



**DEPARTMENT OF ADMINISTRATIVE SERVICES  
DIVISION OF ECONOMIC DEVELOPMENT  
MILWAUKEE COUNTY LAND INFORMATION OFFICE**

2711 West Wells Street, Rm 426, Milwaukee, WI 53208 (414) 278-2176

**MEMORANDUM**

**TO:** «prefix» «first\_name» «last\_name» «LnameSuffix»  
«title»  
«organization»  
«address1»  
«address2»  
«city», «state». «zipcode»

**FROM:** William C. Shaw, MCAMLIS Project Manager

**DATE:** November 22, 2013

**SUBJECT:** MCAMLIS 94<sup>th</sup> Steering Committee Meeting Materials

Enclosed please find a set of materials that the steering committee will take up at its scheduled December 3<sup>rd</sup> Meeting.

- I. Meeting Agenda
- II. Meeting Minutes of the 93<sup>rd</sup> Steering Committee meeting held September 24<sup>th</sup>, 2013
- III. Reports
  - A. **Maintain Core Foundational Elements**
    1. Report materials related to the status of the 2013 Orthophotography/Oblique Imagery Program
    2. Report materials related to the status of the Planimetric Map Replacement Program
  - B. **Promote the Integration of Parcel Based Land Information**
    1. Report materials related to the status of MCAMLIS street address and Cadastral map maintenance operations.
  - C. **Educational Outreach**
    1. Report materials related to the status of work performed on behalf of MCAMLIS in support of local community GIS efforts
  - D. **Countywide Initiatives**
    1. Report materials related to the status of work performed regarding Countywide Program Initiatives
  - E. **Fiscal**

1. Report materials related to the MCAMLIS Program Fiscal status (TBD at the meeting)
2. Register of Deeds YTD Document Counts

IV. Old Business

- A. Report materials related to the State of Wisconsin efforts to develop a Statewide Parcel Map
- B. Report materials related to the Business Needs Assessment (BNA) Project and MCAMLIS Five Year Work Program Implementation Plan

V. New Business

- A. Materials related to Consideration of the Business Needs Assessment Sub-Committee recommendation to the MCAMLIS Steering Committee regarding acceptance of the Five Year Work Program Implementation Plan
- B. Materials related to consideration of Business Needs Assessment Sub-Committee recommendations to the MCAMLIS Steering Committee for inclusion in the MCAMLIS 2014 Work Program
- C. Materials related to consideration of a 2014 agreement for Milwaukee County Surveyor Services between MCAMLIS and SEWRPC
- D. Materials related to consideration of a 2014 agreement for Map Maintenance Services between MCAMLIS and the City of Milwaukee

VII. Correspondence

- A. NA

\* \* \* \* \*

**MILWAUKEE COUNTY AUTOMATED MAPPING  
AND LAND INFORMATION SYSTEM**

Ninety-Fourth Steering Committee Meeting

**AGENDA**

Date: December 3<sup>rd</sup>, 2013  
Time: 9:00 a.m.  
Place: Milwaukee Metropolitan Sewerage District  
MMSD Hdqtrs, Room 401  
260 W Seeboth St.  
Milwaukee, WI. 53204

- I. Roll Call
- II. Meeting Minutes  
Consideration of the minutes of the 93<sup>rd</sup> Steering Committee meeting held September 24<sup>th</sup>, 2013
- III. Reports (Out of Order)
  - E. **Financial**  
Report by Milwaukee County DAS staff on MCAMLIS Fiscal status
- IV. Old Business (Out of Order)
  - B. Report by GEODECISIONS regarding the Business Needs Assessment (BNA) Project and MCAMLIS Five Year Work Program Implementation Plan.
- V. New Business (Out of Order)
  - A. Consideration of the Business Needs Assessment Sub-Committee recommendation to the MCAMLIS Steering Committee regarding acceptance of the Five Year Work Program Implementation Plan;
  - B. Consideration of Business Needs Assessment Sub-Committee recommendations to the MCAMLIS Steering Committee for inclusion in the MCAMLIS 2014 Work Program;
  - C. Consideration of a 2014 agreement for Milwaukee County Surveyor Services between MCAMLIS and SEWRPC;
  - D. Consideration of a 2014 agreement for Map Maintenance Services between MCAMLIS and the City of Milwaukee, and;
- III. Reports (Continued)
  - A. **Maintain Core Foundational Elements**
    - 1. Report by MCAMLIS staff on the status of the 2013 Orthophotography/Oblique Imagery Program.

2. Report by MCAMLIS staff on the status of the 2010 Planimetric Update Program

B. **Promote the Integration of Parcel Based Land Information**

1. Report by Milwaukee County Register of Deeds staff on MCAMLIS street address and cadastral map maintenance operations; and
2. Report by City of Milwaukee staff on MCAMLIS street address and cadastral map maintenance operations.

C. **Educational Outreach**

2. Report by MCAMLIS Staff on the status of work performance on behalf of MCAMLIS in support of local community GIS efforts.

D. **Countywide Initiatives**

1. Report by MCAMLIS Staff regarding 2013 Countywide Initiatives and program activity status.

E. ~~**Financial**~~

~~Report by Milwaukee County DAS staff on MCAMLIS Fiscal status~~

IV. Old Business (Continued)

- A. Report by MCAMLIS Staff regarding status of the State of Wisconsin efforts to develop a Statewide Parcel Map as part of Act 20 initiatives related to the Wisconsin Land Information Program (WLIP);
- ~~B. Report by GEODECISIONS regarding the Business Needs Assessment (BNA) Project and MCAMLIS Five Year Work Program Implementation Plan.~~

V. New Business (Continued)

- ~~A. Consideration of the Business Needs Assessment Sub-Committee recommendation to the MCAMLIS Steering Committee regarding acceptance of the Five Year Work Program Implementation Plan;~~
- ~~B. Consideration of Business Needs Assessment Sub-Committee recommendations to the MCAMLIS Steering Committee for inclusion in the MCAMLIS 2014 Work Program;~~
- ~~C. Consideration of a 2014 agreement for Milwaukee County Surveyor Services between MCAMLIS and SEWRPC;~~
- ~~D. Consideration of a 2014 agreement for Map Maintenance Services between MCAMLIS and the City of Milwaukee, and;~~

- E. Appointment of a Nomination Committee to recommend officers to be seated at the Steering Committee's next regular meeting.
- VI. Correspondence
- VII. Date, time, and place of next meeting
- VIII. Adjournment

MINUTES OF THE 93<sup>rd</sup> MEETING  
MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM  
STEERING COMMITTEE

Date: September 24<sup>th</sup> 2013  
Time: 9:00 a.m.  
Place: Milwaukee Metropolitan Sewerage District  
MMSD Hdqtrs, Room 401  
260 W Seeboth St.  
Milwaukee, WI. 53204

Members Present

Kurt W. Bauer  
Donald R. Nehmer, Chair

Milwaukee County Surveyor  
Capital Program Business Manager, Milwaukee  
Metropolitan Sewerage District

Greg High

Director, Architecture, Engineering and Environmental  
Services Division, representing Milwaukee County  
Department of Administrative Services Facilities  
Management

Tim Marquardt  
Dan Laurila

Manager - EDAM Support, We Energies  
Budget Analyst, Milwaukee County DAS, representing  
Don Tyler, Director of Milwaukee County Department of  
Administrative Services

Pamela Booth

GIS Developer - Project Leader, City of Milwaukee, ITMD  
representing Nancy A. Olson, Vice Chair, Chief  
Information Officer, City of Milwaukee  
LIO, Milwaukee County Register of Deeds

John La Fave

Members Absent

John M. Bennett

City Engineer, City of Franklin, representing the  
Intergovernmental Coordinating Council of Milwaukee  
County

Guest and Staff Present

Emily Champagne  
William C. Shaw

GIS Supervisor, MMSD  
MCAMLIS Project Manager, Milwaukee County  
DAS/ECD-MCAMLIS

Kathleen Bach  
Tammy Bronson  
Marcia Cornell  
Dave Mockert  
Tom Ries

GIS Tech, Milwaukee County Register of Deeds  
GIS Analyst, City of Milwaukee, ITMD  
Civil Engineer - Senior, City of Milwaukee, DPW  
Consultant, GEODECISIONS  
Consultant, GEODECISIONS

**I. ROLL CALL**

Chairman Nehmer, called the Ninety-Third meeting of the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee to order at 9:00a.m. Roll Call was taken by circulating an attendance signature sheet and a quorum was declared present.

**II. MEETING MINUTES**

**CONSIDERATION OF THE MINUTES OF THE 92ND STEERING COMMITTEE MEETING HELD JULY 9TH, 2013**

Nehmer: stated that a copy of the minutes was provided with the meeting materials and asked if any corrections are required.

**Motion: Bauer moved approval of the minutes**

**Second: High, motion carried unanimously**

**III. REPORTS**

**A. MAINTAIN CORE FOUNDATIONAL ELEMENTS**

**1. REPORT BY MCAMLIS STAFF ON THE STATUS OF THE 2012/2013 ORTHOPHOTOGRAPHY/OBLIQUE IMAGERY PROGRAM**

Shaw: directed the Committee to the report included with the meeting materials and noted that the Milwaukee County Board had approved this project on 3/15/12. Adding that the project was delayed due to vendor schedule commitments and logistical problems brought on by the unseasonably warm 2012 spring weather. Subsequently staff determined it necessary to postpone the 2012 flight for completion scheduled in spring 2013.

Shaw: stated that the new photography was flown the week of 4/15. The orthophotography is to be delivered to MCAMLIS the week of 9/22 and messages have been released to MCAMLIS contacts across the county informing them of the coming availability of the new photography and how they can order copies for their jurisdictions.

Secretary's Note: Delivery of the AccuPlus Orthophotography was accepted on 9/26/2013 and deliveries to local communities requesting copies began on 10/4/2013

Nehmer: stated for the minutes that the report was accepted by consensus and is to be placed on file

**2. REPORT BY MCAMLIS STAFF ON THE STATUS OF THE 2010 PLANIMETRIC UPDATE PROGRAM**

Shaw: directed the Committee to the report included with the meeting materials. Noting that the Committee had earlier approved a replacement mapping project and that staff had drafted an RFP and had established a contract for this work to be completed by GRW Inc. Lexington, KY. He then summarized for the Committee noting this project

includes updates of areas scattered throughout the county comprising roughly 17 sq. mi. that staff had identified through the use of land transfer document recorded changes along with various change detection and interpretation techniques. A pilot was conducted in March to test GRW production procedures and staff concluded that after some revision that full production could begin in May. Delivery is complete through 7 of 22 areas as included on the status exhibit included with the materials. The project is on track to be completed later this year with areas 8 and 9 to be delivered within a week followed by the remaining areas through the end of the year. Mr. Shaw noted that in addition to the completion of updates to the selected area planimetric features and the delivery of polygonal features representing travelled right of way, bridges and buildings across the county that MCAMLIS Staff has negotiated the completion of a pilot area located in section 5 of the status map. Further noting that this area will be used to test the contractor's ability to complete the production of discrete polygons for additional features e.g., paved/unpaved driveways, paved/unpaved road shoulders, surface parking and sidewalks. The successful completion of the pilot will result in a 2015 project to complete the generation of these same features in polygon format across the county.

Bauer: inquired as to the possible usage of the data that will result for purposes of calculating impervious area features as of a given date.

Shaw: replied that yes the data could be used for that purpose and that the 2010 benchmark date of the photography constitutes the given date. Mr. Shaw further noted that it is his expectation that this process would be employed to complete a similar update in 2015 and subsequent years.

Bauer: inquired as to whether there would be a capability to produce a set of line maps similar to the maps that were produced from the original data delivered in 2005.

Shaw: replied that yes the capability to produce line maps would remain and that the lines themselves constituted the basis to produce the desired polygons and would continue to be part of the overall specification.

Nehmer: asked when the first phase of the project (the original 17 sq. mi.) would be complete.

Shaw: answered that the project is now a combination of the original change areas and the generation of polygons for TROW, bridges and buildings. This phase of the project will be delivered by the end of year with QA/QC processes extending final acceptance into the beginning of 2014.

Bauer: asked whether a map as of a specific date could be produced from the data once the project is completed.

Shaw: replied yes, the bench mark date of the replacement maps would be the date of the 2010 photography.

Nehmer: stated for the minutes that the report was accepted by consensus and is to be placed on file

## **B. PROMOTE THE INTEGRATION OF PARCEL BASED LAND INFORMATION**

### **1. REPORT BY MILWAUKEE COUNTY REGISTER OF DEEDS STAFF ON MCAMLIS STREET ADDRESS AND CADASTRAL MAP MAINTENANCE OPERATIONS**

Bach: directed the Committee to the report included with the meeting materials.

Bauer: commended Ms. Bach on her contribution and efforts.

Bach: thanked Mr. Bauer adding that at the moment she was 'swamped' by changes related to rights of way primarily occurring in Oak Creek, Franklin and Wauwatosa.

Nehmer: stated for the minutes that the report was accepted by consensus and is to be placed on file.

### **2. REPORT BY CITY OF MILWAUKEE STAFF ON MCAMLIS STREET ADDRESS AND CADASTRAL MAP MAINTENANCE OPERATIONS**

Bronson: directed the Committee to the report included with the meeting materials.

Nehmer: stated for the minutes that the report was accepted by consensus and is to be placed on file.

## **C. EDUCATIONAL OUTREACH**

### **1. REPORT BY MCAMLIS STAFF ON THE STATUS OF WORK PERFORMANCE ON BEHALF OF MCAMLIS IN SUPPORT OF LOCAL COMMUNITY GIS EFFORTS**

Shaw: directed the Committee to the report included with the meeting materials, noting that staff had recently facilitated the 7<sup>th</sup> meeting of the Milwaukee Municipal GIS Users Group (MMGUG) and that the meeting was held on 9/10/13 at the Village of Shorewood. The next meeting is scheduled to be held at MMSD on 1/14/2014.

Shaw: continued with an explanation of a MCLIO website Dashboard Report Exhibit noting that there have been 4 million operations logged on the website through August from the beginning of the year. He further reported that the website is expected to be replaced in the future and that testing and development on the replacement website is moving ahead.

Shaw: reported that staff continues to work with the City of Cudahy regarding a request to support their asset management initiative using MCAMLIS on-line services in combination with Asset Management software produce by Cartegraph. He further stated that staff was working toward the development of a Service Level Agreement (SLA) between MCAMLIS and Rukert & Meilke Engineering. The SLA would formalize responsibilities in providing assistance to local partner clients in use of MCAMLIS services via R&M supported website solutions. He added that the SLA effort could be used as model if approached by other vendors regarding MCAMLIS website support services.

Bauer: asked if there was a charge for these services.

Shaw: replied no that these services are made available in the public domain and that in promoting their use in this 'Open' manner conformed to the MCAMLIS mandate to provide land information to Milwaukee County.

Nehmer: stated for the minutes that the report was accepted by consensus and is to be placed on file.

## **2. REPORT BY MCAMIS STAFF REGARDING CURRENT PROGRESS AND STATUS OF THE MILWAUKEE COUNTY BUSINESS NEEDS ASSESSMENT (BNA) PROJECT**

Shaw: Directed the Committee to the report materials that were provide at the meeting. Introducing Tom Ries and Dave Mockert – GEODECISIONS to the Committee and noting that Tom would inform the Committee of the current status and future plans related to the BNA.

Reis: continued with a discussion of the recently completed BNA project efforts drawing attention to materials included for the meeting and noting that the project is approaching the development of the Five Year Plan as a final deliverable.

High: focused attention on Tom's mention of the development of a MCAMLIS Portal and asked how this was intended to be used to assist assess to MCAMLIS services. He wanted to know the extent and purpose of the Portal - did it include items that were not necessarily directly related to MCAMLIS as in the Portal example being used describing 'Bills signed by the Governor'.

Reis: acknowledged that the example may be too broad but that the recommendation was clear that MCAMLIS needed to consider the technology that supports a Portal as a method to expand access to MCAMLIS services and information.

Shaw: added that many other players in the technology arena within Milwaukee County and perhaps all the way to the State WLIP would need to be consulted before MCAMLIS would enter into a comprehensive effort to fully implement a MCAMLIS Portal. He further mentioned that perhaps the City of Milwaukee would be among those that would be large enough to have an interest in the approach under consideration by MCAMLIS as part of a Portal initiative.

High: inquired as to whether Mr. Shaw saw this spreading to a website that supported all of Southeastern Wisconsin.

Shaw: thought that could very well happen. He added that the MCAMLIS BNA process has been suggested as a model approach to defining needs across the region and perhaps could provide opportunities to assist in the implementation of Act 20 for the State program.

Bauer: stated that he thought that the MCAMLIS effort should 'standalone' and that others should be able to use it as a model for their own programs. He further noted he

considered MCAMLIS as the best funded program and that it could either 'standalone' or if adopted as a model could fit into a regional program

Shaw: added that he and Mr. Bauer were in agreement and that he was interested in the possibility of collaborating with others who may responsibility beyond Milwaukee County.

Mockert: added that the BNA was not envisioned to be used by the State or the Region and is focused on increasing the utility of location based data and technologies within the MCAMLIS partner communities. The Portal is seen as a means to consolidate assistance to partners by providing access to a host of MCAMLIS services in a 'one stop shop' environment.

A discussion followed regarding a proposed initiative to improve the currency and management of property records as provided by MCAMLIS.

Bauer: commented that to a degree there needs to be an acceptance that 'enough is enough' regarding currency and accuracy of the data. He added that technology is driving this but that just because it's now possible doesn't mean that it is necessary – citing for example technological improvements in survey accuracy that are not necessarily warranted.

Shaw: while agreeing with Mr. Bauer in principal expressed that there was room for improvement in the area of property record currency where certain records could lag as much as 9 months.

A discussion followed regarding the development and continued involvement of partner organizations within MCAMLIS – who and what roles need to be engaged in a way to further MCAMLIS?

Nehmer: commented that the engagement exercises of the BNA should not end but instead these should continue in a structured manner to provide MCAMLIS with a continuous feedback loop.

Ries: concluded with a description of the remaining tasks leading up to the Steering Committee consideration of the Final Work Plan at its December meeting.

Nehmer: further clarified that he expected that the BNA Sub-Committee would meet prior to the next Steering Committee meeting and that the sub-committee would first approve the Work Plan and make recommendation to the Steering Committee.

Nehmer: stated for the minutes that the report was accepted by consensus and is to be placed on file.

#### **D. COUNTYWIDE INITIATIVES**

##### **1. REPORT BY MCAMLIS STAFF REGARDING 2013 COUNTYWIDE INITIATIVES AND PROGRAM ACTIVITY STATUS**

Shaw: directed the Committee to the report included with the meeting materials. Noting the growing importance of address information and related accomplishments

e.g., Historical Aerial photo, street centerline, plat of survey and Community Basemap Projects among others.

Shaw: confirmed the completion of 1961 aerial photos located in the City of Oak Creek and the work on the 1928 photography located in the Town of Granville and southern Milwaukee County.

Shaw: continued, relaying progress on non-project related efforts e.g., websites enhancements and migration to new technologies, most notably HTML5, Silverlight and promoting Pictometry Connect.

Nehmer: stated for the minutes that the report was accepted by consensus and is to be placed on file.

#### **E. REPORT BY MILWAUKEE COUNTY DAS STAFF ON MCAMLIS FISCAL STATUS**

Nehmer: directed Mr. Shaw address the Year to Date Document report produced by the Register of Deeds Office and included in the meeting materials.

LaFave: identified the report and explained that the report contents summarize the monthly recordings and fees collected by the ROD. He noted that fee collections were lagging his annual prediction of 137,000 recordings and now expects to see a number that is closer to 134,000.

Laurila: directed the Committee to the fiscal report supplement provided to the Committee at the meeting along with the meeting materials. He stated that the fiscal report reflected current balances. He estimated that \$22,000 would be available at the end of 2013 to be carried over to the Trust account and added to the \$1.54 million Trust balance.

Nehmer: stated for the minutes that the report was accepted by consensus and is to be placed on file.

#### **IV. OLD BUSINESS**

NA

#### **V. NEW BUSINESS**

NA

#### **VI. CORRESPONDENCE**

Shaw: noted that he had received two items of correspondence and included these in the materials. One was a letter from SEWRPC announcing the completion and delivery of the draft floodplain work within the Menomonee mainstem from North Avenue to the city of Wauwatosa. He further described improvements as to how these new materials will be made available on the MCLIO websites.

Shaw: a second item of correspondence included a letter from the State Department of Administration regarding elements that will be undertaken by the State as part of Act 20.

Nehmer: stated for the minutes that the report was accepted by consensus and is to be placed on file.

**VII. DATE, TIME, AND PLACE OF NEXT MEETING**

December 3<sup>rd</sup>, 2013 @ 9:00am, MMSD (next regular meeting)

**VIII. ADJOURNMENT**

**Motion: Bauer, moved to adjourn**

**Second: Laurila, motion carried unanimously**

Respectfully submitted,  
William Shaw



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2711 West Wells Street, Rm 426, Milwaukee, WI 53208 (414) 278-2176

**MEMORANDUM**

**TO:** MCAMLIS Steering Committee  
**FROM:** William C. Shaw, MCAMLIS Project Manager  
**DATE:** November 19, 2013  
**SUBJECT:** 2012-2013 Milwaukee County Orthophotography Project

**BACKGROUND**

At its meeting held September 13<sup>th</sup>, 2011, the MCAMLIS Steering Committee approved a staff recommendation to proceed with the acquisition of Pictometry International Inc. AccuPLUS orthophotography. Beginning with the 2005 Regional Orthophotography Project, Milwaukee County has acquired spring digital orthophotography every two or three years e.g., 2005, 2007, 2010. The spring of 2013 is the next scheduled acquisition of orthophotography covering Milwaukee County.

**PROJECT**

This project will complete the second flight of a three (3) flight six-year license agreement with Pictometry International Inc. The original contract entered into in spring of 2010 specified a six-year agreement for imagery to be acquired in years 2010, 2012 and 2014/15 assuming that funds are available and authorized for this purpose.

The project includes acquisition of Pictometry International AccuPlus 4-inch pixel, color, digital orthophotography and oblique image photography as a package costing a total of \$134,495. The 2013 flight is scheduled between mid-March, and mid-April depending on conditions.

**ACTIVITIES THIS PERIOD: 9/13 – 12/13**

- Final delivery from Pictometry during the week of September 30<sup>th</sup>
- Posted 2013 data to the MCLIO websites
- A total of 24 organizations received updated data of which 14 Milwaukee County municipalities received updates.

**NEXT**

- Follow-up with communities that have not requested updates: City of Glendale, City of Oak Creek, Village of Hales Corners, Village of Bayside and Village of Whitefish Bay

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**MEMORANDUM**

**TO:** MCAMLIS Steering Committee

**FROM:** William C. Shaw, MCAMLIS Project Manager

**DATE:** November 19, 2013

**SUBJECT:** REPLACEMENT PLANIMETRIC MAPPING

**BACKGROUND**

At its meeting held on September 13<sup>th</sup>, 2011, the MCAMLIS Steering Committee approved a MCAMLIS Staff recommendation allowing staff to proceed with the development of a Planimetric Map Replacement Program. The Map Replacement program is regarded a priority in the MCAMLIS PROGRAM STRATEGIC ASSESSMENT FOR 2010-2013 and the project is scoped to meet requirements for updating the 2004 - 2009 Topographic/Planimetric Map Series and maintaining this series going forward.

**PLANIMETRIC FEATURE UPDATES**

The aggregate total of identified change in square miles is estimated to be approximately 7% by area from 2005 through 2010 - approximately 17 square miles.

**PROJECT SPECIFICATIONS**

MCAMLIS Staff prepared a set of detailed planimetric map maintenance specifications to address the planimetric mapping update process and presented these to the Steering Committee for approval. As approved by the Committee the update process will be overseen by a certified photogrammetrist and managed by MCAMLIS staff.

**ACTIVITIES THIS PERIOD: 9/13 – 12/13**

- Project continued production since the last update
- Areas 1 through 15 of 22 production areas have been accepted (refer to attached status map)
- Areas 16, 17 and 18 have been received and in review by staff (refer to attached status map)

**NEXT**

- Receive remaining areas 19 through 22 (refer to attached status map)
- Initiate production of 18 sq. mi. pilot of area 5 wherein all planimetric line features representing features e.g., sidewalks, driveways, surface parking (Planimetric Polygon Feature Exhibit attached)

- QA/QC processes will be applied to each delivery and returned to GRW until fully accepted
- Deliveries will proceed through December basis until deliveries are complete and the final delivery is accepted.
- Continue full polygon pilot area product evaluation and report back findings regarding future project cost estimate to complete

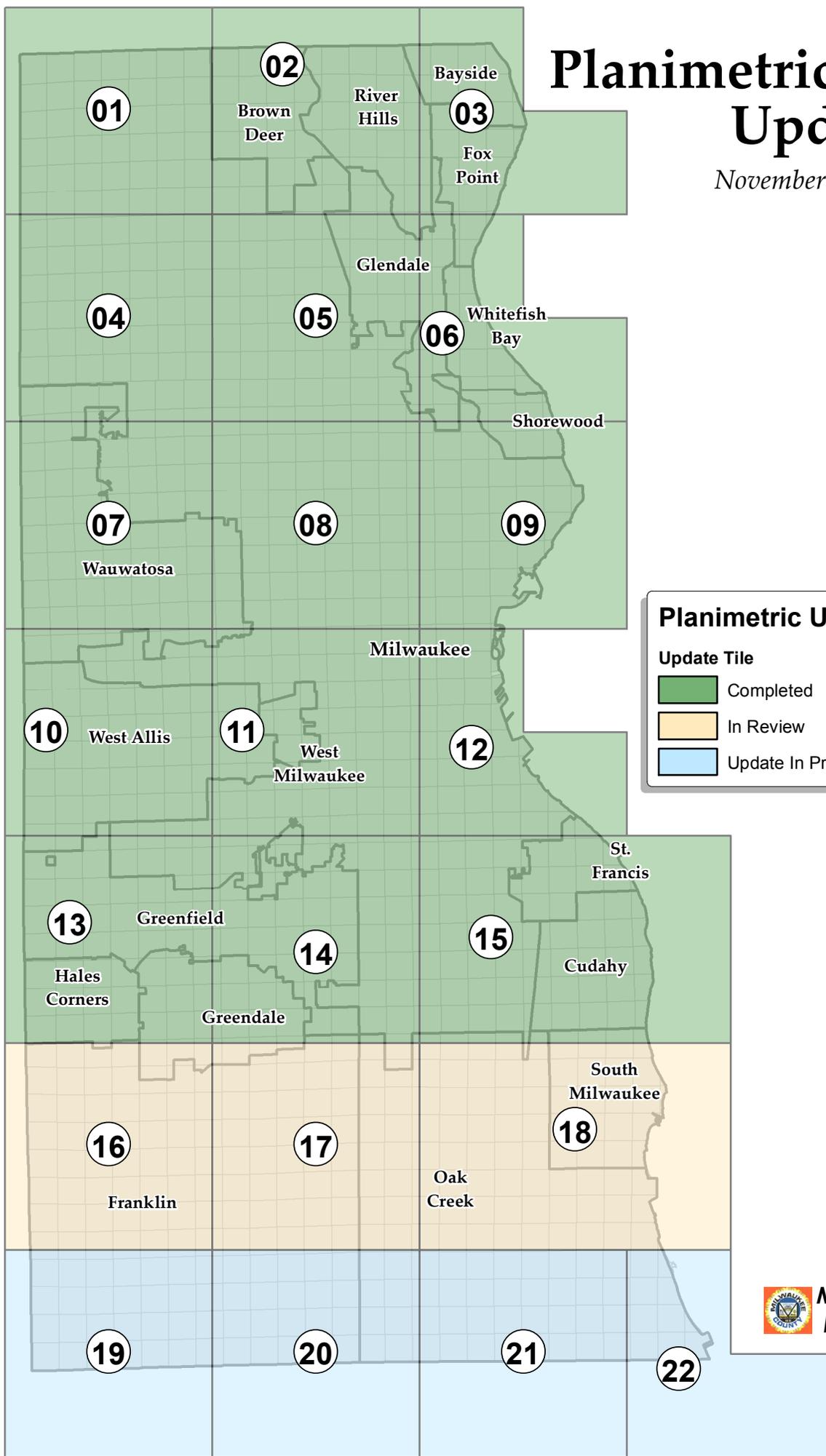
Attach: Planimetric Mapping Update Status map

Planimetric Polygon Feature exhibit

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# Planimetric Mapping Update

November 14, 2013



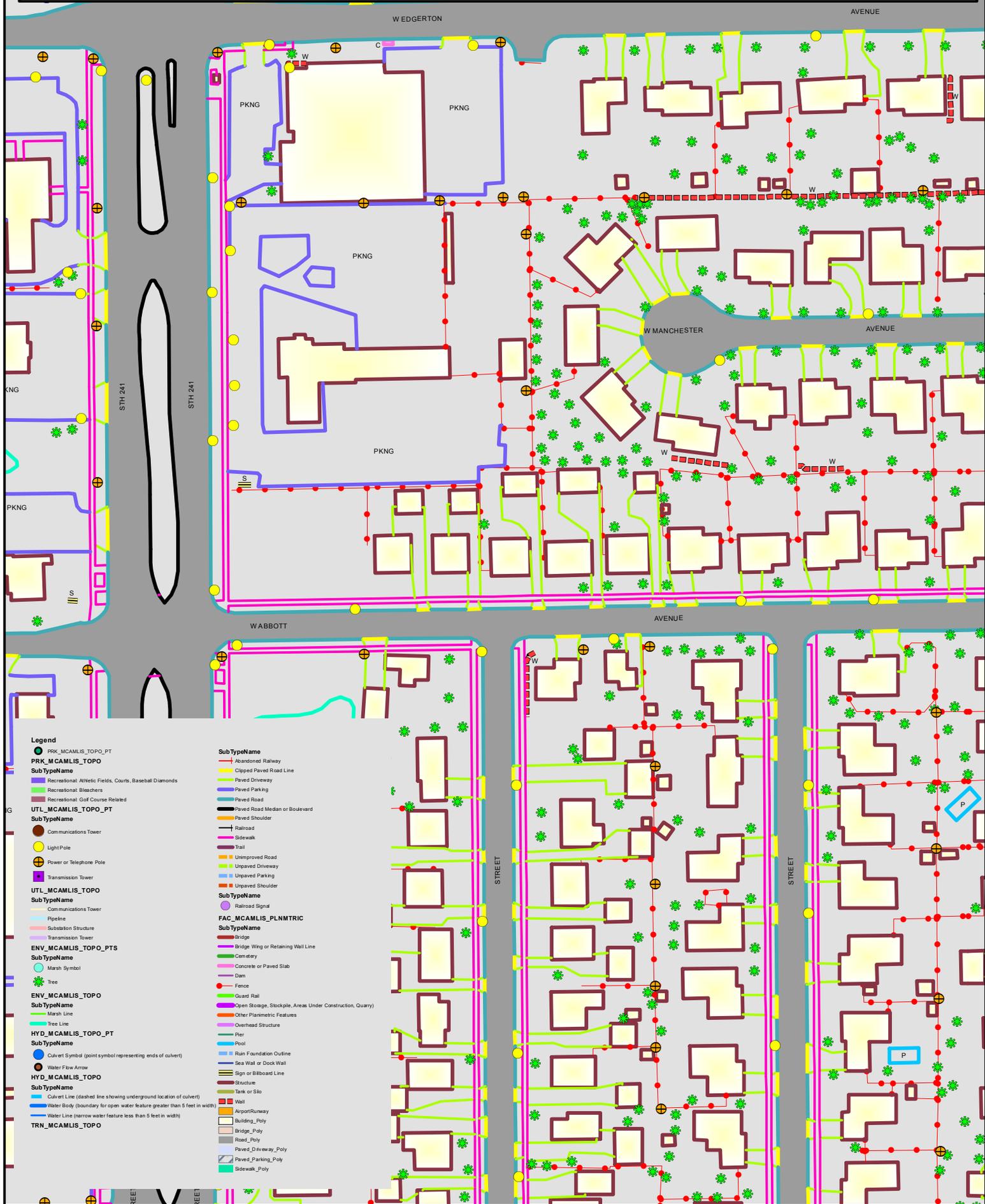
**Planimetric Update Tiles**

Update Tile

-  Completed
-  In Review
-  Update In Process



# PLANIMETRIC DATA UPDATE PROJECT



## Legend

- PRK\_MCAMLIS\_TOPO\_PT
- PRK\_MCAMLIS\_TOPO
- Sub TypeName
- Recreational Athletic Fields, Courts, Baseball Diamonds
- Recreational Bleachers
- Recreational Golf Course Related
- UTL\_MCAMLIS\_TOPO\_PT
- Sub TypeName
- Communications Tower
- Light Pole
- Power or Telephone Pole
- Transmission Tower
- UTL\_MCAMLIS\_TOPO
- Sub TypeName
- Communications Tower
- Pipeline
- Substation Structure
- Transmission Tower
- ENV\_MCAMLIS\_TOPO\_PTS
- Sub TypeName
- Marsh Symbol
- Tree
- ENV\_MCAMLIS\_TOPO
- Sub TypeName
- Marsh Line
- Tree Line
- HYD\_MCAMLIS\_TOPO\_PT
- Sub TypeName
- Culvert Symbol (point symbol representing ends of culvert)
- Water Flow Arrow
- HYD\_MCAMLIS\_TOPO
- Sub TypeName
- Culvert Line (dashed line showing underground location of culvert)
- Communications
- Water Body (boundary for open water feature greater than 5 feet in width)
- Water Line (narrow water feature less than 5 feet in width)
- TRN\_MCAMLIS\_TOPO

## Sub TypeName

- Abandoned Railway
- Clipped Paved Road Line
- Paved Driveway
- Paved Parking
- Paved Road
- Paved Road Median or Boulevard
- Paved Shoulder
- Railroad
- Sidewalk
- Trail
- Unimproved Road
- Unpaved Driveway
- Unpaved Parking
- Unpaved Shoulder
- Railroad
- Railroad Signal
- FAC\_MCAMLIS\_PLNMETRIC
- Sub TypeName
- Bridge
- Bridge Wing or Retaining Wall Line
- Cemetery
- Concrete or Paved Slab
- Dam
- Fence
- Guard Rail
- Open Storage, Stockpile, Areas Under Construction, Quarry
- Other Planimetric Features
- Overhead Structure
- Pier
- Pool
- Run Foundation Outline
- Sea Wall or Dock Wall
- Sign or Billboard Line
- Structure
- Tank or Silo
- Wall
- Airport/Runway
- Building\_Poly
- Bridge\_Poly
- Road\_Poly
- Paved\_Driveway\_Poly
- Paved\_Parking\_Poly
- Sidewalk\_Poly

R.21 E.

R.22 E.

# MCAMLIS Cadastral Database Maintenance Status December 2013 Status

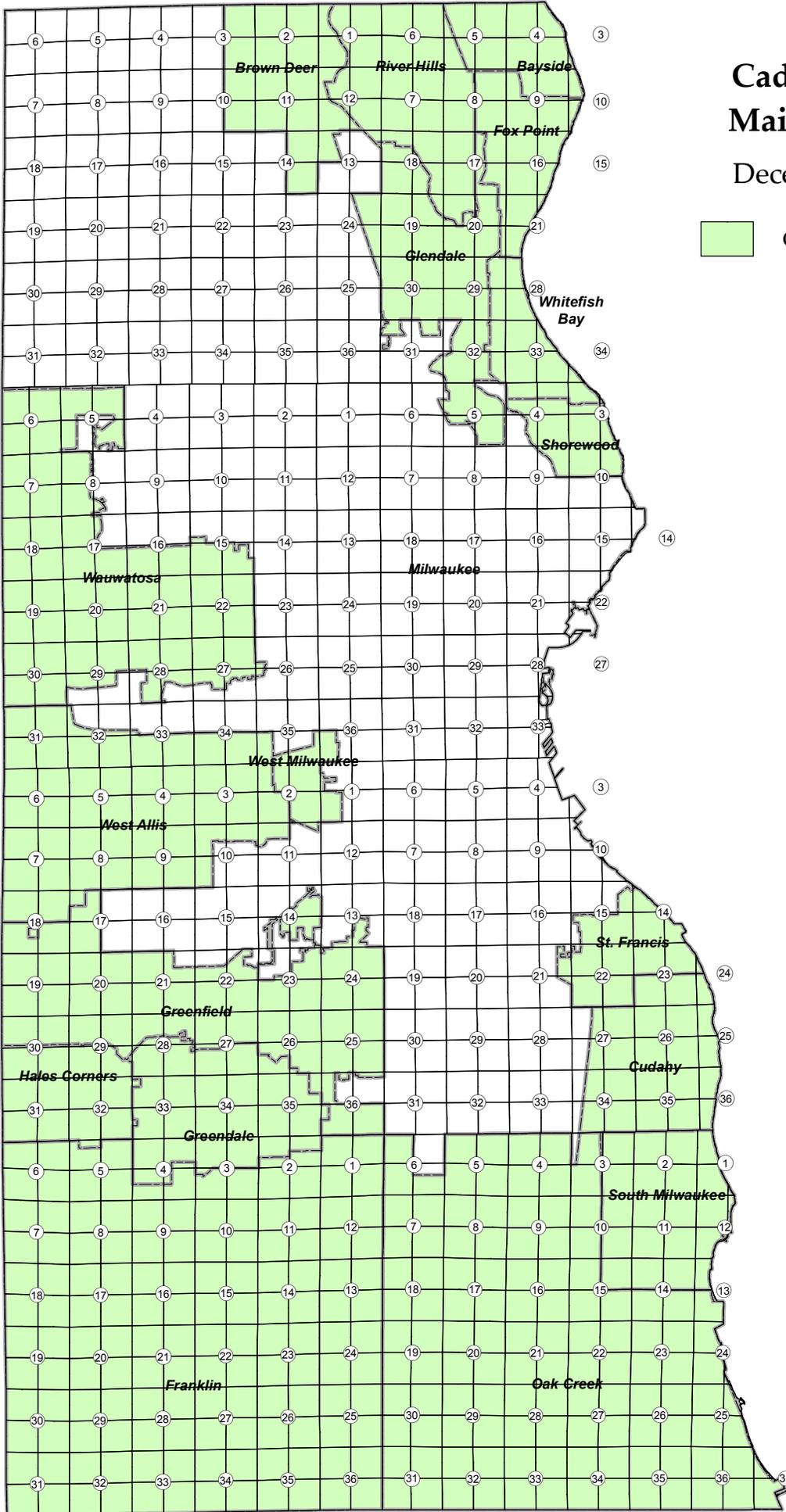
 Current as of November 1, 2013

T.8 N.

T.7 N.

T.6 N.

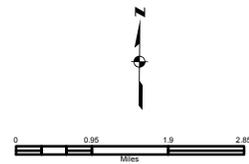
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R.21 E.

R.22 E.

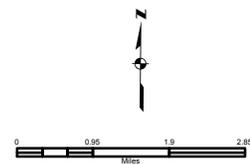
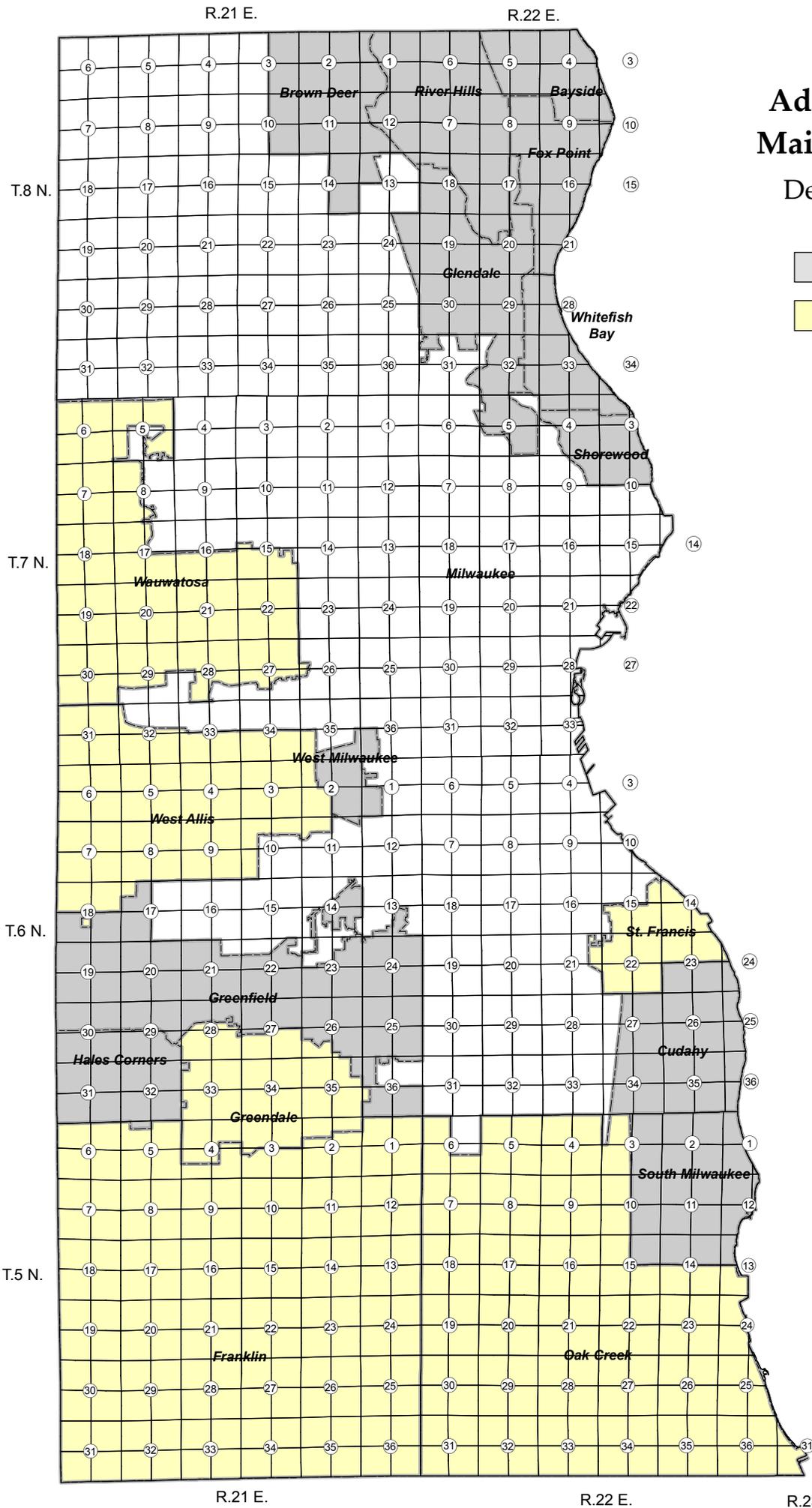
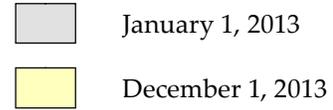
R.23 E.



Source: MCAMLIS Project Manager

# MCAMLIS Address Database Maintenance Status

December 2013 Status



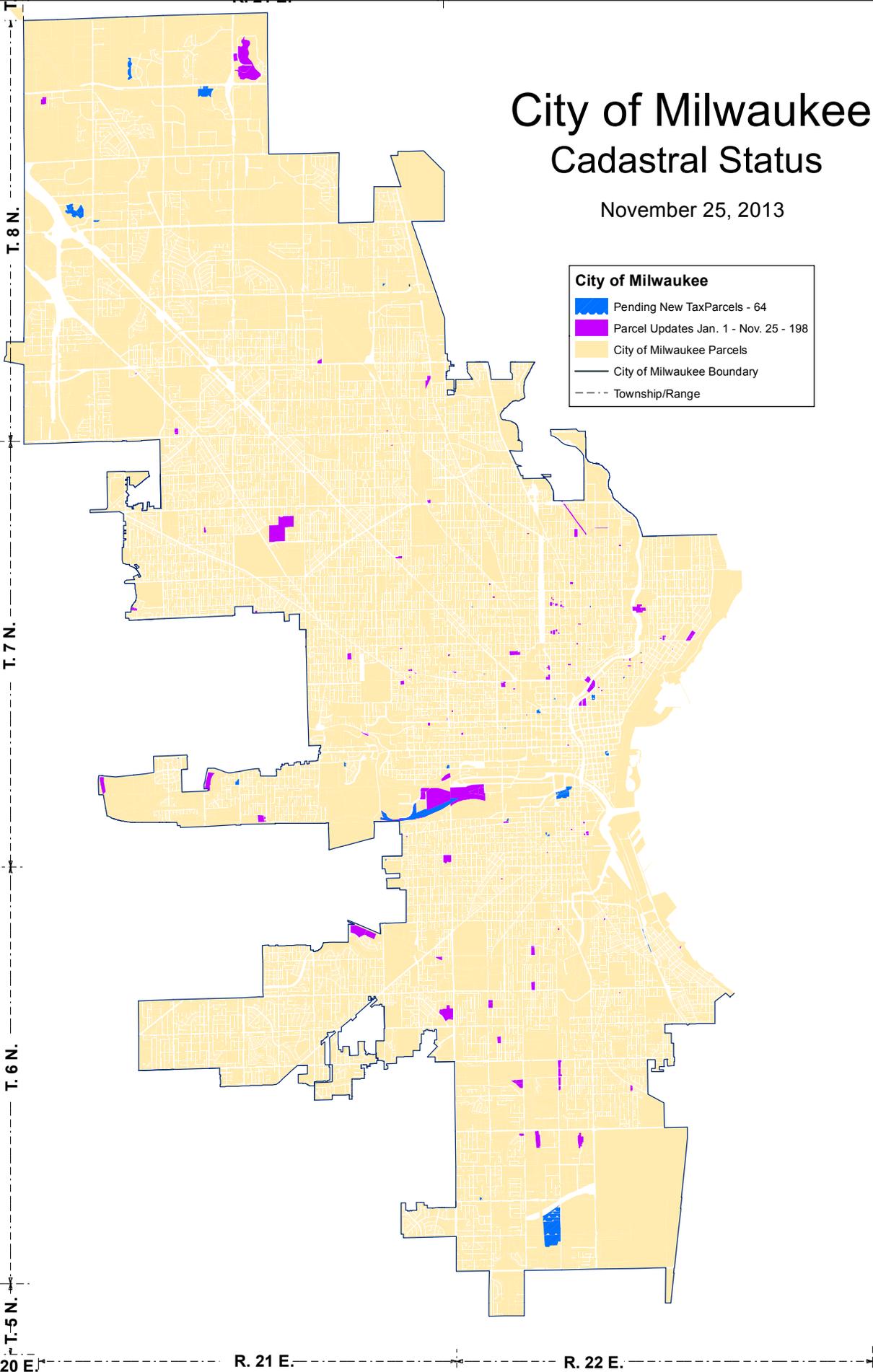
Source: MCAMLIS Project Manager

# City of Milwaukee Cadastral Status

November 25, 2013

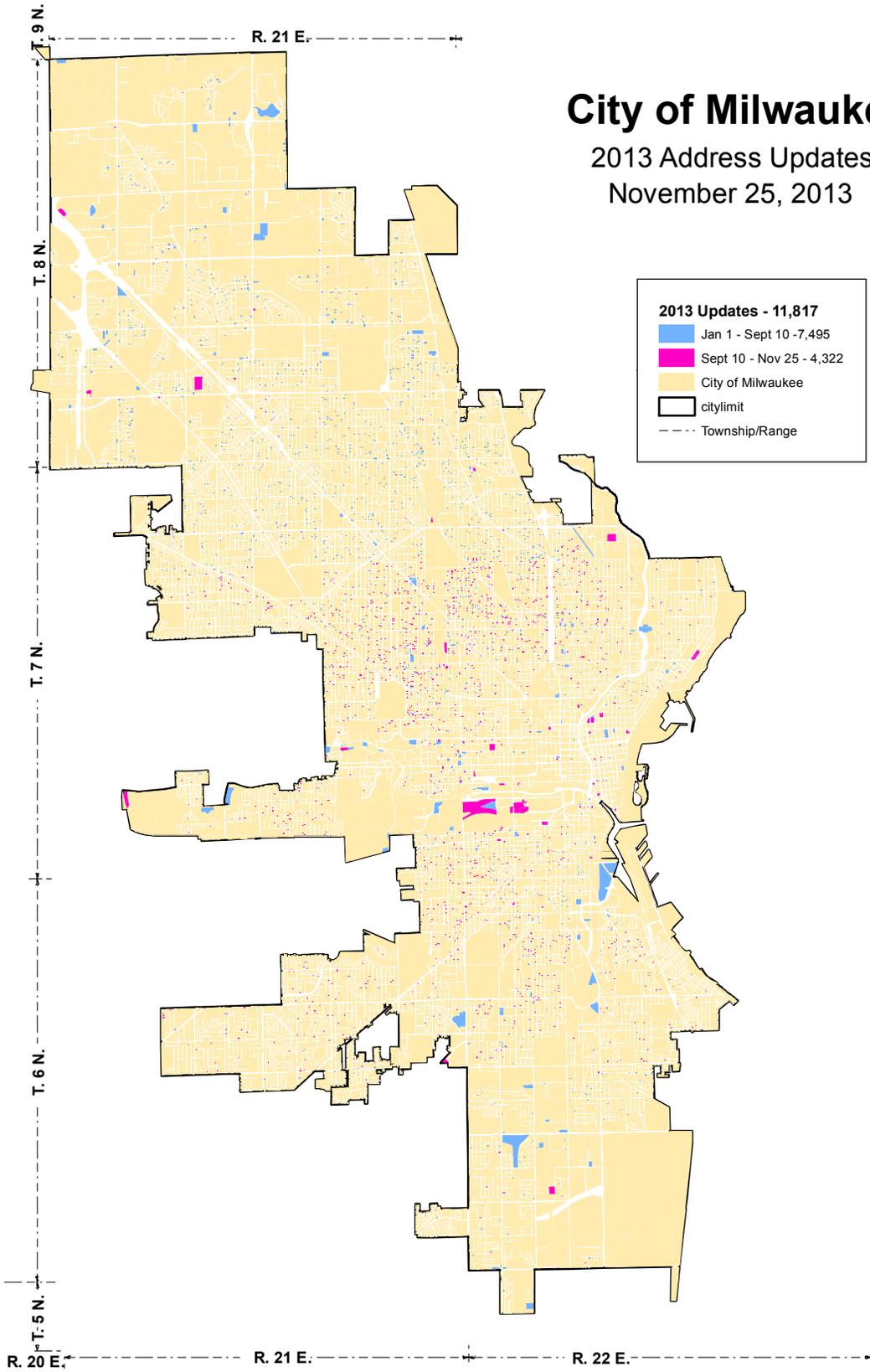
**City of Milwaukee**

-  Pending New TaxParcels - 64
-  Parcel Updates Jan. 1 - Nov. 25 - 198
-  City of Milwaukee Parcels
-  City of Milwaukee Boundary
-  Township/Range



# City of Milwaukee

2013 Address Updates  
November 25, 2013





**DEPARTMENT OF ADMINISTRATIVE SERVICES**  
**DIVISION OF ECONOMIC DEVELOPMENT**  
**MILWAUKEE COUNTY LAND INFORMATION OFFICE**

2711 West Wells Street, Rm 426, Milwaukee, WI 53208 (414) 278-2176

**MEMORANDUM**

**TO:** MCAMLIS Steering Committee  
**FROM:** William C. Shaw, MCAMLIS Project Manager  
**DATE:** November 20, 2013  
**SUBJECT:** Educational Outreach Activity Status

**BACKGROUND**

The MCAMLIS Program Goals and Objectives included in the 'Land Information Strategic Assessment for 2013 –2016 identified the need for MCAMLIS Staff to develop and promote MCAMLIS products and services to MCAMLIS Partners and especially to include contacts and assistance related to local municipalities. The following describes MCAMLIS Staff activities under this objective for the preceding period:

**ACTIVITIES THIS PERIOD – 9/13- 12/13**

1. Meetings and Presentations
  - MCLIO booth at UWM GIS Day 11/20
  - Organized and facilitated the seventh meeting of the Milwaukee Municipal GIS Users Group (MMGUG). Meeting was held on 9/10/2013 @ Village of Shorewood (see attached agenda)
  - Scheduled next MMGUG meeting to be held @ the MMSD Headquarters scheduled on January 14<sup>th</sup> 2014
2. Maintained production MCLIO web services (see attached Dashboard);
3. Incorporated updated tutorial materials and announcements to users of the MCLIO Interactive Mapping Service website including:
  - Posting 3<sup>rd</sup> Qtr 2013 foreclosure data
4. Maintained open channels of communication regarding web hosting data on the MCLIO website:
  - continued working with the City of Cudahy to assist their asset management system implementation utilizing Cartegraph Cloud services
  - continued discussions with Rukert & Mielke regarding Service Level Agreement (SLA)/Memorandum of Understanding (MOU) in support of municipal clients e.g., Wauwatosa, Greenfield and Fox Point

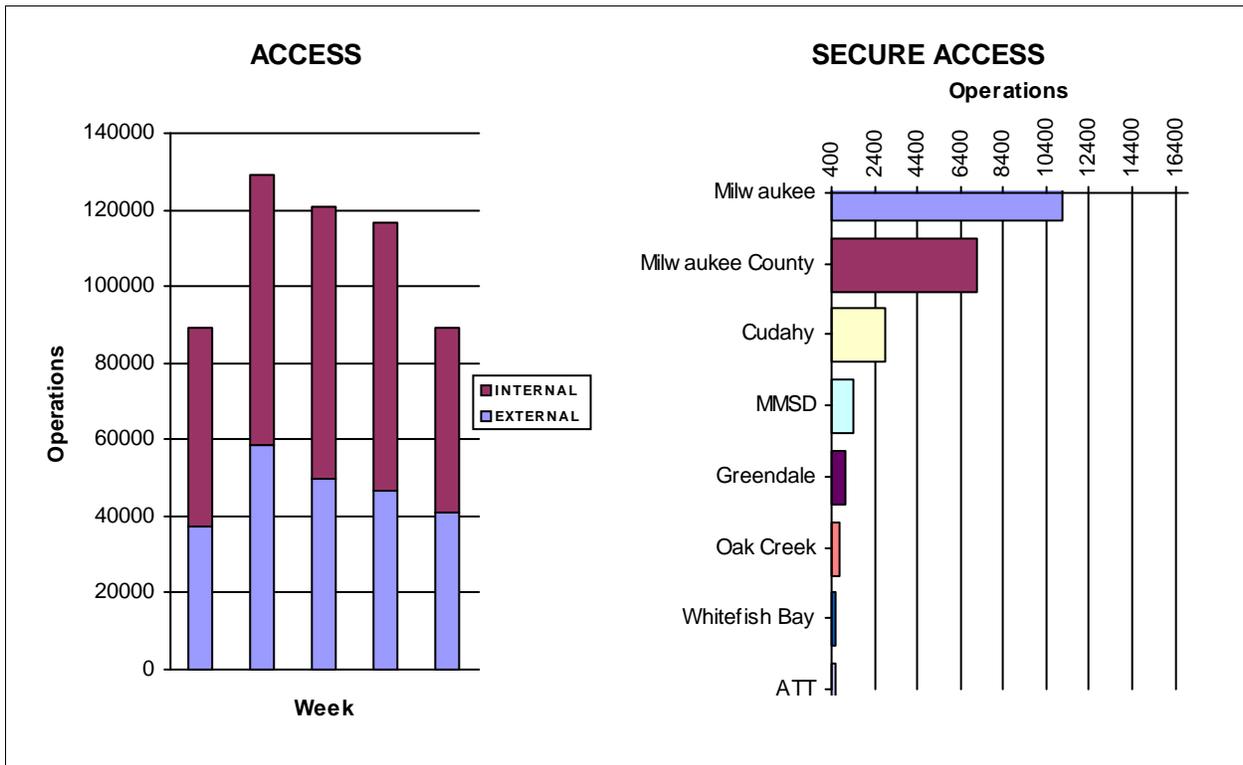
**NEXT**

1. Continue MCLIO website training, data distribution and product enhancements; and
2. Prepare for MMGUG Meeting – January 14<sup>th</sup>
3. Continue to work with member participants to further their GIS goals e.g., proposed 2014 BNA Collaboration projects

Attach: 7<sup>th</sup> MMGUG Meeting Agenda  
MCLIO Interactive Mapping Services Dashboard

\*\*\*\*\*

# MCLIO Map Services Dashboard





**DEPARTMENT OF ADMINISTRATIVE SERVICES  
DIVISION OF ECONOMIC DEVELOPMENT  
MILWAUKEE COUNTY LAND INFORMATION OFFICE**

2711 West Wells Street, Rm 426, Milwaukee, WI 53208 (414) 278-2176

**TO:** MCAMLIS Steering Committee  
**FROM:** William C. Shaw, MCAMLIS Project Manager  
**DATE:** November 20, 2013  
**SUBJECT:** COUNTYWIDE PROGRAM INITIATIVES

## **BACKGROUND**

This Goal states that - Where appropriate, identify, initiate, and complete projects proposed by Milwaukee County or its constituent municipalities, agencies of the federal, state or regional government, public utilities and by private entities, including, importantly, interested citizens which would, by understanding of the MCAMLIS Steering Committee, prepare information and maps useful for meeting the needs of the County and its local units of government and contributing toward the implementation of the Wisconsin Land Information Program.

## **CURRENT PROJECT STATUS SUMMARIES**

### **1. Address Database Maintenance**

#### **Activities this Period – 9/13 – 12/13**

- Deployed 3<sup>rd</sup> qtr consolidated Milwaukee County and City of Milwaukee Cadastral Data;
- Maintained address point "situs" relationship to structure location; and .

#### **Next**

- Continuation of ongoing efforts incorporating updated multiple address source information

### **2. Plat-of-Survey Maintenance**

Plat of Survey Documents received from the Milwaukee County Surveyors Office are scanned and indexed to their respective parcel(s). The public is able to access these as they are posted to the MCLIO Interactive Mapping website. In total, there are 95,182 parcel references to 83,771 documents. In 2013 a total of 1,948 documents have been scanned and indexed into the Plat of Survey scanned document library.

### **3. Historical Aerial Photo Geo-rectification**

1961 – The City of Oak Creek recently submitted a set of 115 quarter-section centered aerial photos covering the entire city. MCAMLIS staff has completed the process of scanning and preparing these photos for purposes of geo-referencing and posting the resulting data to the website.

1951 - MCAMLIS staff has completed the process of geo-referencing section-centered black and white images. These images were taken by Abrams Aerial Survey Corporation, Lansing Michigan for Milwaukee County, WI. Circa 1951-1952. There were eight books containing approximately 520 prints that were scanned and geo-referenced.

1958 – The City of Greenfield recently submitted a set of 73 quarter-section centered aerial photos covering the entire city. MCAMLIS staff has completed the process of scanning and preparing these photos for purposes of geo-referencing and posting the resulting data to the website.

1928 – MCAMLIS Staff recently discovered a cache of what appears to be circa 1928 aerial imagery covering a portion of Milwaukee County. It is believed that there are possibly more photos from this series located throughout various Milwaukee County municipal archives. The State Cartographers Office has been consulted in this regard and has initially suggested that these photos may be among the oldest known to be available throughout the state. (see attached Status Map)

Staff intends to pursue the process of geo-referencing the available photos and seeking further input from local communities to identify the availability of these and other photos needed to complete this series.

#### **4. Routable Street Centerline**

The structure of the MCAMLIS Street Centerline database allows for address geocoding but does not allow for routing and other forms of network analysis e.g., emergency evacuation and turn by turn directions. An effort is underway to enhance the MCAMLIS Street Centerline to allow for the support of routing applications. Staff continues to complete the remaining portion of centerline segments as resources allow.

#### **5. Non-project related activities**

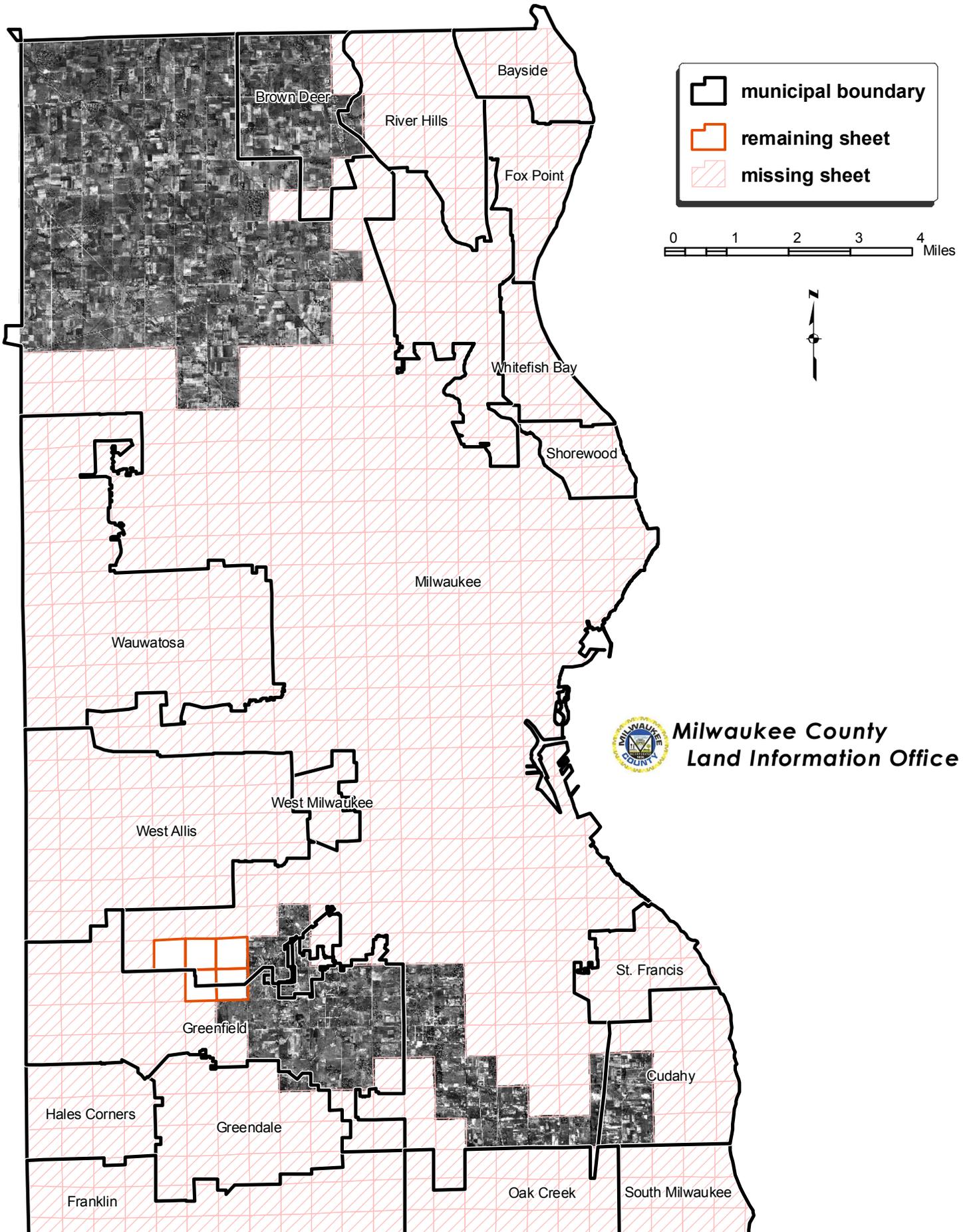
- Review and develop new technologies e.g., ESRI 10.2 and Latitude Geographics ‘Silverlight’ and ‘HTML5’ based viewers and opportunities to use Feature Data Services;
- Management and administration of Pictometry Connect services. Authorized Website SECURE users are automatically included as valid POL users.

Attach: 1928 Historical Aerial Photo Geo-rectification Status Map

\*\*\*\*\*

# 1928 Milwaukee County Aerial Photo Rectification Project Status

148 of 153 available sheets (97%) rectified as of November 16, 2013



**2013 MCAMLIS YTD**

<b>\$2 &amp; \$6 Fees Combined</b>		
	<b>YTD</b>	<b>YE Projected</b>
<b>REVENUES - 2013 YTD</b>		
2013 Actual Revenue	\$903,481	\$1,002,342
2012 Encumbrances Carried Over	\$580,082	\$580,082
<b>TOTAL</b>	<b><u>\$1,483,563</u></b>	<b><u>\$1,582,424</u></b>
<b>OPERATING EXPENSES - 2013 YTD</b>		
2013 Actual Expenditures	\$1,048,111	\$1,162,798
2013 Encumbrances	\$357,579	\$357,579
<b>TOTAL</b>	<b><u>\$1,405,690</u></b>	<b><u>\$1,520,377</u></b>
<b>2013 Est. Net Income (Loss)</b>	<b><u>\$77,873</u></b>	<b><u>\$62,047</u></b>

<b>Fund Balance:</b>		<b>YTD</b>	<b>YE Projected</b>
<b>2012 Year-End Fund Balance*</b>		<b><u>\$1,525,990</u></b>	<b><u>\$1,525,990</u></b>
2013 Operating Revenues (Shown Above)	+	\$1,483,563	\$1,582,424
2013 Exp + Enc for \$2 and \$6 Fee Projects	-	\$1,405,690	\$1,520,377
<b>2013 Est Fund Balance**</b>	<b>=</b>	<b><u>\$1,603,863</u></b>	<b><u>\$1,588,037</u></b>
2013 Reserve Revenue @ 10%		\$100,078	\$100,078
2013 Est Fund Balance YTD - Unrestricted		\$1,461,563	\$1,445,737
2013 Est Fund Balance YTD - Restricted		\$42,223	\$42,223

\*2012 YE Fund Balance represents the current amount in reserve as of 2012 YE close.

\*\*2013 Est YTD Fund Balance represents the 2012 YE reserve netted against the actual 2013 expenditures and revenues. This figure will change throughout the year as additional 2013 expenditures and revenues are realized.

**NOTE:** 2013 expenditures, revenues, and resulting fund balance are year-to-date ONLY. The figures represented in this report are not intended to project a year-end balance for the MCAMLIS budget. The purpose of the report is to provide committee members a "financial snapshot" of MCAMLIS activities within a specific point in time.

**2013 MCAMLIS YTD**

**\$6 Fee**

<b>2013 Income Statement:</b>		<b>YTD</b>	<b>YE Projected</b>
<b>REVENUES - 2013 YTD</b>			
2013 Actual Revenue		\$676,433	\$750,450
2012 Encumbrances Carried Over		\$534,433	\$534,433
	<b>TOTAL</b>	<b><u>\$1,210,866</u></b>	<b><u>\$1,284,883</u></b>
<b>OPERATING EXPENSES - 2013 YTD</b>			
2013 Actual Expenditures		\$824,709	\$914,951
2013 Encumbrances		\$334,313	\$334,313
	<b>TOTAL</b>	<b><u>\$1,159,022</u></b>	<b><u>\$1,249,263</u></b>
<b>2013 Est. Net Income (Loss) YTD</b>		<b><u>\$51,844</u></b>	<b><u>\$35,620</u></b>
<b>Fund Balance:</b>		<b>YTD</b>	<b>YE Projected</b>
<b>2012 Year-End Fund Balance</b>			
		<b>\$1,118,790</b>	<b>\$1,118,790</b>
2013 Actual Revenues (Shown Above)	+	\$1,210,866	\$1,284,883
2013 Exp + Enc for \$6 Fee Projects	-	\$1,159,022	\$1,249,263
<b>2013 Est YTD Fund Balance</b>		<b>= \$1,170,634</b>	<b>\$1,154,410</b>
2013 Reserve Revenue @ 10%		\$75,500	\$75,500
2013 Est Fund Balance YTD - Unrestricted		\$1,089,344	\$1,073,120
2013 Est Fund Balance YTD - Restricted		\$5,790	\$5,790

**\$2 FEE**

<b>2013 Income Statement:</b>		<b>YTD</b>	<b>YE Projected</b>
<b>REVENUES - 2013 YTD</b>			
2013 Operating Cash Flow		\$227,048	\$251,892
2012 Encumbrances Carried Over		\$45,649	\$45,649
	<b>TOTAL</b>	<b><u>\$272,697</u></b>	<b><u>\$297,541</u></b>
<b>OPERATING EXPENSES - 2013 YTD</b>			
2013 Actual Expenditures		\$223,402	\$247,847
2013 Encumbrances		\$23,266	\$23,266
	<b>TOTAL</b>	<b><u>\$246,668</u></b>	<b><u>\$271,114</u></b>
<b>2013 Est. Net Income (Loss) YTD</b>		<b><u>\$26,029</u></b>	<b><u>\$26,428</u></b>
<b>Fund Balance:</b>		<b>YTD</b>	<b>YE Projected</b>
<b>2012 Year-End Fund Balance</b>			
		<b>\$407,200</b>	<b>\$407,200</b>
2013 Operating Revenues (Shown Above)	+	\$272,697	\$297,541
2013 Exp + Enc for \$2 Fee Projects	-	\$246,668	\$271,114
<b>2013 Est YTD Fund Balance</b>		<b>= \$433,229</b>	<b>\$433,628</b>
2013 Reserve Revenue @ 10%		\$24,578	\$24,578
2013 Est Fund Balance YTD - Unrestricted		\$372,218	\$372,617
2013 Est Fund Balance YTD - Restricted		\$36,433	\$36,433

Est. Documents to be Recorded: 125,000

**2013 YTD Combined Fiscal Report - MCAMLIS (\$6) - as of 11-25-2013**

Vendor Name	Description	Amount Authorized	Amount Paid - Prior Years	2013 Amount Encumbered	Amount Paid 2013 YTD	Total Amount Paid 2013 (Encumbrances + Actual)	Remaining Unpaid Balance
SOUTHEASTERN WI REGIONAL	MCAMLIS Floodland Mapping Phase 2	\$ 436,000	\$ 161,300	\$ 274,700	\$ -	\$ 274,700	\$ -
SOUTHEASTERN WI REGIONAL	County Surveyor	\$ 78,719	\$ -	\$ -	\$ 78,719	\$ 78,719	\$ -
PICTOMETRY INTL	Orthophotography Acquisition	\$ 134,495	\$ -	\$ -	\$ 134,495	\$ 134,495	\$ -
PLANIMETRIC	Planimetric Map Replacement	\$ 125,000	\$ -	\$ 40,082	\$ 84,918	\$ 125,000	\$ -
GeoDecisions	Business Needs Assessment	\$ 149,845	\$ -	\$ 19,281	\$ 130,564	\$ 149,845	\$ -
<b>TOTAL</b>		<b>\$ 924,059</b>	<b>\$ 161,300</b>	<b>\$ 334,063</b>	<b>\$ 428,696</b>	<b>\$ 762,759</b>	<b>\$ -</b>

Data from MCAMLIS PM as of 11/25/2013

**2013 YTD Combined Fiscal Report - ROD (\$2) - as of 11-25-2013**

Year Authorized	Project Description	Amount Authorized	Amount Paid 2002-2012	Amount Paid 2013	Amount Encumbered 2013	2013 Total Amount Paid (Encumbrances + Actual)	Remaining Unpaid Balance	Complete
2002	Large Format Scanner	\$13,090	\$13,090	\$0	\$0	\$ -	\$ -	Yes
2003	Improvements to Computer System	\$240,000	\$240,000	\$0	\$0	\$ -	\$ -	Yes
2003	Electronic Recording	\$45,000	\$45,000	\$0	\$0	\$ -	\$ -	Yes
2003	External Hard Drive/Two SNAP Servers	\$40,000	\$40,000	\$0	\$0	\$ -	\$ -	Yes
2003/2005	Digital Images; Conversion of Microfiche	\$400,000	\$400,000	\$0	\$0	\$ -	\$ -	Yes
2005	Scanning A Card	\$50,000	\$50,000	\$0	\$0	\$ -	\$ -	Yes
2005	Improvements to Computer System II	\$450,000	\$450,000	\$0	\$0	\$ -	\$ -	Yes
2007	Improvements to Computer System III	\$150,000	\$150,000	\$0	\$0	\$ -	\$ -	Yes
2008	Improvements to Computer System IV	\$150,000	\$150,000	\$0	\$0	\$ -	\$ -	Yes
2009	Improvements to Computer System V	\$120,000	\$120,000	\$0	\$0	\$ -	\$ -	Yes
2009	Enterprise Address System*	\$65,000	\$65,000	\$0	\$0	\$ -	\$ -	Yes
2009	Improvements to Computer System VI +	\$95,000	\$94,961	\$0	\$0	\$ -	\$ -	Yes
2012	Cadastral Address Maintenance-2012	\$90,010	\$67,507	\$22,503	\$0	\$ 22,503	\$ -	Yes
2012	Staff Projects \$2 Fee	\$73,234	\$35,383	\$3,071	\$0	\$ 3,071	\$ 34,780	No
2013	Improvements to Computer System	\$40,000	\$0	\$40,000	\$0	\$ 40,000	\$ -	Yes
2013	Cadastral Address Maintenance-2013	\$91,780	\$0	\$68,835	\$22,945	\$ 91,780	\$ -	No
<b>Total</b>		<b>\$2,113,114</b>	<b>\$ 1,920,941</b>	<b>\$ 134,409</b>	<b>\$ 22,945</b>	<b>\$ 157,354</b>	<b>\$ 34,780</b>	

Data from MCAMLIS PM as of 11/25/2013

**NOTES**

Rod Improvements to Computer Systems Annually Funded by MCAMLIS (\$40,000)

**2013 - Milwaukee County Documents Recorded**  
**Monthly Totals & Daily Average**

The 2013 Budget estimates 137,000 documents recorded.

*We will likely fall 7,000 documents short of that goal.*

Month	# of Recorded Documents	MORTGAGES	Percentage Mortgages	# of Days in Month	Daily Average
JAN	11,878	3,129	26.34	22	539.9
FEB	10,144	2,575	25.38	20	507.2
MAR	10,528	2,651	25.18	21	501.3
APRIL	11,116	2,726	24.52	22	505.3
MAY	11,034	2,798	25.36	22	501.5
JUNE	11,350	2,900	25.55	20	567.5
JULY	11,618	3,066	26.39	22	528.1
AUG	11,797	2,862	24.26	22	536.2
SEPT	9,859	2,268	23	20	492.95
OCT	9,938	2,088	21.01	23	432.09

## DOA Update

In case you missed the last Regional meeting, I asked Mike Friis to send us an update on what DOA has been working on recently. By the looks of the report he sent, his office has been working very hard for the Wisconsin Land Information Program.

### 2014 Grant Applications

2014 grant application has been released

- Increase in Training and Education Grant eligibility from maximum of \$300 to a minimum of \$1,000 for every county.
- Prorated base budget grants formula: ( $\$100k - \text{ROD document recording fees @ } \$8 \text{ per document recorded}$ ) \* 54%
- In 2015, we expect Base Budget grants to reach the \$100k threshold and not be prorated, so that all counties will have a \$100k min. level of funding.

WLIP Timeline One Year Out – *Items that directly involve WLIP and a timeline we have confidence in.*

- September 2013 – 2014 Grant application release date with an increase in \$0.5 mil for BB grant funding above 2013 grants
- November 2013 – WLIP Report released that will include GIS Inventory county survey results, an analysis of county retained fee and grant spending, and other pertinent information to the WLIP and the Act 20 parcel map initiative.
- June 2014 – Enhanced Broadband Mapping Project completed. Collaboration between PSC, WLIP, UW-SCO, and counties that will add address information to state broadband map.
- July 2014 – 2014 grant payments to be made.
- September 2014 – Enhanced Broadband Mapping Project final report completed – will provide documentation status of county parcel datasets, case study of parcel and address point dataset collection, and further useful information for the initiative to create a statewide digital parcel map, such as formatting and integration issues.
- October 2014 – 2015 Grant application released that will expect to raise BB grant levels to the \$100k level

### Enhanced Broadband Mapping (EBM) Project and Act 20

The enhanced broadband mapping project will complement, not duplicate, the Act 20 parcel mapping initiative.

Whereas the broadband mapping project will compile existing local parcel and address point data into one-time static statewide GIS layers in order to increase broadband mapping accuracy, Act 20 will improve local source GIS data and focus on a much broader array of state, local, and private sector business needs.

The broadband mapping project is much more limited in scope, time, and funding available.

County eligibility for grants related to Act 20's initiative to create a statewide digital parcel map will be determined by the DOA separately from this broadband mapping project.

Lessons will be learned from the EBM project, and processes and policies will be adapted to facilitate the Act 20 initiative.

### *Timeline for Statewide Digital Parcel Map Implementation Plan*

We are currently discussing the scope of the process to develop an implementation plan and looking to define roles and responsibilities within DOA and the possible need for contracted assistance from outside of DOA. We are working within DOA to establish what infrastructure exists or that is needed as part of fulfilling the deliverables of Act 20.

### Goal Dates Tentative

- January 2015– GOAL date to establish an unimproved statewide parcel layer by aggregating existing county datasets. Building a draft state parcel map will inform the implementation planning process in defining the end project envisioned for a five-year process of statewide parcel map development.
- June 2015: Creation of a standard for county digital parcel datasets that meets stakeholders' business needs and maximizes benefits to the public, determined through a participatory process with stakeholders
- June 2015: DOA-provided searchable format for the following information related to individual land parcels to be posted online:
  1. Property tax assessment data, as provided to the county by municipalities, including the assessed value of land, the assessed value of improvements, the total assessed value, the class of property, as specified in s. 70.32(2)(a), the estimated fair market value, and the total property tax
  2. Any zoning information maintained by the county
  3. Any property address information maintained by the county
  4. Any acreage information maintained by the county
- June 2015: Determination of grant eligibility criteria for strategic grants to local governments for local source data development related to the statewide digital parcel map initiative

### *Strategic/Contribution-Based Grants*

Would not happen until 2015, because increase in state revenue needed to fund grants beyond Training & Education and Base Budget grants will not start to be collected until Jan 1, 2015.

In order to determine grant eligibility for any sort of strategic grants associated with the parcel map initiative, a standard for county parcel datasets needs to be created and individual county parcel datasets will need to be analyzed. The idea is that strategic grants would help counties attain the standard. Grant eligibility criteria would likely not be determined before June 2015.

Submitted to:

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

**Five-Year Work Plan**

Submitted by:



**November 4, 2013**

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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.

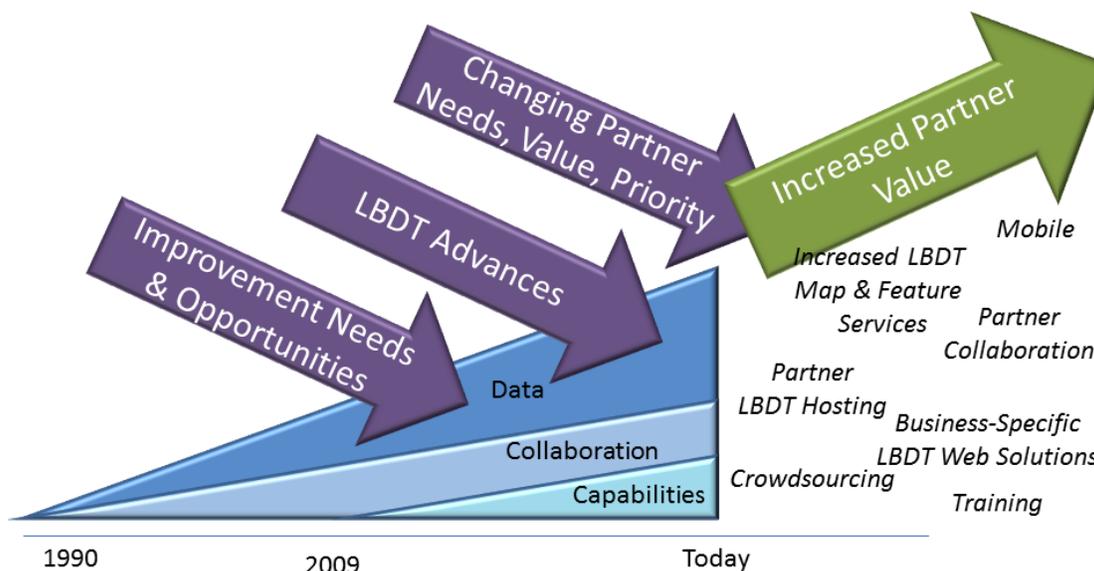


Figure 1: MCAMLIS Direction

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.

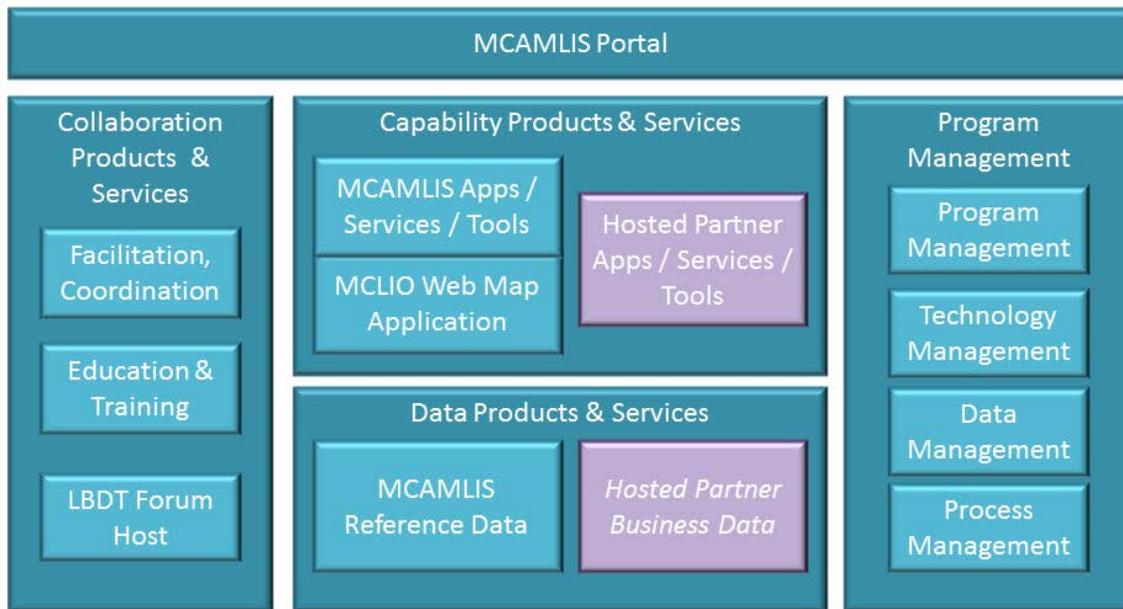


Figure 2: MCAMLIS Program Categories

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.

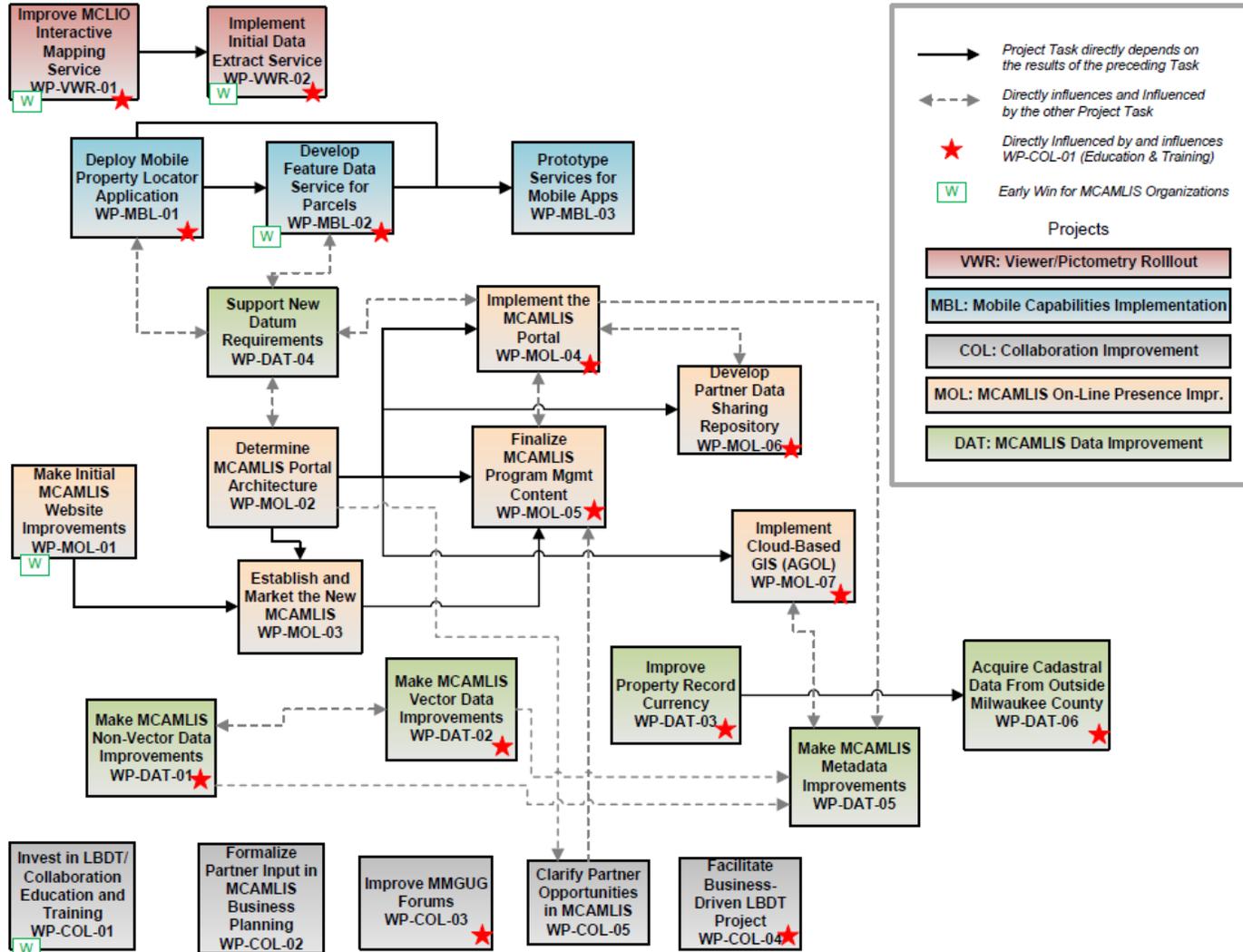
Project	Task ID	Task Description	FY2014				FY2015				FY2016				FY2017				FY2018			
			Q1	Q2	Q3	Q4																
VWR		<b>Viewer/Pictometry Improvement RollOut</b>	█	█	█																	
	01	Improve the MCLIO Interactive Mapping Service	█	█	█																	
	02	Implement Initial MCAMLIS Data Extract Service		█																		
MBL		<b>Mobile-Based Capabilities Implementation</b>			█	█	█															
	01	Deploy Mobile Property Locator Application			█	█																
	02	Develop MCAMLIS Feature Data Service for Parcels				█																
	03	Prototype Services for Mobile Applications					█	█														
COL		<b>MCAMLIS/Partner Collaboration Improvement</b>	█	█	█	█	█	█	█	█	█											
	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		<b>MCAMLIS On-line Presence Improvement</b>	█	█	█	█	█	█	█	█	█	█	█	█	█							
	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		<b>MCAMLIS Data Improvement</b>	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	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	
<b>Total:</b>			<b>\$260,000</b>	<b>\$260,000</b>	<b>\$290,000</b>	<b>\$242,000</b>	<b>\$122,000</b>
							<b>\$1,174,000</b>

\* 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.



The remainder of this document provides details on the projects and tasks derived from the initiatives (Data Distribution, Data Integration, Capabilities/Solutions, Collaboration/Training, and Program Management) and associated improvements tasks. For each project, the following information is provided:

- Task ID
- Task Name
- Description
- Cross-referenced relationship to Improvement Tasks
- Deliverables
- Participants
- Objectives/Perceptions (Cross-reference)
- Needs (Cross-reference)
- Improvement Task Source (Cross-reference)
- High-level Cost Estimate
- MCAMLIS Staff Involvement (Low, Medium, and High)
- Duration
- Predecessors (other projects)
- Benefits
- Risks
- Assumptions.

## Project VWR: Viewer/Pictometry Improvement Rollout

### 1. Improve the MCLIO Interactive Mapping Service

**Task ID:** WP-VWR-01

**Task Name:** Improve the MCLIO Interactive Mapping Service

**Description:**

This task will finalize multiple improvements to the MCLIO Interactive Mapping Service and plan and execute the roll-out of the new Geocortex Silverlight viewer. The new viewer will offer improved responsiveness (timeliness of data rendering and tool functions), accessibility (map printing, Pictometry, CSM retrieval), usability (GUI), and availability of data.

Specific improvements include the following: improved usability and GUI experience; faster response times; enhanced search capabilities – locate by feature, address or intersection; data extraction service – ability to clip and ship data sets for a defined geographic location (see WP-VWR-02); support services and documentation on how to run certain functions such as CSM, Plats of Survey, and document retrieval; online user guide and training materials.

The task involves refining the improvements to the viewer, creating a roll-out plan, transitioning to the new Geocortex Silverlight viewer, and executing the roll-out plan. It includes:

- Identifying new functionality (e.g., extract tool) and implementation.
- Enhancing the GeoCortex user guide with MCLIO web viewer specifics. For example, how to access certain data (e.g., CSMs) and functions (e.g., Pictometry oblique imagery).
- Developing and executing training materials (online, self-paced, group, etc.).
- Marketing/support of the new viewer.

Finally, this task will provide either an ArcGIS Desktop plug-in (Esri's Pictometry Extension) for users or access to the Pictometry viewer via a web service on a Partner's desktop (Pictometry Online). Users will also have access to Pictometry Online (POL) as a stand-alone viewer. In addition to supplying the plug-in or web service, MCAMLIS will offer information on the availability of these tools and training on how to use them.

**Deliverables:**

- Outstanding Viewer capability
- Viewer Roll-Out Plan
- Online documentation / how-to materials on applying the Viewer.
- Online documentation of improvements offered through the Viewer.
- Online Viewer-specific user guide and training materials (including short how-to videos).
- Provided training on MCLIO web viewer (classroom and/or virtual).
- Acquired and deployed Pictometry Desktop Plug-in Extensions.
- Pictometry Desktop Plug-in Training and documentation on tool use.
- See also WP-VWR-02

<p><b>Participants:</b> Viewer: All; Pictometry Access: in particular, City of Milwaukee Planning</p>	<p><b>Objectives / Perceptions:</b> O1, O2, O3, O4, O5; P1, P4, P5, P6</p>	<p><b>Needs:</b> BN08, PN02</p>	<p><b>Improvement Task Source:</b> IT-03-01, IT-01-02, IT-03-05</p>
<p><b>High-level Cost Estimate:</b> \$70,000 Costs are primarily documentation / how-to materials and training delivery, but also include some additional customization, configuration, and implementation of the viewer.</p>			
<p><b>MCAMLIS Staff Involvement:</b> High (Staff)</p>			
<p><b>Duration:</b> 9 months</p>		<p><b>Predecessors:</b> None; influenced by WP-COL-01</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Partners will receive immediate benefits from the implementation of the new MCLIO Interactive Mapping Service. Among the improvements will be an enhanced graphical user interface (GUI), faster response times to requests, and a more reliable service overall.</li> <li>• Improves on current web version.</li> <li>• Increases use of the MCLIO Viewer.</li> <li>• Improves functionality and tools available through the viewer.</li> <li>• Partners can use oblique photography on their desktops integrated with their ArcGIS application.</li> <li>• Provides users with access to Pictometry data without having to go to a separate viewer or application.</li> <li>• Improves MCAMLIS Program Category: Capability Products and Services.</li> </ul>			
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• May not meet all Partner improvement requests.</li> <li>• All users may not be informed of the change to the viewer and therefore will not be adequately trained on the new product.</li> </ul>			
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>• This task will be an early win for MCAMLIS Organizations.</li> <li>• Geocortex Silverlight viewer provides enhanced capabilities and ease of use.</li> <li>• Training and tutorials on how to use the new site are included.</li> <li>• Roll-out needs to at least mention the sunset plan for the existing MCLIO website.</li> <li>• Latitude Geographics will continue to increase its use of services-based capabilities in its Geocortex products so these capabilities can be exposed to other information access interfaces that Partners use in their own applications.</li> </ul>			

## 2. Implement Initial MCAMLIS Data Extract Service

<b>Task ID:</b> WP-VWR-02			
<b>Task Name:</b> Implement Initial MCAMLIS Data Extract Services			
<p><b>Description:</b></p> <p>This activity is part of WP-VWR-02 but is separated out to emphasize its importance and provide additional detail.</p> <p>Task will provide users with a service that will allow them to select one or more MCAMLIS reference data layers to be extracted for a user-specified geographic area, which will result in downloadable datasets in one of a predetermined set of data formats. The current extract service for extracting shapefiles and personal geodatabases will be enhanced using the Geocortex Silverlight API and will be included as part of the next release of the MCLIO Interactive Mapping Service under IT-03-01. The Silverlight API also provides for extract to AutoCAD (.dxf or .dwg) and MicroStation (.dgn) formats.</p> <p>A "how-to" instructional guide needs to be included with the service.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>Operational data extract service for Milwaukee County Reference Data available on the MCLIO interactive mapping service for partner access.</li> <li>Documentation / how-to materials for applying the data extract service.</li> </ul>			
<p><b>Participants:</b></p> <p>MCAMLIS Partners, capital improvement contractors, and land developers</p>	<p><b>Objectives/ Perceptions:</b></p> <p>O1, O2, O3, O5; P1, P6, P8</p>	<p><b>Needs:</b></p> <p>BN01, BN21, BN04, PN1, PN2</p>	<p><b>Improvement Task Source:</b></p> <p>IT-01-02</p>
<b>High-level Cost Estimate:</b> part of WP-VWR-01			
<b>MCAMLIS Staff Involvement:</b> part of WP-VWR-01			
<b>Duration:</b> 3 months		<b>Predecessors:</b> WP-VWR-01; influenced by WP-COL-01 (how-to materials/training)	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>Users of the MCLIO interactive web mapping tool will be able to clip out data for a particular geographic area to use in their desktop mapping applications.</li> <li>This on-demand service to extract the data reduces the turn-around time for Partners to obtain the required data.</li> <li>Reduces MCAMLIS staff effort spent on responding to user data requests.</li> <li>Provides a service to select data from a specified geographic area.</li> <li>Provides a means for users from outside (e.g., developers) to access the data for use in their projects.</li> <li>Adopts best practice.</li> </ul>			

- Improves MCAMLIS Program Category: Capability Products and Services.

**Risks:**

- Tracking use of the data.
- Data currency – If Users extract data instead of accessing directly via a web service, the data may become outdated and unsuitable for many purposes.

**Assumptions:**

- Access to the Pictometry Plug-in or Pictometry Online should occur as soon as possible after this project task is initiated.
- Provides an early win for MCAMLIS Organizations.
- The costs and MCAMLIS staff involvement of this task are included in WP-VWR-01.
- This task will be executed early to mid-roll-out of the WP-VWR-01 roll-out plan.
- Begin with Parcel data and expand to allow users to select the target data layers to extract.
- To accommodate this requirement as quickly as possible, strong consideration needs to be given to using existing capabilities, such as the data extract service that is included as a feature in the new MCLIO viewer application (Geocortex Silverlight viewer).
- Target communities (that could make use of the tool) to pilot the process.
- Through training, address the use of web services as a preferred method of data sharing.

**Project MBL: Mobile-Based Capabilities Implementation**

**1. Deploy Mobile Property Locator Application**

<b>Task ID:</b> WP-MBL-01			
<b>Task Name:</b> Deploy Mobile Property Locator Application			
<b>Description:</b> The mobile property mapping application will provide organizations with the ability to view property ownership information in the field via a mobile application for phone or tablet. Core capabilities include the ability to retrieve the property and owner information at or near the user’s current location, or to retrieve property information based on a user-supplied address. In addition, this task will develop and deploy feature data services for Parcels (see WP-MBL-02).			
<b>Deliverables:</b> <ul style="list-style-type: none"> <li>• Deployed property locator mobile application.</li> <li>• Deployed mobile address retriever tool.</li> <li>• Deployed online how-to materials; limited number of webinars and/or podcasts.</li> <li>• See also WP-MBL-02.</li> </ul>			
<b>Participants:</b> All	<b>Objectives/ Perceptions:</b> O1, O2, O3, O4, O5; P1, P6, P8	<b>Needs:</b> BN11, BN13, BN16 PN02, PN05	<b>Improvement Task Source:</b> IT-03-04
<b>High-level Cost Estimate:</b> \$50,000 Includes consulting services, implementation, configuration, and training of the property locator application.			
<b>MCAMLIS Staff Involvement:</b> Low (PM)			
<b>Duration:</b> 6 months		<b>Predecessors:</b> influenced by WP-COL-01 (how-materials/training)	
<b>Benefits:</b> <ul style="list-style-type: none"> <li>• Provides access to MCAMLIS-based property data via a mobile application on a phone or tablet.</li> <li>• In the future, provides map and data services developed for this application to Partners who have their own mobile applications.</li> <li>• Improves MCAMLIS Program Category: Capability Products and Services.</li> </ul>			
<b>Risks:</b> <ul style="list-style-type: none"> <li>• MCAMLIS Partners will not be able to commit to the use of the application.</li> <li>• Reliable mobile connections across the County geographic area.</li> </ul>			

**Assumptions:**

- Property and ownership data available through MCAMLIS will be initially exposed.
- Initial users of the application will be the City of Milwaukee Assessor's office and Planning Department.
- MCAMLIS and Partner data will be served up via map and feature services.
- MCAMLIS staff will formalize production-quality copies of the necessary MCAMLIS data in the necessary datum, as well as copies of the map and data services, as required.
- Estimated costs are based on using Esri AGOL. If another mobile framework is selected, the costs will be different.
- The application can be extended in the future to include the capability to provide data corrections or updates back to the proper authority.

2. Develop MCAMLIS Feature Data Service for Parcels

<b>Task ID:</b> WP-MBL-02			
<b>Task Name:</b> Develop MCAMLIS Feature Data Service for Parcels			
<p><b>Description:</b></p> <p>This activity is part of Task WP-MBL-01 but is separated out to emphasize its importance and provide additional detail.</p> <p>This activity includes the development of a feature data service for parcels. The feature data service will be established using a direct connect and will be accessed through REST endpoints. The Web feature service will expose the parcel data layer for use by MCAMLIS Partners. They can pull that data layer service into their desktop application or enterprise solutions for publishing along with their own business data.</p> <p>Users will be able to:</p> <ul style="list-style-type: none"> <li>• Query and retrieve parcel attribution and symbology</li> <li>• Control access to features using ownership-based access control</li> <li>• Prevent users from editing feature geometry.</li> </ul> <p>The feature service will allow MCAMLIS to serve parcel features over the Internet, and will provide the symbology to use when displaying the features. Partners can execute queries to get features that can be used in client applications. Partners can consume feature services using either a web client (e.g., Geocortex), desktop applications (e.g., ArcGIS for Desktop), or Mobile applications.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Deployed Web Feature Service for Milwaukee County Parcel Data available to MCAMLIS Partners.</li> <li>• Documentation / how-to materials on accessing the Parcel Feature Data Service.</li> </ul>			
<p><b>Participants:</b></p> <p>Milwaukee Metropolitan Sewerage District (MMSD), We Energies, City of Milwaukee, Partners with mobile apps or ability to integrate with feature services.</p>	<p><b>Objectives / Perceptions:</b></p> <p>O1, O2, O3, O5; P1, P8</p>	<p><b>Needs:</b></p> <p>BN01, BN21, BN04</p>	<p><b>Improvement Task Source:</b></p> <p>IT-01-01</p>
<p><b>High-level Cost Estimate:</b> part of WP-MBL-01</p> <p>This includes technology configuration and implementation, consulting, and roll-out/training.</p>			
<p><b>MCAMLIS Staff Involvement:</b> part of WP-MBL-01</p>			
<p><b>Duration:</b> 3 months</p>		<p><b>Predecessors:</b> WP-MBL-01, influenced by WP-COL-01 (how-materials/training) and WP-DAT-04</p>	

**Benefits:**

- MCAMLIS Partners will have access to updated parcel data and property information to bring into their applications and use how they wish.
- Provides the data for use within a user's application (ArcGIS Desktop, Web clients, and AGOL mobile applications).
- Provides immediate access to most current data available at MCAMLIS.
- Involves limited data management tasks for consumer.
- Reduces MCAMLIS staff effort spent on responding to user data requests.
- Provides a means for users from outside (e.g., developers) to access the data for use in their projects.
- Follows industry best practices by moving away from creating copies of data.
- Improves MCAMLIS Program Category: Data Products and Services.

**Risks:**

- User management and permissions handling prior to the Portal being in place.
- Accepting current quality of data with incremental improvement.
- Getting buy-in from the Partners regarding quality control and new data update workflows.

**Assumptions:**

- This task will be an early win for MCAMLIS Organizations.
- The costs and MCAMLIS staff involvement of this task are included in WP-MBL-01.
- This task will be executed early in WP-MBL-01 Task duration.
- Initial implementation is read-only data.
- Powerful enough to be used by desktop and connected mobile users.
- Can be accessed by both GIS and CAD users.
- MCAMLIS staff will create copies of the necessary MCAMLIS data in the necessary datum, as well as copies of the map and data services, as required.
- Future considerations would include an update and corrections response.
- Assume start with Parcels and add more features with time; some data, such as utility data, will be restricted.
- Improves on the access and parcel currency issues with the data extract tool.

### 3. Prototype Mobile Applications Using Services

<b>Task ID:</b> WP-MBL-03			
<b>Task Name:</b> Prototype Using Services in Mobile Applications			
<p><b>Description:</b></p> <p>This task will provide MCAMLIS staff experience with mobile applications and application of MCAMLIS map and feature services deployed in such applications. In particular, MCAMLIS will prototype asset viewer, field data collector, and property locator mobile applications. This task will most likely incorporate feature and map data services from the preceding mobile tasks (see WP-MBL-01 and -02).</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Prototypes of simple mobile applications, with MCAMLIS map and feature services: asset viewer, field data collector, and preliminary work on the property viewer.</li> <li>• Documented lessons learned for MCAMLIS parcel feature data services, MCAMLIS property locator, and online general lessons learned for MCAMLIS Partners.</li> <li>• Confirmation of Partners who will apply the at least the parcel feature data services and the MCAMLIS property locator application.</li> </ul>			
<p><b>Participants:</b></p> <p>MCAMLIS Staff</p>	<p><b>Objectives/ Perceptions:</b></p> <p>O1; O2-O5; P1, P6, P8</p>	<p><b>Needs:</b></p> <p>BN11, BN16 PN02, PN05</p>	<p><b>Improvement Task Source:</b></p> <p>IT-03-03, IT-01-01</p>
<p><b>High-level Cost Estimate:</b> \$30,000</p> <p>Costs include consulting services to assess what was done in 2013 and look at more general solutions.</p>			
<p><b>MCAMLIS Staff Involvement:</b> Medium (staff)</p>			
<p><b>Duration:</b> 6 months</p>		<p><b>Predecessors:</b> None; influenced by WP-DAT-04</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• MCAMLIS Partners and MCAMLIS can leverage experiences gained in developing and applying map and feature services for particular mobile applications.</li> <li>• More effectively defines the mobile framework and requirements.</li> <li>• Improves MCAMLIS Program Category: Capability Products and Services.</li> </ul>			
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Technology used during prototype may not be what is applied in follow-up applications.</li> <li>• Multiple datum handling may be required.</li> </ul>			
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>• Incorporates the results of WP-MBL-01 and WP-MBL-02.</li> </ul>			

- MCAMLIS staff will create copies of the necessary MCAMLIS data in the necessary datum, as well as copies of the map and data services.
- Some infrastructure investment is expected; most likely will deploy ArcGIS Online field collector tool (free).
- The task will leverage experiences and build on the recent collaboration with the City of Cudahy.
- The task will leverage experiences gained from the mobile applications in place at We Energies and MMSD.
- Additional collaborative efforts will result from these efforts.

**Project COL: MCAMLIS/Partner Collaboration Improvement**

**1. Invest in LBDT/Collaboration Education and Training**

<b>Improvement Task ID: WP-COL-01</b>			
<b>Improvement Task Name: Invest in LBDT/Collaboration Education and Training</b>			
<p><b>Description:</b></p> <p>This task will establish and execute an education and training program sponsored by MCAMLIS for Partners and MCAMLIS support staff, and includes two key components:</p> <ol style="list-style-type: none"> <li>1) Developing and deploying a set of guidelines, criteria, and procedures for how to create online how-to materials for MCAMLIS-provided capabilities (e.g., MCLIO Viewer and the Property Locator); this will allow materials to be inventoried and searchable via the MCAMLIS portal for Just-In-Time (JIT) training.</li> <li>2) Coordinating and executing commonly needed training or education among Partners, in the form of webinars or short in-room or virtual classroom settings focused on particular subjects that do not require full days. This will focus initially on responding to immediate needs associated with the other projects and tasks outlined in the Work Plan:             <ul style="list-style-type: none"> <li>• Establishing and operating technology architectures that are new to MCAMLIS/Partners, such as feature services and mobile LBDT.</li> <li>• Applying LBDT-based technologies (e.g., Geocortex Essentials, Pictometry tools, and if relevant, core applications that are based on LBDT, e.g., ProPhoenix).</li> <li>• Providing consulting support services: consensus building, collaborative decision-making, and business analysis associated with these new technology architectures.</li> </ul> </li> </ol>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Guidelines, criteria, and MCAMLIS procedures for producing and deploying online user and training how-to materials for MCAMLIS-provided capabilities and data.</li> <li>• Commonly needed Partner-driven JIT Training:             <ul style="list-style-type: none"> <li>➤ Two to three key topic sessions in 2014 (webinar-like or part of MMGUG).</li> <li>➤ Two to three formal training sessions in 2014 (formal in-room or virtual classrooms, or may be an extended MMGUG day).</li> </ul> </li> <li>• Six months of support on guidelines and JIT training coordination.</li> <li>• Next Steps plan for training program, including costs.</li> </ul>			
<p><b>Participants:</b></p> <p>MCAMLIS Support Staff, All Interested Partners</p>	<p><b>Objectives/Perceptions:</b></p> <p>P8, P7, P1, P2; O4</p>	<p><b>Needs:</b></p> <p>BN11, BN13, BN16, BN20, BN22; PN05</p>	<p><b>Improvement Task Source:</b></p> <p>IT-04-02</p>
<p><b>High-level Cost Estimate:</b> \$25,000</p> <p>Costs include consulting services, training program website content, and initial support.</p>			

<b>MCAMLIS Staff Involvement:</b> Low (Staff)	
<b>Duration:</b> 3 months (followed by 6 months support)	<b>Predecessors:</b> None
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Partners will be able to attend training courses on GIS and related LBDT technologies that will be supplied by MCAMLIS.</li> <li>• Provides more cost-effective education and training.</li> <li>• Develops a more educated user community.</li> <li>• Reduces time for MCAMLIS and Partner staff in supporting general user inquiries.</li> <li>• Improves MCAMLIS Program Category: Collaboration Products and Services (Education and Training).</li> </ul>	
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Partner organizations will not approve staff for training due to limited budgets.</li> </ul>	
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>• This task will be an early win for MCAMLIS Organizations.</li> <li>• Any tuition for coordinated courses will be passed through to those who register for the course (this program will place less emphasis on such courses, as these courses are now available more readily as either self-paced or as virtual classrooms).</li> <li>• Training facilities will be provided by willing Partners, or Partners participating in a course where facilities are required.</li> <li>• Consulting services are provided by organization that has proven experience in developing LBDT-related training programs.</li> <li>• As necessary, consider contracting expert consulting services for any new support services or technology architectures so MCAMLIS and Partner staff can learn from experts and make certain that best practices are established up-front.</li> <li>• Consider online training whenever possible.</li> </ul>	

2. Formalize Partner Input in MCAMLIS Business Planning

<b>Task ID:</b> WP-COL-02			
<b>Task Name:</b> Formalize Partner Input in MCAMLIS Business Planning			
<p><b>Description:</b></p> <p>This task will establish the process and procedures to make certain that Partner requirements and priorities are included in MCAMLIS Programming and planning activities. This will include involvement in strategic planning, as well as tactical planning: the process needs to include how to adjust to opportunities or key demands (e.g. natural disaster) as they surface. The process will need to be able to balance providing solutions for countywide needs with those that might be more specialized (smaller area, select set of Partners). This task will result in a detailed process – including criteria used to select and prioritize projects - and a first run-through of the process for tactical planning.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Documented Strategic and Tactical MCAMLIS Business Planning Process and procedures.</li> <li>• Adjustments to MCAMLIS Program for Year 2016.</li> </ul>			
<p><b>Participants:</b> MCAMLIS Support Staff, All Partners, MCAMLIS Steering Committee Members</p>	<p><b>Objectives/ Perceptions:</b> P8, P7, P1</p>	<p><b>Needs:</b> PN03</p>	<p><b>Improvement Task Source:</b> IT-05-04</p>
<p><b>High-level Cost Estimate:</b> \$20,000 Costs include consulting services.</p>			
<p><b>MCAMLIS Staff Involvement:</b> Medium (PM)</p>			
<p><b>Duration:</b> 3 months</p>		<p><b>Predecessors:</b> None</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• MCAMLIS Partners will have more influence on the projects that are created and, in return, will see direct benefits from these projects in the future.</li> <li>• Includes explicit Partner input in MCAMLIS project priorities.</li> <li>• MCAMLIS Partner input will be standard operating procedure.</li> <li>• Improves MCAMLIS Program Category: Program Management.</li> </ul>			
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Balancing countywide needs versus more specialized needs.</li> </ul>			
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>• Task will assess the process, tools, and lessons learned from the BNA Project.</li> </ul>			

- Partner staff will participate in the process.
- Task will be executed immediately preceding the need for tactical planning (~a few months preceding budget planning for new operating year).
- First run-through results include information on estimated costs for services, technology, training, and Partner/MCAMLIS staff involvement for resulting project/task adjustments or the inclusion of new projects/tasks.

### 3. Improve MMGUG Forums

<b>Task ID:</b> WP-COL-03			
<b>Task Name:</b> Improve MMGUG Forums			
<p><b>Description:</b></p> <p>This task will clarify and execute an improvement program given MMGUG member feedback on the MMGUG collaboration activities and tools. The program includes procedures to streamline MMGUG coordination and therefore re-allocate activities to increase the MMGUG value.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Small set of improvements implemented.</li> <li>• Documented procedures for MMGUG feedback surveys and meeting delivery.</li> <li>• Improved online content (MCAMLIS portal-compliant).</li> </ul>			
<p><b>Participants:</b></p> <p>Milwaukee metropolitan area LBDT Professionals</p>	<p><b>Objectives/ Perceptions:</b></p> <p>O4; P1, P2, P7, P8</p>	<p><b>Needs:</b></p> <p>BN14, PN03</p>	<p><b>Improvement Task Source:</b></p> <p>IT-04-01</p>
<p><b>High-level Cost Estimate:</b> \$20,000</p> <p>Costs include consulting services, website content.</p>			
<p><b>MCAMLIS Staff Involvement:</b> Low (PM)</p>			
<p><b>Duration:</b> 3 months</p>		<p><b>Predecessors:</b> influenced by WP-COL-01</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• MCAMLIS Partners will benefit by having direct access to the knowledge and experiences of other GIS professionals in Milwaukee County.</li> <li>• Improves the MMGUG experience driven by MMGUG members.</li> <li>• Allows MCAMLIS Partners to stay up on the latest trends and co-Member practices in LBDT.</li> <li>• MCAMLIS will have procedures to allow support staff/interns to perform most of the administrative activities.</li> <li>• Improves MCAMLIS Program Category: Collaboration Products and Services (LBDT Forum Host).</li> </ul>			
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Duties to proactively improve and support MMGUG grow beyond what can be accomplished by MCAMLIS staff.</li> </ul>			
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>• Partners continue to participate in such forums.</li> </ul>			

### 4. Facilitate Business-Driven LBDT Collaboration Project

<b>Task ID:</b> WP-COL-04			
<b>Task Name:</b> Facilitate Business-Driven LBDT Collaboration Project			
<p><b>Description:</b></p> <p>This task proactively leverages one business area forum (e.g., regional public works or safety conference) to promote LBDT and what MCAMLIS and its Partners can offer. It then follows through with a project that implements a product of value to the collaborative parties.</p> <p>One example is to hold a forum for Partner safety staff who will be or are using ProPhoenix to share how they handle certain workflows – especially as it relates to using LBDT to their advantage – and then support a pilot or implementation of improved location-based data or capabilities that can be shared among Partners.</p> <p>Another example is associated with asset management, bringing together public works engineers and field staff from municipalities to create an application and data flow that allows field staff members to report asset problems or data issues identified in the field to neighboring public works municipalities (e.g., data, capabilities).</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>A particular data, service, or application used by similar business areas from multiple MCAMLIS Partners.</li> </ul>			
<p><b>Participants:</b></p> <p>Partner Public Works or Safety professionals.</p>	<p><b>Objectives/ Perceptions:</b></p> <p>O4; P1, P2, P4, P7, P8</p>	<p><b>Needs:</b></p> <p>BN14, PN03</p>	<p><b>Improvement Task Source:</b></p> <p>IT-04-03</p>
<p><b>High-level Cost Estimate:</b> \$30,000</p> <p>Costs include consulting services, training, and data and/or capability.</p>			
<p><b>MCAMLIS Staff Involvement:</b> Low (Staff)</p>			
<p><b>Duration:</b> 6 months</p>		<p><b>Predecessors:</b> influenced by WP-COL-01 (how-materials/training)</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>MCAMLIS Partners will benefit by having access to the knowledge and experiences of other professionals in Milwaukee County in their area of interest.</li> <li>Shares LBDT best practices with colleagues in the context of forum business perspective.</li> <li>Learn about ROI in context to the business perspective.</li> <li>Initiates data, capability, and other collaboration initiatives.</li> <li>Reduces time required of MCAMLIS and Partner staff to support general user inquiries.</li> <li>Improves MCAMLIS Program Category: Collaboration Products and Services (Facilitation, Coordination), and Capability Products and Services (Hosted Partner).</li> </ul>			

**Risks:**

- The MCAMLIS budget may not be able to support the prioritized business area project.
- Partners do not incorporate the data or capabilities into their business practices.

**Assumptions:**

- The first project should be a ProPhoenix-related group led by a number of crime analysts from a police department.
- Subsequent projects could be associated with asset management (public works), planning and zoning, elections, or working with emergency management leadership to be prepared to support LBDT activities for an emergency event.
- Partners will participate and encourage their users to engage in such forums.
- This task may drive the specific requirements of, or replace the need for, one of the other improvement tasks, such as WP-MBL-03 or WP-VWR-03.

## 5. Clarify Partner Opportunities in MCAMLIS

<b>Task ID:</b> WP-COL-05			
<b>Task Name:</b> Clarify Partner Opportunities in MCAMLIS			
<p><b>Description:</b></p> <p>This task will clarify and implement refined roles and responsibilities that MCAMLIS Partners have regarding the MCAMLIS Program. In particular, Partner involvement in the following MCAMLIS activities will be explored at a high level to make certain that proper roles and responsibilities are established: MCAMLIS business planning, accessing MCAMLIS-collaborated data and services, providing data and services to MCAMLIS Partners, and participating in MCAMLIS initiatives. This task will include clarifying the relationships between the MCAMLIS Program, MCAMLIS Steering Committee, and MCAMLIS Partners.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Expected outputs: MCAMLIS Partner-related processes defined at a high level, established Partner roles and responsibilities (e.g., Steering Representative, Organizational Representative, Business Area Representative or Champion), and established levels of involvement (e.g., directing member, active member, and member).</li> <li>• Expected outcomes: Partners have determined their roles in MCAMLIS and people are assigned to those roles; selected Partner members are assigned to participate in other initiatives that will implement and test the improved roles and responsibilities; MCAMLIS will incorporate the processes into its operations.</li> </ul>			
<p><b>Participants:</b> MCAMLIS Support Staff, All Partners, MCAMLIS Steering Committee Members</p>	<p><b>Objectives/ Perceptions:</b> P7, P8</p>	<p><b>Needs:</b> PN03</p>	<p><b>Improvement Task Source:</b> IT-05-03</p>
<p><b>High-level Cost Estimate:</b> \$40,000 Costs include consulting services.</p>			
<p><b>MCAMLIS Staff Involvement:</b> Medium (Staff)</p>			
<p><b>Duration:</b> 3 months</p>		<p><b>Predecessors:</b> None</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Allows MCAMLIS support staff and Partners to clearly understand how they can participate in and more effectively benefit from MCAMLIS.</li> <li>• Allows MCAMLIS Support Staff and Partners to have contacts to make certain that Partners can be engaged in or informed of the proper MCAMLIS activities for their role; in particular: business planning, updates or changes in data and services, opportunities for collaboration, or LBDT networking.</li> </ul>			

- Improves MCAMLIS Program Category: Program Management.

**Risks:**

- The initial MCAMLIS Partner staff members assigned to certain roles may change frequently (e.g., target area [business area] representatives).

**Assumptions:**

- Task will leverage the roles and responsibilities and lessons learned from the BNA Project.

**Project MOL: MCAMLIS Online Presence Improvement**

**1. Make Initial MCAMLIS Website Improvements**

<b>Task ID: WP-MOL-01</b>			
<b>Task Name: Make Initial MCAMLIS Website Improvements</b>			
<p><b>Description:</b></p> <p>This task will make it easier for MCAMLIS Partners and other stakeholders to obtain information about MCAMLIS data, data services, and the MCAMLIS Program.</p> <p>Most importantly, this task will provide an online, easily searchable and filtered list of the MCAMLIS data and map/data services available through MCAMLIS. This list will include the last time the object was updated and when it is anticipated to be updated next. Online how-to materials will be created.</p> <p>In addition, this task will load material for online presence that more clearly defines the MCAMLIS organization and its Partners, and the MCAMLIS Program components (Portal, Data, Capabilities, Collaboration, and Program Management). This task will then begin to expose this new information in a roll-out of this material and, in particular, the data/service inventory and the Five-Year Work Plan.</p> <p>These improvements will be done either to the existing MCAMLIS website or a new site, whichever is more effective for short-term value and can be easily migrated to the MCAMLIS Portal (see WP-MOL-02).</p> <p>This task will also begin the process of looking into a new MCAMLIS brand; if a cost-effective opportunity arises, this task be extended to fully develop a brand (logo, colors, banners, slogan, etc.) (see also WP-MOL-03).</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Refinements to existing Site or a new stand-alone site (MCAMLIS.com).</li> <li>• Improved online, searchable list of MCAMLIS Data, Data Services, and their currency.</li> <li>• Online how-to materials for the searchable list (will be influenced by guidelines from WP-COL-02).</li> <li>• Improved online, searchable content regarding MCAMLIS: who, what, Work Plan.</li> <li>• Preliminary findings for a new MCAMLIS brand.</li> </ul>			
<p><b>Participants:</b></p> <p>MCLIO staff, MCAMLIS Partners</p>	<p><b>Objectives/ Perceptions:</b></p> <p>O2, P1, P7, P8</p>	<p><b>Needs:</b></p> <p>BN05, PN02, PN06, BN14, BN15, BN21, PN03</p>	<p><b>Improvement Task Source:</b></p> <p>IT-05-01, IT-05-02</p>
<p><b>High-level Cost Estimate:</b> \$20,000</p> <p>Costs include consulting services for website set-up and content development and posting.</p>			
<p><b>MCAMLIS Staff Involvement:</b> Low (Staff)</p>			
<p><b>Duration:</b> 6 months</p>		<p><b>Predecessors:</b> None</p>	

**Benefits:**

- Efficiently distributes MCAMLIS-related information, in particular, information regarding the currency and update plans of MCAMLIS data and data services.
- Increases use of MCAMLIS services and applicability of the data.
- Improves exposure to the MCAMLIS Program.
- Improves MCAMLIS Program Category: MCAMLIS Portal.

**Risks:**

- Restrictions that government and quasi-government organizations place on creating, managing, having access to, or receiving notifications from a website outside of the organization's firewall.

**Assumptions:**

- This task will be an early win for MCAMLIS Organizations.
- Tasks WP-MOL-01, WP-MOL-03, and WP-MOL-05 are highly inter-related.
- This task will leverage the diagrams and write-ups from the BNA Project regarding the MCAMLIS Program, reference data, and business data.
- MCAMLIS will create an updated comprehensive list of data and service offerings and post this to an easily accessible location on the website. The list will be searchable and sortable and can be filtered, and will include currency information (last updated, next planned update), basic metadata, and information about new services that are available from MCAMLIS.
- This task will post the key content from the results of WP-COL-01 and WP-COL-02, if possible.
- All content will be non-secure.
- Costs assume either current website update or a low-end basic content management system website as a service (e.g., [www.squarespace.com](http://www.squarespace.com)).
- All website content can easily migrate to the new MCAMLIS portal structures, including the MCAMLIS.com domain.

## 2. Determine MCAMLIS Portal Architecture

<b>Task ID:</b> WP-MOL-02			
<b>Task Name:</b> Determine MCAMLIS Portal Architecture			
<p><b>Description:</b></p> <p>The improvement task will hire a consultant to determine the architecture for a MCAMLIS Portal. The Portal will be the location for Partners and the public to access MCAMLIS data and services. MCAMLIS will manage the Portal to include access to MCAMLIS web and mobile applications. In addition, the Portal needs to provide the means for MCAMLIS Partners to post and access their own web and mobile applications. The Portal will also provide the framework for the data sharing repository.</p> <p>The portal architecture will need to provide for managing membership and access, cataloging data and services, and potentially managing content for program management-related information (examples include what/who is MCAMLIS, current MCAMLIS initiatives, MMGUG, and training).</p> <p>Options for the Portal architecture could include the Socrata Open Data Portal, Esri's AGOL, Esri's ArcGIS Portal, or Open Source Data Portals such as CKAN. The primary output from this task will be a document that presents two to three options, along with their associated initial and five-year operating costs.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Documentation on recommended portal architecture options.</li> <li>• Budget estimate for recommended portal architecture solution(s).</li> <li>• Technical content for a Request for Proposals (RFP).</li> </ul>			
<p><b>Participants:</b> County, City, MMSD</p>	<p><b>Objectives/ Perceptions:</b> O5; P1, P8</p>	<p><b>Needs:</b> BN05; BN03, BN04, BN17 PN01, PN02, PN03, PN05</p>	<p><b>Improvement Task Source:</b> IT-01-03</p>
<b>High-level Cost Estimate:</b> \$45,000			
<b>MCAMLIS Staff Involvement:</b> High (Staff)			
<b>Duration:</b> 3 months		<b>Predecessors:</b> None; influenced by WP-DAT-04	
<p><b>Benefits:</b> (once implemented)</p> <ul style="list-style-type: none"> <li>• The Portal offers one-stop shopping for MCAMLIS Partners to access information and services without having to log into multiple sites. In addition, the Portal provides a location for collaboration between Partners.</li> <li>• Provides a single location for MCAMLIS information and services.</li> <li>• Provides access to MCAMLIS data and services.</li> <li>• Improves MCAMLIS Program Category: MCAMLIS Portal.</li> </ul>			

**Risks:**

- Recommended architecture may require changes in infrastructure and administration of services.
- Issues, both internal and external, with the direction of the County Information Technology (IT) may stand in the way of adopting a portal.
- A single product may not include all the necessary functionality for MCAMLIS services (e.g., Partners posting data, single membership sign-on, metadata retrieval for both data and services).

**Assumptions:**

- This service will allow Partners to access information posted by other MCAMLIS participants.
- Partners will engage and put resources toward sharing their data with other MCAMLIS participants.
- The solution must meet the requirements outlined in the following tasks:
  - MCAMLIS will develop a service for Partners to post their data (public works initially) (WP-MOL-06).
  - The Portal can meet the membership requirements of obtaining information about the MCAMLIS Program (see WP—MOL-01, 03, 05; WP-COL-05), in particular, access to secure or public content, and notification services to inform members when new data and services are posted to the site.
  - The Portal has advanced map-based portal capabilities or is fully integrated with such a solution (see also WP-MOL-07).
  - The data sharing repository would allow for posting data in multiple formats, including Esri, AutoCAD, spreadsheets, Google, and other formats (WP-MOL-06).
  - The portal can be branded to the MCAMLIS (WP-MOL-03).
- Once a particular object is selected, the user can then link to capabilities that allow access to that object (e.g., MCLIO Web Map application, a map or feature data service, or Partner application).
- Implementation may include piloting and/or iterative deployment.
- Milwaukee County IT would prefer not to manage logons for stakeholders external to Milwaukee County government.

### 3. Establish and Market the New MCAMLIS

<b>Task ID:</b> WP-MOL-03			
<b>Task Name:</b> Establish and Market the New MCAMLIS			
<p><b>Description:</b></p> <p>This task will establish a new look and feel for MCAMLIS; it will initiate activity to clarify to LBDT stakeholders the purpose and value MCAMLIS provides to Partners and their stakeholders. This task will define a MCAMLIS brand (colors, logo, etc.) and additional marketing material covering MCAMLIS value proposition. Finally, the task will define and assist MCAMLIS in the execution of an outreach campaign that most likely includes presenting at IT and business forums and having a more aggressive presence on Partner Internet and intranet websites.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Branding (colors, logo, banners).</li> <li>• Marketing materials (value proposition).</li> <li>• Initial execution of an outreach campaign on MCAMLIS, the Work Plan, and the portal.</li> </ul>			
<p><b>Participants:</b></p> <p>MCAMLIS Partner Business Area Representatives; MCAMLIS Steering Committee Members or proxy</p>	<p><b>Objectives/ Perceptions:</b></p> <p>P8</p>	<p><b>Needs:</b></p> <p>PN06</p>	<p><b>Improvement Task Source:</b></p> <p>IT-05-01</p>
<p><b>High-level Cost Estimate:</b> \$15,000 Costs include consulting services.</p>			
<p><b>MCAMLIS Staff Involvement:</b> Low (PM)</p>			
<p><b>Duration:</b> 3 months</p>		<p><b>Predecessors:</b></p> <p>WP-MOL-01, WP-MOL-02</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• MCAMLIS Partners will be able to better communicate what MCAMLIS is to their leadership.</li> <li>• Clarifies MCAMLIS value proposition with Partner senior leadership and key operational decision-makers in Partner business areas.</li> <li>• Positions MCAMLIS image for the future.</li> <li>• Improves MCAMLIS Program Category: MCAMLIS Portal.</li> </ul>			
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Branding and MCAMLIS message require more refinement than estimated.</li> </ul>			

**Assumptions:**

- Tasks WP-MOL-01, WP-MOL-03, and WP-MOL-05 are highly inter-related.
- Costs assume contracting with a local small business or individual that specializes in marketing for IT service provider companies, and corresponding website design and development.
- MCAMLIS branding logo and some initial materials may be defined in an earlier task, WP-MOL-01, and applied here.

### 4. Implement the MCAMLIS Portal

<b>Task ID:</b> WP-MOL-04			
<b>Task Name:</b> Implement the MCAMLIS Portal			
<p><b>Description:</b></p> <p>This task would implement the MCAMLIS Partner Portal solution determined in IT-01-03. This Portal would be a single location where Partners would interface with MCAMLIS. It would provide Partners with access to and use of MCAMLIS data and services, as well as a location to publish their business data. In addition, the portal would offer a location for Partner collaboration.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Acquisition of portal technology.</li> <li>• Implementation and roll-out of portal solution.</li> <li>• Documentation.</li> <li>• Initial primary support of portal solution (three months).</li> </ul>			
<p><b>Participants:</b></p> <p>County, City, MMSD</p>	<p><b>Objectives/ Perceptions:</b></p> <p>O1, O2, O3, O5; P1, P6, P7, P8</p>	<p><b>Needs:</b></p> <p>BN03, BN04, BN17 PN01, PN02, PN03, PN05</p>	<p><b>Improvement Task Source:</b></p> <p>IT-01-04</p>
<p><b>High-level Cost Estimate:</b> \$175,000</p> <p>These are implementation and first-year licensing costs; the annual operating cost for subsequent years of a cloud-based solution is anticipated to be \$72,000.</p>			
<b>MCAMLIS Staff Involvement:</b> Medium (Staff)			
<p><b>Duration:</b> 6 months</p>		<p><b>Predecessors:</b> WP-MOL-02; influenced by WP-COL-01 (training), WP-DAT-04, WP-MOL-05, WP-MOL-06.</p>	
<p><b>Benefits:</b> (once implemented)</p> <ul style="list-style-type: none"> <li>• The Portal offers one-stop shopping for MCAMLIS Partners to access information and services without having to log into multiple sites. In addition, the Portal provides a location for collaboration between Partners.</li> <li>• Provides a secure location for Partner access to MCAMLIS data and services.</li> <li>• Alleviates staff from having to administer multiple individual services and sites.</li> <li>• Improves MCAMLIS Program Category: MCAMLIS Portal.</li> </ul>			
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Recommended architecture may require infrastructure investment and changes.</li> <li>• The owner of a Portal object (e.g., MCLIO Web Map application, a map or feature data service, or Partner application) will not keep the metadata up-to-date.</li> </ul>			

**Assumptions:**

- Costs are based on implementing Socrata (or a similar product) for the MCAMLIS Program only (does not include cost-sharing with Milwaukee County if the County also implemented the same solution).
- MCAMLIS will maintain and administer the Portal.
- The Portal will allow Partners to access all MCAMLIS services.
- Partners will engage and use the MCAMLIS Portal.

5. Finalize MCAMLIS Program Management Content

<b>Task ID:</b> WP-MOL-05			
<b>Task Name:</b> Finalize MCAMLIS Program Management Content			
<p><b>Description:</b></p> <p>This task will finish what was started with increasing and updating online material regarding MCAMLIS and participation in the MCAMLIS Program, and will do so as part of the new MCAMLIS Portal. This additional content includes: updated and more detailed information about MCAMLIS and the definition of LBDT; information on key data, information services, and consulting services available through MCAMLIS; Work Plan updates and the new upcoming Portal; information on upcoming regional LBDT events.</p> <p>This content will include both secure and publicly available information, and will be integrated with the MCAMLIS Portal to take advantage of membership and cataloging capabilities to be supported by the MCAMLIS Portal. The primary purpose of access to membership capability is to allow both MCAMLIS support staff and MCAMLIS Partners to efficiently disseminate MCAMLIS-related information to each other. Accordingly, the membership system on the Portal must include the ability to establish certain subgroups, for example, MCAMLIS roles. Processes will be established to make certain that the system is managed over time. Expected outputs/outcomes include the system becoming operational with an initial set of MCAMLIS members loaded, and members having access to and receiving training on how to use the system. Regardless of the solution, web analytics capabilities must be included.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• MCAMLIS membership capabilities populated and deployed, including secured membership and message notification management.</li> <li>• Earlier MCAMLIS Program content migrated to the MCAMLIS Portal.</li> <li>• MCAMLIS cataloging capabilities integrated with search lists from WP-MOL-01.</li> <li>• Online how-to materials and rollout to MCAMLIS membership for accessing and maintaining membership information.</li> <li>• Branding applied to new MCAMLIS Portal.</li> </ul>			
<p><b>Participants:</b> MCLIO staff, MCAMLIS Partners</p>	<p><b>Objectives/ Perceptions:</b> O2, P1, P7, P8</p>	<p><b>Needs:</b> BN05, PN02, PN06, PN03 BN14, BN15, BN21</p>	<p><b>Improvement Task Source:</b> IT-05-02</p>
<p><b>High-level Cost Estimate:</b> \$20,000 Costs include set-up, content population, and training development and delivery.</p>			
<p><b>MCAMLIS Staff Involvement:</b> Low (Staff)</p>			
<p><b>Duration:</b> 6 months</p>		<p><b>Predecessors:</b> WP-MOL-01, WP-MOL-02, WP-MOL-03; influenced by WP-COL-01 (how-materials/training) and WP-MOL-04</p>	

**Benefits:**

- Along with the Portal Development and the MCAMLIS Marketing, the content will allow Partners to get directly to MCAMLIS versus going through the Milwaukee County website.
- Membership provides the ability to sign up for and send out notifications to the proper MCAMLIS membership.
- Increases use of MCAMLIS services and applicability of the data.
- Improves exposure to the MCAMLIS Program.
- Efficiently distributes MCAMLIS-related information.
- Improves MCAMLIS Program Category: Collaboration Products and Services, MCAMLIS Portal.

**Risks:**

- Whether a single secure logon can be established for both the portal and the MCLIO viewer (especially the secure website).
- Members will not keep their contact information or roles updated.
- Restrictions that government and quasi-government organizations place on creating, managing, having access to, or receiving notifications from a website outside of the organization's firewall.

**Assumptions:**

- Tasks WP-MOL-01, WP-MOL-03, and WP-MOL-05 are highly inter-related.
- For MCAMLIS Membership:
  - The Project will first focus on MCAMLIS Partners and their proxies; others like business Partners, LBDT solution and service providers, and certain public groups can be the second phase.
  - The expected system will be based on an existing product that can be provided via the web, most likely as a software as a service, and may be as simple as capabilities provided as part of the MCAMLIS website initiative.
  - Members will keep their information up-to-date.
- Content for MMGUG and the MCAMLIS-supported training program would be migrated as part of this Task.
- Milwaukee County IT would prefer not to manage logons for stakeholders external to Milwaukee County government.

## 6. Develop Partner Data Sharing Repository

<b>Task ID:</b> WP-MOL-06			
<b>Task Name:</b> Develop Partner Data Sharing Repository			
<p><b>Description:</b></p> <p>Based on the recommended portal architecture in WP-MOL-02 and implemented in WP-MOL-04, MCAMLIS would develop and deploy the selected data sharing repository solution.</p> <p>This action would provide a service where Partners could post their data on the MCAMLIS website, which would be available to other MCAMLIS Partners via a secure login. For example, Partners would post their own spatially enabled public works data, such as municipal storm and sanitary sewer utility data, capital improvement project information, and street projects, to the repository. It would then be available for access by other municipalities and MCAMLIS Partners. Once this repository is established for public works data, Partners would use this same method for sharing zoning and land use data.</p> <p>Items included in the Partner data sharing repository may eventually migrate to formalized data integration processes that MCAMLIS may host.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Implementation and roll-out of the repository.</li> <li>• Documentation / how-to materials on applying and accessing the repository.</li> </ul>			
<p><b>Participants:</b> County, City, MMSD</p>	<p><b>Objectives/ Perceptions:</b> O1, O2, O3, O5; P1, P6, P8</p>	<p><b>Needs:</b> BN03, BN04, BN17 PN01, PN02, PN03, PN05</p>	<p><b>Improvement Task Source:</b> IT-01-05</p>
<b>High-level Cost Estimate:</b> (Depends on WP-MOL-02; assume \$30,000)			
<b>MCAMLIS Staff Involvement:</b> Medium (Staff)			
<b>Duration:</b> 3 months		<b>Predecessors:</b> WP-MOL-02; influenced by WP-COL-01 (how-materials/training) and WP-MOL-04	
<p><b>Benefits:</b></p> <p>The data sharing repository provides MCAMLIS Partners with a hosted location for sharing their data with other Partners in a secure and coordinated manner.</p> <p>Same benefits as IT-MOL-02, as well as:</p> <ul style="list-style-type: none"> <li>• Allows users/organizations to upload their data, extract data, and use applications hosted by MCAMLIS, and to download application templates to be used within their own environments. This frees up MCAMLIS staff time.</li> <li>• Besides data, can also include a web service catalog/directory for all of MCAMLIS.</li> <li>• Besides data, can also include a web application catalog/directory for all of MCAMLIS.</li> <li>• Offers pushing of new data/apps/functionality to all organizations as a service by MCAMLIS.</li> </ul>			

- Grows user adoption and involvement.
- Improves MCAMLIS Program Category: Capability Products and Services (Hosted Partner), Data Products and Services (Hosted Partner), and MCAMLIS Portal.

**Risks:**

- Uncertainty of MCAMLIS Partner adoption.
- MCAMLIS staff administration will be required.
- May require MCAMLIS to invest in new technology.
- Will require staff and Partner training.
- New data update workflows and quality assurance/quality control (QA/QC) processes.

**Assumptions:**

- Architecture fits well into the existing MCLIO environment.
- MCAMLIS will have staff to administer the data sharing repository.
- This service will allow Partners to access information posted by other MCAMLIS participants.
- Partners will engage and put resources toward sharing their data with other MCAMLIS participants.
- Metadata is included with the data.
- This task includes implementation of the service for at least two, preferably more, Partners who will post their data; initially, this is public works data.
- After this repository is operational for public works data, the process will be applied for zoning information.
- Notification service alerts members when new data is posted to the site.
- The data sharing repository would allow for posting data in multiple formats, including Esri, AutoCAD, spreadsheets, Google, and other formats.

7. Implement Cloud-Based GIS for MCAMLIS (AGOL)

<b>Task ID:</b> WP-MOL-07			
<b>Task Name:</b> Implement Cloud-Based GIS for MCAMLIS (AGOL)			
<p><b>Description:</b></p> <p>This task would provide a pathway toward MCAMLIS having a cloud-based GIS presence. Present thinking is that this would be AGOL for MCAMLIS. However, the environment may change by the time this task is executed.</p> <p>A cloud-based GIS presence will offer a collaborative content management system for maps, applications, and data. A cloud-based GIS capability will be an important technology that MCAMLIS can leverage to provide Partners and public users with access to data and services through mobile, web, and desktop applications in the future. This technology would be a means for accessing MCAMLIS-hosted data and services in addition to the MCLIO viewer.</p> <p>This task includes an assessment of the proper implementation technology choices available, including AGOL, and includes a determination of initial and operating costs associated with a MCAMLIS cloud-based presence that Partners can access. A Go/No-Go determination will be made based on this assessment and then the solution will be acquired and implemented.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Documentation of assessment findings from the cloud-based GIS options.</li> <li>• Expected initial implementation and ongoing operating costs for two to three options.</li> <li>• If a Go determination is made, initial implementation is complete.</li> </ul>			
<b>Participants:</b> All	<b>Objectives/ Perceptions:</b> O1, O2, O3, O5; P1, P4, P5, P6, P8	<b>Needs:</b> BN08, PN02	<b>Improvement Task Source:</b> IT-03-02
<p><b>High-level Cost Estimate:</b> \$45,000*</p> <p>Costs include the initial assessment and implementation.</p> <p>*As of fall 2013, the cost structure for AGOL varies based on type of use and number of credits. Establishing individual user accounts is free but transactions for editing and posting data services to ArcGIS.com requires use of credits.</p>			
<b>MCAMLIS Staff Involvement:</b> Medium (Staff)			
<b>Duration:</b> 6 months		<b>Predecessors:</b> WP-MOL-02; influenced by WP-MOL-04 and WP-COL-01 (training)	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Partners will see benefit in researching a cloud-based GIS solution.</li> <li>• Increases usage of MCAMLIS data.</li> <li>• Allows non-programmers to deploy and share web maps containing their own GIS data.</li> <li>• Allows mapping applications to be shared with a group or the public through a web browser, smart phone applications, social media, or emails.</li> </ul>			

- Embeds maps into websites.
- Enables layer editing by multiple authors and tracks edits for data sets (volunteered geographic information – VGI).
- If AGOL, leverages expertise from Partners.
- Improves MCAMLIS Program Category: Capability Products and Services, MCAMLIS Portal.

**Risks:**

- AGOL pricing structure has not yet stabilized.
- Enough MCAMLIS Partners will not invest in integrating this solution into their LBDDT websites and business functions to justify the investment in software and support.
- Users may need to create and manage an additional MCAMLIS-related account.

**Assumptions:**

- One-third of the budget is for assessment, the rest for implementation.
- The solution can be integrated to the MCAMLIS Portal without customization.
- Services will be provided via MCAMLIS servers and registered to the cloud-based GIS solution; implementation includes security.
- Training and tutorials on how to use the solution are included.
- MCAMLIS is moving in the same direction as the solution's technology.

**Project DAT: MCAMLIS Data Improvement**

**1. Make MCAMLIS Non-Vector Data Improvements**

<b>Task ID: WP-DAT-01</b>			
<b>Task Name: Make MCAMLIS Non-Vector Data Improvements</b>			
<p><b>Description:</b></p> <p>This task will improve data management practices technologies that get MCAMLIS <b>non-vector</b> reference data into the MCAMLIS data repository and prepare it for efficient access. MCAMLIS non-vector reference data refers to the following: georeferenced imagery (Imagery: Ortho, Oblique, LiDAR, Caches), documents and photos, and potentially, video and audio. This does not include Partner-shared or Partner-hosted data, and does not include MCAMLIS vector reference data (see other WP-DAT tasks).</p> <p>In particular, this task will focus on providing the following: apply Esri Image Server; finalize historical aerial work; and explore the value of using OnBase, the County’s document management solution, for MCAMLIS.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Deployed additional Historical Aerials.</li> <li>• Deployed Esri Image Extension for Server.</li> <li>• DMS Tool Evaluation (OnBase?) Results.</li> <li>• Deployed Dedicated Image Server.</li> </ul>			
<p><b>Participants:</b> MCAMLIS Staff</p>	<p><b>Objectives/ Perceptions:</b> O1; P1, P8</p>	<p><b>Needs:</b> Based on MCAMLIS Program Assessment</p>	<p><b>Improvement Task Source:</b> IT-02-04</p>
<p><b>High-level Cost Estimate:</b> \$125,000</p> <p>Costs include consulting services, hardware and software, and online how-to materials.</p> <ul style="list-style-type: none"> <li>• Deployed additional Historical Aerials: \$40,000.</li> <li>• Deployed Esri Image Extension for Server software: \$20,000.</li> <li>• DMS Tool Evaluation (OnBase?) Results: \$20,000</li> <li>• Deployed Dedicated Image Server (hardware and software): \$45,000</li> </ul>			
<p><b>MCAMLIS Staff Involvement:</b> Low (Staff)</p>			
<p><b>Duration:</b> distributed over 4 years:</p> <ul style="list-style-type: none"> <li>• Historical Aerials: each of 4 years</li> <li>• Esri Image Extension for Server: 3 Months</li> <li>• DMS Tool Evaluation: 3 Months</li> <li>• Dedicated Image Server: 3 Months</li> </ul>		<p><b>Predecessors:</b> None; influenced by WP-COL-01 (training), WP-DAT-02</p>	

**Benefits:**

- Partners will see improvements in the raster-based information offered by MCAMLIS through better processes and more formal management of these data.
- Eliminates the need for the same image data to be in two different data structures as is currently done.
- New image storage approach allows for existing geoprocessing tools to be used to develop a simple image extract service.
- Completes the historical aerial project; enhances the ability to analyze historical drainage patterns across the county.
- Promotes the function and benefit of what MCAMLIS provides and how it goes about providing it, resulting in increased use.
- Improves MCAMLIS Program Category: Data Products and Services.

**Risks:**

- Increased automation of data integration procedures may require further development and a wider range of skills for the small number of MCAMLIS staff.
- May result in modifying current cached MCAMLIS products.
- Partners may be slow to take advantage of new improvements.

**Assumptions:**

- The improvements defined here will be integrated with the improvements from other WP-DAT tasks.
- Milwaukee County IT and OnBase and its licensing can effectively support external stakeholder access.
- Priorities will be influenced by Partner requirements (priorities are driven by Partners who are willing and able to implement the improvements being made).
- Implementation may include piloting and/or iterative deployment.
- Task will also result in recommended next steps and associated costs for highest priority items.
- A dedicated image server will be necessary.

## 2. Make MCAMLIS Vector Data Improvements

<b>Task ID:</b> WP-DAT-02			
<b>Task Name:</b> Make MCAMLIS Vector Data Improvements			
<p><b>Description:</b></p> <p>This task will improve data offerings, management practices, and automation that get MCAMLIS <b>vector</b> reference data into the MCAMLIS data repository and prepare it for efficient access. MCAMLIS vector reference data refers to the following: Topographic / Planimetric Mapping, Enterprise Address System, and the Routable Street Centerline. This does not include Partner-shared or Partner-hosted data, and does not include non-vector data (imagery, video, audio).</p> <p>In particular, this task will focus on providing the following: complete the polygonization of key planimetric data; provide map and data services associated with these planimetric features; and if priority is confirmed by Partners, improve enterprise address system (EAS) data maintenance (streamline coordination and prototype an upcoming Esri product) and expedite routable street centerline (SCL) data maintenance.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Deployed completed planimetric polygons.</li> <li>• Deployed map/data services for planimetric polygons.</li> <li>• Deployed updated enterprise address and street centerline data.</li> </ul>			
<p><b>Participants:</b> MCAMLIS Staff</p>	<p><b>Objectives/ Perceptions:</b> O1; P1, P8</p>	<p><b>Needs:</b> Based on MCAMLIS Program Assessment</p>	<p><b>Improvement Task Source:</b> IT-02-03</p>
<p><b>High-level Cost Estimate:</b> \$85,000</p> <p>Costs include consulting services.</p> <ul style="list-style-type: none"> <li>• Planimetric Polygons and Services: \$65,000</li> <li>• Updated EAS, SCL data: \$20,000</li> </ul>			
<p><b>MCAMLIS Staff Involvement:</b> Low (Staff)</p>			
<p><b>Duration:</b> Distributed over 32 months:</p> <ul style="list-style-type: none"> <li>• Planimetric Polygons and Services: 6 months</li> <li>• Updated EAS, SCL data: 3 months</li> </ul>		<p><b>Predecessors:</b> influenced by WP-COL-01 (training), WP-DAT-01</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Partners will see benefits in the vector information by having better knowledge about the currency and quality of the information being provided by MCAMLIS.</li> <li>• Polygonization of planimetric objects will assist with impermeable surface run-off analysis and improve cartographic flexibility.</li> <li>• More current street addressing and routable network data.</li> <li>• Defines current and necessary capabilities and specifications for ETL procedures (both</li> </ul>			

for providing data to MCAMLIS and extracting data out of MCAMLIS) and database APIs for developing against web services to the data.

- Promotes the function and benefit of what MCAMLIS provides and how it goes about providing it, resulting in increased use.
- Improves MCAMLIS Program Category: Data Products and Services.

**Risks:**

- Increased automation of data integration procedures may require further development and a wider range of skills for the small number of MCAMLIS staff.
- Partners may be slow to take advantage of improvements.

**Assumptions:**

- Polygonization will include the following planimetric objects: building footprints, bridges, traveled ROW, sidewalks, surface parking, paved trails, and unpaved driveways and access points.
- WP-DAT-03 focuses on cadastral data (parcel and property/owner) so this task will not focus attention there.
- The improvements defined here will be integrated with the improvements from other WP-DAT tasks.
- Priorities will be influenced by Partner requirements (priorities are driven by Partners who are willing and able to implement the improvements being made).
- Implementation may include prototyping and/or iterative deployment.
- Task will also result in recommended next steps and associated costs for highest priority items.

### 3. Improve Property Record Currency

<b>Improvement Task ID:</b> WP-DAT-03			
<b>Improvement Task Name:</b> Improve Property Record Currency			
<p><b>Description:</b></p> <p>This task will improve the processes that collect, process, and publish property record data. The result will be access to more current property ownership records and associated parcel data. This includes working with GCS, which provides a property record service to all but three municipalities and villages in the county, and individually with the municipalities and villages that do not use GCS. The initiative would include communicating the details of the information by posting the currency of the property record information to the MCAMLIS website.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Improved and enhanced automation of property and parcel data integration and publishing processes.</li> <li>• An updated version of property and parcel data and/or data services.</li> <li>• Improved and updated parcel and property metadata.</li> </ul>			
<p><b>Participants:</b></p> <p>Municipal Partners, GCS</p>	<p><b>Objectives/Perceptions:</b></p> <p>O2, P1, P8</p>	<p><b>Needs:</b></p> <p>BN02, BN07, BN15 PN01, PN02, PN03</p>	<p><b>Improvement Task Source:</b></p> <p>IT-02-01</p>
<p><b>High-level Cost Estimate:</b> \$100,000+</p> <p>This includes consulting services, development, training, and limited support costs. Note that costs are unknown for MCAMLIS to obtain access to GCS data (attribute) or data services.</p>			
<b>MCAMLIS Staff Involvement:</b> High (Staff)			
<b>Duration:</b> 12-15 months		<b>Predecessors:</b> None; influenced by WP-DAT-02, WP-DAT-01, and WP-COL-01	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Partners will have access to the most up-to-date property records from municipalities within the county.</li> <li>• Provides a process for delivering more current property-related data.</li> <li>• Offers consistency with the update process.</li> <li>• Is more in sync with the Partner property record data.</li> <li>• Instills confidence in the use of property data being provided via MCAMLIS.</li> <li>• Improves MCAMLIS Program Category: Data Products and Services.</li> </ul>			
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• GCS will not collaborate, or costs are prohibitive.</li> </ul>			

- Partner organizations may resist changing their internal business practices.

**Assumptions:**

- This includes both parcel features as well as property/owner data.
- This would require MCAMLIS to refine or redesign the process for scheduling data transfer with the Milwaukee County Treasurer's office, the City of Milwaukee Assessor's office, and other municipalities for the data to be as current as the data available at the municipalities.
- Will begin working with one suburban organization that uses GCS, (Shorewood, for example), GCS, and one Partner organization that does not use GCS, on the process to better time the delivery of property records, and then translate this process to the remaining Partners.
- The improvements defined here will be integrated with the improvements from other WP-DAT tasks.

### 4. Support New Datum Requirements

<b>Task ID:</b> WP-DAT-03			
<b>Task Name:</b> Support New Datum Requirements			
<p><b>Description:</b></p> <p>The current NAD 27 datum standard limits the interoperability of certain web services and use of MCAMLIS data in certain applications. This task will design and implement automated transformation tools so MCAMLIS data can be made available to MCAMLIS Partners and other stakeholders who need to integrate MCAMLIS data with other data that is available in new datums. This task will leverage the work accomplished in the SEWPRC studies on the multiple datum issue.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• NAD 27 datum &gt; New Datum transformation tools.</li> <li>• A deployed version of key MCAMLIS data and map/data services in the new datum.</li> <li>• Documented transformation procedures to create new map/data services.</li> </ul>			
<p><b>Participants:</b> MCAMLIS Data Stakeholders who also use other datums</p>	<p><b>Objectives/ Perceptions:</b> O5; P6</p>	<p><b>Needs:</b> BN12, PN01</p>	<p><b>Improvement Task Source:</b> IT-02-02</p>
<p><b>High-level Cost Estimate:</b> \$20,000 Includes consulting services.</p>			
<p><b>MCAMLIS Staff Involvement:</b> Medium (Staff)</p>			
<p><b>Duration:</b> 6 months</p>		<p><b>Predecessors:</b> None; influenced by WP-MBL-01, WP-MBL-02, WP-MOL-02, 04, 06</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Solving the datum issue will allow Partners to integrate MCAMLIS services into their mapping environments seamlessly without having to transform their data. This is valuable for using consumer or mapping-grade GPS devices, mobile phones, and other web services from the state or federal government.</li> <li>• Can offer map/data services that integrate with commercially available data.</li> <li>• Use of statewide and national datasets with MCAMLIS services.</li> <li>• Use of MCAMLIS data in mobile and field applications that include location-based services that accommodate consumer-grade or mapping-grade accuracy requirements.</li> <li>• Improves MCAMLIS Program Category: Data Products and Services, Capability Products and Services.</li> </ul>			

**Risks:**

- Initially, most partners may be slow to adopt the new data and services.

**Assumptions:**

- Analysis needs to include approaches that may incrementally resolve the issue.
- MCAMLIS and MCAMLIS Partners will implement the recommendations.
- Will build off the results of at least SEWRPC Memorandum Report No. 206 and Technical Report No. 49.
- The improvements defined here will be integrated with the improvements from other WP-DAT tasks.
- If budget allows, the procedures used to create new map and feature services for data copied into the new datum should be automated.

## 5. Make MCAMLIS Metadata Improvements

<b>Improvement Task ID:</b> WP-DAT-05			
<b>Improvement Task Name:</b> Make MCAMLIS Metadata Improvements			
<p><b>Description:</b></p> <p>This task will improve the metadata content and associated processes and procedures that obtain, update, and publish the metadata. More specifically, this task will improve metadata across all MCAMLIS-provided vector and non-vector layers, and establish processes and procedures to make sure metadata is maintained and published.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Updated metadata for MCAMLIS-provided data.</li> <li>• Processes and procedures to update and publish metadata (online format).</li> </ul>			
<p><b>Participants:</b></p> <p>MCAMLIS Staff</p>	<p><b>Objectives/ Perceptions:</b></p> <p>O1; P1, P8</p>	<p><b>Needs:</b></p> <p>Based on MCAMLIS Program Assessment</p>	<p><b>Improvement Task Source:</b></p> <p>IT-02-03, IT-02-04</p>
<p><b>High-level Cost Estimate:</b> \$15,000</p> <p>Costs include consulting services.</p>			
<p><b>MCAMLIS Staff Involvement:</b> Medium (Staff)</p>			
<p><b>Duration:</b> 3 months</p>		<p><b>Predecessors:</b> Influenced by WP-DAT-01, WP-DAT-02, WP-MOL-04, WP-MOL-07</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Partners will see benefits in the vector information by having better knowledge about the currency and quality of the information being provided by MCAMLIS.</li> <li>• Promotes the function and benefit of what MCAMLIS provides and how it goes about providing it, resulting in increased use.</li> <li>• Improves MCAMLIS Program Category: Data Products and Services, MCAMLIS Portal.</li> </ul>			
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Partners may be slow to take advantage of improvements.</li> <li>• Metadata formats are not effectively integrated with the MCAMLIS portal.</li> </ul>			

**Assumptions:**

- WP-DAT-05 focuses on cadastral data (parcel and property/owner) so this task will not focus attention there.
- The improvements defined here will be integrated with the improvements from other WP-DAT tasks.
- Priorities will be influenced by Partner requirements (priorities are driven by Partners who are willing and able to implement the improvements being made).

## 6. Acquire Cadastral Data from Outside Milwaukee County

<b>Improvement Task ID:</b> WP-DAT-06			
<b>Improvement Task Name:</b> Acquire Cadastral Data From Outside Milwaukee County			
<p><b>Description:</b></p> <p>This task will assess, acquire, and then make available data or data services (e.g., map or feature services) obtained from public agencies that border Milwaukee County. In particular, the focus will be on cadastral data (parcels, property, CSM, ROW). This task needs to also consider collaboration with GCS. This task will inventory the availability of planimetric mapping data (e.g., transportation, facilities, and utilities) and imagery (e.g., Ortho, Oblique, and LiDAR) data, but does not focus on its acquisition. This task would end with MCAMLIS putting in place processes and procedures to refresh the external cadastral data as required or as able.</p> <p>While outside the scope of this task, the longer term vision would be to incorporate this external data into the same data and data services that MCAMLIS provides so Partners can apply the data seamlessly.</p>			
<p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Parcel and property data and/or data services areas bordering Milwaukee County.</li> <li>• Processes and procedures for accessing updated versions of the data/services.</li> <li>• Inventory of available framework data from border governments.</li> </ul>			
<p><b>Participants:</b></p> <p>Municipal Partners (especially public safety business areas) along Milwaukee County borders, We Energies, MMSD, and SEWRPC</p>	<p><b>Objectives/Perceptions:</b></p> <p>O4, O5; P8</p>	<p><b>Needs:</b></p> <p>BN10, BN18, BN19 PN01, PN02</p>	<p><b>Improvement Task Source:</b></p> <p>IT-02-05</p>
<p><b>High-level Cost Estimate:</b> \$50,000</p> <p>This includes consulting services and limited support costs.</p>			
<p><b>MCAMLIS Staff Involvement:</b> Medium (Staff)</p>			
<p><b>Duration:</b> 6 months</p>		<p><b>Predecessors:</b> WP-DAT-03; influenced by WP-COL-01 (training)</p>	

**Benefits:**

- MCAMLIS Partners will have access to cadastral data from participating counties surrounding Milwaukee. This will offer access to this data from the same services provided for MCAMLIS reference data.
- Provides a process for delivering property-related data from outside the County area.
- Offers consistency with the update process.
- Improves MCAMLIS Program Category: Data Products and Services.

**Risks:**

- Costs to process and make the data available may be significantly higher than estimated.
- GCS will not collaborate, or costs are prohibitive.
- Partner organizations may resist changing their internal business practices to have the data made available through MCAMLIS or may resist applying the data once it is available.

**Assumptions:**

- This includes both parcel features as well as property/owner data.
- Will work to acquire, load, and publish the data only in the areas where Partners are willing and able to participate and apply the data.
- The improvements defined here will be integrated with the improvements from other WP-DAT tasks.

## Appendix A: Acronyms

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AGOL – ArcGIS Online

BNA – Business Needs Assessment

CAD – Computer Aided Design

COL – MCAMLIS/Partner Collaboration Improvement

DAT – MCAMLIS Data Improvement

GIS – Geographical Information System

LBDT – Location-Based Data and Technologies

MBL – Mobile-Based Capabilities Implementation

MCAMLIS – Milwaukee County Automated Mapping and Land Information System

MCLIO – Milwaukee County Land Information Office

MMGUG – Milwaukee Municipal GIS Users Group

MMSD – Milwaukee Metropolitan Sewerage District

MOL – MCAMLIS Online Presence Improvement

VGI – Volunteer Geographic Information

VWR – MCLIO Viewer/Pictometry Improvement Rollout

WP – Work Plan

## Appendix B: Initiative and Project Cross-Reference

The Initiatives and related Improvement Tasks from the Improvement Task Analysis phase of the Business Needs Assessment Project were the primary input to creating the Project Tasks that make up the Work Plan. The table below provides a cross-reference between the Initiatives and Improvements Tasks to the Projects and Project Tasks. Most of the Project Tasks correspond to only one Improvement Task; those that do not are footnoted. Note that a list of names for both Initiatives and Projects is provided below the table.

Initiative	Improvement Task ID and Name		Project	Project Task ID and Name	
Initiative 3	IT-03-01	Improve the MCLIO Interactive Mapping Service	VWR	WP-VWR-01	Improve the MCLIO Interactive Mapping Service
Initiative 3	IT-03-05	Implement Pictometry Desktop Plug-In	VWR		
Initiative 1	IT-01-02	Implement Initial MCAMLIS Data Extract Service	VWR	WP-VWR-02	Implement Initial MCAMLIS Data Extract Service
Initiative 3	IT-03-04	Deploy Mobile Property Locator Application	MBL	WP-MBL-01	Deploy Mobile Property Locator Application
Initiative 1	IT-01-01	Develop MCAMLIS Feature Data Service for Parcels	MBL	WP-MBL-02	Develop MCAMLIS Feature Data Service for Parcels
Initiative 3	IT-03-03	Provide Data Services for Partner Mobile Applications	MBL	WP-MBL-03	Prototype Services for Mobile Applications
Initiative 4	IT-04-02	Invest in LBDT/Collaboration Education and Training	COL	WP-COL-01	Invest in LBDT/Collaboration Education and Training
Initiative 5	IT-05-04	Formalize Partner Input in MCAMLIS Business Planning	COL	WP-COL-02	Formalize Partner Input in MCAMLIS Business Planning
Initiative 4	IT-04-01	Improve MMGUG Forums	COL	WP-COL-03	Improve MMGUG Forums
Initiative 4	IT-04-03	Facilitate Business-Driven LBDT Collaboration Project	COL	WP-COL-04	Facilitate Business-Driven LBDT Collaboration Project
Initiative 5	IT-05-03	Clarify Partner Opportunities in MCAMLIS	COL	WP-COL-05	Clarify Partner Opportunities in MCAMLIS
Initiative 5	IT-05-01	Establish and Market the New MCAMLIS*	MOL	WP-MOL-01	Make Initial MCAMLIS Website Improvements

Initiative	Improvement Task ID and Name		Project	Project Task ID and Name	
Initiative 5	IT-05-02	Develop a MCAMLIS Program Management Website*			
Initiative 1	IT-01-03	Determine MCAMLIS Portal Architecture	MOL	WP-MOL-02	Determine MCAMLIS Portal Architecture
Initiative 5	IT-05-01	Establish and Market the New MCAMLIS*	MOL	WP-MOL-03	Establish and Market the New MCAMLIS
Initiative 1	IT-01-04	Implement the MCAMLIS Portal	MOL	WP-MOL-04	Implement the MCAMLIS Portal
Initiative 5	IT-05-01	Establish and Market the New MCAMLIS*	MOL	WP-MOL-05	Finalize MCAMLIS Program Management Content
Initiative 5	IT-05-02	Develop a MCAMLIS Program Management Website*			
Initiative 1	IT-01-05	Develop Partner Data Sharing Repository	MOL	WP-MOL-06	Develop Partner Data Sharing Repository
Initiative 3	IT-03-02	Research and Possible Adoption of ArcGIS Online (AGOL)	MOL	WP-MOL-07	Implement Cloud-Based GIS for MCAMLIS (AGOL)
Initiative 2	IT-02-04	Make MCAMLIS Non-Vector Data Improvements*	DAT	WP-DAT-01	Make MCAMLIS Non-Vector Data Improvements
Initiative 2	IT-02-03	Make MCAMLIS Vector Data Improvements*	DAT	WP-DAT-02	Make MCAMLIS Vector Data Improvements
Initiative 2	IT-02-01	Improve Property Record Currency	DAT	WP-DAT-03	Improve Property Record Currency
Initiative 2	IT-02-02	Determine How to Support New Datum Needs	DAT	WP-DAT-04	Support New Datum Requirements
Initiative 2	IT-02-04	Make MCAMLIS Non-Vector Data Improvements*	DAT	WP-DAT-05	Make MCAMLIS Metadata Improvements
Initiative 2	IT-02-03	Make MCAMLIS Vector Data Improvements*			
Initiative 2	IT-02-05	Acquire Cadastral Data from Outside Milwaukee County	DAT	WP-DAT-06	Acquire Cadastral Data from Outside Milwaukee County

*\*These Improvement Tasks are Listed More than Once*

**Initiatives:**

- Initiative 1: Data Distribution
- Initiative 2: Data Integration
- Initiative 3: Capabilities/Solutions
- Initiative 4: Collaboration/Training
- Initiative 5: Program Management

**Projects:**

- VWR: Viewer/Pictometry Improvement Rollout
- MBL: Mobile-Based Capabilities Implementation
- COL: MCAMLIS/Partner Collaboration Improvement
- MOL: MCAMLIS Online Presence Improvement
- DAT: MCAMLIS Data Improvement

## Appendix C: Objectives and Perceptions

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### Anticipated LBDT Objectives for MCAMLIS

Listed here are the LBDT objectives for the MCAMLIS Program, anticipated by MCAMLIS BNA Subcommittee at the beginning of this project.

01. Use of Web and mobile technologies software/hardware to address local community operational and service delivery objectives.
02. Promote and facilitate core applications and services to enable local communities to engage in flexible and effective service delivery solutions.
03. Provide hosted solutions, by MCAMLIS, that incorporate common seamless feature rich data and services that can be further enhanced to address a wide ranging set of unique situations and community demands.
04. Provide resources to local municipalities to minimize their capital investments in using and implementing spatial/location data and applications.
05. Promote data sharing among MCAMLIS Stakeholders (such as utility data) with MCAMLIS assuming an active facilitation role.

### Perceived Challenges for MCAMLIS

Below are perceived challenges for the MCAMLIS Program, which were identified by MCAMLIS with the inception of this project.

- P1. MCAMLIS is seen as a passive partner; not particularly suited to supporting local needs beyond traditional data support.
- P2. Partnering with the MCAMLIS and by extension Milwaukee County could be considered risky e.g., shared cost agreements not being upheld.
- P3. Local management and technical resources are comfortable with their autonomy.
- P4. Local leadership lack the time/resources to commit to understand and act on LBDT implementation needs within their communities.
- P5. Fear of escalating costs without supporting evidence of ROI.
- P6. Existing technology gaps at both the local level and MCAMLIS.
- P7. Limited MCAMLIS marketing and business planning.
- P8. Limited analysis by MCAMLIS of local needs.

## Appendix D: Prioritized Business Needs

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The following section lists the most important LBDT needs that MCAMLIS Partners believe the MCAMLIS Program needs to meet over the next three to five years. These needs are listed in decreasing priority order based on Partner voting and consensus decision-making tools. The top five needs stood out as the highest priorities stemming from the needs prioritization summit.

### 1) Data Extract Application

- Organizations need the ability to extract MCAMLIS data directly from the web via a web mapping application. This would involve defining a geographic area or filtered set of data and extracting data layers to use as needed. It would allow more efficient access to data and alleviate the need for partners to contact the MCLIO to request data. Although the focus initially would be on existing reference data, this could be expanded to be a place where partners can share their data with others.
- This could be done with an area clip and download from a user specified area.

### 2) Access to Current Property Ownership Records

- Organizations need the ability to view current property ownership records throughout Milwaukee County. Currently, ownership records are updated infrequently and are often outdated. For instance, the MCLIO website data is from 2011. Some partners have access to their own changes daily; some less frequent (e.g. Greenfield updates the data monthly); and others update annually (e.g. Franklin). MCAMLIS currently updates property data quarterly, including land divisions and combinations across the county. Primary interest is updates to address and owner information, with other data (assessment, etc.) is secondary. This provides an opportunity to work with GCS to get access to the data from the communities they serve more frequently, which includes all the suburban areas except Greenfield and West Allis. This need is to be consistent with the update process and be more in sync with the partner property record data.

### 3) Public Works (utility data, capital improvement) Business Data within Milwaukee County

- Organizations require access to Public Works data (water, wastewater, capital improvement plans, and road projects) from other organizations within Milwaukee County. This includes the need for accessing utility data, capital improvement project information, and street projects from other municipalities and MCAMLIS partners.

### 4) Data Integration between Partners

- Organizations need MCAMLIS to facilitate data integration between partners in Milwaukee County facilitating partner connections. This need specifically refers to improving integration of data between the City of Milwaukee and the County, between municipalities and MMSD, etc. For the city this would be integrating street centerline and parcel data with the county. MMSD currently receives data from municipalities in different formats and standards.

**5) Understanding and Communicating what Data and Services MCAMLIS Offers**

- The need for MCAMLIS to communicate what data and services it offers, and to make accessible a list of service offerings. This need is to provide updated data sets and services that MCAMLIS provides. Updates to file currency information, metadata, and information about new services that are available from MCAMLIS.

**6) Coordinate Data Collection (countywide pavement project website, private/public ash tree inventory)**

- Organizations need a process for collecting field data throughout Milwaukee County. With a process and the correct applications and tools, organizations can begin to collect data using the same standards, making data sharing easier.

**7) Assessment (easements, property ownership) Business Data within Milwaukee County**

- Organizations require access to ownership and property data from other organizations within Milwaukee County. This is especially helpful to neighboring /bordering organizations.
- Parcel features with a key number used to join other data. Assimilate the tax rolls from suburban communities and the City of Milwaukee to provide assessment and cadastral information – lots, dimensions as a graphic feature and parcel polygon with key number. The City of Milwaukee currently mass distributes their master property file.

**8) Improve MCLIO Viewer**

- There is a need for an improved web mapping service from the county. This includes Responsiveness (i.e. Timeliness of data rendering and tool functions), Accessibility (e.g. Map printing, pictometry, CSM retrieval), Usability, and Availability (needed data is there).

**9) Pictometry Online (Viewer or Plug-in)**

- Organizations need the ability to view pictometry via desktop application or other web application (ArcGIS). This could be provided as a plug in to a desktop application or a web service for use in existing applications.

**10) Cadastral (Parcels, CSM, ROW) Reference from outside Milwaukee County**

- Organizations need access or a method of downloading/using parcel and right of way data from neighboring counties. This need is important to We Energies and MMSD for accessing this information within their service territories, as well as communities that border the county.
- Organizations need the ability to use and search an updated address database/application in areas outside of Milwaukee County.

- Public safety also was interested in having access to this information when responding to calls outside the county.
  - MCAMLIS could gather data from willing neighbors and provide a download dashboard.
- 11) Mobile Asset Viewer Application (more specific to a particular asset: sewers, trees)**
- Organizations need to view asset information in the field via a mobile application on a phone or tablet.
  - Each organization could have an application customized to their data but also have the capability to view data from other organizations.
  - We Energies has a mobile AGOL application for viewing assets.
- 12) Addressing Multiple Datums**
- Overall, the need for having a consistent set of data on more than one datum. This includes educating the partners on the use of base data provided by MCAMLIS as well as the potential to make the data available in formats for use in concert with other web map services (e.g. weather services, volunteered geographic information, etc.), federal and state data, and commercially available data sets.
- 13) Mobile Property Mapping Application (have access to property records while out in the field)**
- Organizations need the ability to view property ownership records and other property information in the field via a mobile application for phone or tablet.
  - This need comes up frequently, especially with parks. MMSD has a mobile AGOL application that uses the property data.
  - This application could also be interactive, allowing field workers to update property ownership information or take pictures and upload changes instantly.
- 14) Develop and Promote User Groups (e.g., MMGUG)**
- Organizations need MCAMLIS to promote and market user groups to involve more members of Milwaukee County in data initiatives and issue resolution. Continue to support and promote MMGUG and potentially expand to other user group communities.
- 15) Data Updates/Timeliness**
- There is a need for MCAMLIS to increase the frequency of data updates and provide a more efficient delivery of data, specifically property and address information.
  - Post information on new data updates (e.g. new aerials, new pictometry, new topos) and when this information will be available from MCAMLIS and on the MCLIO Viewer.

- 16) Field Data Collection Application (e.g., utility poles, trees) – may be disconnected (brand new)**
  - Organizations need to collect asset information via mobile app or disconnected “check-out/check-in” application for mobile devices.
  - MCAMLIS could develop this application and customize for each organization
  
- 17) Planning (e.g., zoning, land use, census data) within Milwaukee County**
  - Organizations need access and ability to share zoning and land use data with other organizations within Milwaukee County.
  - Census data is provided by the US government and is available to anyone.
    - MCAMLIS could provide information and educate on what census data is available and how to access this information. Provide a link to the US Census data download site.
  
- 18) Planimetric Mapping (e.g., trans, facilities, utilities) Reference from outside Milwaukee County**
  - Organizations would like access or a method of downloading/using planimetric data from neighboring counties. Would have to determine what of this information is available.
  - MCAMLIS could gather data from willing neighbors and provide a download dashboard.
  
- 19) Imagery (e.g. Ortho, Oblique, LiDAR) Reference from outside Milwaukee County**
  - Organizations need access or a method of downloading/using aerial photos, oblique photos, and available LiDAR data from outside Milwaukee County.
  - Currently, the MCLIO web viewer extends one mile outside of the county, users would like to be able to view additional aerial and pictometry images throughout the Milwaukee Metro area.
  
- 20) Facilitation of Training on Specific Technologies (e.g. ProPhoenix, AGOL, Geocortex, etc.)**
  - Organizations need MCAMLIS to organize training seminars, meetings, and documentation for a variety of new technologies.
  
- 21) Data distribution process**
  - Organizations need MCAMLIS to improve the current data distribution process by having data more easily accessible. This could be done with a download dashboard, FTP site, or web service.

**22) General support and training for GIS technology**

- Organizations need MCAMLIS to organize training seminars, meetings, and documentation for a variety of new technologies as well as provide ongoing support for current and future GIS technologies.
- Support the integration of data between the City of Milwaukee and the County, between municipalities and MMSD, etc.

## Appendix E: Program-Driven Needs

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The following describes program driven needs. Each one is cross-referenced to the relevant perceptions and objectives described above.

### **PN1) MCAMLIS Facilitation/Leadership (P1, P4, P6, O1-O5)**

- The Online needs survey clearly indicated that MCAMLIS Partner staff see MCAMLIS offering proactive facilitation and leadership in meeting the needs from this project.
- MCAMLIS has explicit examples where it has done this (e.g. recent activities in Cudahy and North Shore Communities). MCAMLIS needs to market successes of these when they occur.
- To continue to demonstrate that MCAMLIS can do this, MCAMLIS needs to take a proactive facilitation or leadership role when addressing priority needs via the initiatives outlined in this plan, especially if they involve municipalities.

### **PN2) Obtain ROI Evidence (P5; O1, O2, O3)**

- MCAMLIS projects and operations need to measure return on investment (ROI). This is not foreign to MCAMLIS as they leverage web analytics to track and improve MCLIO website usage.
- Metrics definition and tracking need to be established as part of projects for data, capability, and collaboration. This also includes embedding performance measurement as part of the resulting operation of the solution after the project.
- To build confidence or gather missing ROI metrics, some projects may require tracking current performance, and/or executing pilots or prototypes with go/no-go gates.
- Implement methods of measuring Partner satisfaction with Program operations.
- With some baseline metrics established up front and then operationally measured, MCAMLIS and MCAMLIS Partners can assess ROI at periodic intervals (quarterly, semi-annual, annually).

### **PN3) Formalize MCAMLIS Partner Roles as part of MCAMLIS Governance (P7, P8)**

- Formalize Partner Roles and Levels of Involvements to accommodate the varied abilities and interests of MCAMLIS Partner participation in MCAMLIS activities.
- Establish and Maintain an efficient way of keep track of MCAMLIS Membership & Role Assignments.

### **PN4) Improve Partner Input in MCAMLIS Business Planning (P7, P8)**

- Partners did not rank this as a high Business Need; however, the need to make this process more transparent, proactive, and reactive was evident after completion of face-to-face information gathering approaches.
- While Partner input is an important part of strategic initiatives like the BNA project, Partner input needs to be incorporated into future tactical decisions regarding project priorities of MCAMLIS.

**PN5) Invest in MCAMLIS Competencies and Technology Infrastructure (P1, P4, O2-O5)**

- The MCAMLIS Program will need to assess and subsequently invest in infrastructure to align with the technology-based initiatives outlined in this document; the architecture needs to be scalable and extensible, and adjust as needed; each year needs to include additional budget so MCAMLIS can invest in just-in-time solutions.
- Respond to increased needs in providing just-in-time training and education on technology associated to the initiatives, but also on consulting services in a collaboration environment.

**PN6) Improve MCAMLIS Marketing (P8)**

- MCAMLIS must have a distinct identity with product and service offerings clearly identified. The Program must also measure and communicate the value Partners and other stakeholders receive from these services. This clear understanding needs to be beyond the select core technical-savvy people in each Partner Organization and also translate to the business areas.

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## Appendix F: Initiatives and Improvement Tasks

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The following describes BNA Initiatives and Improvement Tasks. Each one is cross-referenced to the relevant perceptions, objective, Prioritized Business Needs and Program Needs. These Initiatives and Improvement Tasks were used to create the 5 year Work Plan Projects and Tasks. The 2014-2018 Work Plan document cross references these Initiatives and Improvement Tasks.

### Initiatives and Improvement Tasks

The following section provides details on the five project initiatives (i.e., Data Distribution, Data Integration, Capabilities/Solutions, Collaboration/Training, and Program Management) and associated improvements tasks. For each improvement task, the following information is provided:

- Improvement ID
- Improvement Name
- Description
- Participants
- Cross-referenced Perceptions and Objectives (see Appendix B)
- Cross-referenced Business and Program needs (identified and prioritized earlier in the project) (See Appendices C and D)
- High-level cost estimate
- MCAMLIS staff involvement (Low, Medium, and High)
- Duration
- Predecessors (other improvement tasks)
- Benefits
- Risks
- Assumptions.

### Initiative 1: Data Distribution

The data distribution initiative focuses on improving users' ability to retrieve reference data from MCAMLIS, and on posting and retrieving other Partner business data.

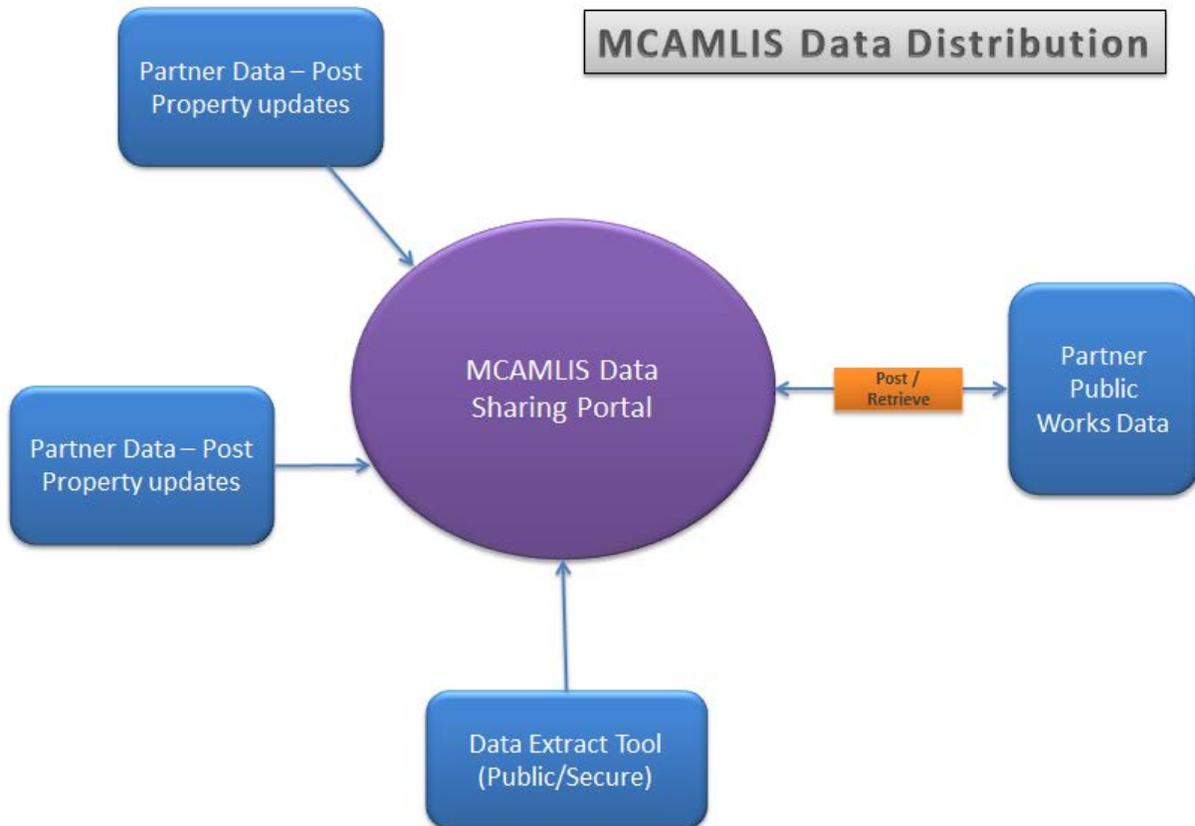


Figure 3: Data Distribution

## 1. Develop MCAMLIS Feature Data Service for Parcels

<b>Improvement Task ID:</b> IT-01-01		
<b>Improvement Task Name:</b> Develop MCAMLIS Feature Data Service for Parcels		
<p><b>Description:</b></p> <p>This task includes the development of a feature data service for parcels. The feature data service will be established using a direct connect and will be accessed through REST endpoints. The Web feature service will expose the parcel data layer for use by MCAMLIS Partners. They can pull that data layer service into their desktop application or enterprise solution for publishing along with their own business data.</p> <p>Users can:</p> <ul style="list-style-type: none"> <li>• Query and retrieve parcel attribution and symbology</li> <li>• Control access to features using ownership-based access control</li> <li>• Prevent users from editing feature geometry.</li> </ul> <p>The feature service will allow MCAMLIS to serve parcel features over the Internet, and will provide the symbology to use when displaying the features. Partners can execute queries to get features that can be used in client applications. Partners can consume feature services using either a web client (Geocortex), ArcGIS for Desktop, or Mobile applications.</p>		
<p><b>Participants:</b></p> <p>Milwaukee Metropolitan Sewerage District (MMSD), We Energies, City of Milwaukee</p>	<p><b>Objectives/Perceptions:</b></p> <p>O1, O2, O3, O5; P1, P8</p>	<p><b>Needs:</b></p> <p>BN01, BN21, BN04 PN1, PN2</p>
<p><b>High-level Cost Estimate:</b> \$50,000</p> <p>This includes technology configuration and implementation, consulting costs, and training costs.</p>		
<b>MCAMLIS Staff Involvement:</b> High (Staff)		
<b>Duration:</b> 3 months		<b>Predecessors:</b> None
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• MCAMLIS Partners will have access to updated parcel data and property information to bring into their applications and use how they wish.</li> <li>• Provides the data for use within a user’s application (ArcGIS Desktop, Web clients, and AGOL mobile applications).</li> <li>• Provides immediate access to most current data available at MCAMLIS.</li> <li>• Involves limited data management tasks for consumer.</li> <li>• Reduces MCAMLIS staff effort spent on responding to user data requests.</li> <li>• Provides a means for users from outside (e.g., developers) to access the data for use in their projects.</li> <li>• Follows industry best practices by moving away from creating copies of data.</li> </ul>		

**Risks:**

- User management and permissions handling prior to the Portal being in place.
- Accepting current quality of data with incremental improvement
- Getting buy-in from the Partners regarding quality control and new data update workflows.

**Assumptions:**

- Initial implementation is read-only data.
- Powerful enough to be used by desktop and connected mobile users.
- Can be accessed by both GIS and CAD users.
- Future considerations would include an update and corrections response.
- Assume start with Parcels and add more features with time.
  - Some data, such as utility data, will be restricted.
- Improves on the access and parcel currency issues with the data extract tool.

## 2. Implement Initial MCAMLIS Data Extract Service

<b>Improvement Task ID:</b> IT-01-02		
<b>Improvement Task Name:</b> Implement Initial MCAMLIS Data Extract Services		
<p><b>Description:</b></p> <p>This initiative would provide users with a service that will allow them to select one or more MCAMLIS reference data layers to be extracted for a user-specified geographic area, which would result in downloadable datasets in one of a predetermined set of data formats. The current extract service for extracting shapefiles and personal geodatabases will be enhanced using the Geocortex Silverlight API and will be included as part of the next release of the MCLIO Interactive Mapping Service under IT-03-01. The Silverlight API also provides for extract to AutoCAD (.dxf or .dwg) and MicroStation (.dgn) formats.</p> <p>A "how to" instructional guide needs to be included with the service.</p>		
<p><b>Participants:</b></p> <p>MCAMLIS Partners, capital improvement contractors, and land developers</p>	<p><b>Objectives/Perceptions:</b></p> <p>O1, O2, O3, O5; P1, P6, P8</p>	<p><b>Needs:</b></p> <p>BN01, BN21, BN04 PN1, PN2</p>
<b>High-level Cost Estimate:</b> \$10,000 (Training and instructional promotion of service)		
<b>MCAMLIS Staff Involvement:</b> High (Staff)		
<b>Duration:</b> 3 months	<b>Predecessors:</b> IT-03-01	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Users of the MCLIO interactive web mapping tool will be able to clip out data for a particular geographic area to use in their desktop mapping applications.</li> <li>• This on-demand service to extract the data reduces the turn-around time for Partners to obtain the required data.</li> <li>• Reduces MCAMLIS staff effort spent on responding to user data requests.</li> <li>• Provides a service to select data from a specified geographic area.</li> <li>• Provides a means for users from outside (e.g., developers) to access the data for use in their projects.</li> <li>• Adopts best practice.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Tracking use of the data.</li> <li>• Data currency – Users extracting data instead of accessing directly via a web service may become outdated information and not suitable for many purposes.</li> </ul>		

**Assumptions:**

- Begin with Parcel data and expand to allow users to select the target data layers to extract.
- To accommodate this requirement as quickly as possible, strong consideration must be given to using existing capabilities, such as the data extract service that is included as a feature in the new MCLIO viewer application (Geocortex Silverlight viewer).
- Target communities (that could make use of the tool) to pilot the process.
- Through training, address the use of web services as a preferred method of data sharing.

### 3. Determine MCAMLIS Portal Architecture

<b>Improvement Task ID:</b> IT-01-03		
<b>Improvement Task Name:</b> Determine MCAMLIS Portal Architecture		
<p><b>Description:</b></p> <p>The improvement task would involve hiring a consultant to determine the architecture for a MCAMLIS portal. The portal will be the location for Partners and the public to access MCAMLIS data and services. MCAMLIS will manage the portal to include access of MCAMLIS Web and Mobile applications. In addition, the portal needs to provide the means for MCAMLIS Partners to post and access their own web and mobile applications. The portal will also provide the framework for the data sharing repository.</p> <p>The portal architecture will need to provide for managing membership and access, cataloging data and services, and potentially managing content for program management-related information (examples include what/who is MCAMLIS, current MCAMLIS Initiatives, MMGUG, and training).</p> <p>Options for the portal architecture could include the Socrata Open Data Portal, Esri's AGOL, Esri's ArcGIS Portal, or Open Source Data Portals such as CKAN. The primary output from this task will be a document that presents two to three options, along with their associated initial and five-year operating costs.</p>		
<p><b>Participants:</b></p> <p>County, City, MMSD</p>	<p><b>Objectives/Perceptions:</b></p> <p>O5; P1, P8</p>	<p><b>Needs:</b></p> <p>BN05; BN03, BN04, BN17 PN01, PN02, PN03, PN05</p>
<b>High-level Cost Estimate:</b> \$45,000		
<b>MCAMLIS Staff Involvement:</b> High (Staff)		
<b>Duration:</b> 3 months	<b>Predecessors:</b> None	
<p><b>Benefits:</b> (once implemented)</p> <ul style="list-style-type: none"> <li>• The Portal offers one stop shopping for MCAMLIS Partners to access information and services without having to log into multiple sites. In addition, the Portal provides a location for collaboration between Partners.</li> <li>• Provides a single location for MCAMLIS information and services.</li> <li>• Provides access to MCAMLIS data and services.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Recommended architecture may require changes in infrastructure and administration of services.</li> <li>• Issues both internal and external with the direction of the County Information Technology (IT) that may stand in the way of adopting a portal.</li> <li>• A single product may not include all the necessary functionality for MCAMLIS services</li> </ul>		

(e.g., Partners posting data, single membership sign-on, metadata retrieval for both data and services).

**Assumptions:**

- This service will allow Partners to access information posted by other MCAMLIS participants.
- Partners will engage and put resources toward sharing their data with other MCAMLIS participants.
- Metadata is included with the data.
- MCAMLIS will develop a service for Partners to post their data (public works initially).
- The portal can meet the membership requirements for obtaining information about the MCAMLIS Program (see IT-05-02), in particular, access to secure or public content, and notification services to inform members when new data and services are posted to the site.
- After the portal is operating for public works data, the process will be applied for zoning information.
- The data sharing repository would allow for posting data in multiple formats, including Esri, AutoCAD, spreadsheets, Google, and other formats.
- Once a particular object is selected, the user can then link to capabilities that allow access to that object (e.g., MCLIO Web Map application, a map or feature data service, or Partner application).
- Implementation may include piloting and/or iterative deployment.

#### 4. Implement the MCAMLIS Portal

<b>Improvement Task ID:</b> IT-01-04		
<b>Improvement Task Name:</b> Implement the MCAMLIS Portal		
<p><b>Description:</b>                  This task would implement the MCAMLIS Partner portal solution determined in IT-01-03. This Portal would be a single location where Partners would interface with MCAMLIS. It would provide Partners with access to and use of MCAMLIS data and services as well as a location to publish their business data. In addition, the portal would offer a location for Partner collaboration.</p>		
<p><b>Participants:</b>                  County, City, MMSD</p>	<p><b>Objectives/Perceptions:</b>                  O1, O2, O3, O5; P1, P6, P7, P8</p>	<p><b>Needs:</b>                  BN03, BN04, BN17                  PN01, PN02, PN03, PN05</p>
<b>High-level Cost Estimate:</b> (Depends on recommended solution)		
<b>MCAMLIS Staff Involvement:</b> High (Staff)		
<b>Duration:</b> 3 months	<b>Predecessors:</b> IT-01-03	
<p><b>Benefits:</b> (once implemented)</p> <ul style="list-style-type: none"> <li>• The Portal offers one stop shopping for MCAMLIS Partners to access information and services without having to log into multiple sites. In addition, the Portal provides a location for collaboration between Partners.</li> <li>• Provides a secure location for Partner access to MCAMLIS data and services.</li> <li>• Alleviates staff from having to administer multiple individual services and sites.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Recommended architecture may require infrastructure investment and changes.</li> <li>• The owner of a portal object (e.g., MCLIO Web Map application, a map or feature data service, or Partner application) will not keep the metadata up-to-date.</li> </ul>		
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>• MCAMLIS will maintain and administer the portal.</li> <li>• The portal will provide for Partners to access all MCAMLIS services.</li> <li>• Partners will engage and use the MCAMLIS portal.</li> </ul>		

## 5. Develop Partner Data Sharing Repository

<b>Improvement Task ID:</b> IT-01-05		
<b>Improvement Task Name:</b> Develop Partner Data Sharing Repository		
<p><b>Description:</b></p> <p>Based on the recommended portal architecture in IT-01-03, MCAMLIS would develop and deploy the selected data sharing repository solution.</p> <p>This action would provide a service where Partners could post their data on the MCAMLIS website, which would be available to other MCAMLIS Partners via a secure login. For example, Partners would post their own spatially enabled public works data, such as municipal storm and sanitary sewer utility data, capital improvement project information, and street projects, to the repository. It would then be available for access by other municipalities and MCAMLIS Partners. Once this repository is established for public works data, Partners would use this same method for sharing zoning and land use data.</p> <p>Items included in the Partner data sharing repository may eventually migrate to formalized data integration processes that MCAMLIS may host.</p>		
<p><b>Participants:</b></p> <p>County, City, MMSD</p>	<p><b>Objectives/Perceptions:</b></p> <p>O1, O2, O3, O5; P1, P6, P8</p>	<p><b>Needs:</b></p> <p>BN03, BN04, BN17 PN01, PN02, PN03, PN05</p>
<b>High-level Cost Estimate:</b> (Depends on recommended solution)		
<b>MCAMLIS Staff Involvement:</b> High (Staff)		
<b>Duration:</b> 9 months	<b>Predecessors:</b> IT-01-03	
<p><b>Benefits:</b></p> <p>The data sharing repository provides MCAMLIS Partners with a hosted location for sharing their data with other Partners in a secure and coordinated manner.</p> <p>Same benefits as IT 01-03, as well as:</p> <ul style="list-style-type: none"> <li>• Allows users/organizations to upload their data, extract data, and use applications hosted by MCAMLIS, and to download application templates to be used within their own environments. This frees up MCAMLIS staff time.</li> <li>• Besides data, can also include a web service catalog/directory for all of MCAMLIS.</li> <li>• Besides data, can also include a web application catalog/directory for all of MCAMLIS.</li> <li>• Offers pushing of new data/apps/functionality to all organizations as a service by MCAMLIS.</li> <li>• Grows user adoption and involvement.</li> </ul>		
<b>Risks:</b>		

- Uncertainty of MCAMLIS Partner adoption.
- MCAMLIS staff administration will be required.
- May require MCAMLIS to invest in new technology.
- Will require staff and Partner training.
- New data update workflows and quality assurance/quality control (QA/QC) processes.

**Assumptions:**

- Architecture fits well into the existing MCLIO environment.
- MCAMLIS will have staff to administer the data sharing repository.
- This service will allow Partners to access information posted by other MCAMLIS participants.
- Partners will engage and put resources toward sharing their data with other MCAMLIS participants.
- Metadata is included with the data.
- This task includes implementation of the service for at least 2, preferably more, Partners who will post their data; initially, this is public works data.
- After this repository is operational for public works data, the process will be applied for zoning information.
- Notification service alerts members when new data is posted to the site.
- The data sharing repository would allow for posting data in multiple formats, including Esri, AutoCAD, spreadsheets, Google, and other formats.

## Initiative 2: Data Integration

The need for MCAMLIS-provided data remains strong, and with advances in technology such as application services (e.g., map services, data/feature services) and mobile devices, the requirements for MCAMLIS data are evolving. Consumers seek to have access to data changes more quickly, require access to potentially large amounts of spatially enabled data across various platforms (web, mobile, and desktop), and seek to spatially register MCAMLIS data with their own and external data sources (via WMS or other mapping services).

MCAMLIS currently has back-end data processing that will need to support these changing requirements (see Figure 4, left side of diagram). This back-end processing includes data integration (extract-transform-load or ETL) that brings data from disparate sources together and provide that data out to MCAMLIS data consumers (e.g., parcel and address data). MCAMLIS also has back-end transaction activities (e.g., on historic aerial images) and loading new versions of framework data (e.g., planimetric, topographic, and orthophotography).

In addition to these formal back-end data processing activities, MCAMLIS will need to determine how best to provide data handling for it's likely increased role in hosting collaborative data activities among MCAMLIS Partners (see Figure 4, right side of diagram). One example is hosting a Partner-to-Partner data sharing repository. Another is hosting a place where recommended changes to data (e.g., parcels or addresses) discovered by field staff can be posted and accessed by MCAMLIS Partners.

This initiative will enhance the MCAMLIS data architecture to meet the overall growing demands on MCAMLIS-hosted data.

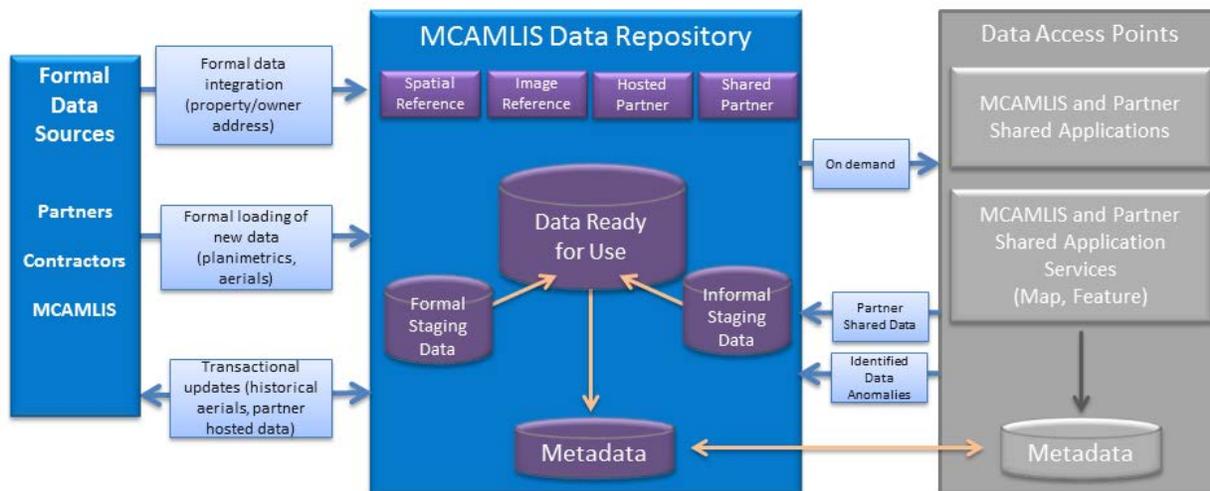


Figure 4: Data Integration Vision

## 1. Improve Property Record Currency

<b>Improvement Task ID:</b> IT-02-01		
<b>Improvement Task Name:</b> Improve Property Record Currency		
<p><b>Description:</b></p> <p>This task will improve the processes that collect, process, and publish property record data. This includes working with GCS, which provides a property record service to all but three municipalities and villages in the county, to provide access to current property ownership records and a potential link to the MCLIO web map through the portal. The initiative would include communicating the details of the information by posting the currency of the property record information to the MCAMLIS website.</p>		
<p><b>Participants:</b></p> <p>Municipal Partners</p>	<p><b>Objectives/Perceptions:</b></p> <p>O2, P1, P8</p>	<p><b>Needs:</b></p> <p>BN02, BN07, BN15 PN01, PN02, PN03</p>
<p><b>High-level Cost Estimate:</b> \$100,000+</p> <p>This includes consulting services, development, training, and limited support costs. Note that costs are unknown for MCAMLIS to obtain access to GCS data (attribute) or data services.</p>		
<b>MCAMLIS Staff Involvement:</b> High (Staff)		
<b>Duration:</b> 12-15 months		<b>Predecessors:</b> IT-02-03
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>Partners will have access to the most up to date property records from municipalities within the county.</li> <li>Provides a process for delivering more current property-related data.</li> <li>Offers consistency with the update process.</li> <li>Is more in sync with the Partner property record data.</li> <li>Instills confidence in the use of property data being provided via MCAMLIS.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>GCS will not collaborate, or costs are prohibitive.</li> <li>Partner organizations may resist changing their internal business practices.</li> </ul>		
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>This includes both parcel features as well as property/owner data.</li> <li>This would require MCAMLIS to refine or redesign the process for scheduling data transfer with the MC Treasurer’s office, the City of Milwaukee Assessor’s office, and other municipalities for the data to be as current as the data available at the municipalities.</li> </ul>		

- Will begin working with one suburban organization (Shorewood, for example) and GCS on the process to better time the delivery of property records and translate this process to the remaining suburban areas.

## 2. Determine How to Support New Datum Needs

<b>Improvement Task ID:</b> IT-02-02		
<b>Improvement Task Name:</b> Determine How to Support New Datum Needs		
<p><b>Description:</b></p> <p>The current NAD 27 datum standard limits the interoperability of certain web services and use of MCAMLIS data in certain applications. This task will assess and recommend how to cost-effectively accommodate the requirements of MCAMLIS Partners and other stakeholders who need to integrate MCAMLIS data with other data that is available in new datums. This task will leverage the work accomplished in the SEWPRC studies on the multiple datum issue.</p>		
<b>Participants:</b> All	<b>Objectives/Perceptions:</b> O5; P6	<b>Needs:</b> BN12, PN01
<p><b>High-level Cost Estimate:</b> \$75,000 Includes consulting services.</p>		
<b>MCAMLIS Staff Involvement:</b> Low (Staff)		
<b>Duration:</b> 6 months	<b>Predecessors:</b> None	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>Solving the datum issue will allow Partners to integrate MCAMLIS services into their mapping environments seamlessly without having to transform their data. This is valuable for using commercial grade GPS devices, mobile phones, and other web services from the state or federal government.</li> <li>Can offer map/data services that integrate with commercially available data.</li> <li>Use statewide and national datasets with MCAMLIS services.</li> <li>Use of MCAMLIS data in mobile and field applications that include location-based services that accommodate consumer-grade or mapping-grade accuracy requirements.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>Recommended solutions may still be cost-prohibitive.</li> </ul>		
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>Analysis should include approaches that may incrementally resolve the issue.</li> <li>MCAMLIS and MCAMLIS Partners will implement the recommendations.</li> <li>Will build off the results of at least SEWRPC Memorandum Report No. 206 and Technical Report No. 49.</li> </ul>		

### 3. Assess MCAMLIS Vector Data Repository Architecture

<b>Improvement Task ID:</b> IT-02-03		
<b>Improvement Task Name:</b> Assess MCAMLIS Vector Data Repository Architecture		
<p><b>Description:</b></p> <p>This task will assess and recommend improvements to the data management practices and technologies that get MCAMLIS vector reference data into the MCAMLIS data repository and prepare it for efficient access. MCAMLIS vector reference data refers to the following: Topographic / Planimetric Mapping, Enterprise Address System, and the Routable Street Centerline. This does not include Partner-shared or Partner-hosted data, and does not include non-vector data (imagery, video, audio). The task will review current practices in these areas, determine gaps, assess high-level costs to close gaps, and produce a recommended implementation plan.</p> <p>This assessment will cover the following areas:</p> <ul style="list-style-type: none"> <li>• Data loading processes: how effective and efficient current back-end data integration and data loading processes are, especially for integrating data from source systems on a more transactional basis (versus replace), and assigning permanent and temporally based identifiers.</li> <li>• Data transactional processes: how effective and efficient is the edit, QA, and publish procedures, and how well these constructs would support Partners editing their data if a Partner requests MCAMLIS host their data.</li> <li>• Data-based metadata: how both spatial and non-spatial metadata is structured so this metadata can be updated and then accessed via services to multiple applications (e.g., MCLIO website, MCAMLIS website, mobile apps, Partner web apps).</li> <li>• Data mart constructs: whether the current data structures are efficient enough to satisfy web services, or must additional data integration capabilities be introduced to support services-oriented or data extraction access.</li> </ul>		
<p><b>Participants:</b> MCAMLIS Staff</p>	<p><b>Objectives/Perceptions:</b> O5; P1, P8</p>	<p><b>Needs:</b> Based on MCAMLIS Program Assessment</p>
<p><b>High-level Cost Estimate:</b> \$45,000 Costs include consulting services.</p>		
<p><b>MCAMLIS Staff Involvement:</b> Low (Staff)</p>		
<p><b>Duration:</b> 3 months</p>	<p><b>Predecessors:</b> IT-01-03</p>	

**Benefits:**

- Partners will see benefits in the vector information by having better knowledge about the currency and quality of the information being presented by MCAMLIS.
- Identifies a clear path for structuring MCAMLIS data for an information services-oriented program.
- Expected to result in quicker access to more current data (data integration improvements).
- Expected to result in asset identifiers to which Partners can reference to link their data.
- Defines current and necessary capabilities and specifications for ETL procedures (both for providing data to MCAMLIS and extracting data out of MCAMLIS) and database APIs for developing against web services to the data.
- Promotes the function and benefit of what MCAMLIS provides and how it goes about providing it, resulting in increased use.

**Risks:**

- Increased automation of data integration procedures may require further development and a wider range of skills for the small number of MCAMLIS staff.
- Partners may be slow to take advantage of new feature identifiers.

**Assumptions:**

- IT-02-01 focuses on cadastral data (parcel and property/owner) so this task will not focus attention there but ensure the solutions fit into the overall architecture defined here.
- The architecture defined here will be integrated with the architecture from IT-02-04.

#### 4. Assess MCAMLIS Non-Vector Data Repository Architecture

<b>Improvement Task ID:</b> IT-02-04		
<b>Improvement Task Name:</b> Assess MCAMLIS Non-Vector Data Repository Architecture		
<p><b>Description:</b></p> <p>This task will assess and recommend improvements to the data management practices and technologies that get MCAMLIS non-vector reference data into the MCAMLIS data repository and prepare it for efficient access. MCAMLIS non-vector reference data refers to the following: geo-referenced imagery (Imagery: Ortho, Oblique, LiDAR), documents and photos, and potentially, video and audio.</p> <p>This does not include Partner-shared or Partner-hosted data, and does not include MCAMLIS vector reference data (see IT-02-03). The task will review current practices in these areas, determine gaps, assess high-level costs to close gaps, and produce a recommended implementation plan.</p> <p>This assessment will cover the following areas:</p> <ul style="list-style-type: none"> <li>• Data-based metadata: how both spatial and non-spatial metadata is structured so this metadata can be updated and then accessed via services to multiple applications (e.g., MCLIO website, MCAMLIS website, mobile apps, Partner web apps).</li> <li>• Data loading processes: how effective and efficient current back-end data integration and data loading processes are, especially for integrating data from source systems on a more transactional basis (versus replace), and assigning permanent and temporally based identifiers.</li> <li>• Data transactional processes: how effective and efficient is the edit, QA, and publish procedures,</li> <li>• Data mart constructs: whether the current data structures and caching are efficient enough to satisfy web services, or must additional data integration capabilities be introduced to support services-oriented or data extraction access.</li> <li>• Image and Document Management: whether georeferenced image data management and document management capabilities are necessary, and whether unstructured data such as audio/video require a data management strategy.</li> </ul>		
<b>Participants:</b> MCAMLIS Staff	<b>Objectives/Perceptions:</b> O5; P1, P8	<b>Needs:</b> Based on MCAMLIS Program Assessment
<p><b>High-level Cost Estimate:</b> \$40,000 Costs include consulting services.</p>		
<b>MCAMLIS Staff Involvement:</b> Low (Staff)		

<b>Duration:</b> 3 months	<b>Predecessors:</b> IT-01-03
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Partners will see improvements in the raster based information offered by MCAMLIS through better processes and more formal management of these data.</li> <li>• Identifies a clear path for structuring MCAMLIS image data for an information services-oriented program, including the appropriate caching products.</li> <li>• Expected to result in quicker access to more current data (data integration improvements).</li> <li>• Defines current and necessary capabilities and specifications for ETL procedures (both for providing data to MCAMLIS and extracting data out of MCAMLIS) and database APIs for developing against web services to the data.</li> <li>• Promotes the function and benefit of what MCAMLIS provides and how it goes about providing it, resulting in increased use.</li> </ul>	
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Increased automation of data integration procedures may require further development and a wider range of skills for the small number of MCAMLIS staff.</li> <li>• May result in modifying current caching products.</li> </ul>	
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>• IT-02-01 focuses on cadastral data (parcel and property/owner) so this task will not focus attention there but ensure the solutions fit into the overall architecture defined here.</li> <li>• The architecture defined here will be integrated with the architecture from IT-02-03.</li> </ul>	

## 5. Implement MCAMLIS Data Repository Enhancements

<b>Improvement Task ID:</b> IT-02-05		
<b>Improvement Task Name:</b> Implement MCAMLIS Data Repository Enhancements		
<p><b>Description:</b></p> <p>This task will implement priority recommendations identified in IT-02-03 and IT-02-04. More specifically, this task is expected to first refine the understanding of priority enhancements identified in these preceding tasks, implement these, roll out the enhancements to MCAMLIS Partners, and begin operations.</p> <p>The enhancements are expected to streamline and improve the currency of MCAMLIS reference data, implement data structures for mobile device performance, as well as be structured to receive data from web and mobile applications.</p>		
<p><b>Participants:</b></p> <p>MCAMLIS Staff</p>	<p><b>Objectives/Perceptions:</b></p> <p>O5; P1, P8</p>	<p><b>Needs:</b></p> <p>Based on MCAMLIS Program Assessment</p>
<p><b>High-level Cost Estimate:</b> Depends on Recommendations</p> <p>Costs may include further investments in ETL tools and processing, and investment in tools like Esri Image Server or a document management system.</p>		
<p><b>MCAMLIS Staff Involvement:</b> High (Staff)</p>		
<p><b>Duration:</b> TBD</p>	<p><b>Predecessors:</b> IT-01-03, IT-02-03</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>Enhancements to the MCAMLIS data repository will give Partners improved quality, currency, and access to the data offered through MCAMLIS.</li> <li>Provides faster access to more current data (data integration improvements).</li> <li>Promotes the functions and benefit that MCAMLIS provides, and how it goes about providing it, resulting in increased use.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>See IT-02-03, IT-02-04.</li> </ul>		
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>Priorities will be based on meeting priority partnering requirements.</li> <li>Implementation of property/owner record processing is not in the scope of this work (see IT 02-01).</li> <li>Implementation may include piloting and/or iterative deployment.</li> </ul>		

## 6. Acquire Cadastral Data From Outside Milwaukee County

<b>Improvement Task ID:</b> IT-02-06		
<b>Improvement Task Name:</b> Acquire Cadastral Data From Outside Milwaukee County		
<p><b>Description:</b></p> <p>This task will assess, acquire, and then make available data or data services (e.g., map or feature services) obtained from public agencies that border Milwaukee County. In particular, the focus will be on cadastral data (parcels, property, CSM, ROW). This task should also consider collaboration with GCS. This task will also inventory the availability of planimetric mapping data (e.g. trans, facilities, utilities) and imagery (e.g. Ortho, Oblique, LiDAR) data, but does not focus on its acquisition. This task would end with MCAMLIS putting in place processes and procedures to refresh the external cadastral data as required or as able.</p> <p>While outside the scope of this task, the longer term vision would be to incorporate this external data into the same data and data services that MCAMLIS provides so Partners can apply the data seamlessly.</p>		
<p><b>Participants:</b></p> <p>Municipal Partners (especially public safety business areas) along Milwaukee County borders, We Energies, MMSD</p>	<p><b>Objectives/Perceptions:</b></p> <p>O4, O5; P8</p>	<p><b>Needs:</b></p> <p>BN10, BN18, BN19 PN01, PN02</p>
<p><b>High-level Cost Estimate:</b> \$50,000</p> <p>This includes consulting services, basic ETL and metadata development, and limited support costs.</p>		
<b>MCAMLIS Staff Involvement:</b> Medium (Staff)		
<b>Duration:</b> 6 months	<b>Predecessors:</b> IT-02-01, IT-02-03, IT-02-04	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• MCAMLIS Partners will have access to cadastral data from participating counties surrounding Milwaukee. This will offer access to this data from the same services provided for MCAMLIS reference data.</li> <li>• Provides a process for delivering property-related data from outside the County area.</li> <li>• Offers consistency with the update process.</li> </ul>		

**Risks:**

- Costs to process and make the data available may be significantly higher than estimated.
- GCS will not collaborate, or costs are prohibitive.
- Partner organizations may resist changing their internal business practices to have the data made available thru MCAMLIS or apply the data once it is available.

**Assumptions:**

- This includes both parcel features as well as property/owner data.
- Will work to acquire, load, and publish the data only in the areas where Partners are willing and able to participate and apply the data.

### Initiative 3: Capabilities/Solutions

The initiative for capabilities and solutions will provide a set of applications and services for MCAMLIS to implement. These capabilities will expand on the applications and services currently provided by MCAMLIS. The near-term improvement tasks of this initiative are to outline improvements for the MCLIO web viewer and establish a framework for development of mobile applications and services. The immediate improvement tasks account for current activities and include a migration plan to the Silverlight version of the Geocortex Web Viewer. The improvement tasks outlined under this initiative will take into consideration the future architecture and services environment.

# 1. Improve the MCLIO Viewer

<b>Improvement Task ID:</b> IT-03-01		
<b>Improvement Task Name:</b> Improve the MCLIO Viewer		
<p><b>Description:</b></p> <p>This task would provide multiple improvements to the MCLIO website. The new site will offer improved responsiveness (timeliness of data rendering and tool functions), accessibility (map printing, pictometry, CSM retrieval), usability (GUI), and availability of data.</p> <p>List out the specific improvements include the following:</p> <ul style="list-style-type: none"> <li>• Improved usability and GUI experience</li> <li>• Faster response times</li> <li>• Enhanced search capabilities – locate by feature, address or intersection.</li> <li>• Data extraction service – ability to clip and ship data sets for a defined geographic location.</li> <li>• Support services and documentation on how to run certain functions such as CSM, Plats of Survey, and document retrieval)</li> </ul> <p>The task involves creating a roll-out plan, transitioning to the new Geocortex Silverlight viewer, and executing this plan. It includes:</p> <ul style="list-style-type: none"> <li>• Identifying new functionality (e.g., extract tool) and implementation.</li> <li>• Developing a MCLIO web viewer user guide. This would be specific to how to access certain data (e.g., CSMS) and functions (e.g., Pictometry oblique imagery).</li> <li>• Developing and executing training tasks (online, self-paced, group, etc.).</li> <li>• Marketing/support of new viewer.</li> </ul>		
<b>Participants:</b> All	<b>Objectives/Perceptions:</b> O1,O2, O3, O5; P1,P6, P8	<b>Needs:</b> BN08, PN02
<p><b>High-level Cost Estimate:</b> \$50,000</p> <p>Costs include customization, configuration, and implementation of the viewer, as well as documentation and training.</p>		
<b>MCAMLIS Staff Involvement:</b> High (Staff)		
<b>Duration:</b> 6 months		<b>Predecessors:</b> None
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Partners will receive immediate benefits from the implementation of the new MCLIO Interactive Mapping Service. Among the improvements will be an enhanced Graphical User Interface (GUI), faster response times to requests, and a more reliable service overall.</li> <li>• Improves on current web version.</li> <li>• Increases use of the MCLIO Viewer.</li> </ul>		

- Improves functionality and tools available through the viewer.

**Risks:**

- May not meet all Partner improvement requests.
- All users may not be informed of the change to the viewer and therefore will not be adequately trained on the new product.

**Assumptions:**

- Geocortex Silverlight viewer provides enhanced capabilities and ease of use.
- Training and tutorials on how to use the new site are included.
- The Geocortex products will continue to increase its use of services-based capabilities so these capabilities can be exposed to other information access interfaces that Partners use in their own applications.

## 2. Research and Possible Adoption of ArcGIS Online (AGOL)

<b>Improvement Task ID:</b> IT-03-02		
<b>Improvement Task Name:</b> Research and Possible Adoption of AGOL		
<p><b>Description:</b></p> <p>This task would provide a pathway toward AGOL for MCAMLIS. This will offer a collaborative content management system for maps, applications, and data. AGOL will be an important technology that MCAMLIS can leverage to provide Partners and public users with access to data and services through mobile, web browsers, and desktop applications in the future.</p> <p>In addition to the MCLIO viewer, AGOL would be a means for accessing MCAMLIS hosted data and services.</p> <p>This project includes an assessment of the proper implementation architecture and approach of AGOL capabilities, and a determination of initial and operating costs, associated with a MCAMLIS AGOL site that Partners can access. A Go/No-Go determination will be made based on this assessment.</p>		
<p><b>Participants:</b></p> <p>All</p>	<p><b>Objectives/Perceptions:</b></p> <p>O1, O2, O3, O5; P1, P4, P5, P6, P8</p>	<p><b>Needs:</b></p> <p>BN08, PN02</p>
<p><b>High-level Cost Estimate:</b> \$70,000*</p> <p>Costs include the initial assessment; should the project be a GO decision, this includes the consulting services, training plan, and implementation.</p> <p>*The cost structure for AGOL varies based on type of use and number of credits. Establishing individual user accounts is free but transactions for editing and posting data services to ArcGIS.com require use of credits.</p>		
<b>MCAMLIS Staff Involvement:</b> Medium (Staff)		
<b>Duration:</b> 6 months	<b>Predecessors:</b> IT-01-03	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Partners will see benefit in researching ArcGIS Online by having knowledge of the latest architecture offered by ESRI.</li> <li>• Increases usage of MCAMLIS data.</li> <li>• Allows non-programmers to deploy and share web maps containing their own GIS data through the ArcGIS.com map viewer.</li> <li>• Allows mapping applications to be shared with a group or the public through a web browser, smart phone applications, social media, or emails.</li> <li>• Embeds maps into websites.</li> <li>• Enables layer editing by multiple authors and tracks edits for data sets (volunteered geographic information – VGI).</li> </ul>		

- Leverages AGOL expertise from Partners.

**Risks:**

- AGOL pricing structure has not yet stabilized.
- Enough MCAMLIS Partners will not invest in integrating AGOL into their LBDT websites and business functions to justify the investment in software and support.

**Assumptions:**

- Services will be provided via MCAMLIS servers and registered to AGOL; implementation includes AGOL-based security.
- MCAMLIS is moving in the same direction as Esri in technology.
- Users will need to create an Esri account (free).
- Training and tutorials on how to use AGOL are included.

### 3. Explore Mobile Framework

<b>Improvement Task ID:</b> IT-03-03		
<b>Improvement Task Name:</b> Explore Mobile Frameworks		
<p><b>Description:</b>                  This task will include a consulting assignment to explore mobile technology framework options and offer alternatives for future mobile applications provided by MCAMLIS. There are several commercial products that are available, including but not limited to, the Geocortex HTML 5 viewer, Esri AGOL, asset management tools from solution providers such as Cityworks or Cartegraph, or low-cost products such as Google Maps. This task will also examine requirements for MCAMLIS providing the data services to support partner mobile applications.</p>		
<p><b>Participants:</b>                  MCAMLIS Technology Committee</p>	<p><b>Objectives/Perceptions:</b>                  O1; P1, P6, P8</p>	<p><b>Needs:</b>                  BN11, BN13, BN16                  PN02, PN05</p>
<p><b>High-level Cost Estimate:</b> \$30,000                  Costs include consulting services.</p>		
<p><b>MCAMLIS Staff Involvement:</b> Low (PM)</p>		
<p><b>Duration:</b> 3 months</p>	<p><b>Predecessors:</b> None</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• MCAMLIS Partners will benefit by leveraging the framework technology and build their own mobile strategy to work with any services MCAMLIS develops.</li> <li>• A formal analysis will help determine the most effective solution.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Top solutions may not meet all key requirements.</li> <li>• Solution may not be compatible with frameworks established by some MCAMLIS Partners.</li> </ul>		
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>• Must be able to write and read Esri data structures for spatial data fields.</li> <li>• The task will leverage experiences gained from the mobile applications in place at We Energies and MMSD.</li> </ul>		

#### 4. Deploy Mobile Asset Viewer Application

<b>Improvement Task ID:</b> IT-03-04		
<b>Improvement Task Name:</b> Deploy Mobile Asset Viewer Application		
<p><b>Description:</b></p> <p>The mobile asset viewer application will provide MCAMLIS secured users with access to MCAMLIS-provided asset information via mobile devices. Partner facility data currently available through the MCLIO Secure Web application will be made available to Partner staff in the field. Capabilities include the ability to retrieve the user’s current location, or to retrieve asset information based on a user-supplied address.</p> <p>It is assumed that this is the first mobile application to be implemented; therefore, this task will include establishing the mobile application framework that this and other mobile applications will apply.</p>		
<p><b>Participants:</b></p> <p>Mobile users</p>	<p><b>Objectives/Perceptions:</b></p> <p>O1; P1, P6</p>	<p><b>Needs:</b></p> <p>BN11, BN13, BN16 PN02, PN05</p>
<p><b>High-level Cost Estimate:</b> \$35,000</p> <p>Costs include consulting services, training, and implementation.</p> <p>This cost does not include an investment in the mobile application framework.</p>		
<b>MCAMLIS Staff Involvement:</b> Low (PM)		
<b>Duration:</b> 6 months		<b>Predecessors:</b> IT-03-03
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>Partners will have access to MCAMLIS asset data via their mobile devices.</li> <li>Provides access to MCAMLIS asset data via a mobile application on a phone or tablet.</li> <li>Provides a platform on which future mobile applications can be efficiently deployed.</li> <li>In the near future, provides map and data services developed for this application to secure Partners who have their own web or mobile applications.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>MCAMLIS Partners will not be able to commit to the use of the application.</li> <li>The ability to manage secure access to the data.</li> <li>Reliable mobile connections across the County geographic area.</li> <li>New data update workflows and QA/QC processes</li> </ul>		
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>Estimated costs are based on using Esri AGOL. If another mobile framework is selected in IT-03-03, the costs will be different.</li> </ul>		

- Initial MCAMLIS asset data to be exposed will be sanitary and stormwater utility data.
- Initial mobile application users are expected to be any Partner that requires access to this data in the field.
- Mobile connections are reliable.
- MCAMLIS and Partner data will be served up via map and feature services.
- Multiple applications will be developed on the same framework (from IT-03-03).
- The application can be extended to include the capability to provide data corrections or updates back to the proper authority.
- Improvements to data distribution processes are complete.

## 5. Deploy Mobile Property Locator Application

<b>Improvement Task ID:</b> IT-03-05		
<b>Improvement Task Name:</b> Deploy Mobile Property Locator Application		
<p><b>Description:</b></p> <p>The mobile property mapping application will provide organizations with the ability to view property ownership information in the field via a mobile application for phone or tablet. Core capabilities include the ability to retrieve the property and owner information at or near the user's current location, or to retrieve property information based on a user-supplied address.</p>		
<p><b>Participants:</b></p> <p>All</p>	<p><b>Objectives/Perceptions:</b></p> <p>O1, O2, O3, O4, O5; P1, P6, P8</p>	<p><b>Needs:</b></p> <p>BN11, BN13, BN16 PN02, PN05</p>
<p><b>High-level Cost Estimate:</b> \$35,000</p> <p>Includes consulting services, implementation, configuration, and training of the property locator application.</p>		
<b>MCAMLIS Staff Involvement:</b> Low (PM)		
<b>Duration:</b> 6 months		<b>Predecessors:</b> IT-01-01, IT-03-03
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>Partners will have access to MCAMLIS property information on their mobile devices.</li> <li>Provides access to MCAMLIS-based property data via a mobile application on a phone or tablet.</li> <li>In the future, provides map and data services developed for this application to Partners who have their own mobile applications.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>MCAMLIS Partners will not be able to commit to the use of the application.</li> <li>Reliable mobile connections across the County geographic area.</li> </ul>		
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>Initial data to be exposed will be the property and ownership data available through MCAMLIS.</li> <li>Initial users of the application will be the City of Milwaukee Assessor's office and Planning Department.</li> <li>MCAMLIS and Partner data will be served up via map and feature services.</li> <li>Multiple applications will be developed on the same framework (IT-03-03).</li> <li>Estimated costs are based on using Esri AGOL. If another mobile framework is selected in IT-03-03, the costs will be different.</li> <li>The application can be extended to include the capability to provide data corrections or updates back to the proper authority.</li> </ul>		

## 6. Deploy Field Data Collection Application

<b>Improvement Task ID:</b> IT-03-06		
<b>Improvement Task Name:</b> Deploy Field Data Collection Application		
<b>Description:</b> This application would create versions of a tool for Partner organizations to capture their data in the field via mobile devices.		
<b>Participants:</b> MC Parks (to begin)	<b>Objectives/Perceptions:</b> O1, O2, O3, O4, O5; P1, P6, P8	<b>Needs:</b> BN11, BN13, BN16 PN02, PN05
<b>High-level Cost Estimate:</b> \$45,000 Includes consulting services, training, devices/data plan, and implementation.		
<b>MCAMLIS Staff Involvement:</b> Medium (PM)		
<b>Duration:</b> 6 months	<b>Predecessors:</b> IT-03-03, IT-03-04	
<b>Benefits:</b> <ul style="list-style-type: none"> <li>Partners will have a mobile tool supplied by MCAMLIS for collecting geospatial information on their mobile devices.</li> <li>Provides basic services for field data capture on mobile devices.</li> <li>Could also allow field workers to update information or take pictures and upload changes to the system.</li> </ul>		
<b>Risks:</b> <ul style="list-style-type: none"> <li>MCAMLIS Partners will not be able to commit to the use of the application.</li> <li>Reliable mobile connections across the County geographic area.</li> </ul>		
<b>Assumptions:</b> <ul style="list-style-type: none"> <li>Initial data to be collected will be park assets (e.g., lighting, facilities, and amenities).</li> <li>Initial users of the application will be Milwaukee County Parks. Multiple applications would be developed on the same template.</li> <li>Costs assume the use of Esri AGOL. If another mobile framework is selected in IT-03-03, the costs will be different.</li> <li>MCAMLIS and Partner data will be served up via map and feature services.</li> <li>Application will leverage experiences gained from the MMSD and We Energies mobile AGOL applications.</li> <li>Future versions would allow for disconnected data “check-out/check-in” application for mobile devices.</li> </ul>		

## 7. Implement Pictometry Desktop Plug-In

<b>Improvement Task ID:</b> IT-03-07		
<b>Improvement Task Name:</b> Implement Pictometry Desktop Plug-in		
<b>Description:</b> This task would provide either an ArcGIS Desktop plug-in (Esri's Pictometry Extension) for users or access to the Pictometry viewer via a web service on a Partner's desktop (Pictometry Online).		
<b>Participants:</b> City of Milwaukee Planning	<b>Objectives/Perceptions:</b> O1, O2, O4, O5; P1, P4, P5, P6, P8	<b>Needs:</b> BN08, PN02
<b>High-level Cost Estimate:</b> \$5,000 Costs include a limited number of Esri Pictometry desktop extensions for users and/or accounts for accessing Pictometry Online.		
<b>MCAMLIS Staff Involvement:</b> Low (PM)		
<b>Duration:</b> 3 months		<b>Predecessors:</b> None
<b>Benefits:</b> <ul style="list-style-type: none"> <li>Partners can use oblique photography on their desktops integrated with their ArcGIS application.</li> <li>Provides users with access Pictometry data without having to go to a separate viewer or application.</li> <li>Increases use of Pictometry and MCAMLIS-provided data.</li> </ul>		
<b>Risks:</b> <ul style="list-style-type: none"> <li>Managing licenses and supporting desktop installed capabilities in Partner organizations.</li> </ul>		
<b>Assumptions:</b> <ul style="list-style-type: none"> <li>MCAMLIS will offer the Pictometry extension to users who request this service and assume the cost of these extensions in their contract with Pictometry/Esri.</li> <li>MCAMLIS will manage and provide accounts for requested user access to Pictometry Online.</li> </ul>		

### Initiative 4: Collaboration/Training

This initiative builds on the success of the Milwaukee Municipal GIS Users Group (MMGUG). The tasks in this initiative improve MMGUG and expand the collaboration consulting services that MCAMLIS offers, including additional collaboration activities like MMGUG, and formal training and education available through coordinated efforts by MCAMLIS. These improvement tasks are directly linked to the feedback received by MCAMLIS Partners as part of the BNA Project.

## 1. Improve MMGUG Forums

<b>Improvement Task ID:</b> IT-04-01		
<b>Improvement Task Name:</b> Improve MMGUG Forums		
<b>Description:</b> This task will clarify and execute an improvement program given recent MMGUG member feedback on the MMGUG collaboration activities and tools.		
<b>Participants:</b> Milwaukee metropolitan area LBDT Professionals	<b>Objectives/Perceptions:</b> O4; P1, P2, P7, P8	<b>Needs:</b> BN14, PN03
<b>High-level Cost Estimate:</b> \$20,000 Costs include consulting services, website content.		
<b>MCAMLIS Staff Involvement:</b> Medium (Staff)		
<b>Duration:</b> 3 months	<b>Predecessors:</b> IT-05-03	
<b>Benefits:</b> <ul style="list-style-type: none"> <li>• MCAMLIS Partners will benefit by having direct access to the knowledge and experiences of other GIS professionals in Milwaukee County.</li> <li>• Improves the MMGUG experience driven by MMGUG members.</li> <li>• Shares LBDT best practices with colleagues in context to forum business perspective.</li> <li>• Allows MCAMLIS Partners to stay up on the latest trends and co-Member practices in LBDT.</li> </ul>		
<b>Risks:</b> <ul style="list-style-type: none"> <li>• Duties to proactively improve and support and MMGUG grow beyond what can be accomplished by MCAMLIS staff.</li> </ul>		
<b>Assumptions:</b> <ul style="list-style-type: none"> <li>• Partners continue to participate in such forums.</li> </ul>		

## 2. Invest in LBDT/Collaboration Education and Training

<b>Improvement Task ID:</b> IT-04-02		
<b>Improvement Task Name:</b> Invest in LBDT/Collaboration Education and Training		
<p><b>Description:</b></p> <p>This task will establish and execute an education and training program sponsored by MCAMLIS for Partners and support staff. The program would focus initially on responding to immediate needs associated with the other initiatives outlined in this document: a) establishing and operating technology architectures that are new to MCAMLIS/Partners: hosted mobile/web LBDT, hosted integrated data and data distribution solutions, and b) providing consulting support services: consensus building, collaborative decision-making, and business analysis associated to these new technology architectures. This program would also include training for c) current and future GIS technologies (e.g., Esri, Geocortex; and if relevant, core applications that are based on LBDT, e.g., ProPhoenix).</p> <p>This initiative will determine the necessary core competencies and skill levels necessary to support the initiatives outlined in this document, will identify and negotiate prices for local training, and will organize training seminars, meetings, and documentation.</p>		
<p><b>Participants:</b></p> <p>MCAMLIS Support Staff, All Interested Partners</p>	<p><b>Objectives/Perceptions:</b></p> <p>P8, P7, P1, P2; O4</p>	<p><b>Needs:</b></p> <p>BN11, BN13, BN16, BN20, BN22; PN05</p>
<p><b>High-level Cost Estimate:</b> \$40,000</p> <p>Costs include consulting services, training program website content, and limited support.</p>		
<p><b>MCAMLIS Staff Involvement:</b> Low (Staff)</p>		
<p><b>Duration:</b> 6 months</p>	<p><b>Predecessors:</b> IT-05-03, Over time: IT-01-03, IT-02-02, IT-02-03, IT-03-03 and resulting products (e.g., new workflows, data, solutions)</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>Partners will be able to attend training courses on GIS and related technologies that will be supplied by MCAMLIS.</li> <li>Provides more cost-effective education and training.</li> <li>Develops a more educated user community.</li> <li>Reduces time for MCAMLIS and Partner staff in supporting general user inquiries.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>Partner organizations will not approve staff for training due to limited budgets.</li> </ul>		

**Assumptions:**

- Consulting services provided by organization that has proven experience in developing LBDT-related training programs.
- As necessary, consider contracting expert consulting services for any new support services or technology architectures, so MCAMLIS and Partner staff can learn from experts and make certain that best practices are established up-front.
- Consider online training when possible.

### 3. Facilitate Business-Driven LBDT Forums

<b>Improvement Task ID:</b> IT-04-03		
<b>Improvement Task Name:</b> Facilitate Business-Driven LBDT Forum		
<p><b>Description:</b></p> <p>This task proactively leverages one business area forum (e.g., regional public works or safety conference) to promote LBDT and what MCAMLIS and its Partners can offer. It then follows through with a project that implements a product of value to the collaborative parties. One example is to bring together public works engineers and field staff from municipalities to create an application and data flow that allows field staff members to report back asset problems or data issues identified in the field to neighboring public works municipalities (e.g., data, capabilities). Another example is to hold a forum for Partner safety staff who will or are using ProPhoenix to share how they handle certain workflows -especially as it relates to using LBDT to their advantage – and subsequently support a pilot or implementation of improved location-based data or capabilities that can be shared among Partners.</p>		
<p><b>Participants:</b></p> <p>Partner Public Works or Safety professionals.</p>	<p><b>Objectives/Perceptions:</b></p> <p>O4; P1, P2, P4, P7, P8</p>	<p><b>Needs:</b></p> <p>BN14, PN03</p>
<p><b>High-level Cost Estimate:</b> \$60,000</p> <p>Costs include consulting services, training, and data and/or capability.</p>		
<p><b>MCAMLIS Staff Involvement:</b> Low (Staff)</p>		
<p><b>Duration:</b> 6 months</p>	<p><b>Predecessors:</b> IT-05-03</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• MCAMLIS Partners will benefit by having access to the knowledge and experiences of other professionals in Milwaukee County in their area of interest.</li> <li>• Shares LBDT best practices with colleagues in context to forum business perspective.</li> <li>• Learn about ROI in context to the business perspective.</li> <li>• Initiates data, capability, and other collaboration initiatives.</li> <li>• Reduces time from MCAMLIS and Partner staff in supporting general user inquiries.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• The MCAMLIS budget will not be able to support the prioritized business area project.</li> <li>• Partners do not incorporate the data or capabilities into their business practices.</li> </ul>		
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>• Partners would participate and encourage their users to engage in such forums.</li> <li>• This task may drive the specific requirements of or replace the need for one of the other improvement tasks, such as IT-03-04 through -07.</li> </ul>		

### Initiative 5: Program Management

These improvements focus on organizational relationships, processes, and communications associated with three MCAMLIS entities: MCAMLIS Partners, MCAMLIS Program, and the MCAMLIS steering committee. This includes tasks that will clarify and improve the processes and associated roles that are behind the relationships illustrated in the figure below, and in particular, those associated to MCAMLIS Partners.

## MCAMLIS Program Management

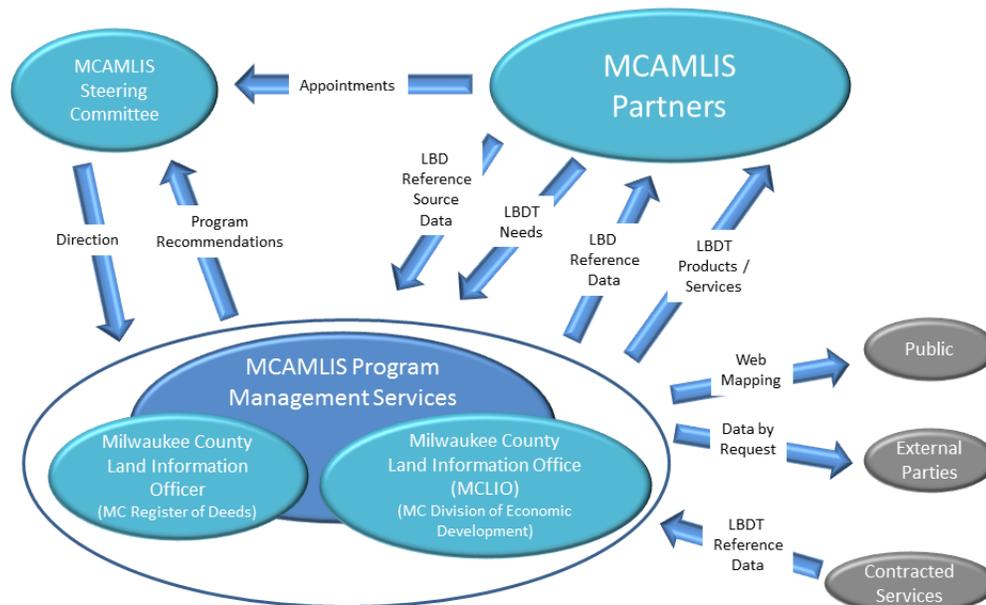


Figure 5: MCAMLIS Program Management

Once this is done, MCAMLIS will improve the understanding of MCAMLIS value, and more importantly, the efficient access to MCAMLIS-related activities and updates in data and services. A focus of this initiative is part of the MCAMLIS Portal that will become the one-stop for the what/why/how of MCAMLIS (see the figure on the following page).

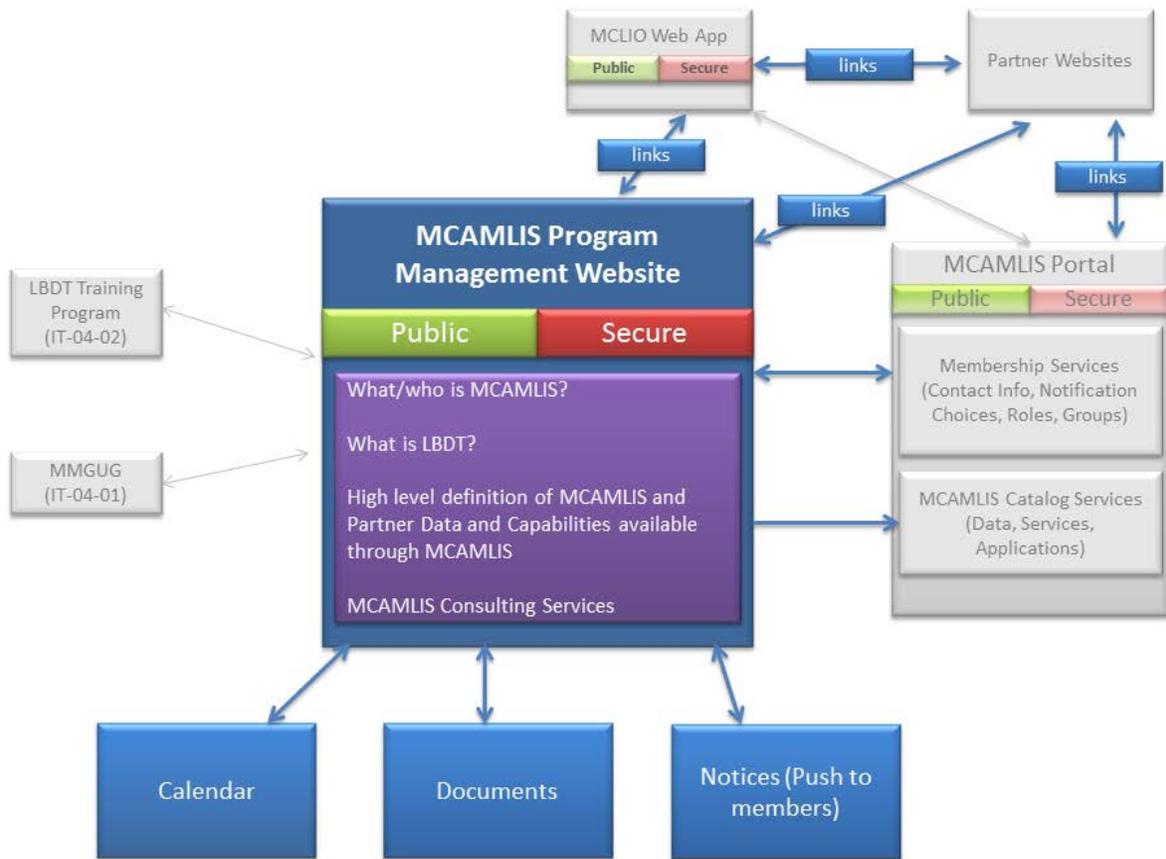


Figure 6: MCAMLIS Program Management Website

### 1. Establish and Market the New MCAMLIS

<b>Improvement Task ID:</b> IT-05-01		
<b>Improvement Task Name:</b> Establish and Market the New MCAMLIS		
<p><b>Description:</b>                  This task will establish a new look and feel for MCAMLIS; it will initiate activity to clarify to LBDT stakeholders the purpose and value MCAMLIS provides to Partners and their stakeholders. This task will define a MCAMLIS brand (colors, logo, etc.) and marketing material, and will define and assist MCAMLIS in the execution of an outreach campaign that most likely includes presenting at business forums and having a more aggressive presence on Partner Internet and intranet websites.</p>		
<p><b>Participants:</b>                  MCAMLIS Partner Business Area Representatives; MCAMLIS Steering Committee Members or proxy</p>	<p><b>Objectives/Perceptions:</b>                  P8</p>	<p><b>Needs:</b>                  PN06</p>
<p><b>High-level Cost Estimate:</b> \$10,000-\$25,000+                  Costs include consulting services.</p>		
<p><b>MCAMLIS Staff Involvement:</b> Medium (Staff)</p>		
<p><b>Duration:</b> 3 months</p>		<p><b>Predecessors:</b> IT-05-03</p>
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• MCAMLIS Partners will be able to better communicate what MCAMLIS is to their leadership.</li> <li>• Clarifies MCAMLIS value proposition with Partner senior leadership and key operational decision makers in Partner business areas.</li> <li>• Positions MCAMLIS image for the future.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Branding and MCAMLIS message requires more refinement than estimated.</li> </ul>		
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>• Costs assume contracting with a local small business or individual that specializes in marketing for IT service provider companies, and corresponding web site design and development.</li> </ul>		

## 2. Develop a MCAMLIS Program Management Website

<b>Improvement Task ID:</b> IT-05-02		
<b>Improvement Task Name:</b> Develop a MCAMLIS Program Management Website		
<p><b>Description:</b></p> <p>This task will develop a website for MCAMLIS (MCAMLIS.com) to provide a focal point for MCAMLIS organizational collaboration. This website must be part of the overall MCAMLIS Portal architecture. The website will provide: general information about MCAMLIS and the definition of LBDT; general information on key data, information services, and consulting services available through MCAMLIS; information on upcoming events; information on current and planned MCAMLIS initiatives and related projects.</p> <p>This website will have both secure and publicly available information. This content should be integrated with the MCAMLIS Portal to take advantage of membership and cataloging capabilities to be supported by the MCAMLIS Portal. The primary purpose of have access to membership capability is to allow both MCAMLIS support staff and MCAMLIS Partners to efficiently disseminate MCAMLIS-related information to each other. Accordingly, the membership system on the Portal must include the ability to establish certain subgroups; for example, MCAMLIS roles. Processes will be established to make certain that the system is managed over time. Expected outputs/outcomes include the system becoming operational with an initial set of MCAMLIS members loaded, and members having access to and receiving training on how to use the system.</p> <p>Regardless of the solution, web analytics capabilities must be included.</p>		
<p><b>Participants:</b> MCLIO staff, MCAMLIS Partners</p>	<p><b>Objectives/Perceptions:</b> O2, P1, P7, P8</p>	<p><b>Needs:</b> BN05, PN02, PN06, BN14, BN15, BN21, PN03</p>
<p><b>High-level Cost Estimate:</b> \$2,000-\$50,000+ for initial costs</p> <p>Costs include set-up, content population, and training development and delivery. Low end is using basic content management system websites as a service (e.g., www.squarespace.com) linked to, but not integrated with, the MCAMLIS Portal, and MCAMLIS/Partners entering content; mid-range costs are component-based websites set-up by WordPress resellers; and high-range costs are enterprise portals (e.g., SharePoint, AGOL) or custom development.</p>		
<p><b>MCAMLIS Staff Involvement:</b> Medium (Staff)</p>		
<p><b>Duration:</b> 6 months</p>	<p><b>Predecessors:</b> IT-01-03, IT-05-03, IT-05-01</p>	

**Benefits:**

- Along with the Portal Development and the MCAMLIS Marketing, the Website will give Partners a place to get directly to MCAMLIS versus going through the Milwaukee County website.
- Increases use of MCAMLIS services and applicability of the data.
- Improves exposure to the MCAMLIS Program.
- Efficiently distributes MCAMLIS-related information.

**Risks:**

- To reduce costs, a separate logon to secure information may be required and may discourage Partner participation.
- Members will not keep their contact information or roles updated.
- Restrictions that government and quasi-government organizations place on creating, managing, having access to, or receiving notifications from a website outside of the organization's firewall.

**Assumptions:**

- MCAMLIS will secure and develop a website apart from the existing MCLIO website and Milwaukee County government for promoting itself and its services.
- MCAMLIS will create an updated comprehensive list of data and service offerings and post this to an easily accessible location on the website. The list would be searchable and sortable, and include file currency information, metadata, and information about new services that are available from MCAMLIS.
- For MCAMLIS Membership:
  - The Project will first focus on MCAMLIS Partners and their proxies; others like business Partners, LBDT solution and service providers, and certain public groups can be the second phase.
  - The expected system will be based on an existing product that can be provided via the web, most likely as a software as a service; and may be as simple as capabilities provided as part of the MCAMLIS website initiative.
  - Members will keep their information up-to-date.
- Content for MMGUG and the MCAMLIS-supported training program would be managed here (see Initiative 4).
- Milwaukee County IT would prefer not to manage SharePoint logons from stakeholders external to Milwaukee County government.

### 3. Clarify Partner Opportunities in MCAMLIS

<b>Improvement Task ID:</b> IT-05-03		
<b>Improvement Task Name:</b> Clarify Partner Opportunities in MCAMLIS		
<p><b>Description:</b></p> <p>This task will clarify and implement refined roles and responsibilities that MCAMLIS Partners have regarding the MCAMLIS Program. In particular, Partner involvement in the following MCAMLIS activities will be explored at a high level to make certain that proper roles and responsibilities are established: MCAMLIS business planning, accessing MCAMLIS-collaborated data and services, providing data and services to MCAMLIS Partners, and participating in MCAMLIS initiatives. This task will include clarifying the relationships between the MCAMLIS Program, MCAMLIS Steering Committee, and MCAMLIS Partners.</p> <p>Expected outputs include: MCAMLIS Partner-related processes defined at a high level, established Partner roles and responsibilities (e.g., Steering Representative, Organizational Representative, Business Area Representative or Champion), and established levels of involvement (e.g., directing member, active member, and member).</p> <p>Expected outcomes are: Partners have determined their roles in MCAMLIS and people are assigned to those roles; selected Partner members are assigned to participate in other initiatives that will implement and test the improved roles and responsibilities; MCAMLIS Program will incorporate the processes into their operations.</p>		
<p><b>Participants:</b></p> <p>MCAMLIS Support Staff, All Partners, MCAMLIS Steering Committee Members</p>	<p><b>Objectives/Perceptions:</b></p> <p>P7, P8</p>	<p><b>Needs:</b></p> <p>PN03</p>
<p><b>High-level Cost Estimate:</b> \$60,000</p> <p>Costs include consulting services.</p>		
<p><b>MCAMLIS Staff Involvement:</b> Medium (Staff)</p>		
<p><b>Duration:</b> 3 months</p>	<p><b>Predecessors:</b> None</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Allows MCAMLIS support staff and Partners to clearly understand how they can participate in and more effectively benefit from MCAMLIS.</li> <li>• Allows MCAMLIS Support Staff and Partners to have contacts to make certain that Partners can be engaged in or informed of the proper MCAMLIS activities for their role; in particular: business planning, updates or changes in data and services, opportunities for collaboration, or LBDT networking.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• The initial MCAMLIS Partner staff members assigned to certain roles may change frequently (e.g., business area representatives).</li> </ul>		

**Assumptions:**

- Task will leverage the roles and responsibilities and lessons learned from the BNA Project.

#### 4. Formalize Partner Input in MCAMLIS Business Planning

<b>Improvement Task ID:</b> IT-05-04		
<b>Improvement Task Name:</b> Formalize Partner Input in MCAMLIS Business Planning		
<p><b>Description:</b></p> <p>This task will establish the process and procedures to make certain that Partner requirements and priorities are included in MCAMLIS Programming and planning activities. This will include involvement in strategic planning, but also tactical planning: the process needs to be able to adjust to opportunities as they surface. The process will need to be able to balance providing solutions for countywide requirements with those that might be more specialized (smaller area, select set of Partners). This task will result in a detailed process and a first run-through of the process for tactical planning.</p>		
<p><b>Participants:</b></p> <p>MCAMLIS Support Staff, All Partners, MCAMLIS Steering Committee Members</p>	<p><b>Objectives/Perceptions:</b></p> <p>P8, P7, P1</p>	<p><b>Needs:</b></p> <p>PN03</p>
<p><b>High-level Cost Estimate:</b> \$30,000</p> <p>Costs include consulting services.</p>		
<p><b>MCAMLIS Staff Involvement:</b> Medium (PM)</p>		
<p><b>Duration:</b> 3 months</p>	<p><b>Predecessors:</b> IT-05-03</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• MCAMLIS Partners will have more influence on the projects that are created and in return will see direct benefits from these projects in the future.</li> <li>• Includes explicit Partner input in MCAMLIS project priorities.</li> <li>• MCAMLIS Partner input will be standard operating procedure.</li> </ul>		
<p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>• Balancing countywide requirements versus more specialized needs.</li> </ul>		
<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>• Task will assess the process, tools, and lessons learned from the BNA Project.</li> <li>• Partner staff will participate in the process.</li> <li>• Task will be executed immediately preceding the need for tactical planning (~a few months preceding budget planning for new operating year).</li> <li>• First run through results include estimated costs for services, technology, training, and Partner/MCAMLIS staff involvement for resulting projects/project adjustments.</li> </ul>		



**DEPARTMENT OF TRANSPORTATION & PUBLIC WORKS**  
**MILWAUKEE COUNTY LAND INFORMATION OFFICE**

2711 West Wells Street, Rm 426, Milwaukee, WI 53208 (414) 278-2176

**MEMORANDUM**

**TO:** MCAMLIS Steering Committee

**FROM:** William Shaw, MCAMLIS Project Manager

**DATE:** November 21, 2013

**SUBJECT:** MCAMLIS FIVE YEAR WORK PLAN RECOMMENDATION

**BACKGROUND**

At its meeting held on March 20<sup>th</sup>, 2012, the MCAMLIS Steering Committee considered a MCAMLIS staff report regarding the 'MCAMLIS Program Strategic Assessment for 2012 – 2015' wherein MCAMLIS Staff recommended that a formal Business Planning effort be conducted to assess:

- Where MCAMLIS can (in the future) best align itself with local community interests and requirements?
- How MCAMLIS current performance is perceived?
- How MCAMLIS can provide improved value in the future?

In consideration of the staff recommendations the MCAMLIS Steering Committee directed the Committee Chairman to select a Sub-committee whose charge is to develop a 'Work Program' for MCAMLIS to be conducted over the next 3-5 years. Whereby the Chairman is to call the sub-committee to meet and report on progress toward formulation of a MCAMLIS Business Needs Assessment including any recommendations at future Steering Committee meetings.

**SUB-COMMITTEE MEMBERSHIP**

The chairman selected MCAMLIS Steering Committee members (M), MCAMLIS Staff (S) and alternates (A) to the full sub-committee. In addition, a subset of the sub-committee members was identified to form a workgroup (W). The Sub-Committee and workgroup membership includes:

- Don Nehmer (M, W) – MCAMLIS Steering Committee Chair, Capital Program Manager, MMSD
- Nancy A. Olson (M) – MCAMLIS Steering Committee Vice-chair, Chief Information Officer, City of Milwaukee
- John Bennett (M) – Inter-governmental Coordinating Council (ICC) member representative to the MCAMLIS Steering Committee, City Engineer, City of Franklin

- Greg High (M) – DAS/Facilities Management - Director, AE & ES Division
- Emily Champagne (M, W) – Senior GIS Analyst, MMSD
- Kevin Bruhn (A, S)– representing Greg High, GIS Specialist, MCAMLIS Staff, Milwaukee County
- Todd Niedermeyer (A) – representing John Bennett, City of Franklin, GIS Consultant
- William Shaw (M, W, S) – MCAMLIS Project Manager, Milwaukee County

## **SUB-COMMITTEE MEETINGS**

The Sub-Committee workgroup was formed to draft a mission and objectives statement and present the draft to the full sub-committee for comment and approval. The workgroup met three (3) times at MMSD Offices on 6/21, 7/13 & 8/17/2012. The sub-committee members via email commented and approved the draft mission and objectives document and the contents therein were then incorporated within the MCAMLIS Business Needs Assessment RFP.

Subsequently the BNA Sub-Committee recommended GEODECISIONS to facilitate the formulation of the MCAMLIS Five Year Work Program Implementation Plan. The BNA Sub-Committee participated in the planning process throughout 2013 and on November 8<sup>th</sup> 2013 the BNA Sub-Committee met to consider its recommendation to the MCAMLIS Steering Committee regarding the Five Year Workplan.

## **SUB-COMMITTEE MISSION AND OBJECTIVES**

### **Mission:**

To leverage MCAMLIS's investment and ongoing resources to better serve the applied use of spatial/location data and technologies resulting in enhanced and sustained local community operations and services.

### **Objectives:**

- Use of Web and mobile technologies software/hardware to address local community operational and service delivery objectives
- Promote and facilitate core applications and services such that enable local communities to engage in nimble and effective service delivery solutions.
- Provide hosted solutions, by MCAMLIS, that incorporate common seamless feature rich data and services that can be further enhanced to meet a wide ranging set of unique situations and community demands.
- Provide resources to local municipalities to minimize their capital investments in using and implementing spatial/location data.
- Promote data sharing among MCAMLIS Stakeholders (such as utility data) with MCAMLIS being a clearing house.

**SUB-COMMITTEE RECOMMENDATION**

The BNA Sub-Committee recommends that the MCAMLIS Steering Committee formally accept the Five-Year Work Plan as submitted on November 4, 2013 by GEODECISIONS.

The BNA Subcommittee voted 6-0 on November 8<sup>th</sup> to recommend acceptance. BNA Sub-Committee members present at the meeting held at MMSD headquarters included Don Nehmer, Emily Champaign, Todd Niedermeyer, Pamela Booth, Kevin Bruhn and William Shaw.

**FISCAL IMPACT**

Acceptance of the Five Year Work Plan concludes the delivery elements specified in the Business Needs Assessment Project as facilitated by GEODECISIONS. There are no direct fiscal impacts regarding acceptance of the plan document. Projects included in the plan will be considered separately for approval by the Steering Committee and fiscal consideration will be addressed at that time.

\* \* \* \* \*

**MCAMLIS  
FISCAL NOTE**

**PROPOSED ACTION:** \_\_\_\_\_

<b>Financial Impact of Proposal</b>	
VWR:01 MCLIO Interactive Mapping Viewer	\$70,000
MBL:01 Property Locator Application	\$50,000
COL:01 LBDT Education and Training	\$25,000
COL:02 MCAMLIS Partner Business Planning	\$20,000
MOL: 01 Website Improvements	\$20,000
DAT:01.1 Historical Aerials	\$10,000
DAT:02.1 Generate Planimetric Polygon	\$65,000
Annual Operating Costs	\$0
<b>Total Investment</b>	<b>\$260,000</b>
<b>Identify Funding Source of Proposal</b>	<input checked="" type="checkbox"/> \$8.00 Fee
<b>Fiscal Affairs Comments:</b>	
<p>The 2014 Adopted Budget includes available expenditure authority for up to \$536,538 for the purchase of Professional Services. A total of \$326,069 is available after accounting for expenditures related to the County surveyor, Cadastral map maintenance, and ROD improvements. Therefore, sufficient professional services funds exist for this project. This expenditure would leave \$66,069 available for professional services for the remainder of 2014. Additional expenditures would require a fund transfer from the MCAMLIS trust account.</p>	

MCAMLIS Projected Professional Services Costs

FY 2014		FY 2015		FY 2016		FY 2017	
Surveyor	\$ 78,719	Surveyor	\$ 80,000	Surveyor	\$ 80,000	Surveyor	\$ 80,000
Cadastral	\$ 91,780	Cadastral	\$ 96,000	Cadastral	\$ 96,000	Cadastral	\$ 96,000
ROD	\$ 40,000	ROD	\$ 40,000	ROD	\$ 40,000	ROD	\$ 40,000
BNA	\$ 260,000	BNA	\$ 260,000	BNA	\$ 290,000	BNA	\$ 242,000
		Lidar	\$ 80,000				
		Ortho	\$ 144,500				
TOTAL	\$ 470,499		\$ 700,500		\$ 506,000		\$ 458,000
Budget	\$ 536,568		\$ 552,665		\$ 569,245		\$ 586,322
Available	\$ 66,069		\$ (147,835)		\$ 63,245		\$ 128,322



**DEPARTMENT OF TRANSPORTATION & PUBLIC WORKS**  
**MILWAUKEE COUNTY LAND INFORMATION OFFICE**

2711 West Wells Street, Rm 426, Milwaukee, WI 53208 (414) 278-2176

**MEMORANDUM**

**TO:** MCAMLIS Steering Committee

**FROM:** William Shaw, MCAMLIS Project Manager

**DATE:** November 21, 2013

**SUBJECT:** 2014 MCAMLIS BNA SUB-COMMITTEE WORK PLAN RECOMMENDATION

**BACKGROUND**

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.

**SUB-COMMITTEE 2014 WORK PLAN RECOMMENDATIONS**

On November 8<sup>th</sup> 2013 at MMSD Headquarters the BNA Sub-Committee members (Don Nehmer, Emily Champaign, Todd Niedermeier, Pamela Booth, Kevin Bruhn and William Shaw) met to consider the 2014 MCAMLIS Work Plan with regard to the MCAMLIS Five-Year Work Plan submitted by GEODECISIONS.

A Motion by Don Nehmer, seconded by Pamela Booth passed unanimously to recommend the following projects to be considered by the MCAMLIS Steering Committee for inclusion in the 2014 MCAMLIS Work Plan:

**PROJECT VWR: VIEWER/PICTOMETRY IMPROVEMENT ROLLOUT**

	ESTIMATED COST
1. Improve the MCLIO Interactive Mapping Service (WP-VWR-01, pg 11-12)	<b>\$70,000</b>
2. Implement Initial MCAMLIS Data Extract Service (WP-VWR-02, pg 13-14)	INCLUDED

**PROJECT MBL: MOBILE-BASED CAPABILITIES IMPLEMENTATION**

- 1. Deploy Mobile Property Locator Application(WP-MBL-01, pg 15-16) **\$50,000**
- 2. Develop MCAMLIS Feature Data Service for Parcels (WP-MBL-02, pg 17-18) INCLUDED

**PROJECT COL: MCAMLIS/PARTNER COLLABORATION IMPROVEMENT**

- 1. Invest in LBDT/Collaboration Education and Training (WP-COL-01, pg 21-22) **\$25,000**
- 2. Formalize Partner Input in MCAMLIS Business Planning (WP-COL-02, pg 23-24) \$20,000

**PROJECT MOL: MCAMLIS ONLINE PRESENCE IMPROVEMENT**

- 1. INITIAL MCAMLIS WEBSITE IMPROVEMENTS (WP-MOL-02, pg 30-31) **\$20,000**

**PROJECT DAT: MCAMLIS DATA IMPROVEMENT**

- 1. MCAMLIS Non-Vector Data Improvements: Historical Aerials (WP-DAT-01, pg 44-45) \$10,000
- 2. MCAMLIS Vector Data Improvements: Create/deploy remaining Planimetric Polygons (WP-DAT-02, pg 46-47) **\$65,000**

**TOTAL \$260,000**

**FISCAL IMPACT**

The 2014 MCAMLIS Adopted Budget includes un-restricted expenditure authority for up to \$XXX,000 for the purchase of Professional Services. The remaining \$XX,000 will require a fund transfer from the MCAMLIS Trust Account leaving a balance in the MCAMLIS Trust of approximately \$X,XXX,XXX.

\* \* \* \* \*

**MCAMLIS  
FISCAL NOTE**

**PROPOSED ACTION:** \_\_\_\_\_

<b>Financial Impact of Proposal</b>	
Cadastral Address Maintenance - City of Milwaukee	\$91,780
County Surveyor Services	\$78,719
Annual Operating Costs	\$0
Total Investment	\$170,499
<b>Identify Funding Source of Proposal</b>	<input checked="" type="checkbox"/> \$8.00 Fee
<b>Fiscal Affairs Comments:</b> The 2014 Adopted Budget includes expenditure authority for the Cadastral services and County Surveyor Services. Therefore, there is no impact relating to un-restricted fund balance.	

## **AGREEMENT**

**THIS AGREEMENT**, entered into this \_\_\_\_ day of \_\_\_\_\_, 20\_\_, by and between the Southeastern Wisconsin Regional Planning Commission (hereinafter referred to as the “Commission”); and the Milwaukee County Automated Mapping and Land Information System Steering Committee (hereinafter referred to as the “Steering Committee”).

### **WITNESSETH:**

**WHEREAS**, under Section 59.74 of the *Wisconsin Statutes*, the Commission serves as the County Surveyor for Milwaukee County; and

**WHEREAS**, under the requirements of this legislation, the Commission is responsible for receiving, indexing, and filing as a public record, a copy of each land survey plat prepared by a land surveyor registered in the State of Wisconsin; and

**WHEREAS**, under the further requirements of this legislation, the Commission is also made responsible for the perpetuation of the corners of the U.S. Public Land Survey which may be subject to destruction, removal, or burial through construction or other activities and for maintaining a record of the surveys for such perpetuation; and

**WHEREAS**, the activities of the Milwaukee County Surveyor are essential to the development and maintenance of the Milwaukee County Automated Mapping and Land Information System (MCAMLIS); and

**WHEREAS**, the Milwaukee County Board of Supervisors has determined that the expenses associated with the Milwaukee County Surveyor function should be paid from the annual operating budget of the MCAMLIS project; and

**WHEREAS**, Sections 66.0309 (12)(b) and 66.0301 of the *Wisconsin Statutes* authorize the Commission to enter into contracts with local units of government and their agents to make and implement studies and plans and to otherwise provide advice and services.

**NOW, THEREFORE**, in consideration of these premises and of their mutual and dependent promises and agreements, the parties hereto contract and agree as follows:

I. Scope of Work

The Commission will provide the professional staff services as necessary to act in the capacity of County Surveyor for Milwaukee County pursuant to the provisions of Section 59.635 of the *Wisconsin Statutes*. More specifically, under this agreement, the Commission, acting in the capacity of the Milwaukee County Surveyor, will perform the following functions:

- A. In cooperation with the MCAMLIS project staff, record and maintain a file of all land survey plats prepared by land surveyors for parcels in Milwaukee County. An estimated 1,000 such land surveys are prepared and filed annually. Such surveys are essential to the maintenance effort required to keep the MCAMLIS cadastral maps up-to-date.
- B. Perpetuate the corners of the U.S. Public Land Survey System throughout Milwaukee County. Such corners frequently are subject to destruction, removal, and burial through construction or other activities. The perpetuation work includes periodic inspection of the system of approximately 1,100 monuments and attendant reference benchmarks and witness marks, the removal and/or replacement of such monuments and reference benchmarks and witness marks either directly or through the supervision of others conducting such activities, and undertaking both horizontal and vertical control surveys to ensure the integrity of the reference framework that is critical to the automated mapping base established for Milwaukee County. An estimated 100 monuments and benchmarks are serviced annually.
- C. Provide guidance and counsel to the Milwaukee County Automated Mapping and Land Information System Steering Committee through service on that committee.
- D. Provide technical support and guidance to the staff assigned to develop and maintain the Milwaukee County automated mapping and land information system program.

II. Commission to Organize and Store Information Acquired by County Surveyor

In order to facilitate convenient use of the land survey records concerned by land surveyors, abstractors, assessors, appraisers, attorneys, engineers and other interested parties, the Commission agrees to maintain an orderly filing and retrieval capability for the land surveys by U.S. Public Land Survey township, range, section, and quarter section.

The Commission further agrees to maintain in an orderly manner, records of individual U.S. Public Land Survey Corners (dossier sheets), and records (control survey summary diagrams) of horizontal and vertical control surveys that have been run over the U.S. Public Land Survey corners.

III. Commission to Act as Custodian for all Milwaukee County Surveyor Records

The Commission agrees to maintain for inspection and copying as public documents, all records associated with its functions as the Milwaukee County Surveyor. The Commission further agrees to provide access to these data by U.S. Public Land Survey township, range, section, and quarter section.

IV. Steering Committee to Receive Copies of Records

The Commission shall furnish to the Steering Committee, as necessary for the pursuit of its responsibilities, copies of the records created and maintained by the Milwaukee County Surveyor.

- V. Compensation  
The Steering Committee through Milwaukee County shall pay to the Commission the sum of \$78,719 as full payment for the services described herein.
- VI. Method of Compensation  
The Commission shall submit a single invoice in the amount of \$78,719 to Milwaukee County. The County, on behalf of the Steering Committee, shall pay to the Commission the amount shown on the invoice upon receipt of said invoice.
- VII. Timing  
The work to be performed under this Agreement shall be carried out over the period from January 1, 2014, through December 31, 2014.
- VIII. Indemnity  
Except for acts done or taken at the direction of or pursuant to the Steering Committee policy or procedures, the Commission agrees to the fullest extent permitted by law, to indemnify, defend and hold harmless, the Steering Committee, and its agents, officers, and employees from and against all loss or expense including costs and attorney's fees by reason of statutory benefits under Worker Compensation Laws, and/or liability for damages including suits at law or in equity, caused by any wrongful, intentional, or negligent act or omission of the Commission, or its agents which may arise out of or are connected with the activities covered by this agreement.
- IX. Insurance  
The Commission, as an agency of the State, is self-funded for liability under Section 893.82 and Section 895.46(1) of the *Statutes*. As a result, such protection as is afforded under respective *Wisconsin Statutes*, is applicable to officers, employees, and agents while acting within the scope of their employment or agency. Since this is statutory indemnification, there is no liability policy as such that can extend protection to any other.
- X. Records and Audits  
The Commission shall allow Milwaukee County, the Milwaukee County Department of Audit, or any other party that Milwaukee County may name, when and as they demand, to audit, examine, and make copies of, excerpts or transcripts from, any records or other information directly relating to matters under this agreement. Any subcontracting by the Commission in performing the duties described under this contract shall subject the subcontractor and/or associates to the same audit terms and conditions as the Commission. The Commission (or any subcontractor) shall maintain and make available to Milwaukee County the aforementioned audit information for no less than three years after the conclusion of each contract term.
- XI. Independent Contractor  
Nothing contained in the Agreement shall constitute or be construed to create a partnership or joint venture between Milwaukee County or its successors or assigns; the Steering Committee or its successors or assigns; and the Commission or its successors or assigns. In entering into this Agreement, and in acting in compliance herewith, the

Commission is at all times acting and performing as an independent contractor, duly authorized to perform the acts required of it hereunder.

XII. Termination

This Agreement is subject to termination by the Steering Committee without cause upon at least (7) seven days written notice to the Commission prior to the end of the then-current contract year.

XIII. Authorization

The Steering Committee approved the execution of this Agreement by action taken on December 3<sup>rd</sup>, 2013.

**IN WITNESS WHEREOF**, the Commission and the Steering Committee have executed this Agreement, as of the date and year first above written.

**ATTESTING WITNESS**

**SOUTHEASTERN WISCONSIN  
REGIONAL PLANNING COMMISSION**

By \_\_\_\_\_

By \_\_\_\_\_  
David L. Stroik, Chairman

**ATTESTING WITNESS**

**MILWAUKEE COUNTY  
MAPPING AND LAND INFORMATION  
SYSTEM STEERING COMMITTEE**

By \_\_\_\_\_

By \_\_\_\_\_  
Donald R. Nehmer, Chairman (Date)

**ATTESTING WITNESS**

**MILWAUKEE COUNTY**

By \_\_\_\_\_

By \_\_\_\_\_  
Teig Whaley-Smith, Director (Date)  
Department of Administrative Services  
Division Of Economic Development

**APPROVED AS TO FORM**

By \_\_\_\_\_  
Milwaukee County Corporation Counsel (Date)

**REVIEWED AS TO INDEMNIFICATION AND INSURANCE**

By \_\_\_\_\_  
Milwaukee County Risk Management (Date)

**APPROVED AS TO CHAPTER 42 DBE PROVISIONS**

By \_\_\_\_\_  
Milwaukee County Office of Community Business Development Partners (Date)

**AGREEMENT**

**Between**

**THE CITY OF MILWAUKEE DEPARTMENT OF ADMINISTRATION, INFORMATION AND TECHNOLOGY MANAGEMENT DIVISION AND THE MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM STEERING COMMITTEE**

**THIS AGREEMENT**, entered into this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_, by and between the City of Milwaukee Department of Administration, Information and Technology Management Division (hereinafter referred to as the " City"); and the Milwaukee County Automated Mapping and Land Information System Steering Committee (hereinafter referred to as the "Steering Committee").

**WITNESSETH:**

**WHEREAS**, by Resolution No. 88-379, the Milwaukee County Board of Supervisors requested the Southeastern Wisconsin Regional Planning Commission to conduct a feasibility study pertaining to an automated mapping and land information system; and

**WHEREAS**, the requested feasibility study was completed and documented in SEWRPC Community Assistance Planning Report No. 177, "Feasibility Study for a Milwaukee County Automated Mapping and Land Information System," published in October 1989; and

**WHEREAS**, by resolution adopted on November 8, 1990, the Milwaukee County Board of Supervisors, working in cooperation with the utilities concerned, created a public-private partnership to implement the proposed Milwaukee County automated mapping and land information system, including creation of a Steering Committee to provide oversight in the implementation of the system recommended in SEWRPC Community Assistance Planning Report No. 177; and

**WHEREAS**, the aforementioned Milwaukee County resolution adopted on November 8, 1990, further authorized the execution of a Cooperative Agreement between Milwaukee County and the public and private utilities serving Milwaukee County, whereby the County and such utilities agreed to jointly fund the development of the Milwaukee County automated mapping and land information system), such Agreement delegating to the aforementioned Steering Committee full responsibility for all policy matters relating to the conduct of the work program, including proposed contracts and specifications and the selection of contractors; and

**WHEREAS**, the City Chief Information Officer serves as a member of the aforementioned Steering Committee and the City actively participates in implementation of the MCAMLIS; and

**WHEREAS**, the City desires the financial support of the MCAMLIS program to maintain the cadastral maps within the City of Milwaukee to ensure conformance with selected MCAMLIS standards; and

**WHEREAS**, on August 26, 1999, the City, the Steering Committee, and the Commission, through an assignment, entered into an Intergovernmental Cooperation Agreement (ICA) whereby the City would provide technical services to the Steering Committee; and

**WHEREAS**, the Steering Committee on September 14, 2004, formally authorized the County to accept the responsibilities of Project Manager for the implementation of the recommended automated mapping and land information system; and

**NOW, THEREFORE**, in consideration of the mutual promises of each agency made to the other, the fulfillment of the terms and conditions, agreements, and understandings hereinafter set forth,

I. Scope of Work

In general, the City agrees to perform all of the tasks specified herein. Other tasks to be completed by the City not covered herein will be carried out under separate agreements.

The City will provide professional and technical information technology services. This will include maintenance on cadastral maps and the street address database in the adopted Milwaukee County geodatabase format. Copies of the data will be delivered to the MCAMLIS project manager at a minimum bi-annually. This arrangement will allow data collected and housed at the City of Milwaukee to be maintained in the same format that the County of Milwaukee uses to store and retrieve the MCAMLIS cadastral data.

Should software data transfer protocols and standards be developed, the City will work with Milwaukee County staff to deliver the cadastral and street address data on a more frequent basis.

II. Timing

All services to be performed under this Agreement shall be carried out over the period beginning January 1, 2014, and ending on December 31, 2014.

III. Compensation to City

The Steering Committee shall pay to the City the following amounts for those services described above:

SERVICES PROVIDED	AMOUNT
MCAMLIS Cadastral and Street Address Database Maintenance	\$90,280
Annual software maintenance	1,500
<b>Total</b>	<b>\$91,780</b>

IV. Method of Compensation

Compensation is to be provided to the Department of Administration Information and Technology Management Division (ITMD) for services performed through the County Department of Transportation and Public Works Org. 5084. ITMD will request on a quarterly (March 31, June 30, September 30, December 31) basis reimbursement for said services provided.

If, during the course of carrying out the work elements identified herein, additional unanticipated work efforts not identified in the scope of work contained herein become necessary for successful project completion in the judgment of the City or in the judgment of the Steering Committee, then it is agreed that the City can request an amendment to the scope of work, with an attendant increase in the maximum amount payable to the City under this Agreement. Such an amendment would require the approval of both the City and the Steering Committee before becoming effective.

V. Support and Materials to be provided by others

It is assumed that the members of the Steering Committee, on behalf of their respective public agencies and private utilities, agree to make available without charge to the City all existing digital and hardcopy maps, documents, reports, legal records, and related materials deemed by the City to be needed to carry out its responsibilities under this Agreement. If this assumed level of cooperation does not materialize, then it is agreed that the City may, at its discretion, request payment from the Steering Committee for these costs above and beyond the total amount set forth in Section III of this Agreement.

VI. Ownership of Data

As the funds that are to be paid to the City for carrying out the herein described and required work are MCAMLIS project funds, the City agrees to share the data. The City, however, will retain sole ownership of all map files, as they exist in the City digital structure. As a condition of receiving payment from MCAMLIS, the City agrees that MCAMLIS will be free to use, reproduce, modify, display, and distribute the digital map files in the MCAMLIS digital structure.

The City will retain a nonexclusive, irrevocable and perpetual license to use and distribute the digital map files to any parties it desires.

VII. Subcontracts

Although the City does not anticipate use of subcontractors, the City agrees to bring any such subcontracts to the Steering Committee for its approval prior to execution.

VIII. Indemnity

Except for acts done or taken at the direction of or pursuant to the Steering Committee policy or procedures, the City agrees to the fullest extent permitted by law, to indemnify, defend and hold harmless, the Steering Committee, and its agents, officers and employees, from and against all loss or expense including costs and attorney's fees by reason of statutory benefits under Worker Compensation Laws, and/or liability for damages including suits at law or in equity, caused by any wrongful, intentional, or negligent act or omission of the City, or it's (their) agents which, may arise out of or are connected with the activities covered by this agreement.

IX. Termination

This Agreement is subject to termination by the Steering Committee without cause upon at least (7) seven days written notice to the City prior to the end of the then-current contract year.

X. Authorization

The Steering Committee approved the execution of this Agreement by action taken on December 3<sup>rd</sup>, 2013.

IN WITNESS WHEREOF, this Agreement executed the date and year first above written

**ATTESTING WITNESS**

**CITY OF MILWAUKEE**

By \_\_\_\_\_

By \_\_\_\_\_

Nancy A. Olson  
Chief Information Officer

By \_\_\_\_\_

By \_\_\_\_\_

Martin Matson, Comptroller

**ATTESTING WITNESS**

**MILWAUKEE COUNTY  
MAPPING AND LAND INFORMATION  
SYSTEM STEERING COMMITTEE**

By \_\_\_\_\_

By \_\_\_\_\_

Donald R. Nehmer, Chairman (Date)

**ATTESTING WITNESS**

**MILWAUKEE COUNTY**

By \_\_\_\_\_

By \_\_\_\_\_

Teig Whaley-Smith, Director (Date)  
Department of Administrative Services  
Division of Economic Development

**APPROVED AS TO FORM**

By \_\_\_\_\_

Milwaukee County Corporation Counsel (Date)

**REVIEWED AS TO INDEMNIFICATION AND INSURANCE**

By \_\_\_\_\_

Milwaukee County Risk Management (Date)

**APPROVED AS TO CHAPTER 42 DBE PROVISIONS**

By \_\_\_\_\_

Milwaukee County Office of Community Business Development Partners (Date)