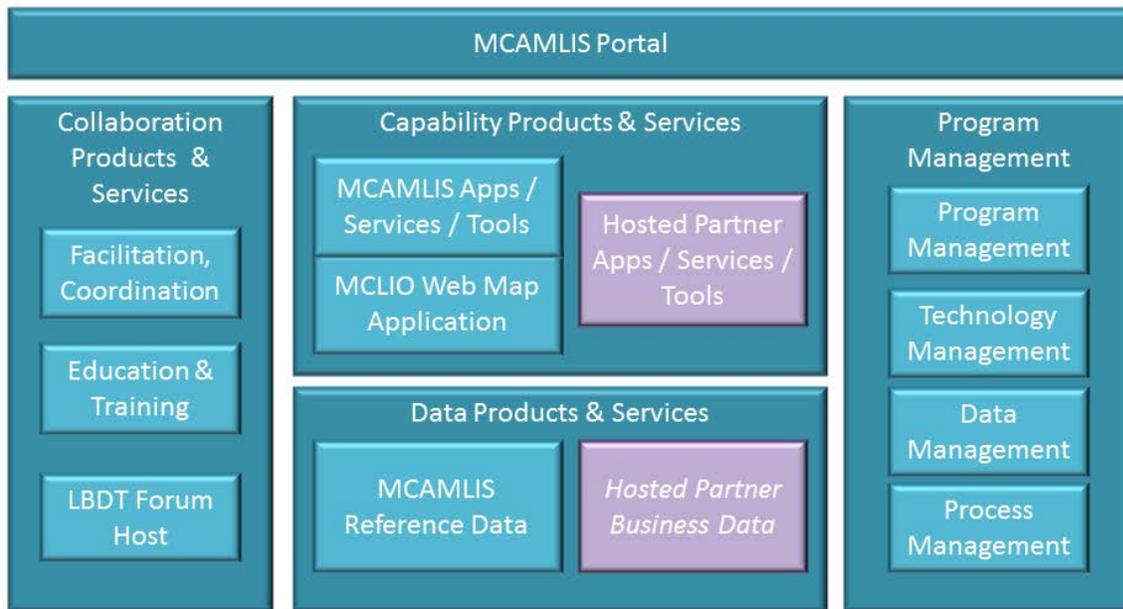


Figure 2: MCAMLIS Program Categories

MCAMLIS Program Five-Year Work Plan Overview

The MCAMLIS Five-Year Work Plan is defined by five improvement-based projects estimated to cost approximately \$1.2 million to implement over the next five years. The figure below illustrates the five projects and costs allocated over the next five years.

Project Code and Name		# of Tasks	FY2014				FY2015				FY2016				FY2017				FY2018				Project Budget
			Q1	Q2	Q3	Q4																	
VWR	Viewer/Pictometry Improvement Roll-out	2	■	■	■																		\$70,000
MBL	Mobile-Based Capabilities Implementation	3			■	■	■	■															\$80,000
COL	MCAMLIS/Partner Collaboration Improvement	5	■	■	■	■	■	■			■	■											\$135,000
MOL	MCAMLIS Online Presence Improvement	7	■	■	■	■	■	■	■	■	■	■			■	■							\$494,000
DAT	MCAMLIS Data Improvement	6	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			\$395,000
Annual Budget			\$260,000				\$260,000				\$290,000				\$242,000				\$122,000				\$1,174,000

These five projects are comprised of two to seven tasks (23 tasks in total). The five projects are Viewer Improvements (VWR), Mobile-Based Capabilities Improvements (MBL), MCAMLIS/Partner Collaboration Improvements (COL), MCAMLIS Online Presence Improvements (MOL), and Data Improvements (DAT).

Overall, the Work Plan reflects the following considerations:

- Implementation of “early wins” that provide MCAMLIS Partners with direct value
- Promotion of tasks that address the highest ranked user/program requirements
- Expected annual budget constraints
- Level of MCAMLIS staff involvement.

Following those guidelines, the Work Plan proposes nine tasks in Year 1, seven of which will be completed in 2014. Year 1 focuses on enhancing the MCLIO Viewer (VWR), implementing Mobile capabilities for parcels (MBL), investing in education/training and partner collaboration (COL), and MCAMLIS website improvements (MOL). Data improvements (vector and non-vector) occur in each of the five years.

Once completed, Year 1 project tasks provide evidence that MCAMLIS is responsive to stakeholders’ requirements, and gives MCAMLIS a solid foundation on which to build. Each subsequent year, the MCAMLIS Program will revisit the Work Plan and make adjustments to the proposed project tasks for the upcoming year. These adjustments need to consider progress made to date, budget realities, and shifting priorities.

Work Plan Document Purpose and Organization

The Five Year Work Plan document describes in detail the MCAMLIS projects and related tasks that MCAMLIS needs to address within the next five years – this version covers 2014-2018. This document proposes a sequence strategy for tackling these projects and tasks. The proposed sequence considers projected annual budgets, MCAMLIS staff involvement, and dependencies. The MCAMLIS program will continue to refine its priorities as each year progresses, and may make changes to the sequence as appropriate.

The Five-Year Work Plan document is organized as follows:

- Executive Summary – Describes why the BNA Project is important, project methodology, key findings, and in, particular, how this document is relevant to the overall project success.
- MCAMLIS Five-Year Work Plan – Presents the Work Plan from several perspectives: timeline, budget per year, and project task inter-relationships.
- Project Details – Provides details about the projects and tasks that, if implemented, would address key MCAMLIS Partner and Program requirements for the next five years. Each task is described, including key benefits, risks, and assumptions.
- Appendices – Describes the needs and improvement initiatives that drove the definition of the Work Plan.

MCAMLIS Program Five-Year Work Plan

This section of the Five-Year Work Plan describes the MCAMLIS projects and related tasks that MCAMLIS needs to address within the next five years. Also included is a proposed sequencing strategy for tackling these projects and tasks. The proposed sequence considers projected annual budgets, MCAMLIS staff involvement, and dependencies. The following table depicts the MCAMLIS BNA Projects and tasks, their sequence, duration, and milestones.

Project	Task ID	Task Description	FY2014				FY2015				FY2016				FY2017				FY2018			
			Q1	Q2	Q3	Q4																
VWR		Viewer/Pictometry Improvement RollOut	■	■	■																	
	01	Improve the MCLIO Interactive Mapping Service	■	■	■																	
	02	Implement Initial MCAMLIS Data Extract Service		■																		
MBL		Mobile-Based Capabilities Implementation			■	■	■	■														
	01	Deploy Mobile Property Locator Application			■	■																
	02	Develop MCAMLIS Feature Data Service for Parcels				■																
	03	Prototype Services for Mobile Applications					■	■														
COL		MCAMLIS/Partner Collaboration Improvement	■	■	■	■	■	■	■	■	■											
	01	Invest in LBDT/Collaboration Education and Training	■	■	■	■																
	02	Formalize Partner Input in MCAMLIS Business Planning		■																		
	03	Improve MMGUG Forums							■													
	04	Facilitate Business-Driven LBDT Collaboration Project									■	■										
	05	Clarify Partner Opportunities in MCAMLIS										■	■									
MOL		MCAMLIS On-line Presence Improvement	■	■	■	■	■	■	■	■	■	■	■	■	■							
	01	Make Initial Website Improvements	■	■	■																	
	02	Determine MCAMLIS Portal Architecture					■															
	03	Establish and Market the New MCAMLIS						■														
	04	Implement MCAMLIS Portal									■	■	■	■	■	■						
	05	Finish MCAMLIS Program Management Content									■	■										
	06	Develop Partner Data Sharing Repository										■										
	07	Implement Cloud-Based GIS for MCAMLIS (AGOL)												■	■							
DAT		MCAMLIS Data Improvement	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	01	Make MCAMLIS Non-Vector Data Improvements	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	02	Make MCAMLIS Vector Data Improvements	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	03	Improve Property Record Currency					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	04	Support New Datum Requirements					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	05	Make MCAMLIS Metadata Improvements									■	■										
	06	Acquire Cadastral Data from Outside Milwaukee Co.																		■	■	

The following table shows the annual cost associated with each Project Task and the total expected cost per year.

Project	Task ID	Task Description	FY2014	FY2015	FY2016	FY2017	FY2018
VWR	01	Improve the MCLIO Interactive Mapping Service	\$70,000				\$70,000
	02	Implement Initial MCAMLIS Data Extract Service*					
MBL	01	Deploy Mobile Property Locator Application	\$50,000				\$50,000
	02	Develop MCAMLIS Feature Data Service for Parcels*					
	03	Prototype Services for Mobile Applications		\$30,000			\$30,000
COL	01	Invest in LBDT/Collaboration Education and Training	\$25,000				\$25,000
	02	Formalize Partner Input in MCAMLIS Business Planning	\$20,000				\$20,000
	03	Improve MMGUG Forums		\$20,000			\$20,000
	04	Facilitate Business-Driven LBDT Collaboration Project			\$30,000		\$30,000
	05	Clarify Partner Opportunities in MCAMLIS			\$40,000		\$40,000
MOL	01	Make Initial Website Improvements	\$20,000				\$20,000
	02	Determine MCAMLIS Portal Architecture		\$45,000			\$45,000
	03	Establish and Market the New MCAMLIS		\$15,000			\$15,000
	04	Implement MCAMLIS Portal			\$125,000	\$50,000	\$175,000
	04.1	Portal Licensing				\$72,000	\$72,000
	05	Finish MCAMLIS Program Management Content			\$20,000		\$20,000
	06	Develop Partner Data Sharing Repository			\$30,000		\$30,000
	07	Implement Cloud-Based GIS for MCAMLIS (AGOL)				\$45,000	\$45,000
DAT	01	Make MCAMLIS Non-Vector Data Improvements					
	01.1	Create Historical Aerials	\$10,000	\$10,000	\$10,000	\$10,000	\$40,000
	01.2	Implement ESRI Image Extension for Server		\$20,000			\$20,000
	01.3	Evaluate DMS for MCAMLIS (OnBase)			\$20,000		\$20,000
	01.4	Implement Dedicated Server for Images				\$45,000	\$45,000
	02	Make MCAMLIS Vector Data Improvements					
	02.1	Create/Deploy Remaining Planimetric Polygons	\$65,000				\$65,000
	02.2	Energize EAS/SCL Data Update				\$20,000	\$20,000
	03	Improve Property Record Currency		\$100,000			\$100,000
	04	Support New Datum Requirements		\$20,000			\$20,000
	05	Make MCAMLIS Metadata Improvements			\$15,000		\$15,000
06	Acquire Cadastral Data from Outside Milwaukee Co.					\$50,000	
Total:			\$260,000	\$260,000	\$290,000	\$242,000	\$122,000
							\$1,174,000

* these costs are included in the previous Project Task

The chart below proposes a sequence for each Project Task while showing dependencies, influences, and early wins.

