MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM

Fifty-Third Steering Committee Meeting

AGENDA

DATE: December 3, 2002
TIME: 9:00 A.M.
PLACE: Register of Deeds Conference Room
Milwaukee County Courthouse
901 N. Ninth Street, Room 103
Milwaukee, Wisconsin

I. Roll Call

II. Meeting Minutes

A. Consideration of minutes of the 52nd Steering Committee meeting held on October 8, 2002 (copy of minutes enclosed). agpr

III. New Business

A. Consideration of the third of four scheduled reports on the MCAMLIS pilot study investigating the use of "internet technology" for improving the efficiency and effectiveness of the interchange of digital map data and assorted attribute data between and among the various MCAMLIS participants (copy of report enclosed). update will be done at next mtg

lay over B. Consideration of the fourth of four scheduled reports on the MCAMLIS pilot study investigating the use of "internet technology" for improving the efficiency and effectiveness of the interchange of digital map data and assorted attribute data between and among the various MCAMLIS participants (copy of report enclosed). will be discussed at next mtg

lay over C. Discussion of the desirability of publishing a MCAMLIS newsletter or some other form of project outreach activity.

IV. Reports

A. Report by Commission staff on the status of conversion of MCAMLIS digital map file database to ESRI ArcInfo format (copy of status map enclosed).

B. Report by City of Milwaukee staff on the status of Milwaukee cadastral map transformation projects (copy of report and status maps enclosed).

C. Report by Milwaukee County Register of Deeds staff on MCAMLIS street address file and cadastral map maintenance operations (copies of status maps enclosed).

D. Report by project staff on continuing discussions between the City of Milwaukee, Milwaukee County, and MCAMLIS concerning cadastral map maintenance issues.

E. License Agreements executed on behalf of the Utilities Subcommittee (copy of table of executed license agreements enclosed).

F. Status of MCAMLIS cash flow (copy of cash flow table enclosed).

V. Old Business

A. Request of Mr. Thomas D. Kenney, Acting Director of the Milwaukee County Department of Public Works, to consider the transition of certain MCAMLIS project management responsibilities from SEWRPC to the Milwaukee County Department of Public Works.

B. Consideration of draft contract between the MCAMLIS project and SEWRPC for the provision of MCAMLIS project management services for 2003 and 2004 (copy of draft contract enclosed).

VI. Correspondence

VII. Date, time, and place of next meeting

VIII. Adjournment

Tues 1/28/03
9:00 AM
BOD Office

Kurt W. Bauer
Chairman

#75301 v1 - MCAMLIS AGENDA 52ND MEETING

Study desirability feasibility scope

Report on pending recommendations to the county

MINUTES OF THE 52ND MEETING

Milwaukee County Automated Mapping and Land Information System
Steering Committee

DATE: October 8, 2002

TIME: 9:00 a.m.

PLACE: Milwaukee County Register of Deeds Office
Milwaukee County Courthouse
901 N. 9th Street, Room 103
Milwaukee, WI

Members Present	
Kurt W. Bauer, Chairman	Milwaukee County Surveyor
John M. Bennett	City Engineer, City of Franklin, representing the Intergovernmental Coordination Council of Milwaukee County
Dextra Hadnot	Director, External Affairs, SBC Ameritech-Wisconsin
Gregory G. High (representing Thomas D. Kenney)	Director, Architectural and Engineering Services, Milwaukee County Department of Public Works
Thomas F. Lewandowski	Fiscal and Management Analyst, Milwaukee County Department of Administration
Bryan J. Maves (representing Nancy A. Olson)	Lead Analyst, Geographic Information Systems, City of Milwaukee
David S. Misun	Facilities Information Supervisor, Milwaukee Metropolitan Sewerage District
Ignatias J. Niemczyk	Register of Deeds, Milwaukee County
John C. Place	Manager, Maps and Records, WE Energies
William C. Shaw	Manager, Geographic Information Systems Mapping, WE Energies

Members Absent

Guests and Staff Present	
Candis Ahrendt	Interested Citizen
Kathleen A. Bach	GIS Technician, Register of Deeds Office, Milwaukee County
Alissa Bails	GIS Manager, R. A. Smith & Associates, Inc.
Wendy J. Bradshaw	SEWRPC Secretary
Gary E. Drent	Director, Support Services, Milwaukee County Department of Public Works
Reinhard B. Meihsner	Consultant, Spatial Data Solutions, Inc.
Philip R. Mroczkowski	Engineering Draftsman Technician V, City of Milwaukee, Department of Public Works
Thomas D. Patterson	MCAMLIS Project Manager
Kevin R. White	GIS Supervisor, Department of Public Works, Milwaukee County

ROLL CALL

The fifty-second meeting of the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee was called to order by Chairman Bauer at 9:00 a.m. Roll call was taken by circulating an attendance signature sheet; a quorum was declared present.

MINUTES

Approval of Minutes of the 51st Steering Committee Meeting Held on June 25, 2002
Chairman Bauer noted that copies of the minutes of the 51st Steering Committee meeting held on June 25, 2002, had been distributed to all members of the Steering Committee for review prior to the meeting, and asked that the Committee consider those minutes.

Chairman Bauer noted that in an action to approve the minutes, the Steering Committee would also be approving the final version of the consultant report entitled "City of Milwaukee Addressing Pilot Project Memorandum" prepared by the firm of Spatial Data Solutions, Inc. He noted further that the draft of the report had been reviewed by the Committee at its meeting held on June 25, 2002, and that the draft report had been approved at that meeting conditioned upon the incorporation in the final report of the review comments of the Committee. Chairman Bauer noted that those review comments in the form of additions and deletions were shown in red in the text of the Memorandum Report appended to the minutes of the June 25, 2002, meeting, and were intended to accurately incorporate in the final report the changes made by the Committee. Chairman Bauer indicated that upon approval of the minutes, the staff would prepare a final copy of the Memorandum Report entirely in black type.

There being no questions, comments, or corrections, on a motion by Mr. Niemczyk, seconded by Mr. Misun, and carried unanimously, the minutes of the meeting of June 25, 2002, were approved as published.

REPORTS

Report by Commission Staff on the Status of the 2002 Wisconsin Land Information Program Grant
Mr. Patterson reported that the Wisconsin Office of Land Information Services staff had advised the MCAMLIS project staff that the amount of State grant monies to be made available to Milwaukee County in 2002 would be $99,248. Mr. Patterson indicated that the staff would recommend that this grant be utilized for the conduct of an additional cadastral map transformation project in the City of Milwaukee. The period for the filing of applications for the grant will begin on November 1, 2002, and run through January 31, 2003, with the actual grant award probably being made before mid-2003. Assuming that the grant was made, the project could be initiated by July 1, 2003.

Chairman Bauer then asked for a motion to direct the staff to file an application for a State grant in the amount of $99,248 to be used in support of additional cadastral map transformation work in the City of Milwaukee, the work constituting Phase 8 of the multi-year project. It was so moved by Mr. Lewandowski, seconded by Mr. Bennett, and carried unanimously.

Mr. Patterson reported further that there would also be strategic initiative categories of grant awards made as part of the 2002 State grant distribution. These awards would be competitive-based and would require filing an application under one of four categories. Mr. Patterson then distributed copies of the preliminary State guidelines for these four categories of award (copy of guidelines attached to these minutes). He noted that Milwaukee County was not eligible for the first two of these four categories, which four categories are: initial cadastral mapping in counties that do not receive more than $35,000 annually in

document filing fees; the publication of parcel assessment and property tax assessment information on the Internet, this category being limited to the approximately 24 counties which did not request strategic initiative grants in 2001 to undertake this task; the collection of data in support of floodland mapping, including the collection of data on the hydraulic capacity of stream channels; and the undertaking of a pilot project to develop a distributed Wisconsin Land Information System (WLIS) Internet site compatible with current WLIS activities being conducted by the Wisconsin Department of Administration.

Mr. Patterson said that the staff recommends that MCAMLIS file an application with the State Office of Land Information Services (OLIS) requesting $50,000--the maximum allowable grant--in partial support of the MCAMLIS floodland mapping program currently underway and expected to be completed in 2004. The grant would support collection of hydraulic data for Phase 2 of the MCAMLIS floodland mapping program.

Chairman Bauer called for a motion in support of the staff recommendation. It was moved by Mr. Misun, seconded by Mr. Niemczyk, and carried unanimously to direct the staff to prepare an application to the State Office of Land Information Services under the floodland mapping category in partial support of Phase 2 of the MCAMLIS floodland mapping program.

There being no further questions, comments, or actions on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting.

Report by Commission Staff on the Status of Milwaukee County's 2001 Wisconsin Land Information Program Grant Award Projects

Mr. Patterson reported that Milwaukee County had received fully executed grant agreements covering Milwaukee County's two 2001 Wisconsin Land Information Program (WLIP) funded projects. Work on the contribution-based grant project, which funds additional cadastral map transformation in the City of Milwaukee, had begun.

The 2001 WLIP grant award in support of the publication of parcel assessment and parcel tax data on the Internet will be carried out by the Milwaukee County Register of Deeds office. Work on this project has yet to begin.

There being no questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting.

Report by Commission Staff on the Status of Milwaukee County's 1999 Wisconsin Land Information Program Grant Award Projects

Mr. Patterson reported that final project completion reports for three of the County's four 1999 Wisconsin Land Information Program (WLIP) funded projects had been prepared by the staff and filed with the State Office of Land Information Services. All three reports have been accepted by the State and final payments of the grant awards have been authorized. Two of these payments, each in the amount of $35,000, have been received; the third payment in the amount of $21,840 is expected to be received shortly. Mr. Patterson noted that the first two of the completion reports related to cadastral map transformation projects within the City of Milwaukee, and the third report related to the preparation of digital administrative, legislative, and statistical area digital map boundary overlays to the MCAMLIS cadastral base maps.

Mr. Patterson further reported that, in accordance with the directive given by the Steering Committee at its meeting of June 25, 2002, a request for a project extension was filed for the MCAMLIS floodland mapping project Phase 1, this representing the fourth of the County's 1999 grant award projects. This application was filed and a copy of the request for an extension was attached to the minutes for the meeting of June 25, 2002. Mr. Patterson noted that the request had been for a period of a one-year extension, from a completion date of June 30, 2002, to June 30, 2003. Mr. Patterson stated that in response to the request, the State staff had advised that obtaining a one-year extension would require approval by the Wisconsin Land Information Board and obtaining such an approval would necessitate an appearance before the Board. The State staff indicated that it would approve, which it could do on its own motion, a six-month extension of the project completion date, from June 30, 2002, to December 31, 2002. This would permit the MCAMLIS staff time to appear before the Board to request a full year's extension. Mr. Patterson indicated that the MCAMLIS staff had requested that the Board hear the request and was expected to do so probably late in 2002.

Chairman Bauer suggested, and the Committee concurred, that the staff should obtain written verification of the State staff's action to provide a six-month extension of the project completion date.

There being no further questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting.

Report by Commission Staff on the Status of Conversion of the MCAMLIS Digital Map File Database to ESRI ArcInfo Format

Mr. Patterson reported that the Steering Committee had, at its meeting held on July 10, 2001, approved the translation of the MCAMLIS digital map files from the Genamap and Intergraph DGN formats to the ESRI ArcInfo format. The work will result in the translation of all MCAMLIS digital topographic maps and the majority of the MCAMLIS digital cadastral maps into ESRI ArcInfo format. With respect to the cadastral mapping work, the work will include, as necessary, the City of Milwaukee cadastral maps already prepared to MCAMLIS standards in the Phase 1 through Phase 5 project areas and in the three project areas for which the City staff recompiled maps.

Mr. Patterson noted that all members of the Steering Committee had received a copy of a map showing the status of the conversion of the MCAMLIS digital topographic map files to the ESRI ArcInfo format (copy of map attached to these minutes). Mr. Patterson further noted that the MCAMLIS topographic maps had been, as of September 16, 2002, converted to the ESRI ArcInfo format within the area shown in light green on the map and were in the process of conversion within the area shown in dark green on the map. Mr. Patterson indicated the work was proceeding in good order and was expected to be completed by December 31, 2002, the project completion date.

In answer to a question by Mr. Shaw, Mr. Patterson indicated that the MCAMLIS database was being converted to the ESRI ArcInfo version 8.2, the latest version of ArcInfo currently available.

There being no further questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting.

Report by Commission Staff Concerning the Status of the MCAMLIS Floodland Mapping Project

Chairman Bauer noted that, in accordance with the directive of the Steering Committee given at its meeting held on July 18, 2000, the project staff had undertaken the delineation on MCAMLIS topographic maps of the floodlands within Milwaukee County. Chairman Bauer noted that all members

of the Steering Committee had received a copy of a status report on the project for review prior to the meeting.

Chairman Bauer called attention to the statements made on page 3 of the status report concerning the resolution of the problem relating to the hydrologic modeling procedures to be used in the work and that apparently these problems, which involved Wisconsin Department of Natural Resources approval of the procedures, had been resolved, at least informally by the staffs, although the Commission has not yet received formal written confirmation from the Department concerning the issue. Work was, however, continuing on the floodland mapping effort, and he called attention to Exhibit 1 of the status report, consisting of a bar chart indicating the status of completion of the work by the watersheds concerned. Chairman Bauer noted further that as had been reported earlier by Mr. Patterson, an extension of the completion date for the Phase 1 project from the Wisconsin Land Information Board was in the process of being requested by project staff.

There being no questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (copy of report attached to these minutes)

At this point in the meeting, Mr. Dextra Hadnot, representing SBC Ameritech-Wisconsin joined the Committee. Chairman Bauer welcomed Mr. Hadnot and observed it was his understanding that Mr. Hadnot had been briefed by Mr. Meihsner of the firm of Spatial Data Solutions, Inc., on the history and purpose of the MCAMLIS project. The Chairman indicated that if Mr. Hadnot had any further questions about the work of MCAMLIS, the staff would be pleased to provide a further briefing upon request.

Report by Commission Staff on the Status of the City of Milwaukee Cadastral Map Transformation Projects

Chairman Bauer noted that all members of the Steering Committee had received a copy of the status report on the City of Milwaukee cadastral map transformation projects for review prior to the meeting.

Chairman Bauer then asked Mr. Patterson, in the absence of Ms. Olson, to review the report with the Committee. Mr. Patterson then briefed the Committee on the status of the work utilizing the completion maps attached to the written text.

In answer to a question by Mr. Shaw, Mr. Patterson explained that the work involved adjusting the existing city cadastral maps to fit the MCAMLIS control survey network and to meet the MCAMLIS standards with respect to format and appearance, as well as accuracy. Mr. Patterson indicated further that as each one-quarter section map is transformed, the product is delivered to the Commission staff for quality control; any changes needed to be made on the basis of the Commission staff review are then made by the City staff and the final product delivered. In answer to a further question by Mr. Shaw, Mr. Patterson indicated that substantial labor is entailed in both the transformation and the quality control processes.

In answer to a question by Mr. Place, Mr. Patterson indicated that, indeed, additional phases of the project would be required to complete the map transformation work for all of the area of the City of Milwaukee. It was currently estimated that an additional four phases would be required—Phases 7 through 10. Mr. Patterson indicated further that the Committee would be asked to approve a contract for the conduct of Phase 7 later in the meeting and that the Committee had just approved the filing of an application for a State grant in the support of Phase 8 of the multi-year project.

In answer to another question by Mr. Shaw, Mr. Patterson indicated that the transformed maps would be available to MCAMLIS participants on a work progress basis in DGN format, and that the maps could be obtained in both digital and hardcopy format by MCAMLIS participants through a simple request made to the project staff.

In answer to a question by Mr. Place, Chairman Bauer indicated that small areas of the City of Milwaukee did, indeed, extend into Washington and Waukesha Counties. Chairman Bauer observed that a small portion of the Village of Bayside also extended into Ozaukee County. He indicated that those areas of the City of Milwaukee and Village of Bayside lying outside of the boundaries of Milwaukee County lay outside of the MCAMLIS service area and were not included on MCAMLIS topographic or cadastral maps.

There being no further questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (copy of report attached to the minutes).

Report by Milwaukee County Register of Deeds Staff on MCAMLIS Street Address File and Cadastral Map Maintenance Operations

Chairman Bauer noted that all Committee members had received copies of maps showing the status of the Milwaukee County cadastral map and street address file maintenance status as of September 20, 2002. Chairman Bauer then asked Ms. Kathleen A. Bach, GIS Technician, Register of Deeds Office, Milwaukee County, to report on the status of the MCAMLIS cadastral map and street address file maintenance operations.

Utilizing the status maps, Ms. Bach noted that the maintenance of the cadastral maps was going well and that as of the end of September, the MCAMLIS cadastral maps had been brought to a current state as of July 31, 2002; that is, were current within about 60 days within the date of concerned document filing.

Mr. Patterson noted that the currency of the cadastral maps was a significant achievement and demonstrated that the Register of Deeds Office can, in fact, keep these files current without undue effort. He noted further that Commission staff review of the updated maps indicated that the work was of an exceptionally high quality and that Ms. Bach should be complimented for her competence and diligence.

With respect to maintenance of the MCAMLIS street address file, Ms. Bach reported that she was having some difficulty in obtaining required information from certain local communities, including the Cities of Cudahy, Franklin, Glendale, Greenfield, and St. Francis; and the Villages of Fox Point, Shorewood, and Whitefish Bay. She was, however, continuing in her attempts to work with the local officials to obtain the necessary data.

In answer to a question from Mr. Bennett, Mr. Patterson indicated that address file data had been requested from some of the suburban communities, such as the City of Wauwatosa—primarily for use by consulting engineering firms working on behalf of the communities involved. Mr. Bennett noted that the MCAMLIS address file did present a problem—as did the City of Franklin file—with respect to addresses for large-multi-family buildings and for condominium developments.

Chairman Bauer noted the MCAMLIS staff was aware of this problem and that it would have to be addressed if the address file is to be as useful as possible.

Mr. Bennett indicated that although he believed a uniform set of cadastral maps should be prepared and maintained current by MCAMLIS covering all of Milwaukee County, he did not believe that the 19

constituent communities would be able to readily utilize the updated MCAMLIS cadastral maps and integrate those updated maps into the land information systems being developed locally. He indicated further that complexity of the local systems precluded downloading the MCAMLIS maps into the local systems and also prevented the uploading of local cadastral map data into the MCAMLIS system. He indicated that this would inevitably lead to duplicative work efforts within the County; and emphasized the need to attempt to standardize the County level mapping efforts throughout the seven-county Southeastern Wisconsin planning region. Chairman Bauer indicated that he was not convinced that many of the smaller suburban communities within Milwaukee County, such as the Villages of Bayside, Brown Deer, Fox Point, Hales Corners, Shorewood, and Whitefish Bay, would not be able to directly integrate the County cadastral maps and subsequent updated version of those maps into the local land information systems. He noted, moreover, that the City of West Allis, which had in the past produced and maintained its own cadastral maps, was committed to utilizing the MCAMLIS maps and to the concept of the County maintaining those maps current. Finally Chairman Bauer noted that if the pilot study currently underway demonstrates the feasibility of MCAMLIS providing updated cadastral data on a "transactional" basis, all potential users of the cadastral maps should be able to readily integrate the cadastral data into the local systems. Chairman Bauer suggested further consideration of this substantive issue be deferred until the Committee reviews the third and fourth reports to be prepared under the pilot study.

There being no further questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (copy of maps attached to these minutes).

Report by Project Staff on Continuing Discussions Between the City of Milwaukee, Milwaukee County, and MCAMLIS Concerning Cadastral Map Maintenance Issues

Mr. Patterson reported that additional research had been carried out by the City of Milwaukee staff concerning the manner in which information is processed by the City to maintain its various map series, and that Ms. Olson, of the City staff, had prepared a flowchart setting forth this process. Mr. Patterson reported that he would shortly reconvene the City of Milwaukee, Milwaukee County, and MCAMLIS project staffs to review the flowchart and, hopefully, reach a consensus with respect to cadastral map maintenance procedures within the City of Milwaukee.

There being no questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting.

Report by Project Staff on the Status of the 2003 MCAMLIS Budget

Chairman Bauer noted that all members of the Steering Committee had received a copy of the calendar year 2003 MCAMLIS budget request made to the Milwaukee County Executive and County Board. He then asked Mr. Patterson to brief the Committee on the status of the budget.

Mr. Patterson reported that, in accordance with past practice, Milwaukee County Department of Administration staff and MCAMLIS project staff had collaborated on the preparation of a proposed MCAMLIS 2003 budget request. This budget request, he said, was submitted to the County review process and was currently before the Milwaukee County Board Finance Committee.

Chairman Bauer noted that the table on page 1923-1 of the proposed budget was in error with respect to the heading of the fourth column; that heading should be, he said, "2003" and not "2002." Chairman Bauer also noted that the only two changes proposed from the calendar year 2002 budget was a decrease of $100,000 in anticipated State grants and an offsetting increase of $100,000 in anticipated recording fees.

In response to a question by Chairman Bauer, Mr. Lewandowski indicated that the proposed budget had been considered and approved by the County Board Financial Committee at its meeting held on October 7, 2002, and would now be forwarded to the County Board and to the County Executive for consideration and, hopefully, approval.

There being no further questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (copy attached to these minutes).

Report by Project Staff on Status of License Agreements
Chairman Bauer noted that all members of the Committee had received a copy of a table setting forth all of the license agreements executed by users of the MCAMLIS database since October 24, 1995, the date of initiation of the license agreement process, for review prior to the meeting.

Chairman Bauer noted that five new license agreements had been executed since the last status report was given to the Committee at their meeting of May 7, 2002. The users concerned were all engineering or architectural firms.

There being no questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (copy of table setting forth executed license agreements attached to these minutes).

Report by Milwaukee County Staff on Status of MCAMLIS Cash Flow
Chairman Bauer noted that all Committee members had received a copy of a table summarizing the status of the MCAMLIS project cash flow as of July 31, 2002, for review prior to the meeting. He noted that the County staff had provided a replacement table setting forth the cash flow status as of August 31, 2002. A copy of the new table was then distributed. Chairman Bauer then asked Mr. Lewandowski to review the new table with the Committee.

Mr. Lewandowski noted that the report indicated a negative cash flow position as of the end of August based upon the outstanding encumbrances. He indicated further, however, that he expected the year to end with at least a small positive cash flow position, given the additional four months of revenue that would be collected before the end of the year.

There being no questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (copy of table setting forth cash flow status as of August 31, 2002, attached to these minutes).

OLD BUSINESS

Chairman Bauer indicated that there was no old business to come before the Committee.

NEW BUSINESS

Consideration of a Draft Contract Between MCAMLIS and SEWRPC Governing Transformation of Additional City of Milwaukee Cadastral Maps
Chairman Bauer noted that all Committee members had received a copy of a contract proposed to be entered into between MCAMLIS and SEWRPC governing the additional cadastral map transformation work by the City of Milwaukee for review prior to the meeting. He directed the Steering Committee attention to the map attached as the last page of the proposed contract, noting that Phase 7 of the multi-year transformation

project would encompass U.S. Public Land Survey Sections 31 through 36, in Township 8 North, Range 21 East, the old Town of Granville area of the City of Milwaukee.

Mr. Patterson noted that, unlike Phases 2 through 6, but like Phase 1 of the multi-year project, this work would have to be funded entirely by MCAMLIS monies, there being no State grants available for the project at this time. He indicated that the amount of the contract was $129,345. Mr. Patterson noted further that of this total cost, it was estimated that $100,000 would be available from calendar year 2002 MCAMLIS project monies, and that the remaining $29,345 would have to be funded from the MCAMLIS 2003 budget. Mr. Patterson indicated that the staff analysis indicated that these monies would be available as required.

Mr. Shaw expressed concern over the lack of a procedure to maintain the City of Milwaukee cadastral maps current in the MCAMLIS format. He noted that the proposed action related to the seventh phase of the multi-year transformation project and that no maintenance on the delivered products to date had been performed, while the MCAMLIS cadastral maps covering the 18 suburban municipalities were being maintained current. He stressed the importance of addressing this issue in the proposed interagency staff meeting reported on earlier in the meeting. Mr. Shaw indicated further that this issue needed to be addressed in the strategic plan to be considered later in the meeting. Chairman Bauer agreed that this was an important substantive issue that would have to be addressed by the Steering Committee following a report on the outcomes of the proposed interagency staff meeting concerned.

There being no further questions or comments, on a motion by Mr. Misun, seconded by Mr. Bennett, and carried unanimously, the proposed contract governing the conduct of Phase 7 of the City of Milwaukee cadastral map transformation project was approved for execution (copy of contract attached to these minutes).

Mr. Patterson noted that, in accordance with past practice, a companion contract between SEWRPC and the City of Milwaukee would now be entered into to permit the work to proceed.

Consideration of the Draft Contract for the Provision of Milwaukee County Surveyor Services for 2003

Chairman Bauer noted that all members of the Committee had been provided with a copy of an Agreement proposed to be entered into between MCAMLIS and SEWRPC for the provision of Milwaukee County Surveyor services in calendar year 2003. He noted that the amount of the contract--$60,000--was unchanged from the amount provided in the previous year. Chairman Bauer noted for the record that as County Surveyor he did not receive these monies.

There being no further questions or comments, on a motion by Mr. Lewandowski, seconded by Mr. Bennett, and carried unanimously, the proposed contract for the provision of Milwaukee County Surveyor services in calendar year 2003 was approved (copy of contract attached to these minutes).

Consideration of Draft Contract Between the MCAMLIS Project and SEWRPC for the Provision of MCAMLIS Project Management Services for 2003 and 2004

Chairman Bauer noted that all Committee members had received a copy of a contract proposed to be entered into between MCAMLIS and SEWRPC for the provision of Project Management services in calendar years 2003 and 2004. Chairman Bauer indicated that the proposed contract would provide essentially the same services that have been provided by SEWRPC staff to the MCAMLIS Steering Committee since 1992, and that the proposed contract amount of $100,000 per year represented a decrease of $25,000 per year in the cost of the services concerned. Mr. Patterson attributed this decrease to two changes: 1) the transfer of the cadastral map maintenance function to the Milwaukee County Register of Deeds office; and 2) declining

grant application and attendant report preparation requirements under the Wisconsin Land Information Program due to decreased revenues received from that program.

Chairman Bauer noted that he, as Chairman of the MCAMLIS Steering Committee, had received a letter dated September 26, 2002, from Mr. Thomas D. Kenney, Acting Director of the Milwaukee County Department of Public Works, asking that the Steering Committee approve the transition of certain MCAMLIS project management responsibilities from SEWRPC to the Milwaukee County Department of Public Works. The letter was received subsequent to the mailing of materials for consideration by the Committee at this meeting; therefore, he said, a copy was now being distributed. Chairman Bauer then asked Mr. Patterson to review the letter and the attachments to the letter with the Committee. Mr. Patterson then undertook a page-by-page review of the letter request (copy attached to these minutes).

Chairman Bauer observed that it was, in his opinion, impractical to separate the provision of staff services to the Steering Committee—services that involved the preparation of agenda, minutes, and reports—from other project management responsibilities and that if the management responsibilities were transferred to the Milwaukee County Department of Administration, the responsibility for staffing the Steering Committee should also be included in that transfer. Chairman Bauer observed that he also had some concern about the transfer of quality control responsibilities for the topographic mapping to the County given the control survey and photogrammetric skills involved, but that if the management responsibility were transferred, the Department of Public Works could contract for the necessary quality control responsibilities with the Regional Planning Commission.

In answer to a question by Mr. Shaw, Chairman Bauer indicated that the proposed transfer of responsibilities should not change the role of the Steering Committee in guiding the MCAMLIS work program; but did represent a change in the staffing which assisted the Committee in the execution of its responsibilities. Mr. Shaw noted that the Committee had, in the past, always selected the management staff and that if this was to be changed, the Committee should be involved in that determination and, particularly, in consideration of the fiscal implications of such a change.

Mr. Bennett suggested that a one-year contract between MCAMLIS and the Commission might be considered in order to permit adequate time for consideration of the transition proposed, given its importance to the Steering Committee. Mr. High observed that, in any case, the Commission staff would have to assist in the transfer of responsibilities given the extent of ongoing MCAMLIS projects.

Mr. Lewandowski noted that neither the County Executive, the Director of the Department of Administration, nor, he believed, the Register of Deeds had been consulted in this matter and while it should not be assumed that the Department of Administration would find the proposed transfer to be undesirable, additional time should be provided for all interests concerned to consider the proposal. For this reason, he moved that consideration of this matter be tabled pending further consideration by the County interests concerned. The motion was seconded by Mr. Bennett, and after some further discussion, carried unanimously.

Chairman Bauer noted that it could now be assumed that the proposal by the County Department of Public Works would be further considered internally within Milwaukee County; that such consideration would involve at least the County Executive, the Director of the Department of Administration and the Register of Deeds, as well as the Director of the Department of Public Works. Presumably, the Steering Committee would receive a report on the results of this internal consideration at its next meeting and at that time may be in a position to act on the proposal; such action presumably being advisory to the County Executive and County Board.

Chairman Bauer observed that it would be helpful if this matter could be resolved before the end of the year since, if a management contract was not entered into with the Commission before the end of the year, the management services would probably have to cease to be provided as of January 1, 2003.

Chairman Bauer noted that if the County interests concerned wished to have a representative of the Regional Planning Commission attend any County interagency staff discussions concerning this matter, an invitation to attend should be extended to Mr. Philip C. Evenson, Executive Director of the Commission.

Consideration of Memorandum Prepared by MCAMLIS Project Staff Concerning Strategic Assessment for Undertaking MCAMLIS Work Tasks During 2003 - 2005

Chairman Bauer noted that all Committee members had received a copy of a staff memorandum setting forth, in effect, a proposed strategic plan for the operation of the MCAMLIS program in calendar years 2003 through 2005. He noted that he had advised the Committee at its meeting held on June 25, 2002, that he had asked project staff to prepare the strategic plan, which was to consist of a list of MCAMLIS project commitments together with an estimate of probable receipts in order that the Steering Committee might gain a better understanding of the fiscal situation and be advised as to whether or not additional funding may be expected to become available for additional MCAMLIS projects. He then asked Mr. Patterson to review the memorandum with the Committee.

Mr. Patterson then undertook a page-by-page review of the memorandum pointing out the historic trends in revenues, by source, since the inception of the program in 1990, as set forth in Table 1; Table 3 setting forth the staff estimation of anticipated revenues by source for calendar years 2003 through 2007, noting that the staff estimated revenues to decline from the 2003 estimated level of about $1,000,000 to a level of about $650,000 in 2007.

Mr. Patterson then called attention to Table 4, setting forth the MCAMLIS work program commitments made through prior actions of the Steering Committee and the County Board. He noted that, given the forecast revenues and commitments, the amounts of monies available for additional MCAMLIS work projects was expected to range from a minimum of about $194,000 in calendar year 2004, to a maximum of about $490,000 in calendar year 2005. Mr. Patterson noted that the revenues provided by the $1 locally retained document filing fee must, under State law, be allocated to work specified by the State Office of Land Information Services, and, therefore, the staff had, in considering a recommended work program, provided a line item for such projects.

Mr. Patterson then called attention to Table 5 setting forth a recommended MCAMLIS work program for calendar years 2003 through 2005. He noted that the work program allowed for completion of previously committed work and recommended that the remaining estimated available funding be utilized for three new projects: 1) the retiling of the MCAMLIS topographic and cadastral maps to facilitate the preparation of seamless maps for the constituent municipalities; 2) the preparation of updated topographic maps; and 3) as yet undefined projects for use of the revenues derived from the $1 locally retained document filing fee.

Chairman Bauer suggested, and the Committee concurred, that the second paragraph on page 12 be revised to read as follows: "It is recommended that the Steering Committee request the County Register of Deeds to develop a list of projects that meets conditions and expenditure of the $1 locally retained document filing fee; to request the Milwaukee County Register of Deeds to submit this list along with estimated fiscal requirements to the Steering Committee for its information, and for needed Committee action to budget for the expenditure of these receipts as a part of the overall MCAMLIS program.

Mr. Lewandowski observed that the current legislation governing the Wisconsin Land Records Modernization Program contained "sunset" clauses so that after September 1, 2003, the present $7 document recording fee would be reduced to $4 by eliminating the $2 fee, which is collected by the register of deeds offices, but is transmitted to the State for use by the Wisconsin Land Information Board and by eliminating the $1 fee recently instituted in support of the special State initiative program.

Mr. Niemczyk observed that if and when the State legislature considers potential changes to the legislation governing the Wisconsin Land Records Modernization Program, as is likely given the program "sunset" provision in the existing legislation, it will be important for all concerned to assure that the legislation continues to require that all document recording fees collected under the program be used solely for land records modernization, as is required under the current legislation. Chairman Bauer agreed, indicating that Mr. Niemczyk's observation was important, indeed, since the possibility always existed that the legislation could be changed to permit the continued collection of the fees, but permit those fees to be regarded as general fund revenues to be used for other purposes at the discretion of the County Boards within Wisconsin.

Referring to Table 5, Mr. Lewandowski indicated that he was surprised to see that the table projected the costs for County Surveyor and for MCAMLIS project management services to remain constant at $60,000 and $100,000 per year, respectively, over the three year projection period. Chairman Bauer noted that the project management fee was actually proposed to be reduced in calendar year 2003 from the amount provided in the previous year, and that the cost of the County Surveyor services had recently been increased by $10,000 per year, having been at $50,000 per year for almost a decade. Consequently, he said, that any changes in these two costs should be relatively minor over the three-year project period concerned.

Chairman Bauer noted that Table 5 included a potential project for the "retiling" of the MCAMLIS topographic and cadastral maps. He indicated that this inclusion was based upon an assumption that the retiling would be recommended in the final report on the pilot study currently being conducted by the Steering Committee. This issue will have to be addressed by the Steering Committee when it receives the final two reports due on the pilot study. He noted further that these reports would also address the issue of cadastral map maintenance raised by Mr. Bennett earlier in the meeting.

Mr. Shaw observed that Table 5, and the attendant text describing the recommended work tasks, did not include two very important projects which the MCAMLIS program should, in his opinion, undertake: the maintenance to a current status of the recompiled and transformed City of Milwaukee cadastral maps being delivered to MCAMLIS under the MCAMLIS contract with the City; and the integration into the MCAMLIS database of the City of Milwaukee street address files.

[Secretary's Note: Subsequent to the meeting, Mr. Shaw reiterated his comments in a letter dated October 9, 2002, addressed to the Chairman of the Steering Committee. A copy of this letter is appended to these minutes. Based upon Mr. Shaw's comments and staff reconsideration of the needed work programs, Table 5 of the "Strategic Assessment Memorandum" and the list of recommended work tasks was revised, and these revisions, together with the revision concerning the responsibility of the County Register of Deeds in the formulation of the program to utilize the State strategic initiative related $1 document filing fee, are reflected in the attached final copy of the staff memorandum entitled, "MCAMLIS Program Strategic Assessment for 2003 – 2005," dated October 12, 2002.

After some further discussion, on a motion by Mr. Lewandowski, seconded by Mr. Niemczyk, and carried unanimously, the proposed strategic plan for the operation of the MCAMLIS program in calendar years 2003 – 2005, as set forth in the staff memorandum concerned, and as amended by the Steering Committee deliberation, was approved (copy of revised memorandum attached to these minutes).

Chairman Bauer observed that the strategic plan was intended to be used by the Steering Committee as a guide in the formulation of the annual MCAMLIS work program and that amendments to the strategic plan should be expected as the Committee annually reconsiders that program.

CORRESPONDENCE

Letter dated July 10, 2002, from Linda J. Seemeyer, Director, Milwaukee Department of Administration, appointing Thomas Lewandowski to Serve as the Department's Representative to the MCAMLIS Steering Committee

Chairman Bauer noted that the Commission had received a letter dated July 10, 2002, from Ms. Linda J. Seemeyer, Director, Milwaukee Department of Administration, appointing Mr. Thomas F. Lewandowski, Fiscal and Management Analyst, Milwaukee County Department of Administration, to represent the Department of Administration on the Steering Committee (copy of letter attached to these minutes). Chairman Bauer noted that the Cooperative Agreement governing the creation of the MCAMLIS Steering Committee specifically made the Director of the Milwaukee County Department of Administration one of the appointing authorities and that no further action was required by the Committee.

Letter dated July 19, 2002, from Geographic Data Technology, Inc., Requesting the Provision of Selected Portions of the MCAMLIS Copyrighted Database for Commercial Use

Chairman Bauer noted that the staff had received a letter dated July 19, 2002, from Ms. Heidi Meyerose, Research and Acquisition Specialist, Geographic Data Technology, a mapping and related database development firm headquartered in New Hampshire, requesting use of certain portions of the MCAMLIS copyrighted database for commercial use. He noted that all Committee members had received a copy of the letter for review prior to the meeting (copy of letter attached).

Mr. Patterson noted that Geographic Data Technology was requesting the use of certain material, principally from the MCAMLIS street address database, to use in improving the quality of their commercial database. The specific areas requested were set forth on the attachment to the letter. Mr. Patterson pointed out that the company's request would be covered by a data usage agreement that provided that the information obtained from MCAMLIS would not be resold or redistributed to any third parties, but would be used only to improve their existing address database.

Mr. Patterson stated that this request was being brought to the Steering Committee since it would involve commercial use of the copyrighted MCAMLIS digital mapping materials and associated databases. He further stated that it was the project staff's assessment that such use, while commercial, could be arranged in such a way as to protect the copyrighted data. Therefore, the project staff was recommending that the Steering Committee authorize the release of these data for cost of reproduction.

In answer to a question by Chairman Bauer, Mr. Patterson indicated that the firm would, indeed, be required to enter into a license agreement with MCAMLIS.

Mr. Shaw observed that the firm's products are of interest to this Committee and to some of the agencies represented on the Committee, and that mutual benefit should result from MCAMLIS making data available to the firm. Mr. Shaw suggested, and the Committee agreed, that the staff should negotiate a license

agreement that would provide for a reduction in the normal fees that would be charged by Geographic Data Technology, Inc. to provide its data to users within Milwaukee County.

After some further discussion, on a motion by Mr. Shaw, seconded by Mr. Lewandowski, and carried unanimously, the staff was directed to release data to the firm of Geographic Data Technology, Inc. on the condition that the data released not be supplied to any third party interests, but be used solely to improve the firm's data base; and that the staff negotiate a license agreement with the firm that would provide for a reasonable reduction in the fees charged by the firm to any potential user of its data services by Milwaukee County, the constituent municipalities within the County, and the utilities serving the County, as represented on the Steering Committee.

DATE, TIME, AND PLACE OF NEXT MEETING

Chairman Bauer then asked the Committee to consider the date, time, and place for the next Committee meeting. After some brief discussion, it was determined that the next meeting of the Steering Committee should be scheduled to be held on Tuesday, November 19, 2002, at 9:00 A.M. in the Milwaukee County Register of Deeds office.

ADJOURNMENT

There being no further business to come before the Steering Committee, on a motion by Mr. Niemczyk, seconded by Mr. Bennett, and carried unanimously, the meeting adjourned at 11:30 A.M.

Respectfully submitted,

Thomas D. Patterson
MCAMLIS Project Manager

#77109 v1 - MCAMLIS MIN-52ND MTS 10/8/02
KWB/TDP/wb

August 1, 2002

Wisconsin Land Information Program
WLIB Executive Committee

2002 Strategic Initiative Grant Options

1. Parcel Mapping:

Guidelines:

1. Total Funds available: $400,000

2. Eligibility: 2002 Base Budget-eligible* counties with 30% or less digital parcel mapping completed, as documented in the 2001 LIO Annual Survey.

3. Maximum single award: $40,000

4. Eligible activities: Projects shall conform to the parcel mapping criteria similar to that defined in the 1997 Grant Period Consent Resolution.

5. Priority: If total amount requested in grant applications exceeds total funds available, priority funding order will be assigned to counties with the lowest amount of existing, completed parcel mapping as documented in the 2001 WLIP Annual Survey.

   This grant category has equal funding priority with Component 2 (below).

* For the purpose of this Strategic Initiative Grant Option, Land Information Base Budget Awards will be determined without the additional $1 Register of Deeds recordation fee (initiated in 2001), considered in the calculation. The additional $1 is earmarked specifically for the development and maintenance of housing records and access to that information via the Internet.

2. Publication of Parcel Assessment and Tax Data on the Internet:

1. Total funds available: $78,000 (approximately)**

2. Eligibility: Limited to those counties (approx. 24) that did not apply for and receive a 2001 Strategic Initiative Grant award (and excluding those counties that have indicated this effort to be minimal and not necessitating grant funds).

3. Maximum single award: $3,000

4. Eligible activities: Projects shall conform to Component A specifications of Eligible Expenditure Criteria Directing the Use of 2001 Strategic Initiative Grant Funds: *Publication of County/Municipal Parcel Assessment and Tax Data on the Internet.*

5. Priority: This grant category has equal funding priority with Component 1 (above).

** Unused funds from this grant category may be used to supplement Category 1 grants funding if needed, i.e. the total amount available for Category 1 grants may exceed $400,000.

3. Base Data Creation for Flood Plain Mapping:

1. Total funds available: $150,000

2. Eligibility: Any county that wishes to create data to support current, accurate, digital information for use in standard flood plain mapping as defined and specified by the WI-DNR's Dam Safety, Floodplain and Shoreland Section, and in accordance with FEMA flood plain mapping standards.

3. Maximum single award: $50,000

4. Eligible activities: Data development shall be limited to:

- Digital Terrain models (DTM) data suitable for supporting the generation of 2-foot contours in flat areas and 4-foot contours in other areas.
- Bridge metrics, e.g., opening measurements, height, impediments, pillars, piers, decks, etc. suitable for use in flood plain modeling and mapping.

5. Priority: The purpose of this grant category is to enhance state/local involvement with the improvement of flood plain mapping in Wisconsin which is a component of zoning mapping, a WLIP Foundational Element. Currently, FEMA plans to increase annual flood plain mapping spending seven-fold nationally with the potential that Wisconsin will receive $5 million annually. A FEMA eligibility requirement is a 20% state/local match in funds and/or the value of useable data. Investment in this data means a potential 5:1return ratio of federal to state/local dollars.

Priority ranking of applications and funding for this grant activity will be determined through the flood plain mapping needs

assessment as documented within the current *DNR State of Wisconsin Floodplain Mapping Implementation Plan.*

4. WLIS Node Pilot:

1. Total funds available: $25,000

2. Eligibility: A county or regional planning commission working with a county.

3. Maximum single award: $25,000

4. Eligible activities: Funding to be available to a county, or a regional planning commission in conjunction with a county partner, that wishes to do pilot development work to create a distributed Wisconsin Land Information System (WLIS) node compatible with current WLIS activities being conducted by the WI-DOA.

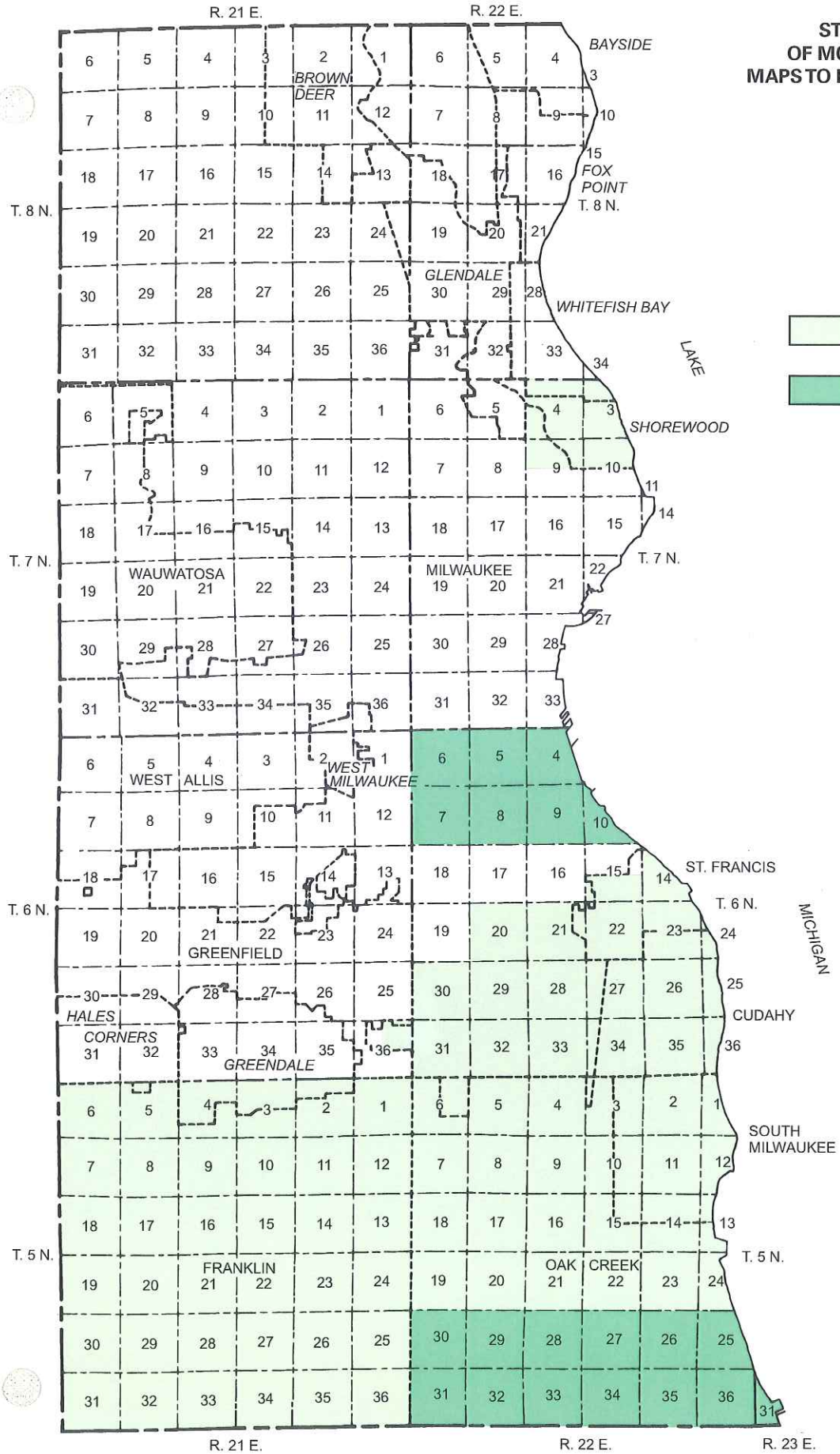
5. Priority: Only one project demonstrating the most merit and potential to advance the development of WLIS will be selected for funding. This determination will be made by the Board and DOA with advice from the WI-DNR.

Summary:

Total Potential Strategic Initiative Funding:

Parcel Mapping	- $400,000
Parcel Assessment and Tax Data	- $ 78,000
Flood Plain Mapping	- $150,000
WLIS Development	- $ 25,000
Total	$ 653,000

STATUS OF THE CONVERSION OF MCAMLIS DIGITAL TOPOGRAPHIC MAPS TO ESRI ARCINFO COVERAGE FORMAT



CONVERTED AND AVAILABLE FOR DISTRIBUTION

CONVERSION AND QUALITY CONTROL IN PROGRESS - - NOT AVAILABLE FOR DISTRIBUTION

SEPTEMBER 16, 2002

GRAPHIC SCALE

0 1½ 3 MILES

Source: MCAMLIS PROJECT MANAGER.

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
W239 N1812 ROCKWOOD DRIVE • PO BOX 1607 • WAUKESHA, WI 53187-1607 • TELEPHONE (262) 547-6721
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MEMORANDUM

TO: MCAMLIS Steering Committee

FROM: SEWRPC Staff

DATE: September 24, 2002

SUBJECT: **STATUS REPORT NO. 5 ON MILWAUKEE COUNTY FLOODLAND MAPPING PROJECT**

This memorandum sets forth the progress made on the Milwaukee County Floodland Mapping project from June 18, 2002, through September 23, 2002. This status report addresses project progress in the following three major areas and also sets forth major issues which have come up:

- Data Acquisition
- Hydrologic and Hydraulic Modeling
- Floodland Map Preparation

Overall, the Phase I portion of the project is about 40 percent completed. Progress is summarized in the attached Exhibit 1.

DATA ACQUISITION

During the period of June 18, 2002 through September 23. 2002, the following data acquisition activities were carried out:

- Work continued on coordination with the Milwaukee Metropolitan Sewerage District (MMSD), the Wisconsin Department of Natural Resources (WDNR), the Wisconsin Department of Transportation (WisDOT), and the City of Milwaukee. In general, where Phase I data has not been acquired, there is a cooperative effort underway with the MMSD and its consultants to obtain the data.

- The following data were obtained from the MMSD and its consultants: 1) subbasin maps corresponding to the hydrologic models for the Menomonee River watershed and the Beaver, Brown Deer Park, Southbranch Creek subwatershed (all in the Milwaukee River watershed) and the Fish Creek subwatershed; 2) the record drawings for the Churchill Lane detention basin along Southbranch Creek; and 3) the digital stream and overbank cross section files for Lincoln Creek.

- Construction drawings were obtained from the City of Milwaukee for nine additional bridges along the main stem of the Milwaukee River and the new 6th Street bridge over the Menomonee River.

- Continued the large-scale topographic mapping project to obtain current maps for 25 U.S. Public Land Survey one-quarter Sections along Lincoln Creek and Southbranch Creek. The subject maps will reflect the MMSD flood control and environmental restoration projects recently completed for those streams.

- Obtained and reviewed the Fish Creek Geomorphic Study that was prepared by W. F. Baird & Associates for MMSD to determine the applicability of the hydrologic and hydraulic models to the Milwaukee County floodland mapping project.

HYDROLOGIC AND HYDRAULIC MODELING

During the reporting period, progress on hydrologic and hydraulic modeling for Phase I of the project included the following:

Milwaukee River Watershed

- A detailed SEWRPC Staff Memorandum describing the hydrologic methodology used to determine flood flows along the main stem of the Milwaukee River was written and provided to the WDNR Federal Emergency Management Agency (FEMA) for review and comment.

- The U.S. Army Corps of Engineer HEC-RAS river analysis systems hydraulic model of the main stem of the Milwaukee River that was developed by the Commission staff as reported in the fourth status report was updated to reflect current conditions at bridges along the River.

- The hydrologic models of the Southbranch and Beaver Creek subwatersheds were converted from the proprietary XP-SWMM format to U.S. Environmental Protection Agency (USEPA) SWMM format, which is required by WDNR and FEMA.

- Work was begun on modifying the USEPA SWMM hydrologic model for Southbranch Creek to use consistent methodology throughout the subwatershed.

Menomonee River Watershed

- The USEPA HSPF hydrologic model for the Underwood Creek subwatershed was updated to reflect the large floods of August 6, 1998. The flood flows computed using the results of that model will be used to delineate floodplains along four streams in the subwatershed.

- A detailed SEWRPC Staff Memorandum describing the hydrologic methodology used to determine flood flows in the Underwood Creek subwatershed was written and provided to the WDNR and FEMA for review and comment.

FLOODLAND MAP PREPARATION

During the reporting period, the following map preparation activities were carried out:

- Digitizing was completed for the 100-year floodplain and floodway boundaries for Middle and Upper Oak Creek, the North Branch of Oak Creek, the Mitchell Field Drainage Ditch, Southland Creek, an Unnamed Tributary to Southland Creek, and an Unnamed Tributary to Upper Oak Creek.

- Work continued on digitizing of the 10-, 50-, and 500-year floodplain boundaries for Lower and Oak Creek and the North Branch of Oak Creek.

MAJOR PROJECT ISSUES AND CONSIDERATIONS

1. Hydrologic Modeling Procedure Approvals—Although the Commission has not yet received formal, written confirmation from the WDNR of a change in their policy regarding the use of continuous simulation hydrologic methods, it is our understanding based on conversations with WDNR staff members that the past objections that were raised by the WDNR to the use of continuous simulation modeling should now be more narrowly interpreted as applying to a project in the Pike River watershed, outside of the MCAMLIS/MMSD project area. Thus, the Regional Planning Commission staff is proceeding with continuous simulation hydrologic modeling for floodland mapping under the MCAMLIS/MMSD project.

   In early October of 2002, the U.S. Geological Survey and the Regional Planning are sponsoring a USEPA HSPF training course that will be held at the Commission offices. Among others, engineering staff members from the WDNR Southeast Region will attend that course, and it is our understanding that, following completion of the course, the WDNR staff will begin to review the continuous simulation hydrologic analyses submitted by the Commission staff under the MCAMLIS/MMSD floodland mapping project. The apparent willingness of WDNR staff to evaluate HSPF continuous simulation models on their merits represents a breakthrough in the hydrologic modeling approval situation that has been reported on in past status reports to the MCAMLIS Steering Committee, and it appears to remove a significant impediment to completion of the project. In recognition of this change in WDNR's position, the Regional Planning Commission staff intends to proceed with the necessary continuous simulation hydrologic analyses for the MCAMLIS/MMSD project.

   Scheduling—We propose to maintain the revised Phase I project schedule set forth in the June 18, 2002, fourth status report to the Steering Committee. Under that schedule, the end date for the Phase I work is June 30, 2003.

* * *

RPB/MGH/rj/pk
#76280 V1 - MCMALIS MILW CTY FLPL STATUS RPT 5

Exhibit 1

STATUS OF MCAMLIS MILWAUKEE COUNTY FLOODLAND MAPPING PROJECT: SEPTEMBER 23, 2002

Major Area	Data Acquisition (percent complete)					Hydrologic and Hydraulic Modeling (percent complete)					Floodland Map Preparation (percent complete)				
	20	40	60	80	100	20	40	60	80	100	20	40	60	80	100
Phase I															
Kinnickinnic River Watershed															
Lake Michigan Coastal Flooding Areas						NA	NA	NA	NA	NA					
Lake Michigan Direct Drainage Area – Fish Creek															
Menomonee River Watershed															
Milwaukee River Watershed															
Oak Creek Watershed															
Legend Creek (Root River Watershed)															

MGH/rj/pk
#76280 V1 - MCMALIS MILW CTY FLPL STATUS RPT 5
09/24/02

STATUS OF MCAMLIS MAPPING PROJECTS BEING CARRIED OUT BY CITY OF MILWAUKEE STAFF

The City of Milwaukee recompilation project was comprised of 40 U.S. Public Land Survey one-quarter section-based maps. These cadastral maps were recompiled to fit the MCAMLIS survey control system utilizing original land records and associated descriptions and documents. This work was carried out by staff of the City of Milwaukee, Infrastructure Service Division, Central Drafting and Records Office. As of November 30, 2001, all 40 of the quarter-section maps had been completed by the City of Milwaukee staff and shortly thereafter had been accepted by SEWRPC staff as being in compliance with appropriate MCAMLIS specifications and standards. This project has been completed.

The City of Milwaukee cadastral map transformation project (Phase 1) consists of 93 U.S. Public Land Survey one-quarter-section-based existing City of Milwaukee maps that are being refit to the MCAMLIS survey control system utilizing computer algorithms. These 93 one-quarter section maps are delineated on an accompanying status map. This work is being carried out by staff of the City of Milwaukee, Department of Administration, Information and Technology Management Division. As of September 12, 2002, City of Milwaukee Geographic Information Systems staff had completed the transformation of 69 of these map sheets, all of which had been sent to SEWRPC staff for their review to determine compliance with MCAMLIS specifications and standards. Of the 69 map sheets submitted, 68 map sheets have been accepted by SEWRPC staff as meeting the relevant specifications. An additional 24 maps are in various stages of the transformation process. The agreement governing this project calls for this work to be completed by October 2002. It is unlikely that the project completion schedule will be met; however, all remaining maps in this project are expected to be delivered to SEWRPC by the end of December 2002.

The City of Milwaukee cadastral map transformation project (Phase 2) consisted of 24 U.S. Public Land Survey one-quarter-section-based maps. As of March 31, 2002, City of Milwaukee Geographic Information Systems staff had completed the transformations for all 24 of these map sheets and had submitted the map sheets to SEWRPC for review. All 24 map sheets were accepted by SEWRPC staff as being in compliance with appropriate MCAMLIS specifications and standards. This project has been completed.

The City of Milwaukee cadastral map transformation project (Phase 3) also consisted of 24 U.S. Public Land Survey one-quarter-section-based maps. As of March 31, 2002, City of Milwaukee Geographic Information Systems staff had completed the transformations for all 24 of these map sheets and had submitted the map sheets to SEWRPC staff for review. All 24 map sheets were accepted as being in compliance with appropriate MCAMLIS specifications and standards. This project has been completed.

The City of Milwaukee cadastral map transformation project (phase 4) consists of 24 U.S. Public Land Survey one-quarter section-based maps, as delineated on an accompanying status map. As of September 12, 2002, City of Milwaukee Geographic Information Systems staff have completed the transformation of 18 map sheets. These 18 maps have been submitted to SEWRPC staff for review and 12 map sheets have been accepted as being in compliance with appropriate MCAMLIS specifications and standards. The agreement governing this project calls for this work to be completed by December 2002. There is currently no reason to expect that the project completion schedule will not be met.

The City of Milwaukee cadastral map transformation project (phase 5) also consists of 24 U.S. Public Land Survey one-quarter-section-based maps, again as delineated on an accompanying status map. As of September 12, 2002, City of Milwaukee Geographic Information Systems staff have completed the transformation of all 24 map sheets and have submitted all 24 map sheets to SEWRPC staff for review. Fifteen map sheets have been accepted as being in compliance with appropriate MCAMLIS specifications and standards. The agreement governing this project calls for this work to be completed by December 2002. There is currently no reason to expect that the project completion schedule will not be met.

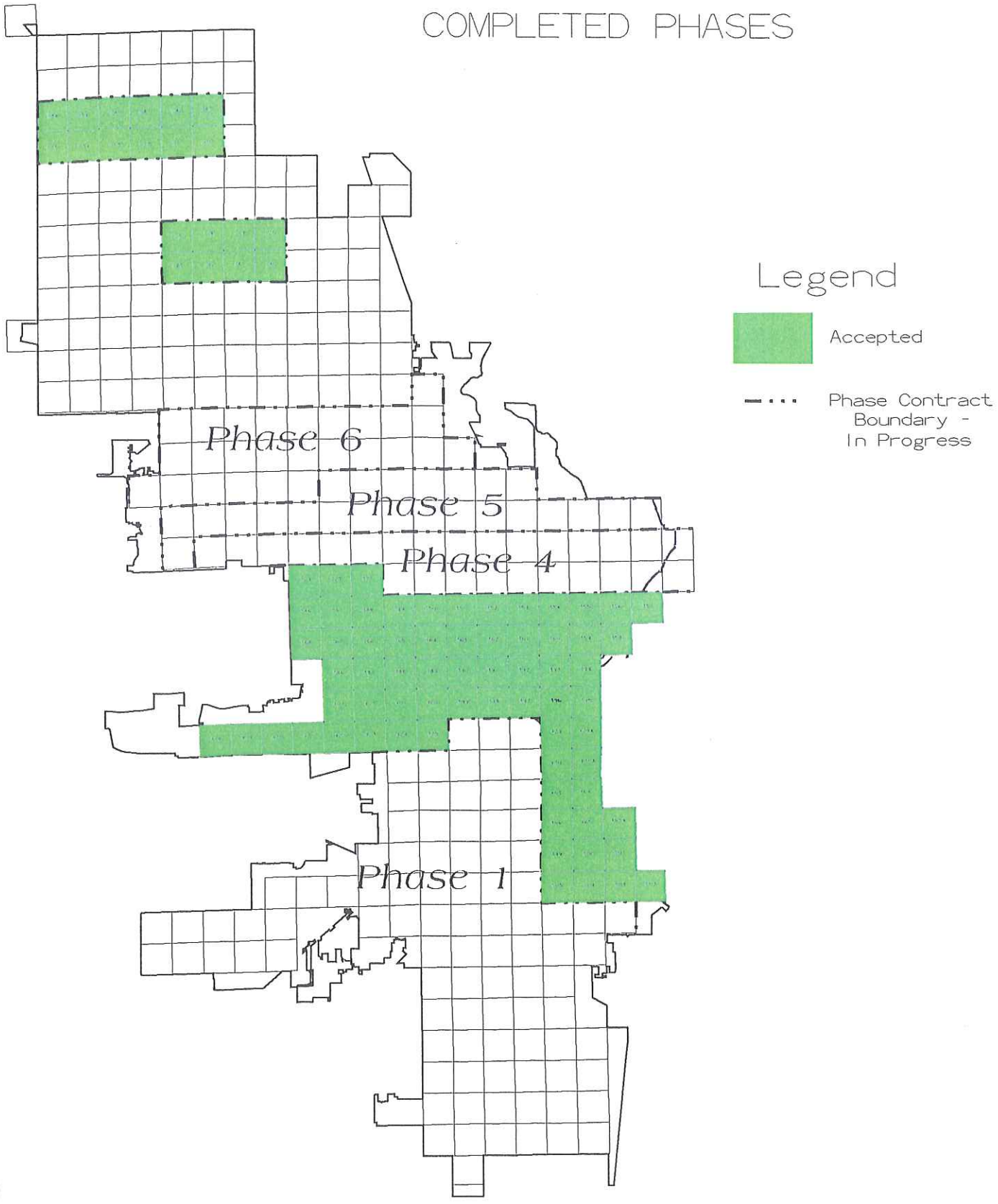
The City of Milwaukee cadastral map transformation project (phase 6) consists of 26 U.S. Public Land Survey one-quarter section-based maps, again as delineated on an accompanying status map. As of September 12, 2002, City of Milwaukee Geographic Information Systems staff have not yet initiated the transformation of any of these map sheets. Accordingly, no map sheets from this project area have been submitted to SEWRPC staff for review. The agreement governing this project calls for this work to be completed by June 2003. There is currently no reason to expect that the project completion schedule will not be met.

* * *

NAO/TDP/mlh/wb
09/23/02
#43453 v1 - status-mcamlis projects at c/milw staff

MCAMLIS Transformation Project

COMPLETED PHASES

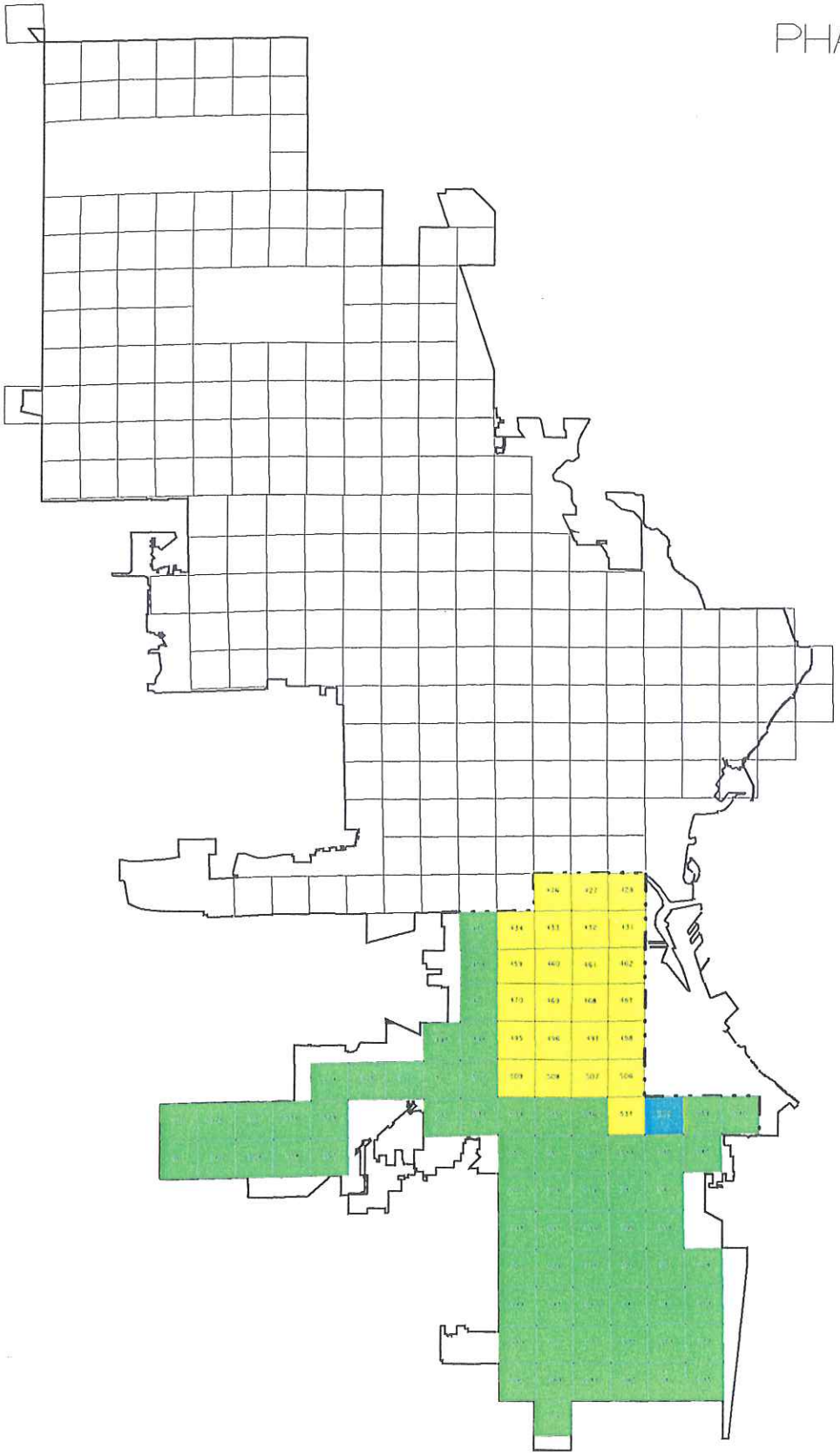


STATUS AS OF 08/12/02

PREPARED BY: CITY OF MILWAUKEE - ITMD/GIS

MCAMLIS Transformation Project Progress Map

PHASE 1



Legend

- Accepted (68)
- Delivered (1)
- In Progress (24)

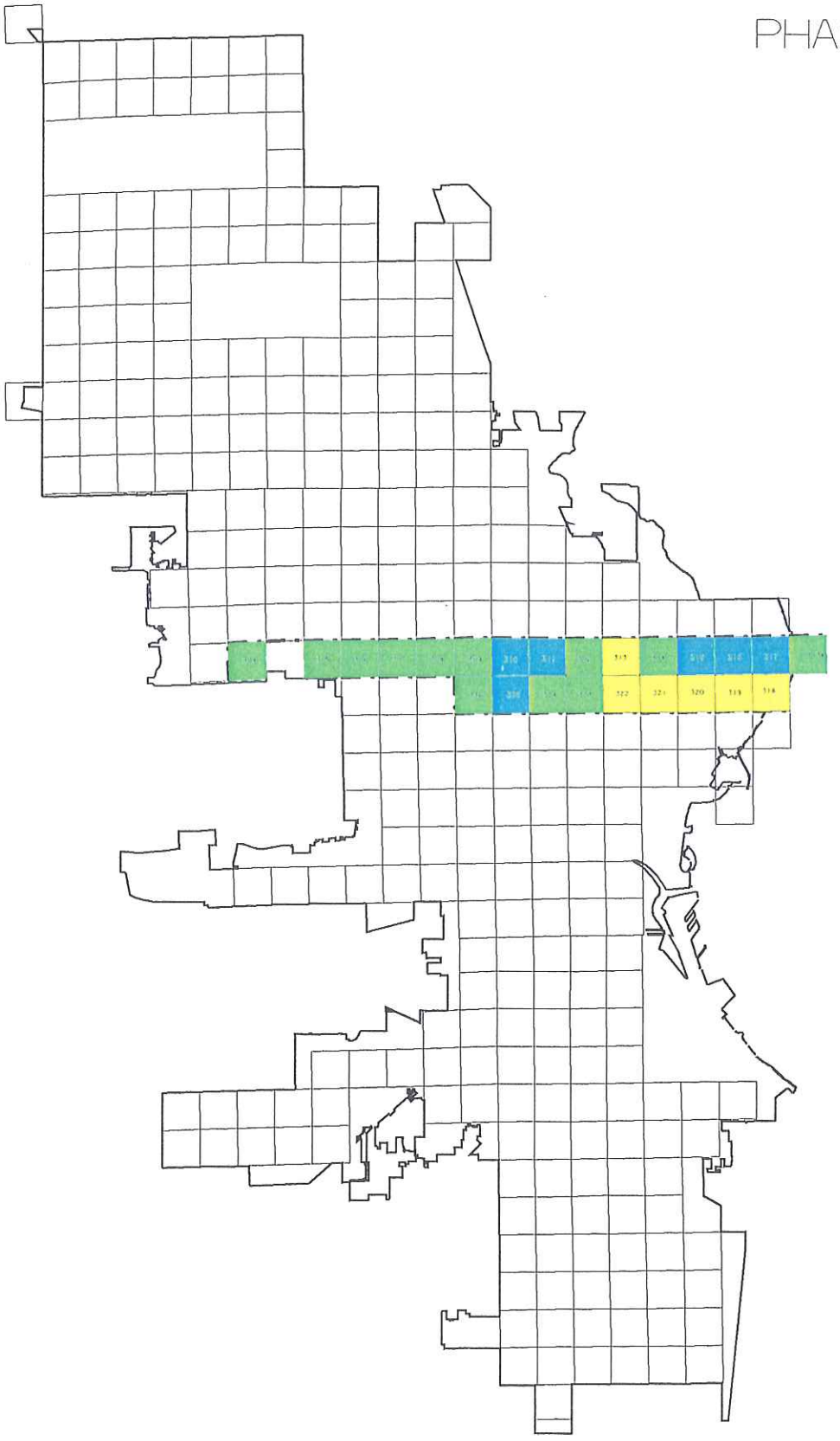
Contract dated 10/99
93 quarter sections
Boundary

STATUS AS OF 08/12/02

PREPARED BY: CITY OF MILWAUKEE - ITMD/GIS

MCAMLIS Transformation Project Progress Map

PHASE 4



Legend

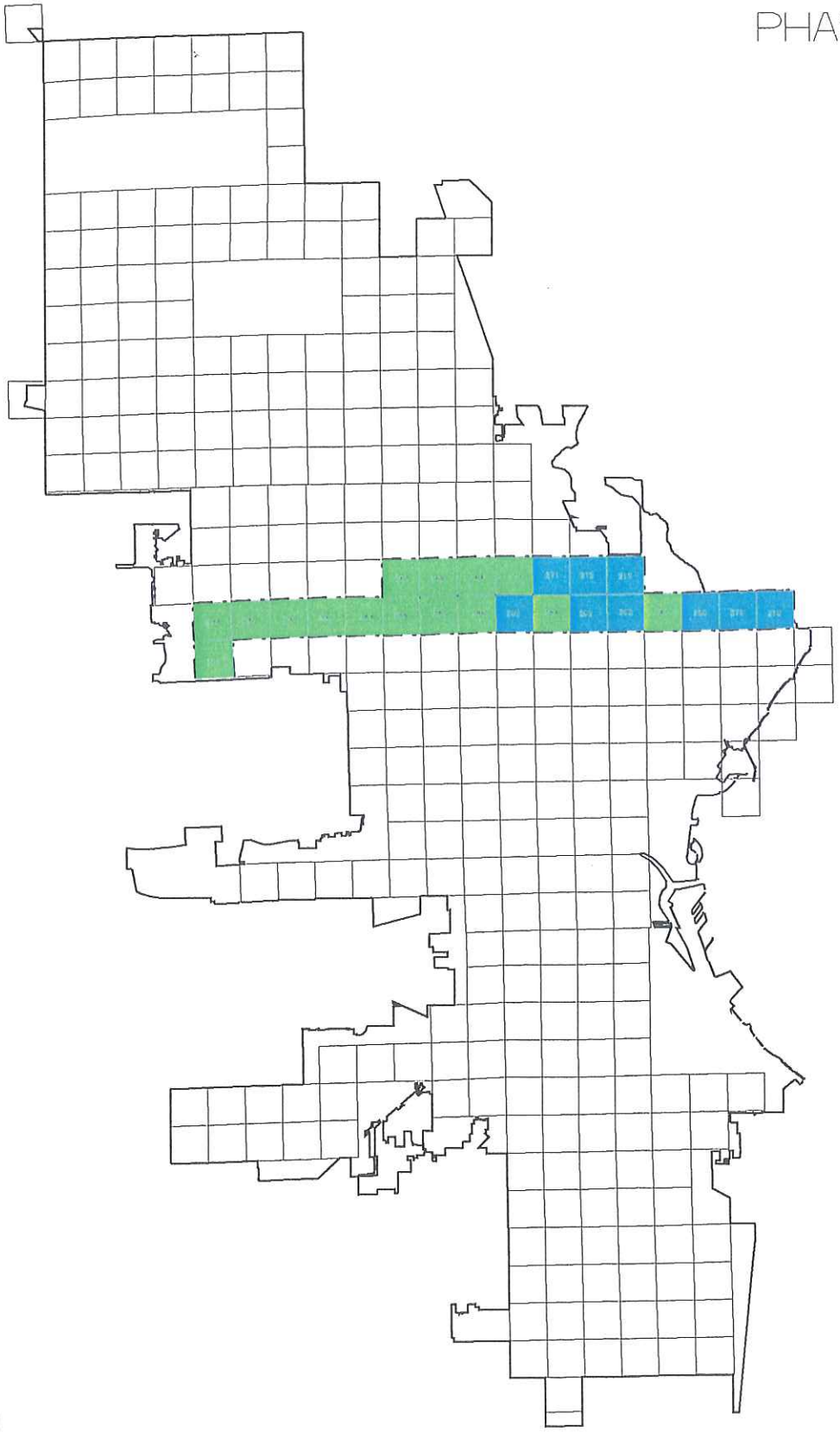
- Accepted (12)
- Delivered (6)
- In Progress (6)
- Contract dated 03/01 24 quarter sections Boundary

STATUS AS OF 08/12/02

PREPARED BY: CITY OF MILWAUKEE - ITMD/GIS

MCAMLIS Transformation Project Progress Map

PHASE 5



Legend

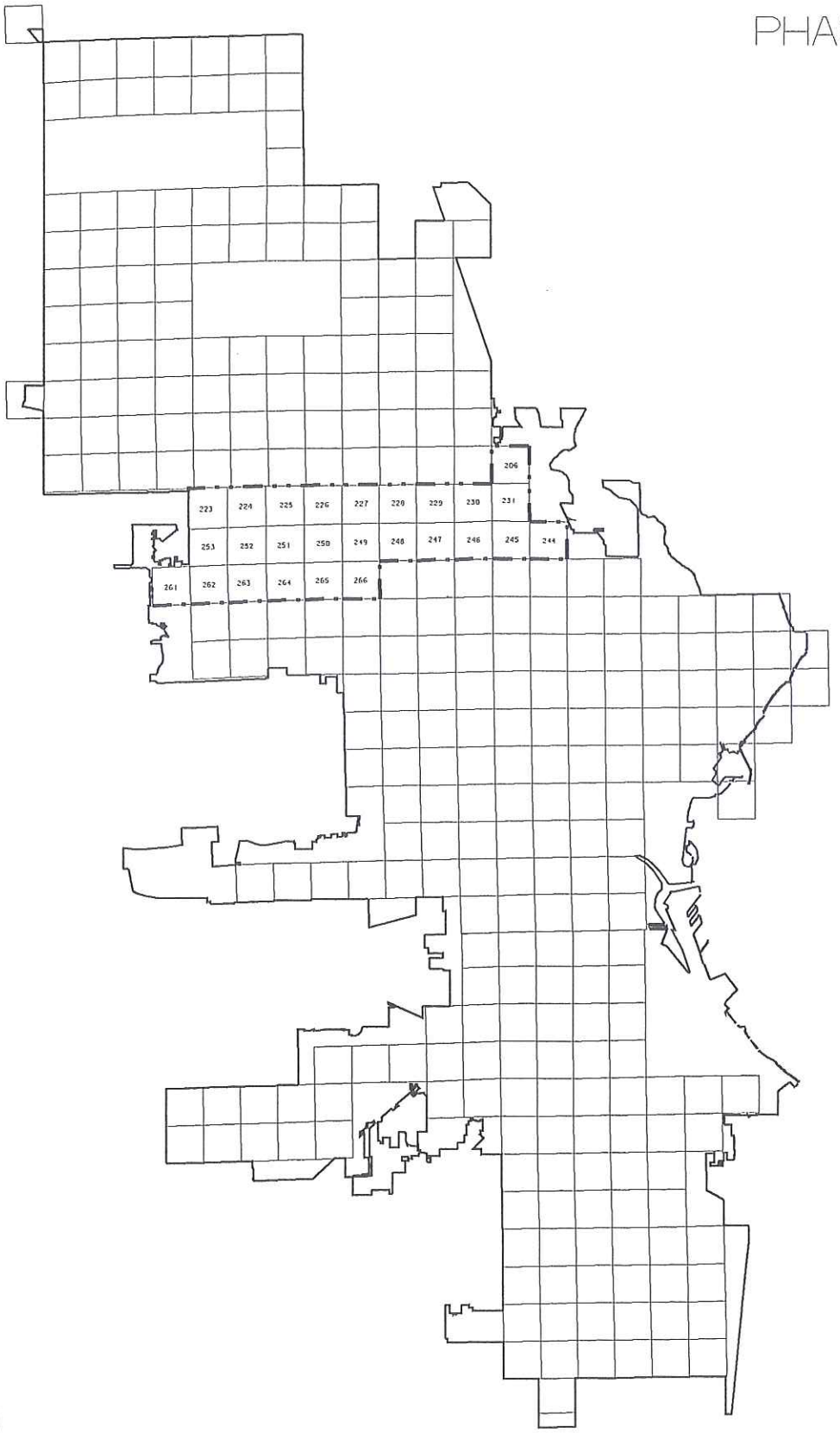
- Accepted (15)
- Delivered (9)
- In Progress (0)
- Contract dated 03/01
  24 quarter sections
  Boundary

STATUS AS OF 08/12/02

PREPARED BY: CITY OF MILWAUKEE - ITMD/GIS

MCAMLIS Transformation Project Progress Map

PHASE 6



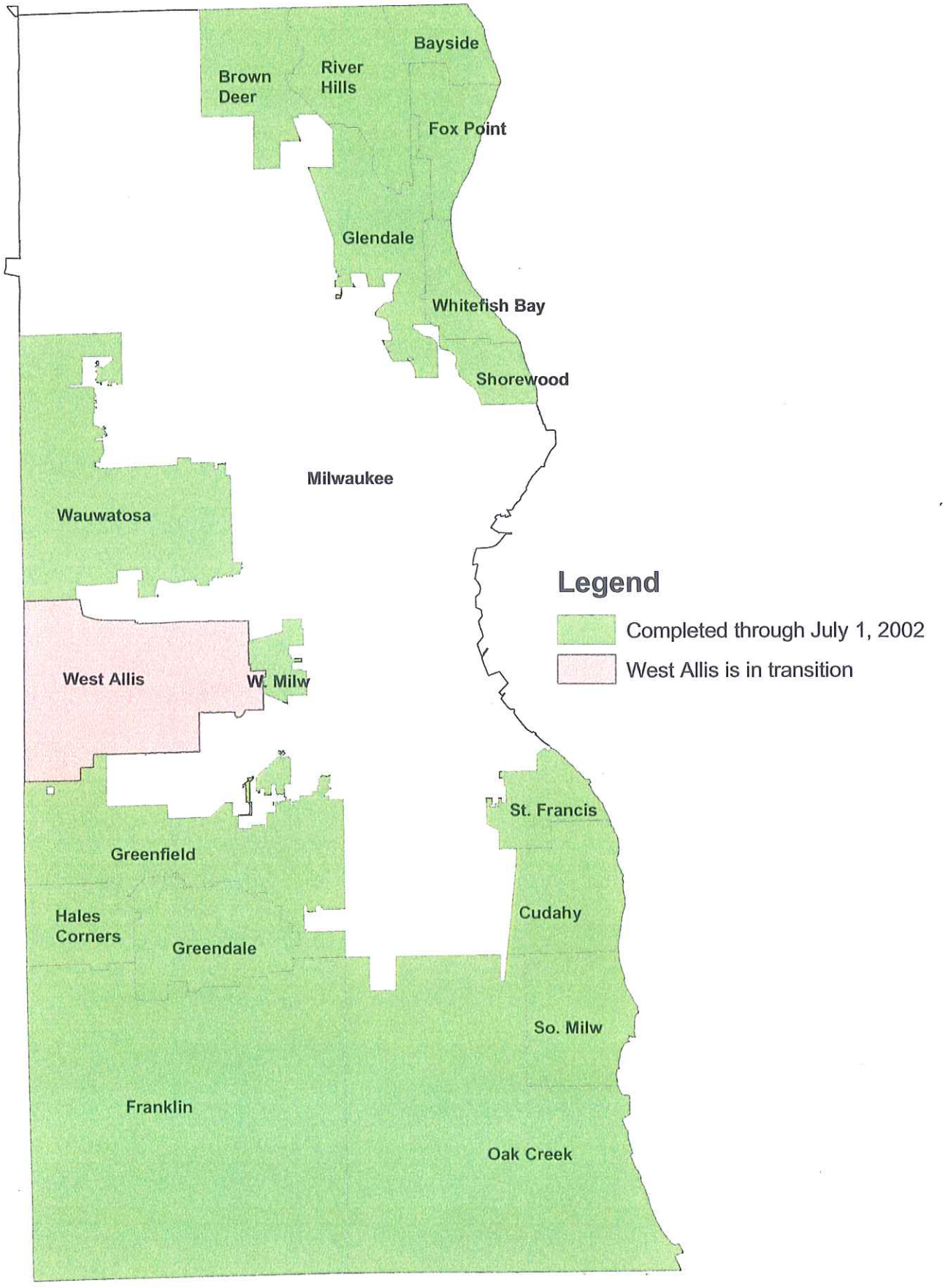
Legend

- Accepted (0)
- Delivered (0)
- In Progress (0)
- Contract dated 03/01 24 quarter sections Boundary

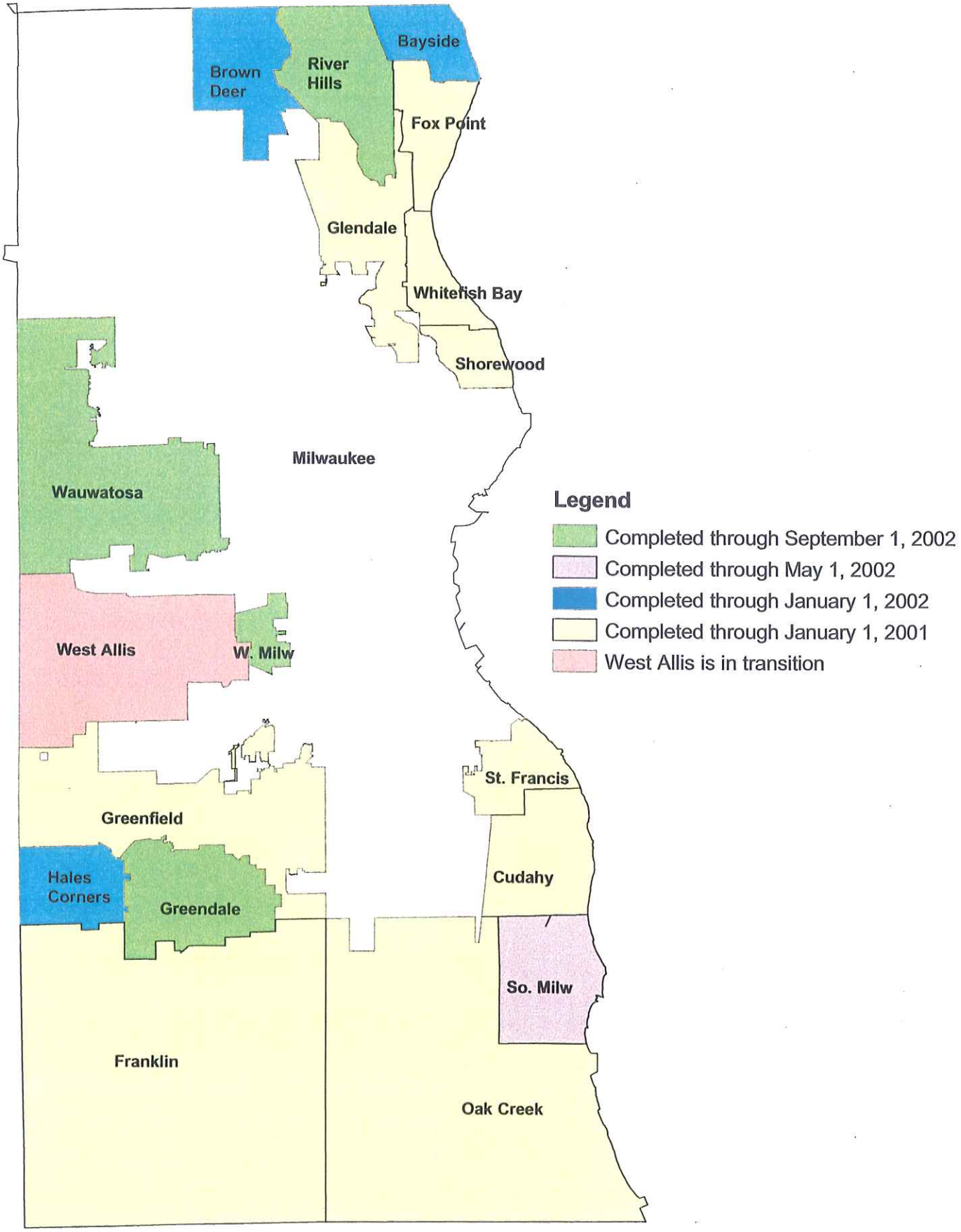
STATUS AS OF 08/12/02

PREPARED BY: CITY OF MILWAUKEE - ITMD/GIS

Milwaukee County Cadastral Status as of September 20, 2002



Milwaukee County Address Status as of September 20, 2002



REQUESTED 2003 BUDGET

DEPT: MILWAUKEE COUNTY AUTOMATED LAND INFORMATION SYSTEM **UNIT NO.** 1923
FUND: General - 0001

OPERATING AUTHORITY & PURPOSE

Pursuant to Sections 15.105(16), 16.971, 20.505(4)(im) and 59.72 of the Wisconsin Statutes and County Board Resolution File 90-707(a), approved on November 8, 1990, the Milwaukee County Automated Land Information System (MCAMLIS) may design, develop and implement a land information system integrating property and ownership records with U.S. Public Land Survey referenced parcel-identified boundary information; prepare boundary-referenced parcel property maps suitable for producing accurate land title or survey boundary line information; and prepare maps of documented accuracy suitable for local planning.

Pursuant to Section 59.43, funding for a land information office, modernization of land records and the State of Wisconsin Land Information Program and Board is collected via a seven-dollar surcharge on the County's existing four dollar Recording Fee. Four dollars of the additional seven-dollar surcharge are retained locally and specifically designated for expenditures associated with the creation, maintenance, and enhancement of the Milwaukee County Automated Land Information System within guidelines established by the Wisconsin Land Information Board (WLIB). One dollar of the additional seven-dollar surcharge is also retained locally and specifically designated for expenditures associated with land records modernization initiatives promulgated by the WLIB, also within guidelines established by the WLIB. (No portion of the four dollar and one dollar surcharges are available for general County purposes.) Two dollars of the additional seven-dollar surcharge are forwarded to the WLIB. (Assuming the State does not make changes to existing legislation, the $1 and $2 components of the $7 surcharge will no longer be collected effective September 1, 2003, due to changes made to Section 59.72 by 1997 Wisconsin Act 27. The $4 surcharge is unaffected by these changes.) The County continues to retain its four dollar share of the Recording Fee.

Previous Register of Deeds Recording Fees	$4
Fee for MCAMLIS	4
Fee for Land Records Modernization Initiatives	1
Fee for State Land Information Board	2
	$11

BUDGET SUMMARY

	2001 Actual	2002 Budget	2002 Budget	2002/2003 Change
Services	$ 787,620	$ 999,000	$ 999,000	$ 0
County Service Charges	0	1,000	1,000	0
Abatements	(1,529)	0	0	0
Total Expenditures	$ 786,091	$ 1,000,000	$ 1,000,000	$ 0
Encumbrances	0	0	0	0
Total Expenditures & Encumbrances	786,091	1,000,000	1,000,000	0
State Grants	325,997	250,000	150,000	(100,000)
Sewer District & Utility Contributions	0	0		0
Recording Fee Surcharge	816,945	750,000	850,000	100,000
Total Revenue	$ 1,142,942	$ 1,000,000	$ 1,000,000	$ 0
Contribution to Reserve Account	356,851	0	0	0
Property Tax Levy	$ 0	$ 0	$ 0	$ 0

BUDGET HIGHLIGHTS

- This appropriation provides 2003 expenditure authority of $1,000,000 for the Automated Land Information System. Revenue of $720,000 is projected to be collected from the four-dollar surcharge collected by the Register of Deeds earmarked for land information modernization by Section 59.72(5) of the *Wisconsin Statutes* and $130,000 is projected to be collected from the one-dollar surcharge, also covered under Section 59.72(5) *Wisconsin Statutes.* An additional $150,000 is expected to result from grants to be awarded to the County by the

Wisconsin Land Information Board (WLIB). Contributions to this project from the Private utilities, Ameritech, Wisconsin Electric and Wisconsin Gas, of $520,000 each, were completed in 1994. A contribution from the Milwaukee Metropolitan Sewerage District, also in the amount of $520,000 was completed in 2000. Milwaukee County is not required to provide tax levy dollars.

- Expenditure authority of $1,000,000 is comprised of $938,000, to continue to develop the automated base map and parcel-based land information system as provided for in the plan approved by the County Board; $60,000 for surveying services provided by the Southeastern Wisconsin Regional Planning Commission (SEWRPC) in performance of its duties as the Milwaukee County Surveyor under the requirements of Section 59.60, *Wisconsin Statutes*; $1,000 to obtain subdivision and map survey prints from the Register of Deeds; and $1,000 for meeting and travel expenses. All of these amounts are unchanged from 2002.

- With the exception of that portion of the County comprised of the City of Milwaukee, work on the initial digital base map was largely completed by the end of 1998. By the end of 1999, work on the creation of a street address and real property parcel database linked to the digital maps was also completed, again for that portion of the County outside the City of Milwaukee. Also during 1999, activities related to an ongoing maintenance effort were initiated to ensure that the automated base map is kept up-to-date for that portion of the County outside the City of Milwaukee. These activities continued during 2000, 2001, and 2002.

- During 1999, an update and extension of the County Land Records Modernization Plan was prepared and submitted to the Wisconsin Land Information Board (WLIB) in accordance with program requirements. The preparation of the updated Land Records Modernization Plan was needed to maintain County eligibility to retain Register of Deeds filing fees and to continue to receive grants under the provisions of the Wisconsin Land Information Program. The updated and extended plan was approved by the WLIB during 2000.

- The automated mapping base is to be enhanced by the creation of additional layers of information useful to County and local government. For example, during 2000, a digital land use mapping layer was completed. During 2002, an integrated set of administrative, legislative, and statistical area boundary overlay maps was completed. The preparation of a flood plain layer was initiated in 2001. This work continued during 2002 and will continue during 2003 and 2004.

- During 2000 a major multi-year project to integrate the existing City of Milwaukee digital cadastral mapping into the County-wide system was initiated. This effort, which will continue during 2003, will require two to three additional years to complete and will require a total expenditure of between $1,500,000 and $2,000,000.

EXECUTED LICENSE AGREEMENTS

FOR THE USE OF MCAMLIS COPYRIGHTED
DIGITAL BASE MAPPING MATERIALS
BEGINNING OCTOBER 24, 1995

Number of Executed Agreements		Licensee	Effective Date
Since 1995	For 1995	**1995**	
1.	1.	City of Milwaukee	10/24/95
2.	2.	City of West Allis	11/27/95
3.	3.	City of Oak Creek	11/29/95
4.	4.	Village of Brown Deer	12/21/95
Since 1995	For 1996	**1996**	
5.	1.	City of Cudahy	1/2/96
6.	2.	Wisconsin Department of Natural Resources	2/12/96
7.	3.	City of Glendale	7/29/96
8.	4.	Village of Bayside	10/25/96
9.	5.	City of Wauwatosa	10/30/96
10.	6.	Riveredge Nature Center, Inc.	12/19/96
Since 1995	For 1997	**1997**	
11.	1.	City of Greenfield	1/22/97
12.	2.	Village of Whitefish Bay	3/31/97
13.	3.	Village of West Milwaukee	4/1/97
14.	4.	Wisconsin Department of Transportation	4/17/97
15.	5.	American Design, Inc.	4/23/97
16.	6.	Land Information Services, Inc.	5/6/97
17.	7.	Village of Hales Corners	5/28/97
18.	8.	City of Franklin	6/20/97
19.	9.	K. Singh and Associates, Inc.	7/8/97
20.	10.	City of South Milwaukee	10/23/97

EXECUTED LICENSE AGREEMENTS

Number of Executed Agreements		Licensee	Effective Date
Since 1995	For 1998	**1998**	
21.	1.	Whitnall School District	1/21/98
22.	2.	Mr. Norbert S. Theine	2/25/98
23.	3.	Durrant Architects	6/17/98
24.	4.	Miller Engineers and Scientists	7/2/98
25.	5.	Village of Fox Point	7/14/98
26.	6.	Forest Home Cemetery	9/3/98
27.	7.	University of Wisconsin-Madison	11/17/98
28.	8.	Wisconsin Lutheran College	12/8/98
Since 1995	For 1999	**1999**	
29.	1.	Village of River Hills	2/9/99
30.	2.	Buettner and Associates, Inc.	2/25/99
31.	3.	Ruekert &Mielke, Inc.	3/3/99
32.	4.	Kapur & Associates, Inc.	3/8/99
33.	5.	Jesse Voss, Architect, Arquitectura	3/19/99
34.	6.	Michael J. Losik & Associates, Inc.	4/1/99
35.	7.	CH2M Hill	5/13/99
36.	8.	TSP, Inc. (DBA the Shephard Partnership)	5/21/99
37.	9.	JJR Incorporated	6/21/99
38.	10.	Eppstein Uhen Architects	7/2/99
39.	11.	Northwind Technical Services, Inc.	8/2/99
40.	12.	Sixteen Street Community Health Center	9/10/99
41.	13.	Metropolitan Survey Service	10/1/99
42.	14.	Engberg Anderson Design Partnership, Inc.	11/10/99
43.	15.	The Cathedral of St. John the Evangelist	11/22/99
44.	16.	City of St. Francis	12/8/99

EXECUTED LICENSE AGREEMENTS

Number of Executed Agreements		Licensee	Effective Date
Since 1995	For 2000	**2000**	
45.	1.	The Kubala Washatko Architects, Inc.	3/6/00
46.	2.	The Archdiocese of Milwaukee Catholic Cemeteries	3/21/00
47.	3.	Kahler Slater Architects, Inc.	4/14/00
48.	4.	Bradley Technology and Trade School Foundation, Inc.	6/23/00
49.	5.	TDI Associates, Inc.	6/23/00
50.	6.	Triad Engineering Incorporated	6/26/00
51.	7.	LaDallman Architects, Inc.	6/30/00
52.	8.	The Zimmerman Design Group	7/17/00
53.	9.	Mr. James Dicker	7/21/00
54.	10.	Thompson Dyke & Associates, Ltd.	8/31/00
55.	11.	Mr. James Piwoni	9/13/00
56.	12.	Mr. Brian Wishne	10/20/00
57.	13.	Ms. Pamela Zipperer	10/25/00
58.	14.	Village of Greendale	11/13/00
59.	15.	University of Wisconsin-Milwaukee	12/5/00
60.	16.	Wisconsin Center District Mr. Charles C. Pesano, CFO	12/20/00
Since 1995	For 2001	**2001**	
61.	1.	Landcraft Survey and Engineering, Inc.	1/18/01
62.	2.	Owen Ayres & Associates, Inc.	1/23/01
63.	3.	Wisconsin State Fair Park	2/26/01
64.	4.	Natural Resource Technology, Inc.	3/16/01
65.	5.	Village of Shorewood	3/28/01
66.	6.	Hammel, Green and Abrahamson, Inc.	4/24/01
67.	7.	Reynolds, Smith and Hills, Inc.	7/12/01
68.	8.	Rettler Corporation	9/12/01
69.	9.	Milwaukee Institute of Art and Design	9/21/01

EXECUTED LICENSE AGREEMENTS

Number of Executed Agreements		Licensee	Effective Date
Since 1995	For 2002	**2002**	
70.	1.	Urban Ecology Center, Inc.	01/28/02
71.	2.	PBS & J	02/19/02
72.	3.	Schlitz Audubon Nature Center	03/18/02
73.	4.	URS Corporation	05/10/02
74.	5.	Architects/Planners	05/22/02
75.	6.	STS Consultants, Ltd.	07/19/02
76.	7.	HNTB Corporation	07/26/02
77.	8.	Farr Associates, Inc.	08/06/02
78.	9	Welch Hanson Associates	08/23/02
79.	10	Walker Parking Consultants, Inc.	08/27/02

	1990 Actual	1991 Actual	1992 Actual	1993 Actual	1994 Actual	1995 Actual	1996 Actual	1997 Actual	1998 Actual	1999 Actual	2000 Actual	2001 Actual	8/312002 Actual	TOTAL
Beginning Period Reserve-January 1	0	283,340	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	183,752
Mid-Year Reserve Changes	0	0	0	0	0	0	0	0	0	0	0	0		0
Current Period Reserve	0	283,340	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	183,752
Recording Fees (**$4.00** Portion)	101,886	324,983	612,592	676,093	647,355	503,342	574,328	644,508	769,820	773,078	609,683	743,977	563,548	7,545,193
Recording Fees (**$1.00** Portion)												72,968	141,625	214,593
State Grants	0	0	0	150,000	200,000	165,000	138,500	55,300	139,226	152,270	103,895	325,997	33,250	1,463,438
1 Private Utility Contributions	312,000	312,000	312,000	312,000	312,000	0	0	0	0	0	0	0		1,560,000
2 MMSD Contribution	0	0	0	50,000	50,000	50,000	50,000	50,000	50,000	50,000	170,000	0		520,000
Annual Revenue	413,886	636,983	924,592	1,188,093	1,209,355	718,342	762,828	749,808	959,046	975,348	883,578	1,142,942	738,423	11,303,224
TOTAL FUNDS AVAILABLE	413,886	920,323	1,420,514	1,761,142	1,504,485	1,778,755	2,073,474	2,024,667	2,041,364	2,101,100	1,992,266	1,707,402	922,175	11,486,976
Additional Encumbrance	100,000	22,075	534,849	272,943	-900,864	112,067	308,902	367,776	361,580	386,754	586,545	737,559	557,839	3,448,025
Legal Fees	0	350	600	0	0	0	0	0	0	0	0	0		950
Systems Consulting (UGC)	0	128,638	0	0	0	0	0	0	0	0	0	0		128,638
USPLS Remonumentation	0	41,260	0	0	0	0	0	0	0	0	0	0		41,260
Horizontal/Vertical Control Surveys	0	144,443	0	0	0	0	0	0	0	0	0	0		144,443
Aerial Photos/Mapping	21,555	17,925	292,060	1,178,794	1,340,370	356,953	490,821	576,268	556,108	608,450	842,594	787,620	802,638	7,872,155
Project Facilitator	8,991	73,567	21,650	14,995	0	0	0	0	0	0	0	0		119,203
Conference	0	59	1,046	319	0	0	528	0	0	0	0	0		1,953
Project Conversion Costs														0
SEWRPC Staff and Training														0
Computer Hardware/Software														0
ROD Materials Copied	0	0	0	0	6,291	797	0	0	0	0	0	0		7,088
Computer Maintenance														0
Computer/Office Supplies	0	0	0	0	0	0	26	0	0	0	0	0		26
Rent and Utilities														0
Database Maintenance and Updates														0
Contractual Crosscharges	40	554	13	0	0	0	3	5	0	0	343	0	295	1,252
Charges Paid By Other Departments	0	-4,470	-2,752	-1,040	-1,724	-1,708	-1,664	-1,700	-2,116	-2,792	-1,676	-1,529	-1,380	-24,551
Miscellaneous									40	0	0	0		40
Annual Expenditures	30,586	402,326	312,616	1,193,069	1,344,936	356,042	489,713	574,573	554,032	605,658	841,261	786,091	801,553	8,292,457
TOTAL EXPS / ENCUMBRANCES	130,586	424,401	847,466	1,466,012	444,072	468,109	798,615	942,349	915,612	992,412	1,427,806	1,523,650	1,359,392	11,740,482
NET AVAIL FUNDS (END RESERVE)	283,300	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	-437,217	-253,506

1. 1994 was the final year for this revenue source.
2. $50,000 will be paid each year through 2002, and $20,000 in 2003.

AGREEMENT

THIS AGREEMENT, entered into this ____ day of _____, 2002, 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 (MCAMLIS) Steering Committee (hereinafter referred to as the "Steering Committee").

WITNESSETH:

WHEREAS, the Commission is authorized by Section 66.0309 of the Wisconsin Statutes to make studies and prepare plans for, and to provide advisory services to local governments, and to act as a coordinating agency for planning activities within its jurisdictional area; and

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 is 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 authorized the execution of a Cooperative Agreement between Milwaukee County and the public and private utilities serving Milwaukee County, which Cooperative Agreement created a public-private partnership to implement the proposed Milwaukee County automated mapping and land information system, whereby the County and the utilities involved agreed to jointly fund the development of the Milwaukee County automated mapping and land information system; and

WHEREAS, the aforementioned Cooperative Agreement further created a Steering Committee to provide oversight in the implementation of the Milwaukee County automated mapping and land information system and delegated to the 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 Steering Committee on July 29, 1991, formally requested the Commission to accept the responsibilities of Project Manager of the Milwaukee County automated mapping and land information system; and

WHEREAS, the Executive Committee of the Commission on August 21, 1991, authorized Commission assistance in execution of the work required to implement the Milwaukee County automated mapping and land information system in the manner envisioned in the aforereferenced Commission report; 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. General

The City of Milwaukee maintains a full set of large-scale cadastral maps in both digital and hard copy format. These maps have been prepared by the City of Milwaukee over many years but do not meet Milwaukee County Automated Mapping and Land Information System (MCAMLIS) standards in that the City cadastral maps do not fit ground truth as derived from the MCAMLIS control survey network and large-scale topographic maps. Major discrepancies exist between the City cadastral maps and such physical features as street curb lines, building outlines, lake and stream shorelines, flood hazard area boundaries, and the location of horizontal control survey stations.

In order to eliminate these discrepancies, MCAMLIS and the City of Milwaukee have undertaken a cooperative program under which the City is taking steps to integrate its existing digital mapping with the MCAMLIS program. By the end of 2001, the City had finished a project to recompile its cadastral maps to fit MCAMLIS survey control and ground truth as provided by the MCAMLIS topographic maps for 40 of the total of the 353 one-quarter section cadastral maps which cover the area of the City. The map recompilation effort was carried out by the City of Milwaukee Bureau of Engineering staff and funded by MCAMLIS and a Wisconsin Land Information Program (WLIP) grant.

The remaining 313 one-quarter section cadastral maps are to be transformed by computer manipulation to fit the MCAMLIS survey control network and ground truth provided by the MCAMLIS topographic maps. The computer transformation effort is being carried out by the City of Milwaukee Information and Technology Management Division staff, also funded by MCAMLIS and by WLIP grants. The computer transformation work is being undertaken in phases based principally upon the timing surrounding the availability of funding through the WLIP grants-in-aid program. As of September 30, 2001, six phases of this work had been initiated and two phases--representing a total of 48 one-quarter section-based maps--had been completed. The remaining four phases--representing a total of 167 one-quarter section-based maps--were in varying stages of completion.

II. Scope of Services

This project--the seventh phase of the computer transformation work--will result in the transformation of an additional 24 U.S. Public Land Survey City one-quarter section cadastral maps by computer manipulation to fit the MCAMLIS control survey network and the ground truth provided by MCAMLIS large-scale topographic maps. The maps will contain parcel identification numbers that will permit the ready linkage of attribute data to real property parcels by computer. The transformed maps will be available in both digital and hard copy format, and will be suitable for integration into the MCAMLIS digital map database. The geographic area covered by this seventh phase project is delineated on the map attached hereto as Exhibit A.

The Commission agrees to prepare necessary contract documents and specifications; administer the resultant contract with the City of Milwaukee Information and Technology Management Division; and provide the quality control services necessary to ensure that transformed City digital cadastral maps meet the MCAMLIS specifications and standards.

III. Compensation

The Steering Committee shall pay to the Commission the sum of $129,345 as full payment for the services described in Section II. The Commission will in turn pay the City from this amount for its services.

IV. Method of Compensation

The Commission shall submit invoices to the Steering Committee during the progress of the work for partial payment on account for work completed to date. The Steering Committee shall pay to the Commission the amounts shown on the invoices upon receipt of said invoices.

V. Timing

The work to be performed under this Agreement shall be completed no later than April 30, 2004.

VI. 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.

VII. 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 Wisconsin 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.

VIII. Authorization

The Steering Committee approved the project that is the subject of this Agreement by action taken at a regular meeting held on October 8, 2002.

PCE/TDP/mlh/wb
#32096 v5 - mcamlis-sewrpc agrmnt

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

ATTESTING WITNESS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

By_____
Philip C. Evenson
Deputy Secretary

By_____
Thomas H. Buestrin
Chairman

ATTESTING WITNESS

MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM STEERING COMMITTEE

By_____
Thomas D. Patterson
MCAMLIS Project Manager

By_____
Kurt W. Bauer
Chairman

APPROVED AS TO FORM

_____
Timothy Schoewe (Date)
Milwaukee County Corporation Counsel

REVIEWED AS TO INDEMNIFICATION AND INSURANCE

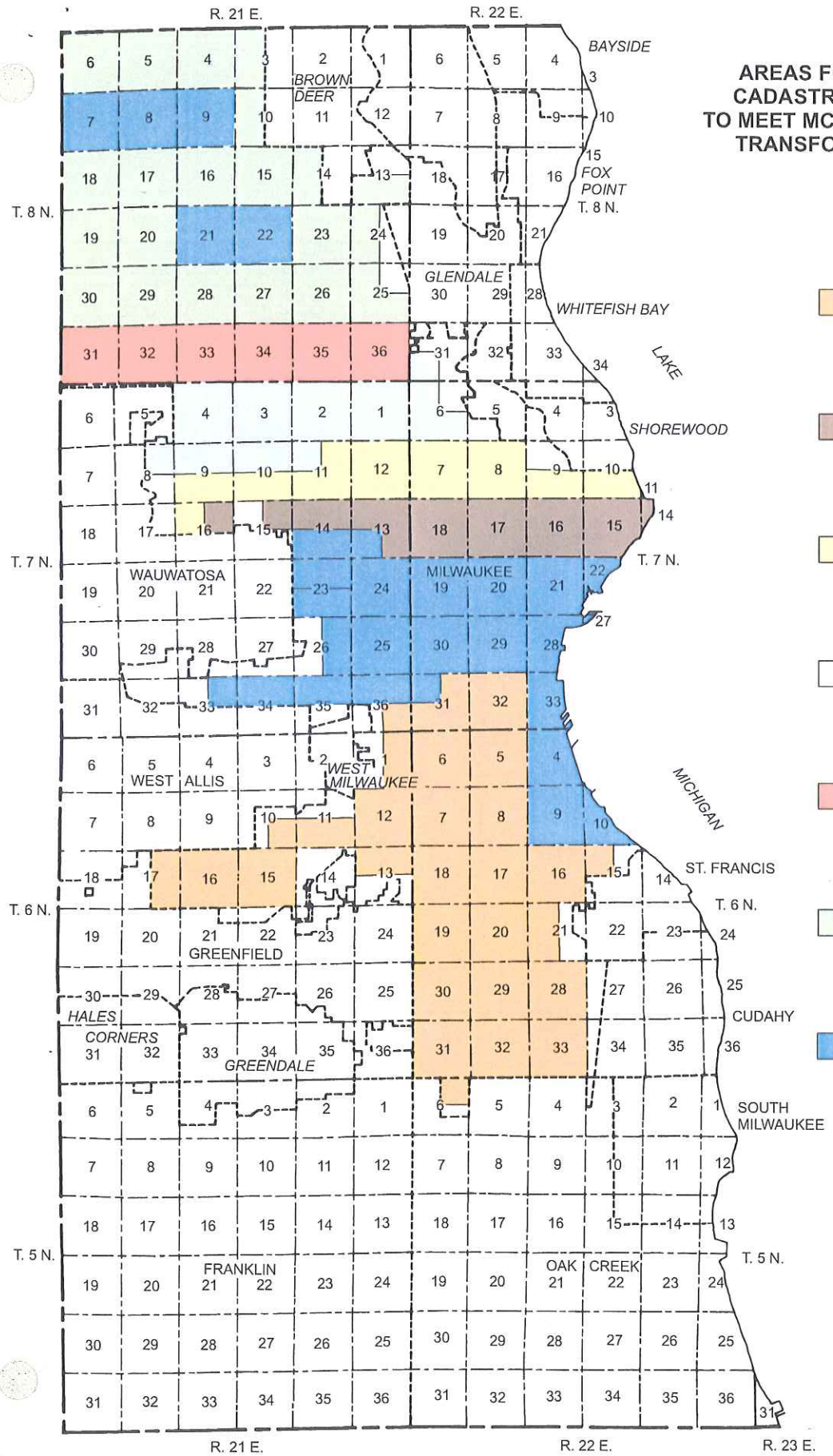
_____
John R. Rath (Date)
Milwaukee County Department of Risk Management

APPROVED AS TO CHAPTER 42 DBE PROVISIONS

_____
David W. Stokes (Date)
Milwaukee County DBD Director

Exhibit A

AREAS FOR WHICH CITY OF MILWAUKEE CADASTRAL MAPS ARE TO BE ADJUSTED TO MEET MCAMLIS STANDARDS BY COMPUTER TRANSFORMATION AND RECOMPILATION



LEGEND

- CITY OF MILWAUKEE U. S. PUBLIC LAND SURVEY ONE-QUARTER SECTION CADASTRAL MAPS TO BE ADJUSTED BY COMPUTER TRANSFORMATION TO MEET MCAMLIS STANDARDS FIRST PHASE (93)
- CITY OF MILWAUKEE U. S. PUBLIC LAND SURVEY ONE-QUARTER SECTION CADASTRAL MAPS TO BE ADJUSTED BY COMPUTER TRANSFORMATION TO MEET MCAMLIS STANDARDS FOURTH PHASE (24)
- CITY OF MILWAUKEE U. S. PUBLIC LAND SURVEY ONE-QUARTER SECTION CADASTRAL MAPS TO BE ADJUSTED BY COMPUTER TRANSFORMATION TO MEET MCAMLIS STANDARDS FIFTH PHASE (24)
- CITY OF MILWAUKEE U. S. PUBLIC LAND SURVEY ONE-QUARTER SECTION CADASTRAL MAPS TO BE ADJUSTED BY COMPUTER TRANSFORMATION TO MEET MCAMLIS STANDARDS SIXTH PHASE (26)
- CITY OF MILWAUKEE U. S. PUBLIC LAND SURVEY ONE-QUARTER SECTION CADASTRAL MAPS TO BE ADJUSTED BY COMPUTER TRANSFORMATION TO MEET MCAMLIS STANDARDS SEVENTH PHASE (24)
- CITY OF MILWAUKEE U. S. PUBLIC LAND SURVEY ONE-QUARTER SECTION CADASTRAL MAPS TO BE ADJUSTED BY COMPUTER TRANSFORMATION TO MEET MCAMLIS STANDARDS SUBSEQUENT PHASES (73)
- CITY OF MILWAUKEE U. S. PUBLIC LAND SURVEY ONE-QUARTER SECTION CADASTRAL MAPS MEETING MCAMLIS STANDARDS. COMPLETED PROJECTS (88)

GRAPHIC SCALE
0 1/2 1 MILE
0 4000 8000 FEET

September 23, 2002

AGREEMENT

THIS AGREEMENT, entered into this ____ day of _____, 2002, 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; 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. Record and maintain a file of all land survey plats prepared by land surveyors for parcels in Milwaukee County. An estimated 2,000 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 2,200 monuments and attendant reference benchmarks, the removal and/or replacement of such monuments and reference benchmarks 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 and to cross reference all files of surveys under five headings. The five headings are:

A. Numerically by U.S. Public Land survey township, range, section, quarter section, and record of survey.

B. Alphabetically by minor civil division (city or village).

C. Alphabetically by the property owner or client for whom the survey was completed.

D. Alphabetically by the name of the land surveyor employed by the property owner or client.

E. Chronologically by the date of the survey.

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 on a quarterly basis to transmit updated copies of the five lists

identified in paragraph 2 above. These updated lists shall be provided to the Milwaukee County Director of Public Works, the Milwaukee County Register of Deeds, selected city and village engineers within the County, and all land surveyors who have submitted records of surveys to the Commission for indexing and filing.

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 $60,000.00 as full payment for the services described herein.

VI. Method of Compensation

The Commission shall submit a single invoice in the amount of $60,000.00 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, 2003, through December 31, 2004.

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. Authorization

The Steering Committee approved the execution of this Agreement by action taken on October 8, 2002.

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

ATTESTING WITNESS

By_____
Philip C. Evenson
Deputy Secretary

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

By_____
Thomas H. Buestrin
Chairman

ATTESTING WITNESS

By_____
Thomas D. Patterson
Project Manager

MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM STEERING COMMITTEE

By_____
Kurt W. Bauer
Chairman

APPROVED AS TO FORM

By_____
Timothy R. Schoewe (Date)
Milwaukee County Corporation Counsel

REVIEWED AS TO INDEMNIFICATION AND INSURANCE

By_____
John R. Rath (Date)
Milwaukee County Department of Risk Management

APPROVED AS TO CHAPTER 42 DBE PROVISIONS

_____
David W. Stokes (Date)
Milwaukee County DBD Director

PCE/KWB/TDP/rj
#42501 v1 - MCAMLIS-SEWRPC Agrmt 2002

DEPARTMENT OF PUBLIC WORKS

Milwaukee County

September 26, 2002

Kurt W. Bauer, Chairman
Milwaukee County Automated Mapping and
Land Information System Steering Committee
W239 N1812 Rockwood Drive
Waukesha, WI 53188-1113

Dear Mr. Bauer,

As you know the Southeastern Wisconsin Regional Planning Commission provides project management services to the MCAMLIS Steering Committee. The current agreement expires on December 31, 2002. The cooperative agreement between Milwaukee County, Milwaukee Metropolitan Sewerage District, Ameritech, Wisconsin Electric Power Company, and Wisconsin Gas Company that created the MCAMLIS Steering Committee, calls for Milwaukee County to eventually assume the management of the MCAMLIS project. Additionally, the updated Land Records Modernization Plan for Milwaukee County (1999) specifically calls for the identification and establishment of a permanent institutional structure for custody and management of MCAMLIS. Therefore, we would like to propose the transition of selected MCAMLIS project management responsibilities to Milwaukee County Department of Public Works as shown on the attached.

On several occasions, the Commission staff has asked Milwaukee County Department of Public Works whether or not it was prepared to undertake MCAMLIS project management. At those times, after assessing the Department of Public Works capabilities, we had to decline. In July 2002, Milwaukee County Department of Public Works asked the Commission staff to detail the scope of MCAMLIS project management responsibilities. After several meetings with the Commission staff and internal discussions, we believe the Milwaukee County Department of Public Works is prepared to assume selected MCAMLIS project management responsibilities.

MILWAUKEE COUNTY-CITY CAMPUS • 2711 WEST WELLS STREET • MILWAUKEE, WI 53208
FAX NUMBERS: Director's Office 223-1899 • Architecture & Engineering 223-1366 • Transportation 223-1850
Administrative Support Services 223-1803

To make this transition as seamless as possible for the MCAMLIS Steering Committee, we are proposing a two year, three phase transition period. Enclosed are a breakdown of the MCAMLIS project management responsibilities, as provided by the Commission staff, and our preliminary transition plan.

We request that the MCAMLIS Steering Committee take this under consideration at its earliest convenience.

Sincerely,

Thomas D. Kenny, Acting Director
Milwaukee County Department of Public Works

Enclosures: MCAMLIS Project Management Responsibilities, MCAMLIS Proposed Transition Plan
Cc: Gregory G. High, Director, Architectural, Engineering & Environmental Services Division, Milwaukee County Department of Public Works
Gary A. Drent, Support Services Section, Milwaukee County Department of Public Works

MCAMLIS Proposed Transition Plan

To make this transition as seamless as possible for the MCAMLIS Steering Committee, we are proposing a two year, three phase transition period. The plan is broken down into three separate phases. The responsibilities detailed in each of the phases correspond to the project management responsibilities outlined by the Commission staff. The intent of the transition plan is not that the phases need to be complete to initiate the next phase, rather that they overlap to provide for a more balanced changeover.

Phase 1

Milwaukee County Department of Public Works would assume the responsibility for the day to day operations services of the MCAMLIS program. This would include housing the MCAMLIS produced end products, handling requests for the distribution of MCAMLIS produced products as approved by the Steering Committee, and researching and implementing new hardware and software data transfer protocols and standards. Also, this would include routine maintenance of the MCAMLIS data server and the integration of new materials, as they become available.

Phase 2

Milwaukee County Department of Public Works would provide the professional staff services necessary to mange MCAMLIS projects. This would include identification and recommendation of projects to be carried out by the MCAMLIS program, the fiscal management of MCAMLIS projects, and quality control of end products produced under MCAMLIS contracts.

Phase 3

Milwaukee County Department of Public Works would assume the responsibilities of the preparation and submittal of grant applications to the Wisconsin Land Information Board, fiscal monitoring and reporting of grant awards and providing technical support to Milwaukee County LIO for updating land records plans.

NOTE: At this time no fiscal budget has been prepared. After MCAMLIS Steering Committee has agreed conceptually to the plan and Milwaukee County Department of Public Works has had more in depth discussions with the Commission staff, a more detailed budget can be proposed.

****

MCAMLIS Project Management Responsibilities

I. MCAMLIS Steering Committee Coordination (Remain SEWRPC Responsibility)

- Organization of meetings
- Preparation of agendas
- Organization of material prior to meetings
- Completion of minutes following meetings
- Follow-up on any assignments made.

II. WLIP Coordination (Phase III Implementation)

- Monitoring of program activities
- Preparation of grant applications
- Dealing with State staff to resolve issues and questions
- Negotiation of grant agreements following awards
- Writing and filing of project completion reports for grant-funded MCAMLIS projects
- Fiscal monitoring of grant awards

III. Distribution of MCAMLIS Digital Mapping Materials (Phase I Implementation)

- Answering general inquires
- Providing consultation on specific products
- Securing and filing executed MCAMLIS license agreements
- Managing copyright requirements and distributing data

IV. Coordination MCAMLIS Budget Preparation and Accounting Activities with Milwaukee County Staff (Phase II Implementation)

- Preparation of annual budget
- Monitoring of project revenues and expenditures and other associated tasks
- Interaction with County staff to carry out the annual Milwaukee County single audit

V. General Project Management (Phase II Implementation)

- Conceptual development of individual projects
- Development of project specifications, where needed
- Writing contracts
- Preparing invoices to draw down funds as expended
- Payment of subcontractors
- Associated record keeping

VI. General Maintenance of MCAMLIS Data Holdings and Introduction of New Material to Archive Files (Phase I Implementation)

- Occasional reorganization for more efficient storage and other associated tasks
- Data file translations
- General maintenance activities, including backups

VII. Clerical and Technical Staff Support for Above-Listed Activities (Excluding SEWRPC Responsibilities)

MEMORANDUM

TO: MCAMLIS Steering Committee

FROM: MCAMLIS Project Staff

DATE: October 12, 2002

SUBJECT: MCAMLIS PROGRAM STRATEGIC ASSESSMENT FOR 2003 - 2005

OVERVIEW

Beginning with the 2000 budget year, the MCAMLIS Steering Committee began an accelerated work program funded in part by a 1999 year end surplus of MCAMLIS program funds—largely comprised of locally retained document recording fees that had accumulated during the second half of the 1990's—and a one-time increase in grant awards from the Wisconsin Land Information Program (WLIP) represented by the 1999 grant award cycle. During this time period, an annual expenditure level of $1,000,000 has been budgeted. Prior to 2000, an annual budgeted expenditure level of about $650,000 to $750,000 was typical. While it should still be possible to maintain a budgeted expenditure level of $1,000,000 in 2003 equivalent to expenditure levels established for 2000 through 2002, the fund surplus which existed at the beginning of 2000 has now been largely depleted. Over this time period, the year-end fund surplus has been reduced from approximately $1,110,000 at the end of 1999 to about $185,000 at the end of 2001.

Compounding this factor are anticipated significant decreases in funding from WLIP grants over the next two years and the scheduled elimination of the WLIP grant awards following the 2003 award cycle.[1] Accordingly, it will be necessary for the Steering Committee to begin scaling back its annual work program in line with anticipated decreased revenues, particularly beginning in 2004. This Memorandum is intended to set forth the magnitude of potential declines in revenue, provide estimates of anticipated future revenue levels, and lay out the possible MCAMLIS work tasks from among which the Steering Committee will need to make choices in view of these declining revenues.

REVENUES

The MCAMLIS program revenues have traditionally been generated from three sources—locally retained document filing fees collected under the provisions of the WLIP, WLIP grant awards, and utility contributions. The amounts received from these sources are set forth in Table 1.

---

[1] *Statutory authority for the collection of the document filing fees ($2 per document) used to fund the WLIP Grants-in-Aid Program will lapse on August 31, 2003. The Wisconsin Land Information Board will also discontinue operations on that date. The locally retained document filing fee ($4 per document) will continue in force beyond this date, barring changes to the State Statutes.*

Table 1

MCAMLIS REVENUES 1990-2002

Year	Document Filing Fees ($4 Portion)	Document Filing Fees ($1 Portion)[a]	WLIP Grant Receipts	Utility Contributions	Total
1990	$ 101,886[b,c]	--	--	$ 312,000	$ 413,886
1991	324,983[c]	--	--	312,000	636,983
1992	612,592	--	--	312,000	924,592
1993	676,093	--	$ 150,000	362,000	1,188,093
1994	647,355	--	200,000	362,000	1,209,355
1995	503,342	--	165,000	50,000	718,342
1996	574,328	--	138,500	50,000	762,828
1997	644,508	--	55,300	50,000	749,808
1998	769,820	--	139,226	50,000	959,046
1999	773,078	--	152,270	50,000	975,348
2000	609,683	--	103,895	170,000	883,578
2001	743,977	$ 72,968	325,997	0	1,142,942
2002 (7 Months)	423,301	106,337	33,250	0	562,888
Totals	$7,404,946	$179,305	$1,463,438	$2,080,000	$11,127,689

[a]Under current State Statutes, this fee will only be collected during the period September 1, 2001, through August 31, 2003.

[b]Collection of this fee did not begin until July 1, 1990.

[c]During the period July 1, 1990, through June 30, 1991, a $2 document filing fee was in effect. The fee was increased to $4 effective July 1, 1991.

Source: Milwaukee County Department of Administration and MCAMLIS Project Manager.

Locally Retained Document Filing Fees

The $4 document recording fee retained locally under the provisions of the WLIP has been the largest source of funding to date for the MCAMLIS Program. The $7,404,946 obtained from this source has accounted for about 66.5 percent of all MCAMLIS program revenues. During the period 1992[2] through 2001, annual revenue obtained from this source has ranged from a low of $503,342 in 1995, to a high of $773,078 in 1999, averaging about $665,478 per year over this period. Over the period 1997 through 2001, revenue obtained from this source has averaged about $708,213 per year.

As a practical matter, this $4 document filing fee is expected to be the sole source of funding for the MCAMLIS program beginning in 2005, barring changes to State Statutes.

Under the provisions of 2001 Wisconsin Act 16, a $1 per document filing fee is being assessed over the period September 1, 2001, through August 31, 2003, at which time this fee will lapse, barring changes to Wisconsin Statutes. During the first 11 months of this collection period, this fee has generated $179,305, or about 1.6 percent, of total program revenues. Unlike the $4 document filing fee, which can be expended by the MCAMLIS program for a wide range of tasks intended to implement the adopted Milwaukee County Land Records Modernization Plan, the Act has placed more stringent expenditure guidelines on the use of this category of retained fees. The implications of these restrictions will be discussed in the expenditure section of this memorandum.

[2] *1992 represents the first full calendar year during which the $4 per document filing fee was in force.*

WLIP Grant Awards

Grant awards received by the MCAMLIS Steering Committee from the WLIP constitute the third largest source of revenue for the MCAMLIS Program. The $1,463,438 obtained from this source has accounted for 13.2 percent of all MCAMLIS program revenues. Revenue from this source has ranged from a low of $55,300 in 1997, to a high of $325,997 in 2001. Revenue received by MCAMLIS from this source has been subject to somewhat erratic swings on an annual basis due, in part, to policy decisions made by the Wisconsin Land Information Board (WLIB) concerning the manner in which these funds are allocated to the counties, and, in part, to the timing of the award cycles.[3]

In view of policy decisions made by the WLIB and budgetary decisions made by the Wisconsin Department of Administration, the grant program will provide decreasing revenue over the next several MCAMLIS budget years. Under current State Statutes, grants will no longer be awarded after the 2003 award cycle. The revenue expected from this source from 2003 to 2006 is set forth in Table 2. Comparisons of these amounts with actual WLIP grant revenue for 2001 and 2002, also included in Table 2, serve to illustrate the decline of this revenue source over the next several MCAMLIS budget years.

Table 2

MCAMLIS WLIP GRANT REVENUE

Year	Amount
2001 Actual	$325,397
2002 Actual	197,679
2003 Budgeted	153,625[a]
2004 Estimated	98,836[b]
2005 Estimated	35,000[c]
2006 Estimated	35,000[d]

[a]Includes a $65,000 initial payment on an assumed $100,000 grant from the WLIP 2002 Grant Award cycle.

[b]Includes a $65,000 initial payment on an assumed $100,000 grant from the WLIP 2003 Grant Award cycle.

[c]Final payment on an assumed $100,000 grant from the WLIP 2002 Grant Award cycle.

[d]Final payment on an assumed $100,000 grant from the WLIP 2003 Grant Award cycle.

Source: MCAMLIS Project Manager

Utility Contributions

Contributions from Wisconsin Bell (now SBC Ameritech), the Wisconsin Electric Power Company, the Wisconsin Gas Company, (the Wisconsin Electric Power Company and the Wisconsin Gas Company

[3]*For example, the 1999 and 2000 award cycles were both initiated by the Wisconsin Land Information Board during 2000.*

have recently been combined into a single company—WE Energies), and the Milwaukee Metropolitan Sewerage District constitute the second largest source of MCAMLIS Program revenue. The $2,080,000 received from this source accounts for 18.7 percent of all program revenues. Under the terms of the Cooperative Agreement that created the MCAMLIS program, each of these four utilities agreed to provide $520,000 toward the creation of the countywide automated base maps that constituted the first major undertaking of the MCAMLIS program. Contributions from Wisconsin Bell, Wisconsin Electric, and Wisconsin Gas were completed during 1994. The MMSD contribution was completed during 2000. Accordingly, no further revenue can be expected from this source.

Anticipated Revenue Trend 2003 - 2007

Anticipated MCAMLIS revenues for the period 2003 through 2007 are set forth in Table 3. Revenue amounts shown for 2003 are based upon the proposed MCAMLIS 2003 budget; revenue amounts shown for 2004 through 2007 are estimates based upon the research and analysis set forth in the preceding portions of this memorandum. The amounts shown for 2003 appear to be relatively secure, as this is written, although it may be necessary to use a small contribution from the reserve fund in the event that document filing fees do not reach the projected level for that year.[4]

Table 3

ANTICIPATED MCAMLIS REVENUES BY SOURCE OF REVENUE: 2003 - 2005

Year	Document Filing Fees ($4 Portion)	Document Filing Fees ($1 Portion)	WLIP Grant Receipts	Utility Contributions	Total Revenue
2003	$720,000[a]	$130,000	$150,000	$0	$1,000,000
2004	650,000	0	100,000[b]	0	750,000
2005	650,000	0	35,000	0	685,000
2006	650,000	0	35,000[c]	0	685,000
2007	650,000	0	0	0	650,000

[a]This amount acknowledges the potential need for a $50,000 contribution from the reserve fund.
[b]In the absence of a 2003 WLIP Grant Award, this amount will be approximately $34,000.
[c]In the absence of a 2003 WLIP Grant Award, this amount will be zero.

Source: MCAMLIS Project Manager

It is somewhat more difficult at this point to anticipate MCAMLIS revenues after 2003; however, two facts are clear--both the $1 document filing fee that is currently retained locally, and the $2 document filing fee that is used to fund the WLIP grants-in-aid awards will not be collected after August 31, 2003, barring changes to State Statutes. Accordingly, there will be no receipts from the $1 document filing fees after 2003, and the receipts from WLIP grants will diminish over this period and will reach $0 in either 2006 or 2007.[5] These changes, in conjunction with the completion of the utility contributions in 2000, will leave the $4 locally retained document filing fee as the sole source of funding for the MCAMLIS program by the end of 2005 or 2006.

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[4]*MCAMLIS fiscal records available at the time the MCAMLIS 2003 budget was developed indicated that the use of approximately $50,000 from the reserve fund was a feasible strategy. Whether or not similar strategies can be used in succeeding years will have to be evaluated on a year-by-year basis.*

[5]*See assumptions associated with Table 2.*

For the purposes of estimating future MCAMLIS revenues from the $4 document filing fee for the period 2004 through 2007, an annual level of $650,000 has been assumed for this analysis. As noted previously in this memorandum, the average amount received from this source for the most recent 10-year period of record has been $665,478; however, in six of these 10 years, receipts from this source were less than the average amount. Accordingly, this $650,000 level appears to be a suitably more conservative amount than the 10-year average for use in projecting future MCAMLIS revenue.

Based upon the assumptions contained in this analysis, total revenue available to fund the MCAMLIS work program can be expected to decline from $1,000,000 in 2003, to approximately $750,000[6] in 2004, to $685,000 in 2005, and to $650,000 in either 2006 or 2007, thereafter to remain at approximately this level.

ANTICIPATED EXPENDITURE LEVELS AND COMMITTED WORK TASKS: 2003-2007

Anticipated 2003-2007 Expenditure Levels

The amounts anticipated to be available for expenditure for MCAMLIS work tasks for the period 2003 through 2007 are set forth in Table 4. The expenditure authority of $1,000,000 shown for2003 has been requested in the proposed MCAMLIS 2003 budget. Total estimated expenditure levels of $750,000 for 2004 and $685,000 for 2005 are based upon the anticipated MCAMLIS revenues set forth in Table 3. The $750,000 level estimated for 2004 is the least certain at this point, since it includes an assumption of a $100,000 WLIP grant award to MCAMLIS as part of the 2003 grant award cycle. Such an award would result in a $650,000 contribution to MCAMLIS revenues in 2004[7]. The status of this award will not be known until Fall 2003. Accordingly, absent an award, the amount expected to be available to fund MCAMLIS work tasks in 2004 could decrease from $750,000 to $685,000.

In addition, in association with the assumption that the $4 document filing fee will generate approximately $650,000 annually to fund MCAMLIS work tasks, it needs to be noted that shortfalls in this amount will have significant impacts on the actual expenditure levels that can be budgeted annually due to the recent near depletion of the reserve fund. It should be further noted in this regard that during the five most recent years of collection of this fee, in two of those years fund collections were less than $650,000--approximately $610,000 in 2000 and approximately $645,000 in 1997. Occasional collection shortfalls of this magnitude could most probably be dealt with successfully. However, in the five earliest years of collection of the $4 document filing fee fund collection from this source exceeded $650,000 in only one year--1993. Accordingly, a return to the document filing levels characteristic of the early 1990s could be expected to have serious adverse impacts on the future amounts available for expenditure. This uncertainty will have to be monitored on a year-by-year basis and will need to be reflected, as may be necessary, in annual MCAMLIS budgets beginning with the budget for 2004. This uncertainty further mandates that future MCAMLIS annual work plans will most likely need to be on the conservative side.

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[6] *This amount is contingent upon the receipt of a $100,000 WLIP grant award from the 2003 grant award cycle. In the absence of this grant, the total revenue available in 2004 could be expected to be about $685,000.*

[7] *The $35,000 balance of the award, if made, would be paid to MCAMLIS in 2006.*

Table 4

PRELIMINARY MCAMLIS WORK PROGRAM 2003 - 2007

Work Task	2003	2004	2005	2006	2007
Estimated Total Expenditure Authority Available	$1,000,000	$750,000	$685,000	$685,000	$650,000
Projects Obligated by Previous Action of the Steering Committee					
MCAMLIS Cadastral Map and Street Address Database Maintenance	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000
City of Milwaukee Cadastral Map Transformation - Phase 6	90,000[a]				
Subtotal	$150,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000
Projects Requiring Authorization from the Steering Committee for Continuation of Previously Committed Work Tasks					
MCAMLIS Floodland Mapping Project - Phase 2	$218,000	$218,000			
City of Milwaukee Cadastral Map Transformation-Phase 7	29,345[b]				
City of Milwaukee Cadastral Map Transformation-Phase 8	100,000	26,185			
City of Milwaukee Cadastral Map Transformation-Phase 9	50,000	50,000	13,120		
City of Milwaukee Cadastral Map Transformation-Phase 10		42,020	70,000		
Subtotal	$397,345	$336,205	$ 83,120	$0	$0
Project Management Tasks Requiring Authorization from the Steering Committee					
Milwaukee County Surveyor[c]	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000
MCAMLIS Project Management	100,000	100,000	100,000	100,000	100,000
Subtotal	$160,000	$160,000	$160,000	$160,000	$160,000
Total	$707,345	$556,205	$195,000	$220,000	$220,000
Estimated Amount Available to Undertake New Work Tasks	$292,655	$193,795[d]	$490,000	$465,000[e]	$430,000

[a]The total contract amount for this project is $155,550. The balance, $65,550, was obligated against 2002 expenditure authority.
[b]The total contract amount for this project is assumed to be $129,345, of which $100,000 is proposed to be obligated against 2002 expenditure authority
[c]By County Board policy, expenses associated with the services of the Milwaukee County Surveyor are supported from MCAMLIS Program revenues.
[d]In the absence of a 2003 WLIP grant award in the assumed amount of $100,000, this amount could decline to $128,795.
[e]In the absence of a 2003 WLIP grant award in the assumed amount of $100,000, this amount could decline to $430,000

Source: MCAMLIS Project Manager

#76381 v1 - TDP MCAMLIS memo Tbl 4

Committed Work Tasks

Also shown in Table 4 are work tasks considered by project staff to be "committed" by past Steering Committee actions. The first group of these tasks represents active projects currently under contract which still have expenditure obligations beyond the current 2002 budget year. Two work tasks fall into this category: the MCAMLIS cadastral map and street address database maintenance and the City of Milwaukee cadastral map transformation phase 6 project.

The second category of projects considered committed for the purpose of this analysis includes projects which are not currently under contract, but which represent continuations of previously authorized work programs. Included in this category are the MCAMLIS floodland mapping project phase 2 and the completion of the City of Milwaukee cadastral map transformation program.

Also shown as commitments in Table 4 are estimates of future expenses associated with the continuation of the Milwaukee County Surveyor's annual work program and the expenses associated with MCAMLIS project management. Assuming that the work tasks set forth in Table 4 are undertaken at the estimated budget amounts set forth therein, approximately $292,655 would be available to undertake new work initiatives in 2003; between $193,795 and $128,795 in 2004; approximately $490,000 in 2005; between $465,000 and $430,000 in 2006; and approximately $430,000 in 2007.

Locally Retained $1 Document Filing Fee

The requirements for expenditure of the $1 locally retained document filing fee will complicate decisions on how to allocate available funds for future work tasks. While the $4 document filing fee and WLIP grants-in-aid can be used to pursue tasks that serve to implement the adopted Milwaukee County land records modernization plan, the legislative language concerning the uses for which the receipts of the $1 fee can be utilized are far more restrictive. The language in 2001 Wisconsin Act 16, which created this fee, states that these receipts must be used ". . . to develop and maintain a computerized indexing of the County's land information records related to housing, including the housing element of the County's land use plan under S 66.1001 (2) (b) in a manner that would allow for greater public access via the Internet." The legislative intent of the Act has been further refined in guidelines promulgated by the WLIB. These guidelines are attached to this Memorandum as Exhibit A. While these guidelines were adopted as preliminary guidelines, they have yet to be replaced by guidelines of a more permanent nature; accordingly, these preliminary guidelines continue to constitute the current uses for which these funds can be expended.

The $1 locally retained document filing fee will be collected for a period of two years beginning on September 1, 2001, and ending on August 31, 2003. Over the first 11 months of this period, these collected fees have totaled $179,305 in Milwaukee County. A straight-line projection of this amount over the entirety of the collection period would result in an amount of approximately $391,200 that the MCAMLIS Steering Committee will need to expend in accordance with the attached guidelines. To date, only two tasks have been authorized by the MCAMLIS Steering Committee in accordance with the guidelines: the acquisition by the Milwaukee County Register of Deeds Office of a large-format scanner for over-size documents, principally maps; and the recently-approved Federal Tax Lien Automation Project that will also be carried out in the County Register of Deeds Office. Anticipated expenditures for these two projects total about $43,100, leaving $348,100 yet to be committed. New projects undertaken to satisfy the expenditure guidelines associated with this fee will have to be undertaken within the expenditure level constraints set forth in Table 4.

At this juncture, no additional projects have been identified and proposed to the Steering Committee for expenditure under these guidelines. Fiscal prudence would perhaps dictate that these designated receipts be expended in relatively short order given the short time period over which this fee will be collected. This would most likely mean that the expenditure of the receipts from this fee should be completed no later than the end of 2004; however, this may not be feasible considering the assumptions both explicit and implicit that affect the analysis set forth in Table 4.

POTENTIAL FUTURE MCAMLIS WORK TASKS

The narrative which follows is not an exhaustive list of all potential future MCAMLIS work tasks. However, it does represent tasks that, at this point, have either been discussed by the Steering Committee or that are currently under active investigation by project staff, but have yet to be presented to the Steering Committee for its consideration. All expenditure amounts set forth in the narrative are approximate amounts for the purposes of planning future annual work programs. At the time that actual contracts would be negotiated for the pursuit of this work, final project amounts will be developed by project staff and presented to the Steering Committee for its review. The order in which these potential tasks are presented is not intended to imply any ranking.

Projects Developed for the Use of the $1 Locally Retained Document Filing Fee

As noted in the preceding section of this memorandum, projects for the use of this fee will need to be developed. As also noted, it would most probably be desirable to develop a strategy for expending these receipts in the relatively near future.

Replacement Topographic Mapping

On several occasions the Steering Committee has discussed the desirability of undertaking additional projects to acquire replacement topographic mapping. For the purposes of this memorandum, some potential projects have been evaluated in order to establish the magnitude of expenditure that would be needed for undertaking such projects. Cost estimates have been developed for two possible projects.

The first of these would involve the replacement of topographic mapping in Township 8 North, Range 21 East, less that mapping currently being prepared as part of the Lincoln Creek-Southbranch Creek mapping project. The estimated cost for replacing 27.5 square miles of mapping in this survey township is approximately $370,000. An estimate has also been developed for the replacement of 16.5 square miles of topographic mapping in partial Township 8 North, Range 22 East. This cost is approximately $240,000. These two projects would result in replacing large blocks of some of the older topographic mapping still existent in Milwaukee County.

An additional replacement topographic mapping project will in all probability need to be considered by the Steering Committee. SEWRPC staff involved in the MCAMLIS Floodland Mapping Project have recently indicated to the MCAMLIS Project Manager that they foresee a need for some additional replacement topographic mapping as this study progresses. Such a project would be similar in nature to the recently authorized Lincoln Creek-Southbranch Creek replacement topographic mapping project in that it would acquire replacement topographic mapping for several stream reaches where recent flooding mitigation projects have been, or are being, completed, resulting in significant changes to the stream channel or to the near-stream topography. Such a project, if authorized, would need to be initiated and completed in 2004 in order to fit the timeline for the floodland mapping work. Cost estimates for this activity have yet to be developed.

Retiling of MCAMLIS Cadastral and Topographic Base Maps
On several occasions the MCAMLIS Steering Committee has debated the merits of changing the tiling scheme for MCAMLIS base maps from the current one-quarter section-based maps to "tiles" of some larger, but yet-to-be-proposed, size. The Steering Committee has yet to determine whether or not to undertake this work task; however, as part of the work involved in the preparation of the still incomplete MCAMLIS Internet pilot study, estimates of the cost of this retiling have been developed by Ruekert & Mielke, Inc. The estimate for retiling the MCAMLIS topographic base maps is approximately $40,000. The estimate for retiling the MCAMLIS cadastral base maps is approximately $45,000.

MCAMLIS Internet Pilot Study
Any recommendations forthcoming from the still-incomplete MCAMLIS Internet pilot study may involve the commitment of MCAMLIS funds for implementation should the Steering Committee determine to proceed with the development of such a system. These amounts should be known by late 2002, or early 2003, but are not currently available.

MCAMLIS Address Database Enhancement
At its meeting held on July 10, 2001, the MCAMLIS Steering Committee authorized project staff to investigate the potential costs associated with enhancing the MCAMLIS address database to include addresses inside multiple-unit residential and commercial structures. Estimates of the cost of this potential enhancement have yet to be determined by MCAMLIS project staff, although some potential address sources have been investigated and eliminated.

City of Milwaukee Address Database Integration
At its meeting held on June 25, 2002, the MCAMLIS Steering Committee tentatively approved a report prepared by Spatial Data Systems, Inc., assessing the accuracy and currency of the City of Milwaukee address database and the steps that would need to be taken to render that database compatible with the MCAMLIS street address database. An estimated cost of $149,000 has been developed by Spatial Data Systems, Inc., for this undertaking.

It should be noted that this estimated cost is not broken down by component and includes not only the cost of merging the City of Milwaukee address database and the MCAMLIS street address database, but also the cost of field checking addresses for approximately 70,000 ownership parcels in the central section of the City. It is recommended, however, that the field checking not be included in the work at this time.

Maintenance of MCAMLIS Format Cadastral Mapping Covering the City of Milwaukee
At its meeting held on May 7, 2002, the MCAMLIS Steering Committee asked MCAMLIS project staff to investigate—in consultation with City of Milwaukee representatives and Milwaukee County representatives—a process for maintenance of the MCAMLIS format cadastral mapping that is currently being created by the City of Milwaukee Geographic Information Systems staff. While this investigation is not yet complete, there may be potential cost implications to the MCAMLIS program for carrying out a maintenance procedure. Once a process has been identified and the cost impacts, if any, on the MCAMLIS program budget are known, the Steering Committee will need to decide whether or not to undertake this task.

Consolidation of Milwaukee County Plat-of-Survey Records
Milwaukee County plats-of-survey are currently stored in two discrete locations. Approximately 33,000 plats-of-survey are stored at SEWRPC where they have been submitted for filing in conformance with the requirements of State Statutes and SEWRPC's statutory designation as Milwaukee County Surveyor.

Approximately 7,000 plats-of-survey are on file in the Milwaukee County Register of Deeds Office where they were submitted for filing prior to SEWRPC's statutory designation as Milwaukee County Surveyor.

Information taken from the plats-of survey on file at SEWRPC has been organized into a computer data base of the "flat-file" type. A variety of attributes relating to each plat-of-survey such as civil division, name of the property owner or client, name of the land surveyor completing the plat-of-survey, location by U. S. Public Land Survey one-quarter section, and date of survey. Plats-of-survey on file in the Register of Deeds Office are accessed through a manual "file card" index sorted by street address. SEWRPC database records are incomplete with respect to street addresses.

MCAMLIS project staff, on their own initiative, have been investigating the feasibility of a project that would consolidate the information currently resident in the two locations; index the two filing systems in a consistent manner, including the completion of the address field in the SEWRPC database; translate the existing SEWRPC computer database into a database that can be dynamically queried or searched; scan the plats-of-survey on file at both locations; create digital image files of all filed plats-of-survey; and create a linkage between the database and the scanned images.

A definitive scope of work and budget remain to be developed; but preliminary investigation has established a tentative cost range of between $100,000 and $150,000. A possible advantage of undertaking this project is that it may qualify as a project for expenditure of the $1.00 document filing fee receipts.

Data Creation for Flood Plain Mapping

The WLIP Preliminary 2002 Strategic Initiative Grant Options were recently released. These guidelines, which do not yet have the approval of the Wisconsin Land Information Board, identify one category of grant award for which Milwaukee County qualifies and which fits well with the existing MCAMLIS Work Program--Data Creation for Flood Plain Mapping. The maximum single award available under this award category is $50,000. The possibility of receiving an award from this source is particularly interesting because it would be a potential source of income not included in the preceding income analysis. An award from this source would, therefore, be "budget neutral" in that an expenditure of $50,000 would be covered by unanticipated income in the same amount. A further potential advantage of pursuing this grant is that it might allow a reduction of some yet-to-be-determined amount in the cost of carrying out the MCAMLIS Floodland Mapping Phase 2 project. SEWRPC staff involved in carrying out the MCAMLIS Floodland Mapping Phase 1 project have been asked to review the relevant guidelines and determine if a MCAMLIS grant application can be developed.

RECOMMENDED MCAMLIS WORK PROGRAM: 2003 - 2005

Based upon the preceding analysis of anticipated revenue and potential work tasks, a recommended MCAMLIS work program for 2003, 2004, and 2005 is presented in Table 5. It should be clear from the preceding analysis that difficult work task choices will confront the MCAMLIS Steering Committee over the foreseeable future. In light of this, it is the project staff recommendation that the program emphasis be redirected to the original MCAMLIS program tasks--the creation and maintenance of a uniform, countywide system of digital, large-scale base maps and the creation and maintenance of a street address database. The work program set forth in Table 5 reflects this recommended emphasis.

Table 5

RECOMMENDED MCAMLIS WORK PROGRAM: 2003 - 2005

Work Task	2003	2004	2005
Estimated Expenditure Authority Available	$1,000,000	$750,000	$685,000
City of Milwaukee Cadastral Map Transformation-Phase 6	90,000[a]	- -	- -
City of Milwaukee Cadastral Map Transformation-Phase 7	29,345[b]	- -	- -
City of Milwaukee Cadastral Map Transformation-Phase 8[c]	100,000	26,185	- -
City of Milwaukee Cadastral Map Transformation-Phase 9	50,000	50,000	13,120
City of Milwaukee Cadastral Map Transformation-Phase 10[d]	- -	42,020	70,000
MCAMLIS Floodland Mapping Project-Phase 2	218,000	218,000	- -
Replacement Topographic Mapping	115,000	150,000	230,000
Retiling MCAMLIS Topographic and Cadastral Maps	85,000	- -	- -
Projects for Expenditure of $1 Document Filing Fee	50,000	30,000	100,000
Incorporation of the City of Milwaukee Address Database into the MCAMLIS Street Address Database	35,000[e]	- -	- -
Maintenance of MCAMLIS Format Cadastral Mapping within the City of Milwaukee	0[f]	0[f]	0[f]
Milwaukee County Surveyor	60,000	60,000	60,000
MCAMLIS Cadastral Map and Street Address Database Maintenance	60,000	60,000	60,000
MCAMLIS Project Management	100,000	100,000	100,000
Amount Held in Reserve	7,655	13,795	16,880
Estimated Total Expenditures	$1,000,000	$750,000	$650,000

[a]The total contract amount for this project is $155,530. The balance, $65,550, was obligated against 2002 expenditure authority.
[b]The total contract amount for this project is assumed to be $129,345, of which $100,000 is proposed to be obligated against 2002 expenditure authority.
[c]It is recommended that this project constitute the basis for the 2002 WLIP grant application.
[d]It is proposed that this project constitute the basis for the 2003 WLIP grant application in the event that grant awards are available in 2003.
[e]This estimated amount is tentative, pending a more complete analysis of project requirements. It is proposed that the field listing portion of this task not be carried out at this time; instead, the project will seek only to merge the two existing databases into a single database format.
[f]An analysis will be conducted to determine whether or not this task can be accommodated within the "MCAMLIS Cadastral Map and Street Address Database Maintenance" line item at no additional cost to the MCAMLIS program over the amount already set forth for this task. In the event that this does not prove feasible, then additional monies will have to be obtained through reductions in one or more program line items.

Source: MCAMLIS Project Manager.

Recommended Work Tasks

- It is recommended that the Steering Committee enter into the necessary agreements to complete the City of Milwaukee Cadastral Map Transformation Program during 2003, 2004, and 2005.

- It is recommended that the Steering Committee enter into an agreement to carry out the MCAMLIS Floodland Mapping Project-Phase 2.

- It is recommended that the Steering Committee initiate a topographic map replacement program beginning in 2003 with funds allocated on a yearly basis to carry out individual projects, identified on a yearly basis, based in part on available funding. It is also recommended that priority be given to the replacement of older topographic mapping. It is further recommended that the 2003 project area be located in Township 8 North, Range 21 East, which township is covered almost exclusively by mapping of 1985 to 1990 vintage.

- It is recommended that the Steering Committee direct the project staff to develop a map organization scheme suitable for recompiling the MCAMLIS digital topographic and cadastral maps and to reorganize the MCAMLIS map database into a system of maps comprised of "tiles" larger than the current organizational system of one-quarter-section based maps.

- It is recommended that the Steering Committee request the County Register of Deeds to develop a list of projects that meet conditions for expenditure of the $1 locally retained document filing fee; to request the Milwaukee County Register of Deeds to submit this list along with estimated fiscal requirements to the Steering Committee for its information, and for needed committee action to budget for the expenditure of these receipts as a part of the overall MCAMLIS program.

- It is recommended that the Steering Committee direct the project staff to carry out a project that will result in the merger of the City of Milwaukee address database with the MCAMLIS street address database. The recommended work will not include, at this time, field checking of addresses in the central area of the City. This project should be submitted to the Steering Committee for its review and approval.

- It is recommended that the Steering Committee direct the project staff to initiate a maintenance program for the MCAMLIS format cadastral mapping being prepared by the City of Milwaukee. This procedure should be presented to the Steering Committee for its review and approval.

SUMMARY

The analysis set forth in this memorandum demonstrates that the Steering Committee will have to direct the MCAMLIS Program within a framework of declining revenue. In view of this situation, the project staff recommends that annual work programs for 2003, 2004, and 2005 be directed to funding work that contributes directly to core functions of the MCAMLIS Program; that is, the development and maintenance of a system of uniform, countywide, large-scale digital maps and the development and maintenance of a street address database. The recommended MCAMLIS work program set forth inTable 5 would direct increasingly scarce revenues to addressing these functions.

* * * * *

Exhibit A

Office of Land Information Services
Wisconsin Department of Administration

GUIDELINES FOR THE USE OF THE ADDITIONAL DOLLAR RETAINED BY THE COUNTY

The 2001-2003 Wisconsin State Biennial Budget, 2001Wisconsin Act 16, enacted legislation relating to the recording fees retained by the county. Specifically, s. 59.72 (5) (b) 3., Wis Stats., now provides as a condition for retaining those fees, that:

> ***"The county uses $4 of each $5 fee retained under this paragraph to develop, implement, and maintain the county wide plan for land records modernization, and $1 of each $5 fee retained under this paragraph to develop and maintain a computerized indexing of the county's land information records relating to housing, including the housing element of the county's land use plan under s. 66.1001(2)(b), in a manner that would allow for greater public access via the Internet."***

Section 66.1001 (2) (b), Wis. Stats., describes the housing element as:

> *"A compilation of objectives, policies, goals, maps and programs of the local governmental unit to provide an adequate housing supply that meets existing and forecasted housing demand in the local governmental unit. The element shall assess the age, structural, value and occupancy characteristics of the local governmental unit's housing stock. The element shall also identify specific policies and programs that promote the development of housing for residents of the local governmental unit and provide a range of housing choices that meet the needs of persons of all income levels and of all age groups and persons with special needs, policies and programs that promote the availability of land for the development or redevelopment of low-income and moderate-income housing, and policies and programs to maintain or rehabilitate the local governmental unit's existing housing stock."*

This document is intended to provide guidelines for the use of $1 of the $5 retained under s. 59.72 (5) (b) 3, Wis. Stats. These funds are available for land records modernization activities with respect to developing and maintaining computerized housing information, including data related to the housing element of a comprehensive plan, and making that data accessible to the public via the Internet.

The Land Information Board-empanelled Ad Hoc Committee on Strategic Initiatives has identified the following as areas of eligible expenditures.

1. Property Tax Assessment Information assessable via the Internet.
   The Board is working on a tax assessment file that will offer seamless statewide queries over the Internet. This file will be populated with existing tax assessment data from the counties and will be a focus of the strategic initiative.

2. Current Housing Supply and Forecasted Demand of Residential, Commercial, Industrial and Other Lands
   - Number and Type of Housing Units (single family, duplex, multi-family, mobile home, etc.)
   - Owner Occupancy, Rented, Vacant
   - Condition of Housing Stock
   - Census Data (trends in population, economic conditions, household characteristics, income and economic factors)
   - Developable Land

3. Affordable and Special Needs Housing Information
   - Market Rents
   - Subsidized Housing

4. Housing Sales Information

Eligible Expenditures of this $1 retained fees to achieve the above would include:

1. Computer Hardware
2. Computer Web-Enabling Software
3. In-House Staff Time Including Database Design
4. Vendor Contracting
5. Metadata Development – *Please note, the development of metadata is a requirement for all data collected and maintained with Land Information Program-revenues, whether they are retained fees or grant funds.*

we energies

231 W. Michigan St.
Milwaukee, WI 53290-0001
www.we-energies.com

October 9, 2002

Mr. Kurt Bauer, Chairman
MCAMLIS Steering Committee
Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive
Waukesha, WI 53187-1607

Dear Mr. Bauer,

Let me begin by expressing my appreciation to you and Mr. Patterson for the updates provided at the MCAMLIS Steering Committee meeting on Tuesday. Having timely status reports for project work will benefit all members of the Steering Committee as consideration is given to the MCAMLIS Program Strategic Assessment for 2003-2007.

I agree with comments made at the meeting that the MCAMLIS Work Program for 2003-2005, is to be considered by the members of the committee as advisory and that there will be opportunity for the Steering Committee to add to the list and re-prioritize if necessary, some of the work tasks included in Table 5. For example, and while the issue was already discussed at the meeting, the importance requires me to restate the need for a maintenance process to be established for the transformed cadastral maps delivered from the City of Milwaukee. This work effort should, in my opinion, be a top priority.

I would also note that the integration of addresses from the City of Milwaukee with the MCAMLIS database was not included in the work tasks listed in Table 5. It should be understood that completing this task (not the field verification) would result in a complete addressing system in the MCAMLIS standard format for all of Milwaukee County. This work initiative should be included in the program as well.

Again, thank you for all of the work put into the meeting. Please contact me at your convenience if you should have any questions.

Sincerely,

W. Shaw

William Shaw
We Energies

Copy: Thomas Patterson, MCAMLIS Project Manager

DEPARTMENT OF ADMINISTRATION

Milwaukee County

LINDA J. SEEMEYER • Director

July 10, 2002

Mr. Philip Evenson, Executive Director
Southeastern WI Regional Planning Commission
W239 N1812 Rockwood Drive
P O Box 1607
Waukesha, WI 53187-1607

Dear Mr. Evenson:

This letter serves as notification that I have asked Thomas Lewandowski to serve as the Department of Administration's representative to the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Committee.

Tom, a Fiscal and Management Analyst with the Department of Administration, has represented the department at committee meetings in the past and is very familiar with MCAMLIS. I am confident he will continue to provide valuable input as a member of the committee.

Sincerely,

Linda Seemeyer, Director
Department of Administration

Cc: Scott Walker, County Executive
Terry Kocourek, Fiscal and Budget Administrator
Ignatius Niemczyk, Register of Deeds
Tom Lewandowski, Fiscal & Management Analyst
Thomas Patterson, SEWRPC

/bp

GDT
GEOGRAPHIC
DATA TECHNOLOGY

July 19, 2002

Tom Patterson
Milwaukee, County of Land Management Group
PO Box 1607
Waukesha WI 53187-1607

Dear Mr. Patterson;

Geographic Data Technology, Inc. (GDT) is the leading provider of mapping solutions and address matching services to the business geographics community. Fortune 500 corporations and government agencies use GDT's products to locate individuals, businesses, and potential store locations. As the industry leader, we endeavor to provide our clients with the most comprehensive databases available. The more comprehensive our databases, the more efficiently our clients can deliver their products and services to the residents of your jurisdiction.

GDT is working to improve the accuracy of its nationwide street centerline database with regard to changes due to growth and development. As part of that effort, we are seeking out new road name maps or mapbooks, produced by local government agencies. I would like to discuss our acquiring such information for your jurisdiction.

Any map resources we acquire from local agencies will be used internally as a visual reference to update the street network and attributes of our nationwide database. Your map or atlas will not be resold or redistributed; rather, it will be retained in-house as a component of our Map Library.

Enclosed is the list of the street maps and house actual addressing maps that we would like to acquire.

I have also included GDT's Data Usage Agreement. Please sign the form and send it back to me. If you do not wish to sign the Data Usage Agreement, please let me know then I can send you a Data Usage Memorandum for your records.

11 Lafayette Street • Lebanon, New Hampshire 03766-1445
800-331-7881 • 603-643-6808 Fax

At your earliest convenience, please contact me regarding current map references for your area. If you have any questions, you can reach me by telephone Monday – Friday between 8am and 4pm Eastern Time, or anytime by fax or email.

Thank you for your time and consideration.

Sincerely,

Heidi K. Meyerrose

Heidi K. Meyerrose
Research & Acquisition Specialist
Research & Acquisition Department
Phone: 800-331-7881 ext: 2033
Fax: 603-643-5414
Email: heidi_meyerrose@gdt1.com
www.geographic.com

GDT
GEOGRAPHIC
DATA TECHNOLOGY

Milwaukee County, Wisconsin

Street Maps that we need for the areas of:

City of Cudahy

Village of Fox Point

Addressing Maps that we need for the areas of:

City of Cudahy

City of Oak Creek

Village of River Hills

Village of Shorewood

****The Website for GDT's Community Update is:** www.commnityupdate.com

Please take a look at the Website, and if you are interested, please resister on line and then someone from our department will get in touch with you.

Thank you,

Heidi K. Meyerrose

GDT
GEOGRAPHIC
DATA TECHNOLOGY

DATA USAGE AGREEMENT

Background

Geographic Data Technology, Inc. ("GDT") is a leading industry provider of map data to the business, consumer and Internet community. GDT's mission is to be the premier digital map database compiler across the Americas, providing the foundation for an ever expanding set of diverse customers who require high quality, cost-effective map data. By way of example, Fortune 500 companies, businesses, and government agencies use GDT products to locate addresses, route parcel and appliance delivery, install and maintain utilities, operate emergency response services, and help regulators establish equitable insurance and utility ratings. As an acknowledged industry leader, GDT endeavors to provide our clients with the most up-to-date and comprehensive databases available. The more comprehensive our databases, the more effectively and efficiently residents in your area can be provided information and services. GDT is working to improve the content and accuracy of its nationwide street centerline database in your area. As part of this effort, GDT is seeking geographic information in a variety of formats and media, including but not limited to geographic information systems (GIS) datasets, from data providers that are accurate and current. Additional information about GDT and our products and services can be found on our website at www.geographic.com.

Use of Provider Data

In consideration of the data usage promises provided by GDT to The County of Milwaukee, WI ("DATA PROVIDER"), GDT may use, reproduce, reformat and copy the information and any updates, provided by DATA PROVIDER to GDT under this agreement, on local network systems and free-standing workstations owned, leased, or operated by GDT, or an authorized GDT subcontractor, for use by authorized users at GDT's, or an authorized GDT subcontractor's, principal place of business. GDT may use the geographic information and any update(s) to update the street network and attributes of GDT's nationwide proprietary database from which commercial data products are produced. Data elements, from the geographic information and updates, that are missing from the GDT database, and more accurate data elements in the geographic information and any update(s), may be incorporated into the GDT database on an element-by-element basis. Apart from the data elements incorporated into the GDT database, **the geographic information and any update(s) will not be resold or redistributed to third parties**. The original geographic information and any update(s) will be retained at GDT as a reference resource in GDT's map library.

Kenneth C Forseth 18 JUL 2002
[Authorized Signature for GDT] [Date]

KENNETH C FORSETH
[Printed Name]

SENIOR VICE PRESIDENT
[Title]

[Authorized Signature for DATA PROVIDER] [Date]

[Printed Name]

[Title]

HEIDIM 7/18/02
(initials) (date)
(4/02 Version V)

11 Lafayette Street • Lebanon, New Hampshire 03766-1445
800-331-7881 • 603-653-0249 Fax
www.geographic.com

Draft

MCAMLIS
LAND AND UTILITY INFORMATION SYSTEM INTERNET PROTOTYPE

Report No. 3

October 2002

RUEKERT/MIELKE
W233 N2080 Ridgeview Parkway
Waukesha, Wisconsin 53188-1020

TABLE OF CONTENTS

PREAMBLE

This is the third of four reports concerning the status of implementing a web based land and utility information system for the Milwaukee County Automated Mapping and Land Information System (MCAMLIS). The work effort to date represents approximately 86% of the total project outlined in the Prospectus approved by the MCAMLIS Steering Committee.

Based on feedback from other local municipal staff regarding the lack of information pertaining to this report, it was decided that a presentation should be given to the Intergovernmental Cooperation Council (ICC). A presentation was conducted by Mr. Thomas J Tym, Ruekert/Mielke on Monday, July 22, 2002. In addition, survey questionnaires were mailed to representatives of the ICC. Fourteen of the sixteen (88%) municipalities responded to the survey questionnaire. The results of the survey are included in Appendix 1.

As proposed and outlined in the Prospectus, this report covers the development and installation of the internet prototype web application, conversion of available data provided by the Technical Advisory Committee (TAC) participants, determination of data storage and server requirements, including the evaluation of purchasing new, or using existing, hardware and software to support the web application, establishing data standards, and documentation.

Following the initial review of Report No. 2 by the MCAMLIS Steering Committee on May 7, 2002, and subsequent approval at the June 25, 2002 meeting, Ruekert/Mielke embarked on the development of the prototype web application. On August 19, 2002, the Technical Advisory Committee met to evaluate the prototype web application. Representatives from all participants were in attendance. Recommendations provided herein are based on feedback from the Technical Advisory Committee members in attendance at this meeting.

Since Report No. 3 includes final recommendations for the development of the production environment and strategic implementation process. Based on the results of this study, and the recommendations made by the Technical Advisory Committee, the development of a County-web application could significantly enhance the methods in which local municipalities and public utilities distribute and share common information.

BACKGROUND

The Internet Prototype required an inventory of pertinent information for each of the participants in the pilot project area. The information was considered important to provide an understanding of the basic uses of the MCAMLIS products that will be used to determine the requirements of a successful web based system. The Internet Prototype developed as part of this project included all of the information provided by the participants. Since the digital data was provided in numerous file formats, data conversion was required.

INVENTORY EXISTING SYSTEMS – OTHER LOCAL UNITS OF GOVERNMENT

Survey Contacts

In order to complete the inventory of existing systems and data usage, the questionnaire originally prepared for, and completed by the Technical Advisory Committee members was distributed to the other local municipalities. The following is a list of the contact information:

	Municipality	Contact
√	Village of Bayside	Mr. Frank Sherman, Village Manager
√	City of Cudahy	Mr. Steve Miner, City Assessor
√	Village of Fox Point	Mr. Michael Lynett, Director of Public Works
√	City of Franklin	Mr. John Bennett, City Engineer/Director of Public Works
√	City of Glendale	Mr. Todd Stuebe, Director of Community Development
√	Village of Greendale	Mr. Joseph Murray, Village Manager
√	City of Greenfield	Mr. Steve Helminiak, City Engineer
	Village of Hales Corners	Mr. Michael Martin, Directory of Public Works
√	City of Oak Creek	Mr. Paul Milewski, Director of Community Development
	Village of River Hills	Mr. Thomas Tollaksen, Village Manager
√	City of St. Francis	Mr. Jack Schultz, City Engineer
	Village of Shorewood	Mr. James Lynch, Community Development Director
√	City of South Milwaukee	Mr. Jac Zader, Director of Planning and Inspections
√	City of Wauwatosa	Mr. William Kappel, Director of Public Works
	Village of West Milwaukee	Ms. Donna Mazar-Buse, Inspection Services
	Village of Whitefish Bay	Ms. Mary Jo Lange, Director or Public Works/Engineer

Responses included on the following pages:

MCAMLIS Questionnaire Responses

1. Do you use MCAMLIS Products?	Y	N	CAD Hard C	o Digital
City of Wauwatosa – Engineering	X		We never h info. Still mapping and	utilize to help determine storm drainage issues and to p. Areas for storm sewer system plan drainage areas. If becomes reality, updated info very useful for Eng., ssors, Planning, Bldg, Fire, Police, Clerk
Village of Hales Corners	X		Planning, p general mun	ply digital data to consultants for municipal projects
Village of Fox Point	X		Surveyor an	
City of Oak Creek	X			use the topographic information frequently in many of compiled maps. The only problem with them is that n they were converted to AutoCAD format, they lost Z values.
City of Glendale	X			have limited topo data that is out of date
Village of Bayside	X		Used for m consultant. use this.	consultant uses. No in-house use.
City of St. Francis	X		For all of system, b developmen	neering design, property development
City of Franklin	X		Engineering Assessor, Fi	
City of South Milwaukee	X			neering, Planning
City of Greenfield	X		Public and various uses	
Village of Greendale	X		Rarely refer	Village almost exclusively uses digital MCAMLIS The data is frequently used for engineering related . The Village Clerk and Building Inspector also ence the cadastral data on a regular basis

SECTION A: MCAMLIS – Cadastral Files

1. Do you update the digital cadastral files:	Y	N	In What Dept?	By How Many Employees	Individual Responsible for Updates	How Often
City of Wauwatosa-Engineering	X		Yes, but only if it would affect right-of-way for our City map and would do more if existing files were current			
Village of Hales Corners		X				
Village of Fox Point		X				
City of Oak Creek	X		Yes, but not for MCAMLIS - Engineering	1	Leslie Flynn	As soon as info comes in
City of Glendale		X				
Village of Bayside		X				
City of St. Francis	X		Engineering, Building & Zoning	1	Peter Bayerl	Yearly, or as-needed
City of Franklin	X		Engineering updates, graphics, Engineering & Assessor updates attribute data	1, graphic updates 2 attribute updates	Ron Ascuncion,	Ongoing
City of South Milwaukee	X		Planning	1	1	As needed
City of Greenfield	X		Engineering	2	Craig Skala & Jeff Tamblyn	As they occur
Village of Greendale		X				

			If yes, how often?							
2. Would you like to see MCAMLIS Update the CAD files more often?	**N**	**Y**	**Daily**	**Weekly**	**Bi-monthly**	**Monthly**	**Qtr'ly**	**Yearly**	**If yes, please explain which cadastral features need to be provided**	**Delivered in what software?**
City of Wauwatosa-Engineering	X						X			AutoCAD Dwg or .dxf and all ArcView
Village of Hales Corners	X									N/A
Village of Fox Point		X								
City of Oak Creek										
City of Glendale		X						X	Any changes to parcels	ESRI
Village of Bayside		X					X			
City of St. Francis		X						X	AutoCAD	
City of Franklin		X				X			Updates are currently being performed by the City if data graphics edits could be performed on a timely basis receiving updates would be of interest to the City.	
City of South Milwaukee		X				X			No response	XRC Info
City of Greenfield	X									There should be one standard format. Procedures can be made to convert data as needed. We prefer *.dgn at this time.
Village of Greendale		? X					X		All features, especially property lines.	ESRI format; coverages or shapefiles or geodatabases

3. Do you use custom tools?	**N**	**Y**	**If yes, who developed tools?**	**In what language was tool developed?**
City of Wauwatosa-Engineering		X		
Village of Hales Corners		X		
Village of Fox Point	X			
City of Oak Creek	X			
City of Glendale	X			
Village of Bayside	X			
City of St. Francis	X			
City of Franklin		X	PlanGraphics	ArcGIS
City of South Milwaukee	X			
City of Greenfield			No response	
Village of Greendale	X			

4. Explain process of obtaining source materials:	
City of Wauwatosa-Engineering	No response
Village of Hales Corners	Village does not update cadastral maps- no process in place
Village of Fox Point	No response.
City of Oak Creek	When Certified Survey Map's & subdivisions are recorded, we "COGO" them onto our maps immediately.
City of Glendale	Obtaining source materials through MCAMLIS has been inconsistent in terms of what is available and when materials will be available
Village of Bayside	No response
City of St. Francis	Consulting engineering services.
City of Franklin	Hard copy plats, Certified Survey Map's, condo projects, deeds are used as either approved by the City of as copies are received from the County.
City of South Milwaukee	No response
City of Greenfield	Most of the data is obtained internally as land transfers take place through CSM's, Subdivisions, ROW transfers, etc. We also get data from the Milwaukee County Register of Deeds office when land is transferred, however, that data generally takes several months to arrive. Often time we show current land divisions with incomplete tax key number information until we receive that data from the County
Village of Greendale	N/A

5. Is it important to track the history of updates?	Y	N
City of Wauwatosa	X	
Village of Hales Corners	X	
Village of Fox Point		X
City of Oak Creek	X	
City of Glendale	X	
Village of Bayside	X	
City of St. Francis	X	
City of Franklin	X	
City of South Milwaukee	X	
City of Greenfield	X	
Village of Greendale	X	

6. Do you think updates could be handled by an outside agency?	Y	N	If no, explain reasons
City of Wauwatosa – Engineering	X		If done w/appropriate direction
Village of Hales Corners	X		
Village of Fox Point			NO ANSWER SUBMITTED
City of Oak Creek			Maybe. I would worry about our level of accuracy being maintained.
City of Glendale	X		
Village of Bayside	X		
City of St. Francis		X	Accuracy of work would be lost.
City of Franklin		X	We are using SDE layers that include a significant amount of attribute data that must be integrated with other systems. As a result, we need to use the custom tools developed to ensure data integrity.
City of South Milwaukee		X	Data Integrity
City of Greenfield	X		Yes, provided that it could be done in a timely manner at a reasonable price.
Village of Greendale	X		

7. If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?	Y	N
Village Hales Corners		X
Village of Fox Point		
City of Oak Creek	X	
City of Glendale	X	
Village of Bayside		X
City of St. Francis		X
City of Franklin	X	
City of South Milwaukee	X	
City of Greenfield	X	
Village of Greendale	X	

				Were custom tools developed?		
8. Have you successfully integrated or imported digital information from other software into the digital cadastral maps:	**Y**	**N**	**If yes, what software File format**	**Y**	**N**	**If yes, explain**
City of Wauwatosa – Engineering		X				
Village of Hales Corners		X				
Village of Fox Point		X				
City of Oak Creek		X				
City of Glendale		X				
Village of Bayside		X				
City of St. Francis		X				
City of Franklin	X		Shapefiles, Coverages, AutoCAD drawings, ASCII data, Excel, SQL Server, SDE Layers, Access	X		Initial data conversion and tools developed by R/M. Additional tools to import and maintain data developed by PlanGraphics including tools to expedite creation of topology, importing of graphic and attribute data elements, adjusting graphic to new features, and linking graphics and attributes.
City of South Milwaukee	X		ArcInfo			
City of Greenfield	X		Various CAD formats – namely *.dgn, *.dwg, *.dxf. Because the cadastral maps are not drawn to the same accuracy as surveys, CSM, etc – there always need to be some adjustments made to the data being imported. In most case we reference in the file, copy what is needed and then adjust our files.		X	
Village of Greendale	X		Shapefiles or coverages; GVS data; CAD data		X	

9. Have you compiled a seamless map of the digital cadastral maps?	Y	N	If Yes, what would be the desired extent of your seamless map?	If no, would you like to have this done by MCAMLIS?
City of Wauwatosa – Engineering	X		At least 1/4 sec. surrounding including Waukesha County	
Village of Hales Corners		X		Yes, Village Boundary
Village of Fox Point		X		Yes
City of Oak Creek		X		Yes
City of Glendale	X		City of Glendale and periphery areas	
Village of Bayside	X		By our consultant	
City of St. Francis	X		MCAMLIS	
City of Franklin	X		No response	
City of South Milwaukee	X		City Limit	Yes
City of Greenfield	X		Southern Milwaukee County & Southeastern portions of Waukesha County	
Village of Greendale	X		We would like to have MCAMLIS create so updates will be easier	Yes

SECTION A: MCAMLIS – Topographic Files

1. Do you update the digital topographic files:	Y	N	In What Dept?	By How Many Employees	Individual Responsible for Updates	How Often
City of Wauwatosa – Engineering		X				
Village of Hales Corners		X				
Village of Fox Point		X				
City of Oak Creek		X				
City of Glendale		X				
Village of Bayside		X				
City of St. Francis	X		Engineering	1	Peter Bayerl	Yearly or as needed.
City of Franklin	X		Engineering	2	Ronnie and Marcia	Currently updating backlog, hope to update select features as needed in the future.
City of South Milwaukee	X		Planning	1	1	As needed.
City of Greenfield	X		Engineering	2	Craig Skala & Jeff Tamblyn	Varies. If there has been a need to update an area for meetings or discussions, then we will make changes as needed for a particular event. In most other cases we have not made updates to the files. We were told that MCAMLIS had no plans to make updates in the near future. Seeing as our current files dated 1993 are getting out of date, we have started the process of updating features such as structures, pavements, etc. based on data from building permits and various plans. We have not extensively used aerial photos at this time.
Village of Greendale		X				

2. Would you like to see MCAMLIS Update the topographic files more often?	N	Y	If yes, how often? Daily	Weekly	Bi-Monthly	Monthly	Qtrl'y	Yearly	If yes, explain which topographic features need to be provided	Delivered in what software?
City of Wauwatosa – Engineering	X						X			AutoCAD 2002 .dwg or .dxf
Village of Hales Corners	X									
Village of Fox Point		X							Contours, buildings and roads	
City of Oak Creek		X					X		Contours & buildings	
City of Glendale		X						X	Contour lines and buildings/site improvements	ESRI
Village of Bayside		X					X		No response	
City of St. Francis		X						X	No response	AutoCAD
City of Franklin		X							At a minimum, buildings, topography, pavement edges. Others that may be of interest are?	Topo – DEM and contour coverages. Planimetric coverages and/or SDE layers.
City of South Milwaukee		X					X			XRCInfo
City of Greenfield									All features would need to be provided because changing one feature usually affects all others,	
Village of Greendale		X					X	X	All features	ESRI format; coverages, shapefiles, or geodatabase

3. Do you use custom tools?	N	Y	If yes, who developed tools?	In what language was tool developed?
City of Wauwatosa		X		
Village of Hales Corners	X			
Village of Fox Point	X			
City of Oak Creek	X			
City of Glendale	X			
Village of Bayside	X			
City of St. Francis	X			
City of Franklin		X	PlanGraphics	ArcGIS
City of South Milwaukee	X			
City of Greenfield			No response	
Village of Greendale	X			

4. Explain process of obtaining source materials:	
City of Wauwatosa – Engineering	An additional copy of site plan or survey could be obtained from developer, etc.
Village of Hales Corners	Village does not update – no process in place
Village of Fox Point	No response
City of Oak Creek	No response
City of Glendale	We have been expecting revised topographic maps from MCAMLIS for quite some time.
Village of Bayside	No response
City of St. Francis	Consulting engineering services
City of Franklin	Either use orthophotos, site plans in hard copy, only update buildings at this time.
City of South Milwaukee	No response
City of Greenfield	Aerial photos, surveys, construction plans and various permits on file.
Village of Greendale	N/A

5. Is it important to track the history of updates?	Y	N
City of Wauwatosa – Engineering	X	
Village of Hales Corners		X
Village of Fox Point		
City of Oak Creek		X
City of Glendale	X	
Village of Bayside	X	
City of St. Francis	X	
City of Franklin	X	
City of South Milwaukee	X	
City of Greenfield (no response)		
Village of Greendale	X	

6. Do you think updates could be handled by an outside agency?	Y	N	If no, explain reasons
City of Wauwatosa – Engineering	X		If done with appropriate direction
Village of Hales Corners	X		
Village of Fox Point			No answer submitted
City of Oak Creek	X		
City of Glendale	X		
Village of Bayside	X		
City of St. Francis		X	Accuracy of work would be lost
City of Franklin	X		
City of South Milwaukee		X	Data integrity
City of Greenfield			No response
Village of Greendale	X		

7. If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?	Y	N
Village of Hales Corners		X
Village of Fox Point (no answer submitted)		
City of Oak Creek	X	
City of Glendale	X	
Village of Bayside		X
City of St. Francis		X
City of Franklin	X	
City of South Milwaukee	X	
City of Greenfield	X	
Village of Greendale	X	

				Were custom tools developed		If yes, explain
8. Have you successfully integrated or imported digital information from other software into the digital cadastral maps:	Y	N	If yes, what software File format	Y	N	
Village of Hales Corners		X				
Village of Fox Point		X				
City of Oak Creek		X				
City of Glendale		X				
Village of Bayside	X					
City of St. Francis		X			X	
City of Franklin	X		Building and building attributes from address files imported into SDE layers in SQL Server database, buildings are updated using CAD drawing or heads up digitizing	X		No explanation
City of South Milwaukee	X		ArcInfo			
City of Greenfield	X		Various formats – namely *.dgn *.dwg, *.dxf, *.tif.			We usually reference in a file and copy as needed.
Village of Greendale	X		CAD data and others noted previously			

9. Have you compiled a seamless map of the topographic maps?	Y	N	If Yes, what would be the desired extent of your seamless map?	If no, would you like to have this done by MCAMLIS?
City of Wauwatosa – Engineering	X		At least 1/4 sec. beyond and Waukesha County	
Village of Hales Corners		X		Yes, Village boundary
Village of Fox Point		X		Yes
City of Oak Creek	X			Oak Creek Limits
City of Glendale	X		City of Glendale and periphery areas	
Village of Bayside	X			
City of St. Francis	X			No response
City of Franklin	X		Future updates would need to be seamless	
City of South Milwaukee	X		City Limit	Yes
City of Greenfield				Not every feature in one file, but we have taken select features such as light poles and created a seamless map.
Village of Greendale	X		Village Boundaries	

SECTION B: SOFTWARE

	N	Y	If Yes, please list operating system, your staff's expertise with each, and if applicable, software what MCAMLIS product is used with each software			
Do you use GIS software?			Software Products	Operating System	Expertise 1 (low) 3 (high)	MCAMLIS Product
City of Wauwatosa – Engineering		X	AutoCAD 2002	Win 98, 2000, XP	3	Most of cadastral & topo layers
City of Wauwatosa – Engineering			ArcView 3.2	Win 98, 2000, XP	2	Structures, parking & lot lines, layers – key numbers
Village of Hales Corners	X					
Village of Fox Point	X					
City of Oak Creek		X	AutoCAD 2000	Windows 2000	3	
City of Oak Creek		X	ArcView 3.2	Windows 2000	3	
City of Oak Creek		X	Arc Map	Windows 2000	1	
City of Glendale		X	ArcGIS 8.1	MS Windows	2	Cadastral
City of Glendale		X	MicroStation	MS Windows	2	Cadastral
Village of Bayside	X					
City of St. Francis		X	AutoCAD			
City of St. Francis		X				
City of St. Francis		X	ArcView		1	
City of St. Francis		X	AutoCAD, Civil, Survey		2.5	SEWRPC
City of Franklin		X	Arc GIS 8.1	NT	1	Cadastral Address File Topo/Plan Street Centerline Orthophotos
City of Franklin		X	ArcView 8.1	N/T	2	Cadastral Address File Topo/Plan Street Centerline Orthophotos
City of Franklin		X	ArcIMS	NT	2	Cadastral Address File Topo/Plan Street Centerline Orthophotos
City of South Milwaukee		X	AutoCAD	Win 2000	2	Topo & Cadastral
City of South Milwaukee		X	ArcGIS 8.1	Win 2000	3	Topo & Cadastral
City of Greenfield		X	MicroStation SE	NT	3	Topo & Cadastral
City of Greenfield		X	ArcGIS 8.1	NT	1	Topo & Cadastral
Village of Greendale		X	ArcView 3.2	2000	2	Cadastral/Topo
Village of Greendale		X	ArcIMS	NT	2	Cadastral/Topo

SECTION C: INTERNET

Do you have internet access?	N	Y	If no, do you have plans to obtain access?	If yes, how soon?					If Yes, speed	If Yes, Browser
				Months			Years			
City of Wauwatosa – Engineering		X							TI 768 down, 384 up	Microsoft internet explorer 6.0
Village of Hales Corners	X		YES				1-2 yrs.		56K	Internet Explorer
Village of Fox Point		X								
City of Oak Creek		X							DSL	Internet Explorer
City of Glendale		X							128 KB	Internet Explorer
Village of Bayside		X								?
City of St. Francis		X							56 K	
City of Franklin	X		YES	?						No response
City of South Milwaukee		X							TI	IE
City of Greenfield		X							1.5 Mbps/downloads and 256K/uploading	Internet Explorer
Village of Greendale		X							56 K, DSL	Explorer

one page summary of 7060's / Cads.

Cadastral and Topographic Information

Most of the local participants use MCAMLIS information to some degree. Some are using it as their sole source of land information, which acts as a base map for their GIS. Others, such as the Village of Fox Point, are using the digital cadastral files as a base map for their utility data using AutoCAD software.

The response from the remaining municipalities was coincident with the Technical Advisory Committee. They confirmed that they used the hard copy cadastral and topographic maps for exhibits, presentations and reports. In some instances hard copy maps are provided to individuals and/or organizations having specific needs for land data. The respondents indicated that they are not maintaining or updating the hard copy cadastral or topographic maps.

Similarly, digital information is used for a variety of applications including day to day planning, project work, plotting of utility locations, permitting, recording new construction of utility information, updating of existing land information, engineering design and analysis, and diggers hotline identification. Most of the respondents did not maintain or update the digital cadastral files. Instead, most of them rely on Milwaukee County for these services and anxiously await the day when Milwaukee County will have more current information available on a regular basis.

Cadastral Maintenance

Of the municipalities not included on the Technical Advisory Committee, the City of Oak Creek, City of Franklin and the City of Wauwatosa are currently maintaining and updating the digital cadastral map files. The City of Wauwatosa, City of Glendale, and the Village of Fox Point have prepared seamless, or larger tile areas, than the existing one-quarter section MCAMLIS files.

Currency of Information

Cadastral Maps

All of the communities that rely on the MCAMLIS cadastral mapping products would like to see the updates provided more frequently. Since the City of Oak Creek maintains their own files, they do not need updated MCAMLIS cadastral maps. Currently, the City of Oak Creek is not forwarding their updated digital cadastral files to MCAMLIS.

Most municipalities would be interested in tracking historical information concerning changes in the cadastral and topographic information.

Topographic Maps

The majority of users would like to see the topographic map files updated more often.

Seamless Database

Although most of the respondents indicated that they have not yet compiled a seamless digital cadastral map, they all indicated that they would like MCAMLIS to recompile the digital cadastral in larger tiled areas, preferably to at least their municipal boundaries.

Data Formats

The following list represents the software systems used by the other municipalities:

Software Product	Municipality
AutoCAD 2002	City of Wauwatosa-Engineering, City of Oak Creek
AutoCAD	City of St. Francis. City of South Milwaukee, City of St. Francis
ArcView 3.2	City of Wauwatosa-Engineering City of Oak Creek, St. Francis, Village of Greendale
ArcView 8.1	City of Franklin, City of Greenfield
ArcMap	City of Oak Creek, City of Glendale, City of Franklin, City of South Milwaukee, Village of Greendale
Bentley MicroStation	City of Glendale
AutoCAD, Civil & Survey	City of St. Francis
MicroStation SE	City of Greenfield

Internet

All municipalities, with the exception of the Village of Hales Corners, have Internet access. The Village indicated that they have plans to obtain Internet service within 1-2 years. The City of Wauwatosa was the only municipality that currently has a high speed T1 connection. All other municipalities had connections speeds between 56K to 768K. This could become a major hurdle with regards to accessing digital MCAMLIS and utility files over the Internet.

ISP

Local Internet service providers, such as Ameritech or Time Warner Cable, have services available at connection speeds starting at 768K, which will be adequate for accessing and downloading the MCAMLIS digital files. These services include Digital Subscriber Lines (DSL) and digital cable that can be purchased for approximately $50 per month, but may not be available in all areas. T1 lines, which provide significantly faster connection speeds (1.544 megabit per second) are more costly to install and include higher monthly fees. One-time fees for installation and routing device are approximately $2,000.

T1 (now being referred to as DS1) has the advantage of being a private, fully dedicated link from the ISP to the customer. DSL services can match the speed of DS1 but only by sacrificing distance. There is currently a 2-mile radius limit for DSL from the ISPs' point of presence. Cable modem services can at times achieve speeds well above DS1 (a maximum of 3 megabits per second) but the available bandwidth is shared with all customers on a particular cable segment which also means the line and transported data is not secured. Average costs for a DS1 service can range between $700 to $1,200 dollars per month depending on the service contract period agreed upon and on the medium used (copper line or fiber optic line). A surcharge from the copper line or fiber optic provider may increase the monthly cost by approximately $300 (based on a 3 year contract). The surcharge fees are

typically eliminated or reduced if the service is contracted with the company providing the physical line connection. Extended contracts typically include lower monthly fees.

PROTOTYPE INSTALLATION

Since Ruekert/Mielke agreed to provide the necessary hardware and software, and host the Internet Prototype, there were no additional purchases required. Ruekert/Mielke also provided the use of various web application development software licenses, including ESRI ArcIMS, Intergraph WebMap, and Autodesk MapGuide. Based on the prevalent use of ESRI software by Milwaukee County and other local municipalities, Ruekert/Mielke chose to develop the Internet Prototype with ESRI ArcIMS 4.0. This will reduce the conversion efforts, learning curve and simplify the installation efforts should Milwaukee County decide to implement a Land Information & Utility web application.

The following tables list the hardware and software products and costs associated with the development and hosting of the Internet Prototype Web Application:

ArcIMS Hardware: Components
Microsoft Windows 2000 Server IIS 5.0
SCSI RAID 5 Hard Drive Configuration
3.0 gigabytes of Available Disk Space
1 gigabyte RAM
Dual Intel Pentium III Processors

ArcIMS Development: Components
ESRI ArcIMS 4.0 (dual processor license)
Microsoft Visual InterDev v 6.0

ArcIMS Supplemental Software: Component
New Atlanta ServletExec 4.0
Sun Microsystems Java™ 2 Runtime Environment, Standard Edition including Java™ Plug-in Version 1.3.1

Web Page Development Software: Component
Adobe PhotoShop 7.0
Microsoft PhotoDraw 2000 (discontinued)
MapEdit 2.64

ArcIMS Database: Component
Microsoft SQL Server(10 Client Access Licenses (CAL's)
Microsoft Access 2002

WEB HOSTING OPTIONS

we already have this

Option 1 – Milwaukee County

The following table lists the hardware and software products and associated costs required to host the Internet Prototype Web Application:

ArcIMS Web Server:

Components	Cost
Microsoft Windows 2000 Server IIS 5.0	
SCSI RAID 5 Hard Drive Configuration	
3.0 gigabytes of available disk space	
1 gigabyte RAM (min.)	
Dual Intel Pentium III Processors	
Total Cost:	**$6,000 - $8,000**

ArcIMS & Development Software:

Components	Cost
ESRI ArcIMS 4.0*	~~$7,500~~ 12,500

*($7,500 single processor license). Future enhancements may require an upgrade to a dual processor license, which costs an additional $5,000.

ArcIMS Supplemental Software:

Component	Cost
New Atlanta ServletExec 4.0	$700
Sun Microsystems Java™ 2 Runtime Environment, Standard Edition including Java™ Plug-in Version 1.3.1	No Cost

ArcIMS Database:

Component	Cost
Microsoft SQL Server (10 Client Access Licenses (CAL's)	$3,400
Security Database	$4,000-$5,000
Microsoft Access 2002	$300
Total Cost:	**$7,700-$8,700**
TOTAL HARDWARE/SOFTWARE EXPENSES	**$21,900 - $24,900**

(*) custom developed

Annual Software Maintenance Costs:

In addition to the initial purchases, there would be annual expenses for software maintenance and technical support. The following is a list of the annual expenses:

Software	Cost
ESRI ArcIMS	$1,200
Microsoft SQL Server	$250
New Atlanta ServletExec 4.0	$50
Total Hardware/Software Expenses	**$1,500**

Option 2 – Local Web Hosting Service

In the event Milwaukee County is not interested in hosting the Land and Utility Information System Web Application, MCAMLIS could contract with a local web hosting service. The following is a list of required services and estimated costs for web hosting services:

Required Services	Cost
Data Storage and Web Hosting: (includes hardware, software licenses, yearly software maintenance fees)	$600 - $900 per month
Data Maintenance: (includes appending or replacing available data sets)	$200 - $400 per update
Additional Web Page or ArcIMS Development	$40 - $85 per hour
Total Monthly Data Storage and Web Hosting Fees	**$800 - $1,300**

not more than 60 days

The following additional services and costs to modify the web pages or enhance the ArcIMS web application:

Additional Services	Cost
Web Page or ArcIMS Development	$40 - $85 per hour
Web Application Upgrade (dependent upon the extent of the software enhancement)	$1,000 - $2,000 per update
Data Conversion (Convert existing digital files into larger tiles and to standard specifications)	$250 - $400 per update

MCAMLIS Participant Requirements:

The following is a list of software requirements to access the web application:

Software Requirements	Cost
Microsoft Windows XP PRO	$300
Microsoft Internet Explorer v 5.0 or newer	No Cost
Monitor w/1024 x 768 screen resolution (min.)	$300-$600

Recommendation

Based on the current budget restraints in Milwaukee County, the lack of trained technical staff with regards to ArcIMS development and support, and improbability that additional positions will be added, it would seem to make the most sense to have the data and web application hosted by a web hosting service provider. Should Milwaukee County decide to take over the maintenance and hosting in the future, the web application can be simply removed from the web hosting service providers' server and installed on a County server for approximately $1,500.

SECURITY

Based on concerns regarding access to various data sets, including water distribution and public utility facilities, a secured web page and login process was designed which requires an authorized user name and password. A Microsoft SQL Server database was created to store the user names and passwords. Each of the participants was provided unrestricted, and unlimited, access to query and view the available digital information.

However, the database design will support the creation of user groups, which may be required to restrict or limit access to similar, or different data sets.

Ruekert/Mielke has taken several steps to protect its Internet services from hardware failure, data loss, power loss, connection loss, intrusion, and infection.

All Ruekert/Mielke web servers are protected from data loss through the use of multiple disk drives creating either a mirrored pair of drives or an array of drives. If any one drive were to fail, the data is still active. Regular backups are also done on a rotation to high capacity tapes, which are stored off site. Power loss is also protected against through the use of UPS or Uninterruptible Power Supply. The UPS's for the web services computers have added external batteries attached and stand-by, high capacity UPS's for long-term power outages.

Ruekert/Mielke's facility utilizes a Time Warner Telecom's Synchronous Optical Network (SONET) fiber optic ring for its telecommunication needs. The SONET fiber ring provides a complete, underground, self-repairing, fiber optic solution with no copper lines between Ruekert/Mielke and Time Warner Telecom.

Intrusion and infection from the Internet are the most dangerous aspects of doing e-commerce. Ruekert/Mielke's first line of defense is the Cisco PIX firewall. A firewall is a device which blocks all unwanted traffic and examines all data it does allow to pass through. Network

Associates Netshield virus-scanning software is also used to protect against the constant threat of virus attack. The software is regularly updated with the latest virus definition files on an hourly basis.

The firm is also evaluating a new product called Entercept. Entercept will monitor all activities on the web services computers and watch for any event it considers disruptive to the normal operations of the computer. Monitoring new viruses and uploading patches is not necessary since Entercept will stop any event that could destroy files or give improper access to different levels of the computer.

Recommendation

Regardless of the decision pertaining to web hosting options, the Land and Utility Information System Web Application should include a secured web site with login capabilities. A separate security database, using an server based database manager, such as Microsoft Access, SQL Server, Oracle, or Sybase, should be developed with user and group access rights. Since We Energies recently developed a license agreement for their facility data, and the City of Milwaukee Water Works is not certain if, and how much of their data they will release, the security database should be designed to limit access to those organizations that have executed the appropriate license agreement. The security database should allow for selected We Energies and City of Milwaukee personnel to update that portion of the security database that controls the distribution of their data. Users could be easily added, deleted, or modified over the internet. Potential users would be able to instantaneously login and download the requested data following the insertion of their user name and password. This will dramatically reduce the effort of compiling and distributing data via email, compact disks (CD), or digital versatile disks (DVD).

The development costs for the security database is estimated to cost $4,000 - $5,000.

INTERNET WEB APPLICATION

Prototype Sites

Based on Technical Advisory Committee feedback and their data requirements, three (3) prototype web-based applications were developed for review and comment. The following is a description for each of the web-based applications:

Option 1 - ArcMap Server (Converted Data)

Web Application Software: ESRI ArcIMS & ArcMap Server
Data Storage: ESRI ArcMap.

The latest release of ArcIMS (version 4.0) includes an extension called ArcMap Server. This extension permits the creation of an Internet Map Service that is capable of reading data directly from an ArcMap document. In turn, ArcMap can directly read most all of the file formats in use by the participants, thereby eliminating any need for conversion. This is particularly useful for displaying text features that were previously required to be converted in version 3.1. The only exception being We Energies' gas operations land base that is maintained as SmallWorld GIS files. Since these were provided for the study as ArcInfo Export (Interchange) files, they could be extracted to ArcInfo coverages, which can be read directly by ArcMap as well.

All of the digital files were converted into an ArcMap document and rectified to the MCAMLIS geodetic reference framework. Each data layer was available for display in the web-based application. Users would be able to view and download the available data sets for selected geographic areas. Data from different data providers, such as the City of West Allis, Village of Brown Deer or MMSD, could be overlaid and viewed simultaneously.

The digital quarter-section cadastral and topographic files provided one of the greatest challenges. Because these digital maps are maintained as 1 file per quarter-section for the topographic maps and 10 files for the cadastral map data, the load time was extremely slow (2 minutes). This would produce thousands of map layers over the entire MCAMLIS region. Thus, the preparation of county-wide seamless files, or larger tiled areas, would significantly decrease the loading time.

Option 2 - ArcIMS (Data Extract)

- Web Application Software: ESRI ArcIMS
- Data Storage: Native File Format

A Milwaukee County base map was prepared containing selected digital cadastral related features, such as street centerlines, street names, hydrography, highways, U.S.P.L.S.S. one-quarter section and section lines. Users can either query by municipality, section number, or one-quarter section number, or navigate to specific areas by utilizing various zoom and pan functions. Since the TAC felt most end users would know the contents of the available data sets, they did not feel the display of this information was necessary. Instead, sample views, or thumbnails, of the available data, could be viewed prior to downloading. The biggest advantage of this web application was the increased amount of base map information provided to assist the end user with identifying the specific area, and navigational tools.

Option 3 - Image (HTML Document) Best one

Web Application Software: Custom HTML programming
Data Storage: Native File Format

Three (3) separate images (.jpg) of Milwaukee County were created to guide the user through the selection process. One image included the municipal boundaries. A second image included the U.S.P.L.S.S. section lines and numbers. A third image included U.S.P.L.S.S. one-quarter section lines and Milwaukee County Map Sheet numbers. A user would first select the type of geographic search: by municipality, by section, or by one-quarter section. The map display

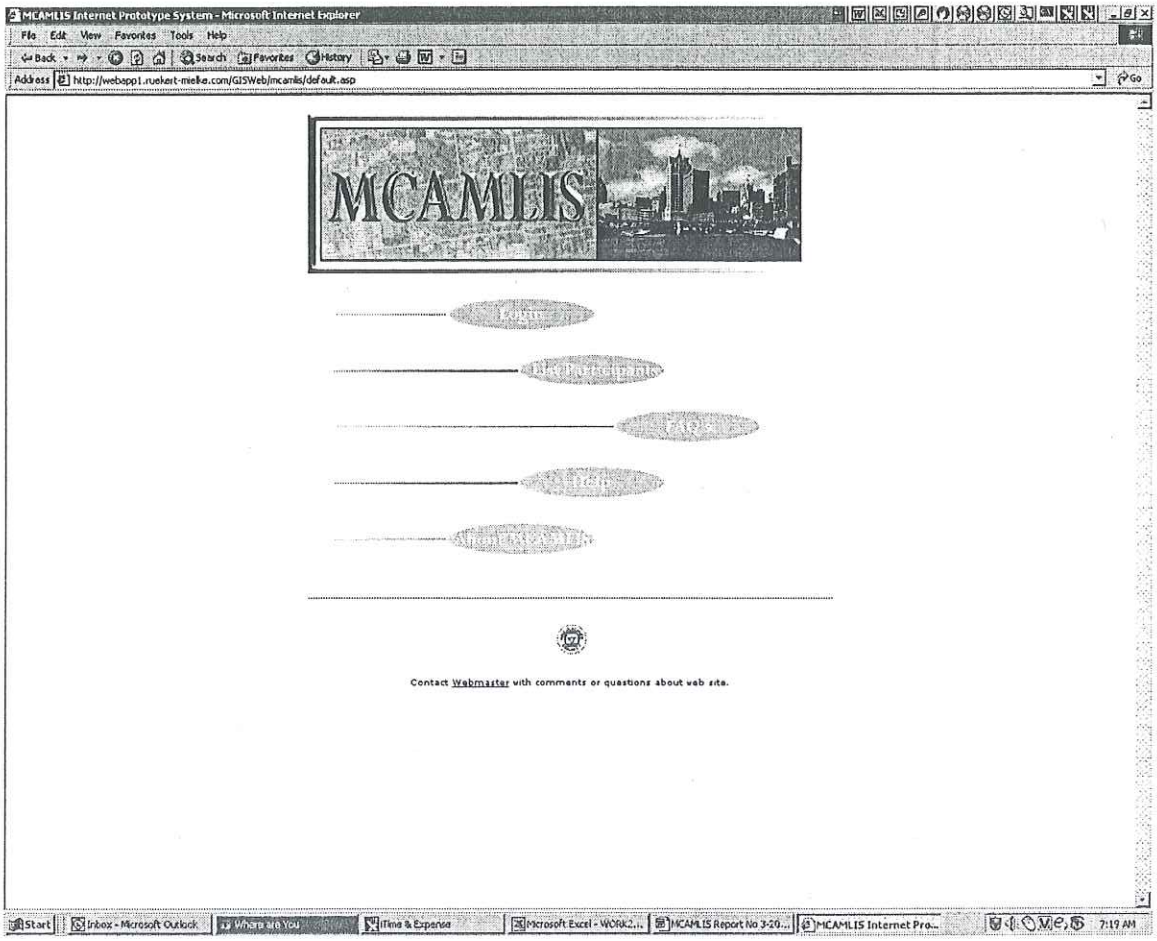
would load the map image corresponding to the selected geographic search method. Next, the user selects available map data by clicking on the desired geographic area within the image map. A list of available digital files is returned to the screen. The user checks the boxes of the digital files they are interested in acquiring. Actual digital map files are not viewable. This web application was built with the premise that most technical users would know the contents of the particular data set they were looking for. If desired, contents of the digital files could be displayed as an image file. Eliminating conversion efforts required for viewing available digital files would save on conversion costs and would eliminate any concern regarding system performance. Since this web application does not include a mapping interface, users would not be able to navigate within the map image. This web interface utilizes standard HTML programming and images of the Milwaukee County base map. MapEdit 2.64 was used to prepare the Milwaukee County map images.

Recommendation

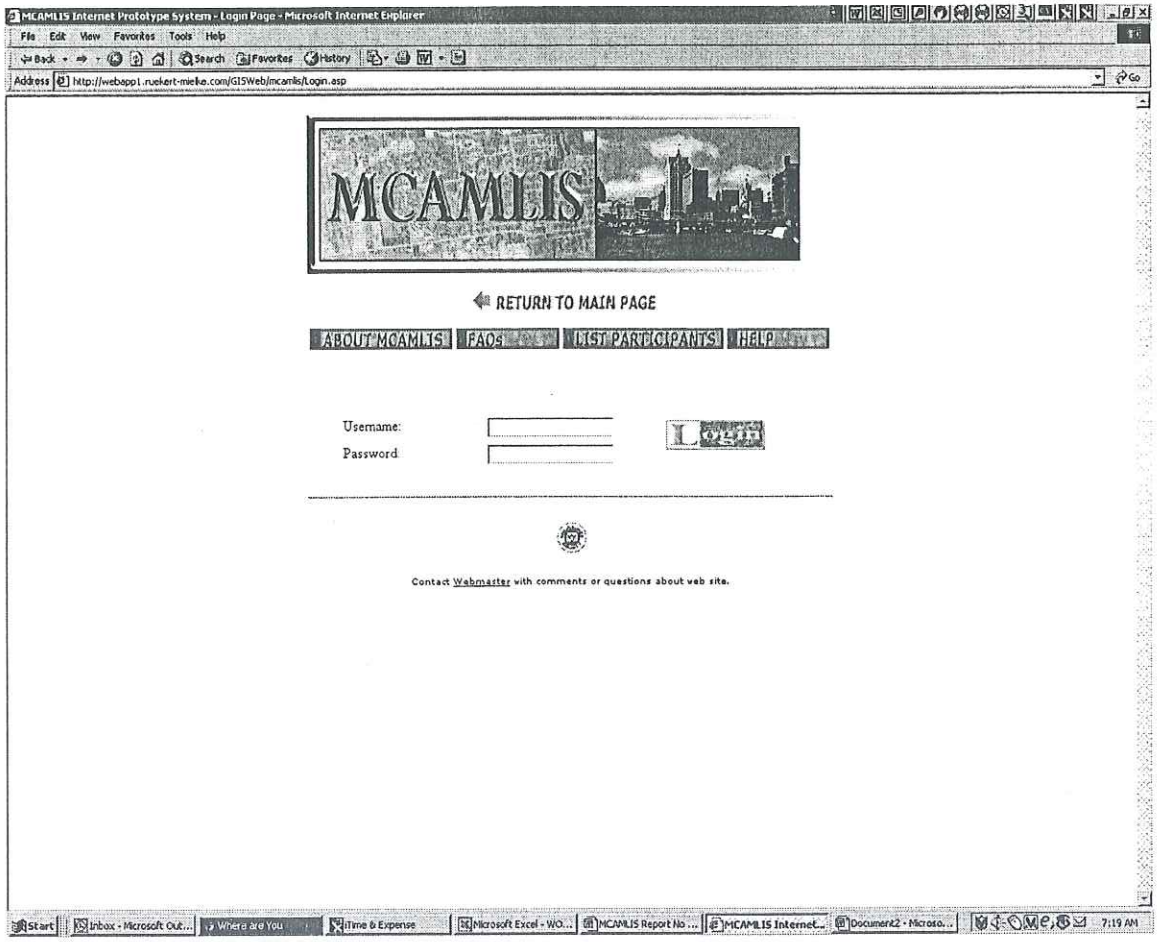
Based on feedback from a majority of the Technical Advisory Committee members, Option 2 - ArcIMS (Data Extract) was the easiest and most practical to implement. In addition to the current search criteria, the web application should include the ability to select multiple sections or one-quarter section map areas by simply clicking on multiple geographic areas or by defining two corners of a selection window. Since ArcIMS supports this type of selection process, the effort to enhance the web application will be nominal.

Screen shots for all of the Internet Prototype Web Applications appear on the following pages:

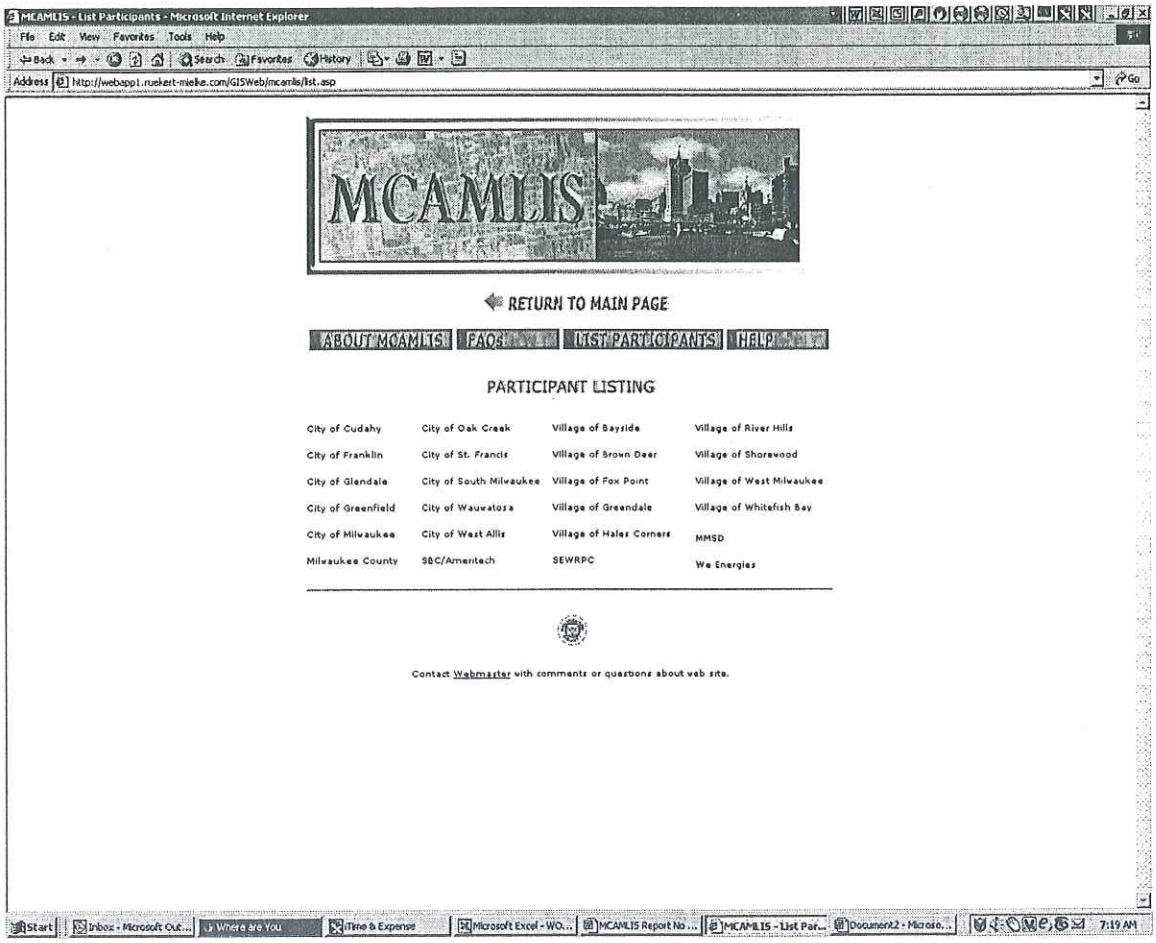
SAMPLE PROTOTYPE WEB PAGES



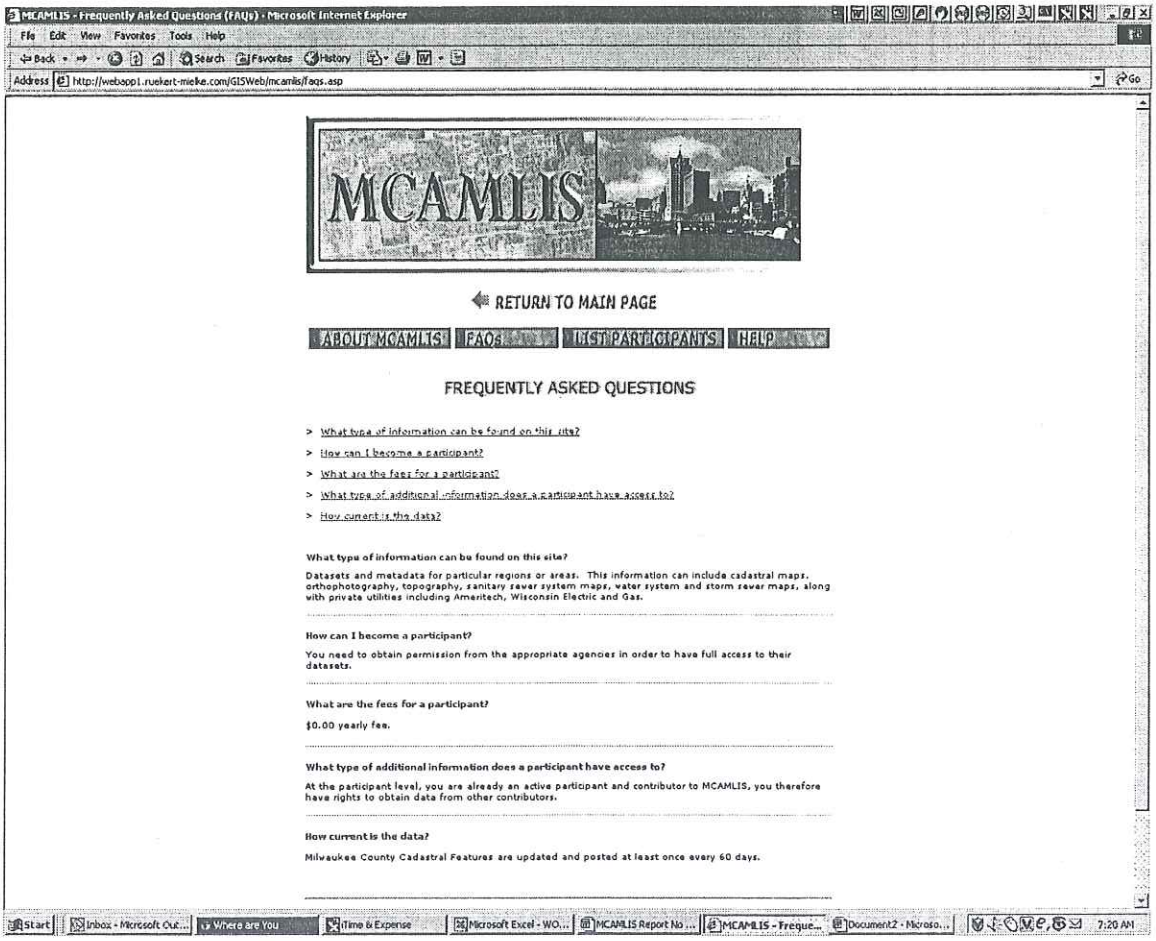
MCAMLIS Main Page



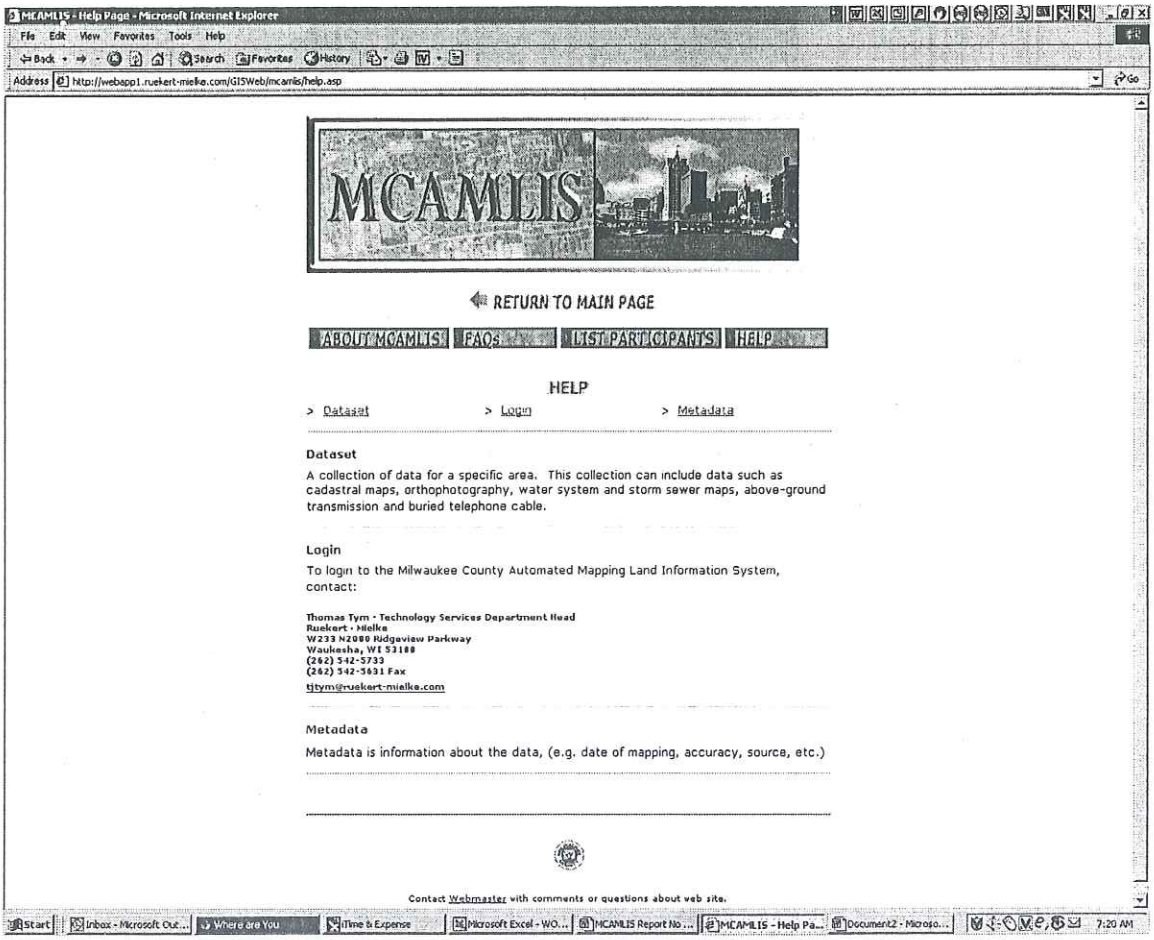
MCAMLIS Login Page



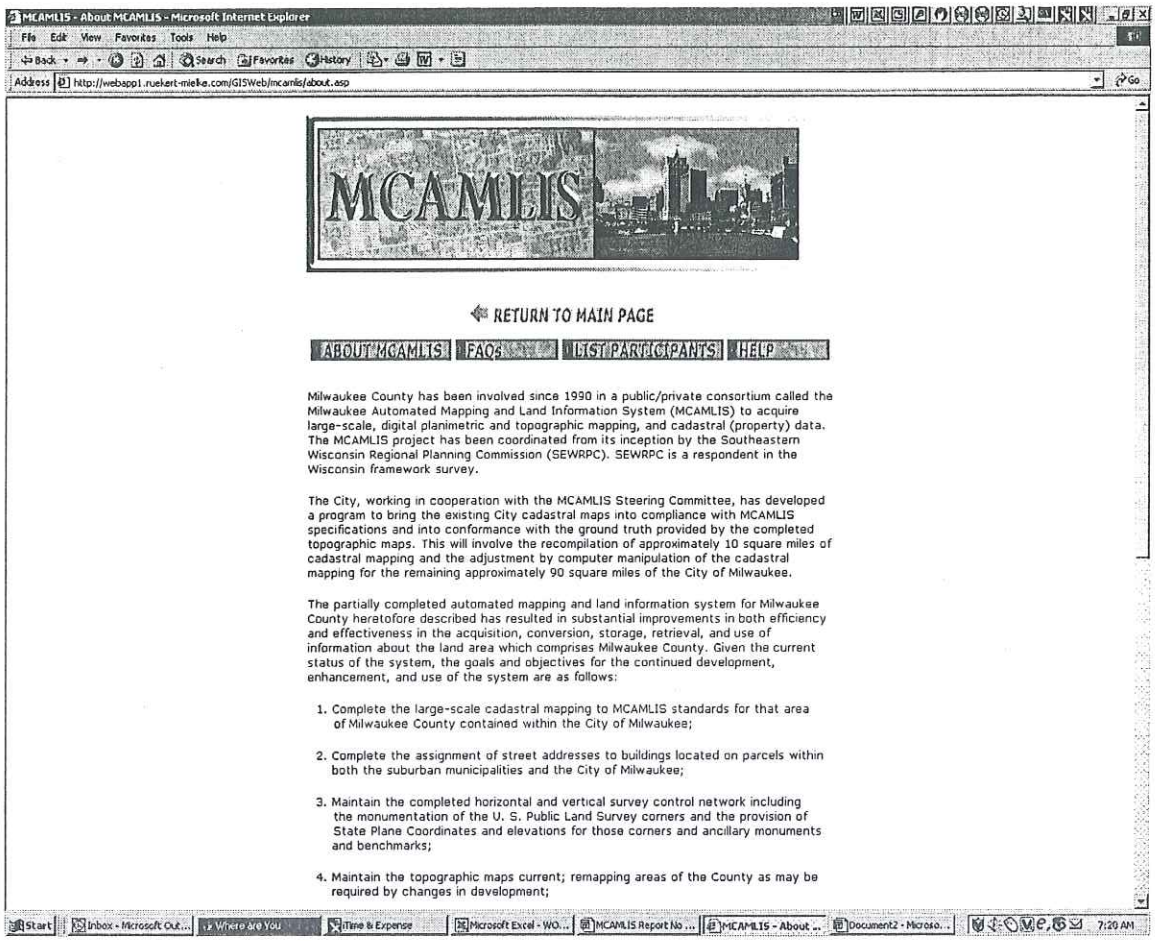
MCAMLIS Data Sharing Participants



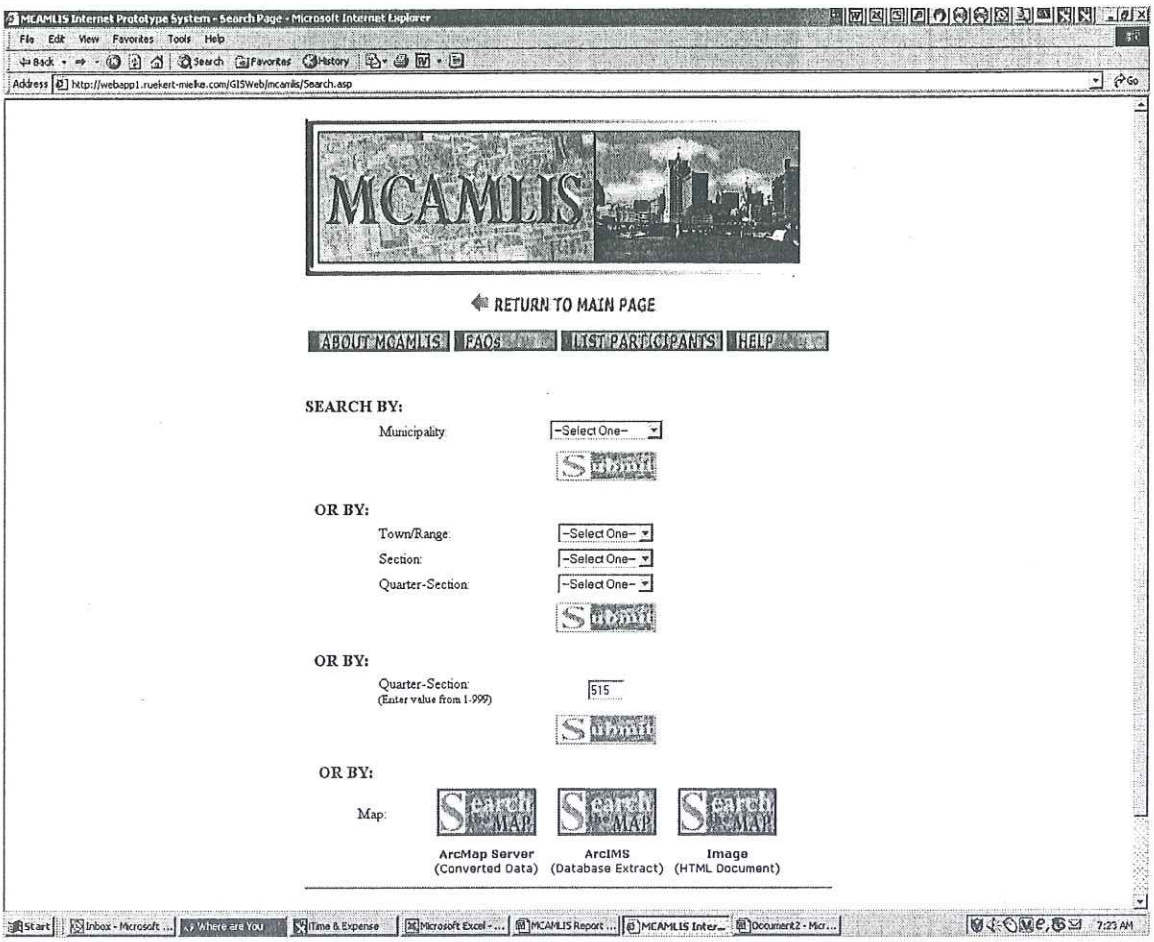
MCAMLIS Frequently Asked Questions (FAQ)



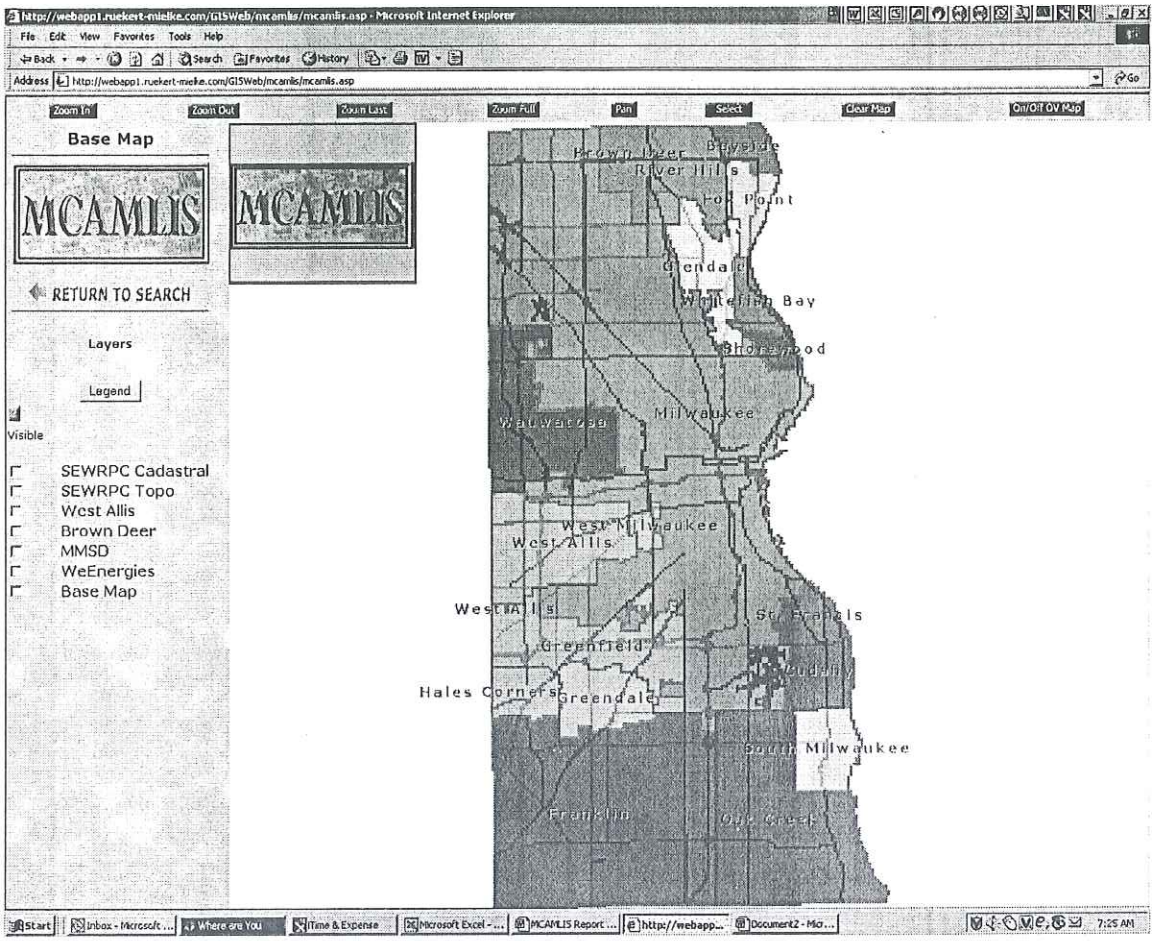
MCAMLIS Help Page



About MCAMLIS Web Page

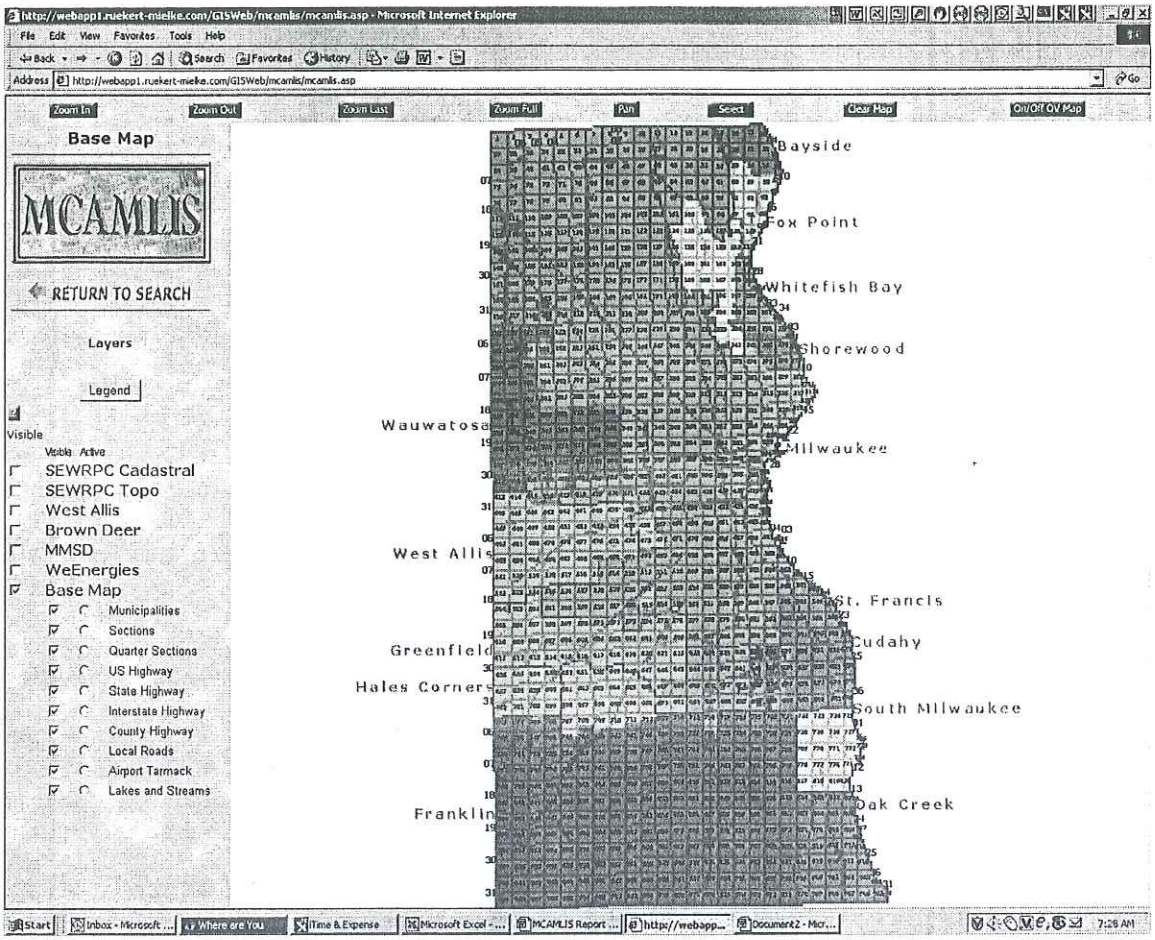


Search by: MCAMLIS Map Sheet Page



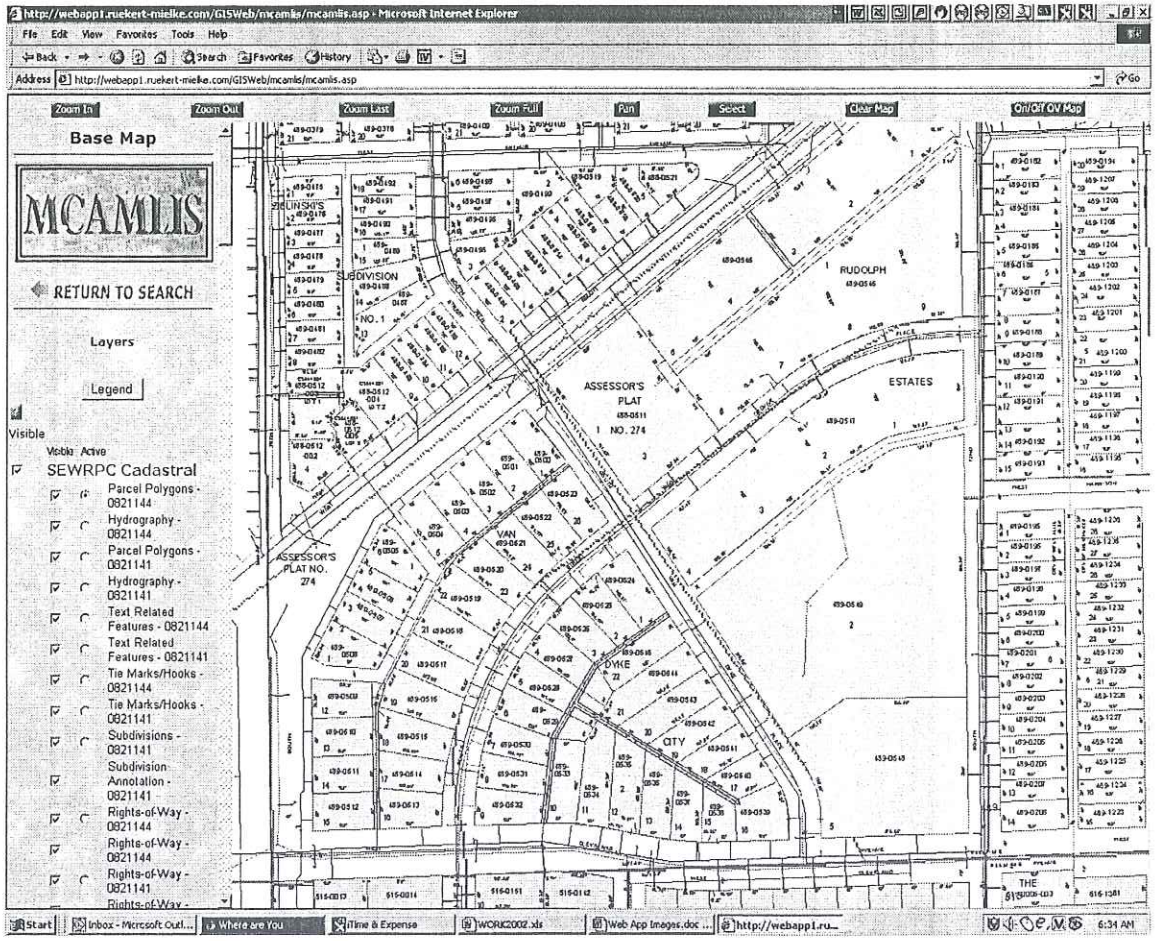
ArcMap Server (Converted Data) – Search Page

option 1



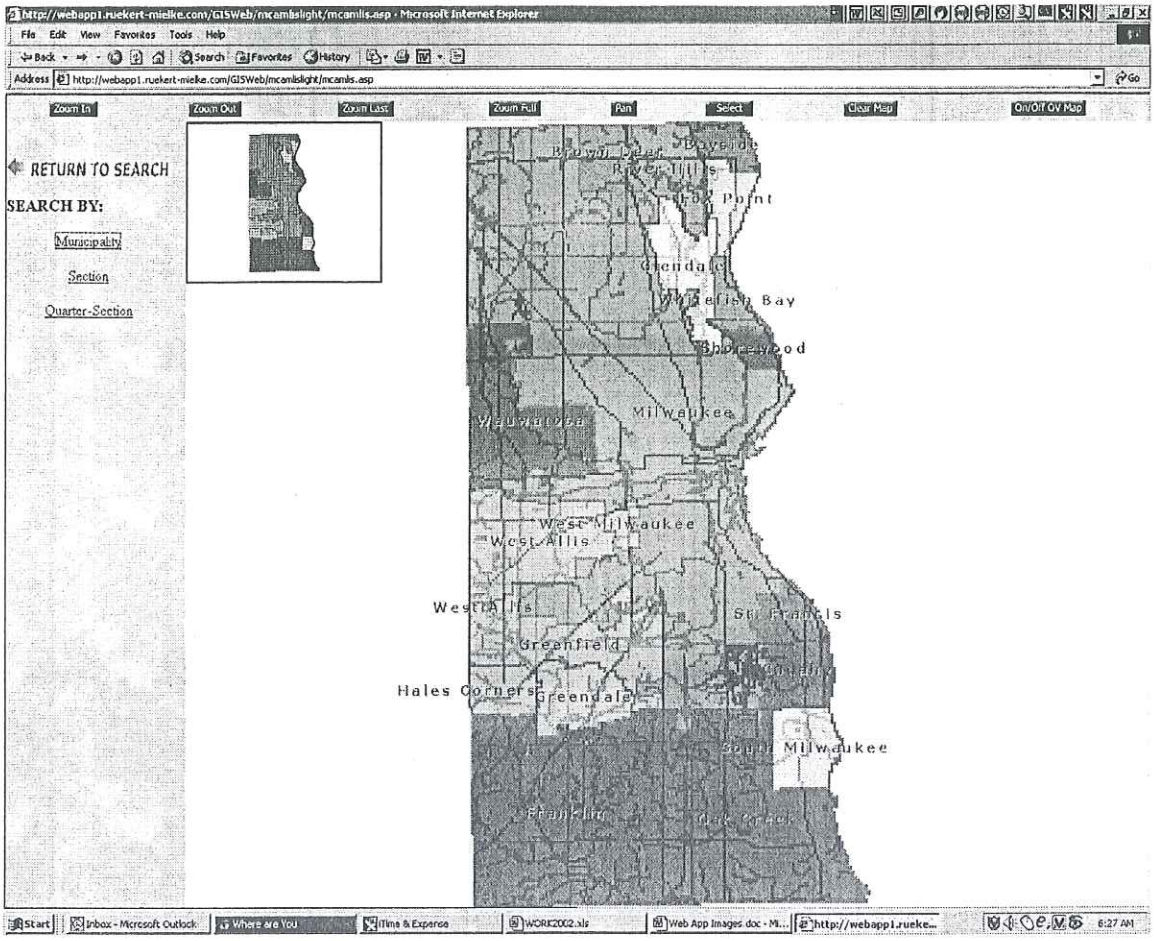
ArcMap Server (Converted Data) – Display Base Map Features

Option 1



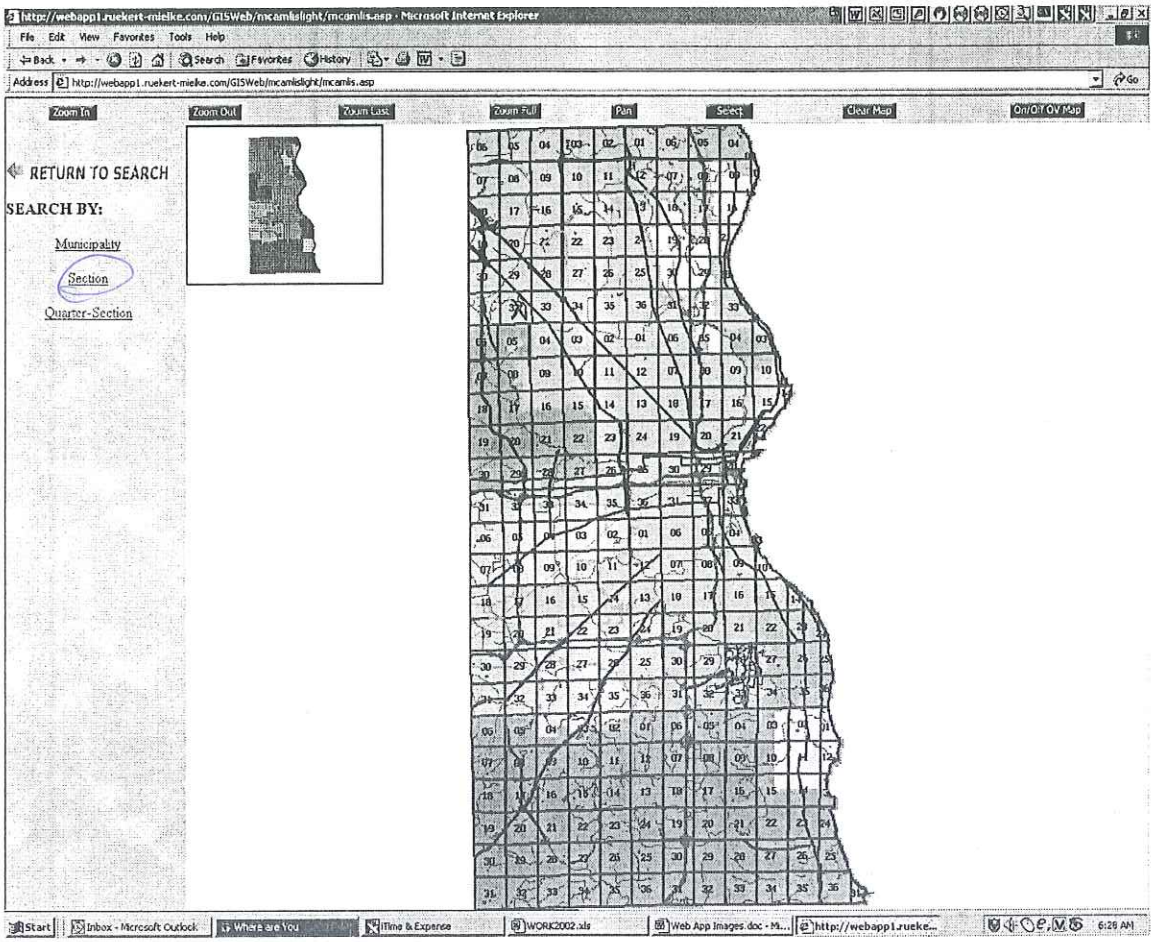
ArcMap (Converted Data) – Zoom-in and Display Cadastral & West Allis Utility Data

Option 1



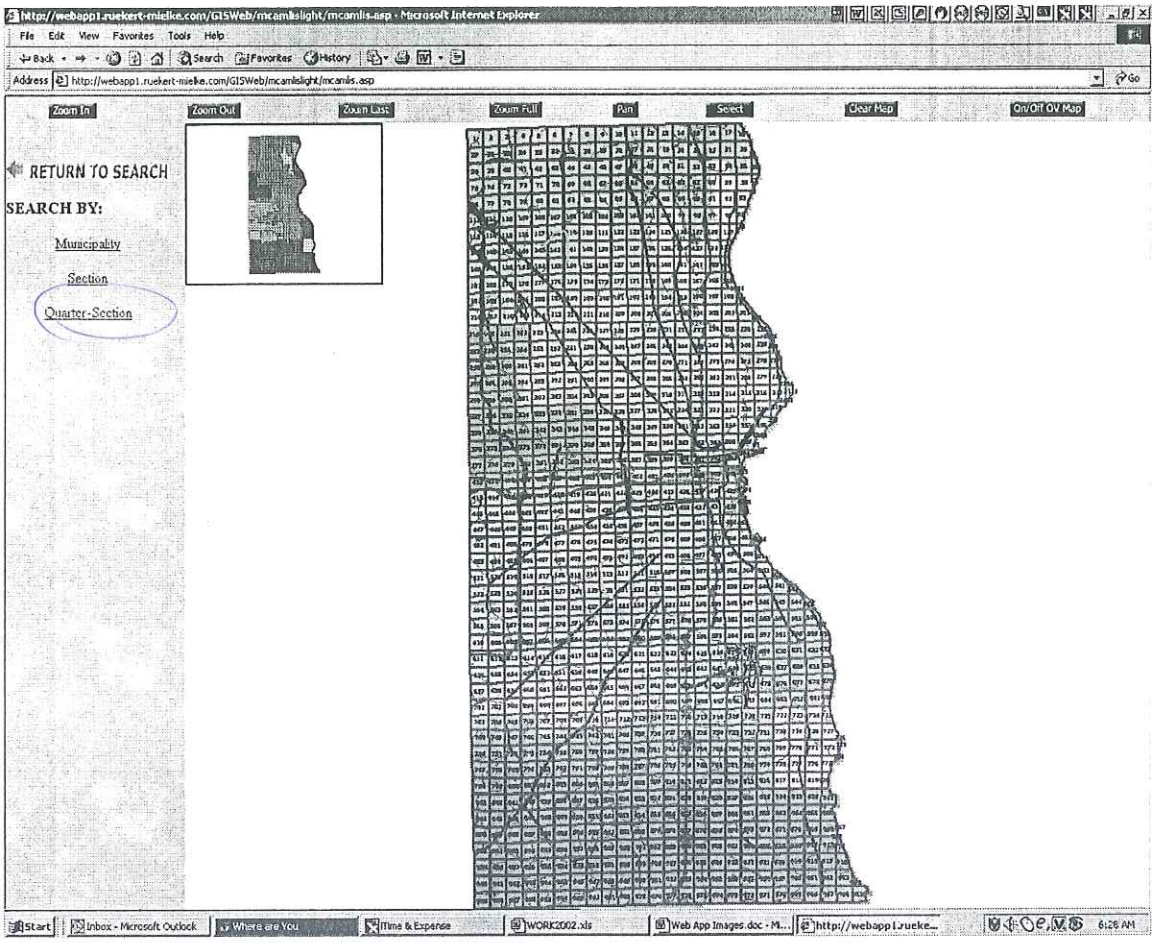
ArcIMS (Database Extract) – Search by Municipality, Section, or One-quarter Section

option 2



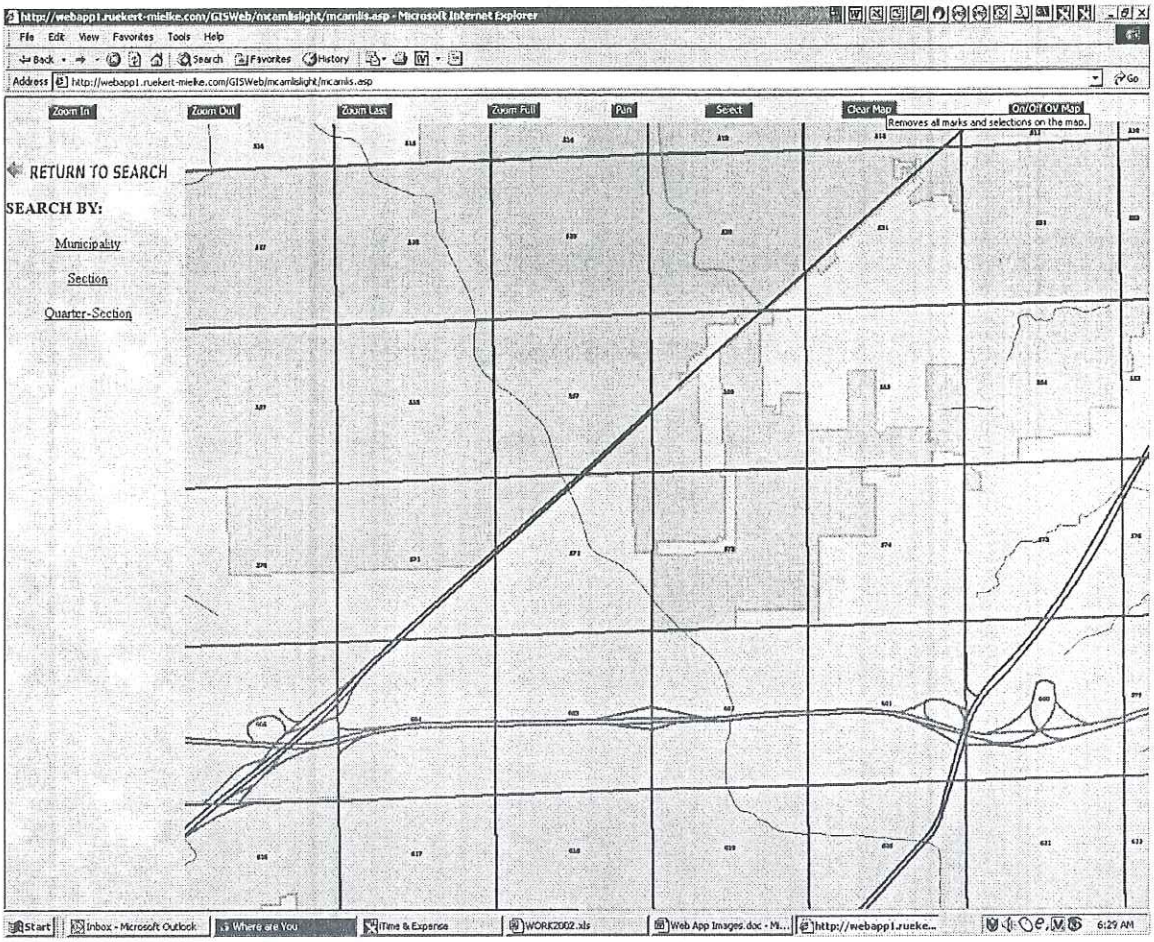
ArcIMS (Database Extract) – Search by: Section - Display U.S.P.L.S.S. Section Lines

option 2



ArcIMS (Database Extract) – Search by: One-section - Display U.S.P.L.S.S. One-Quarter Section Lines

option 2



ArcIMS (Database Extract) – Zoom-in to identify desired area

option 2

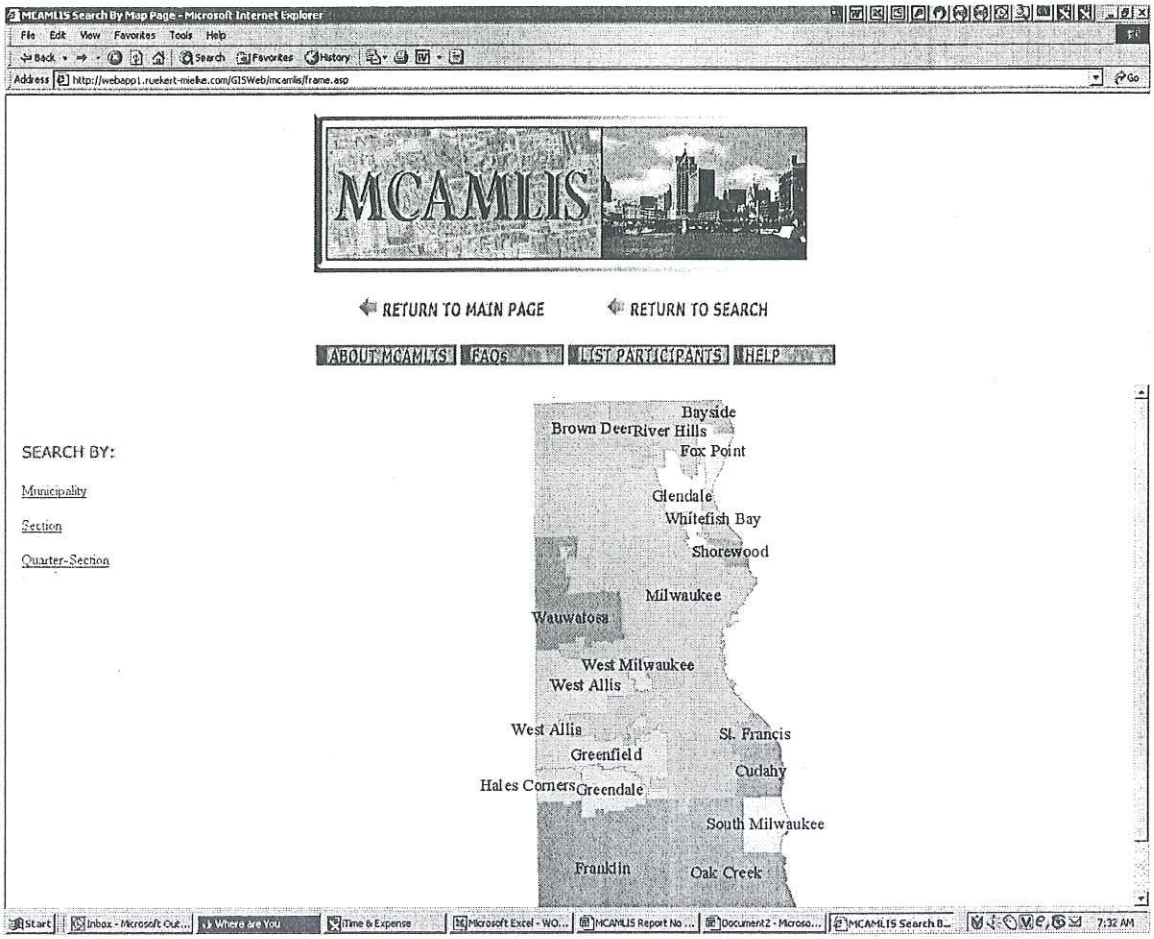


Image (HTML Document) – Search by: Municipality, Section, or One-quarter Section

option 3

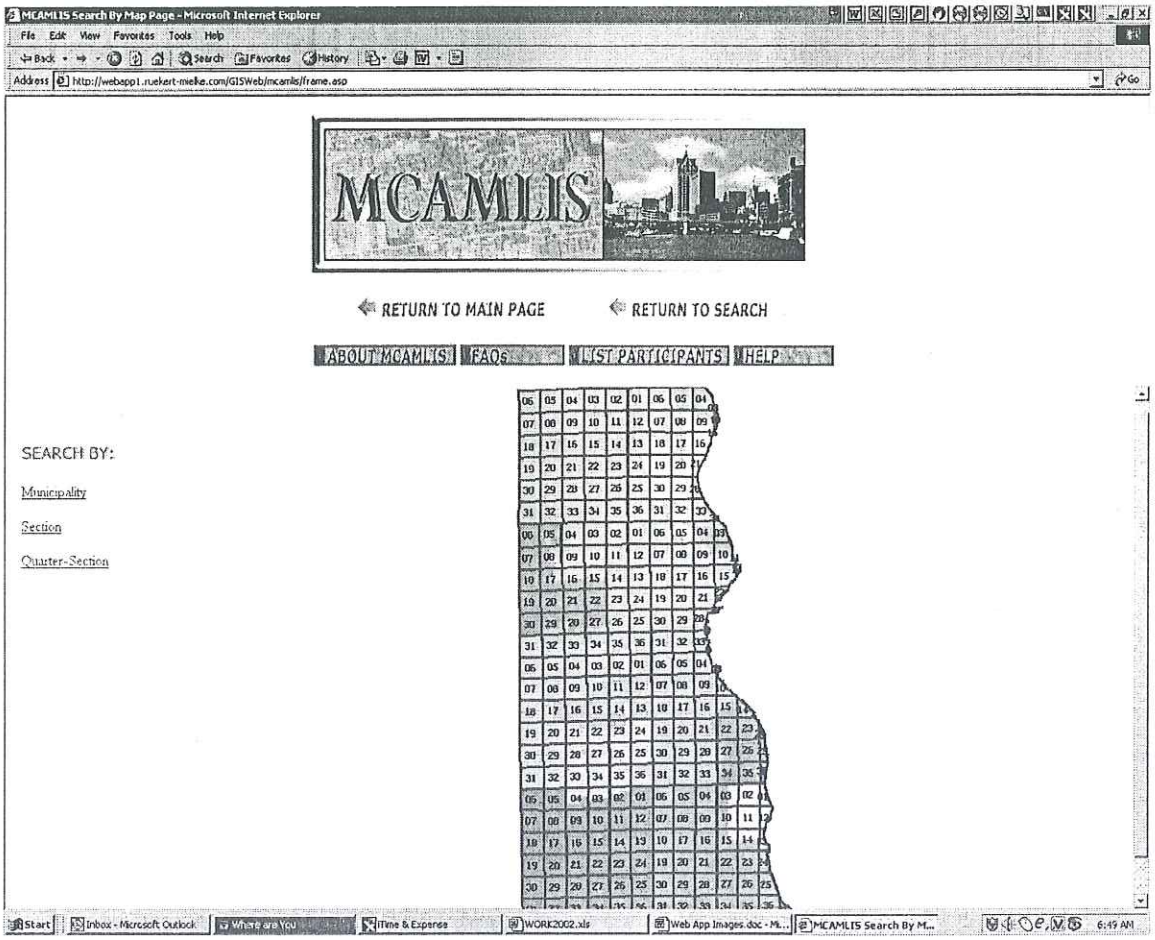


Image (HTML Document) – Search by: Section

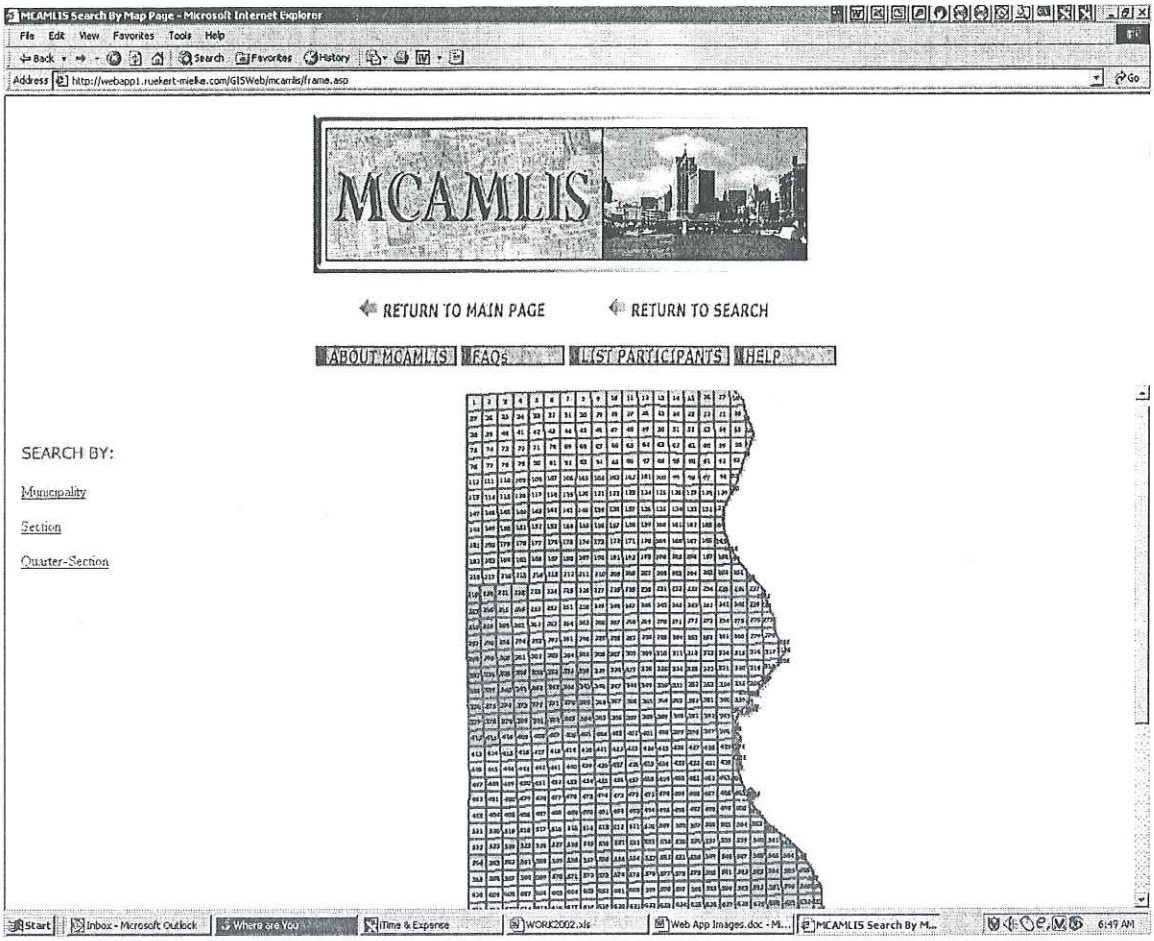
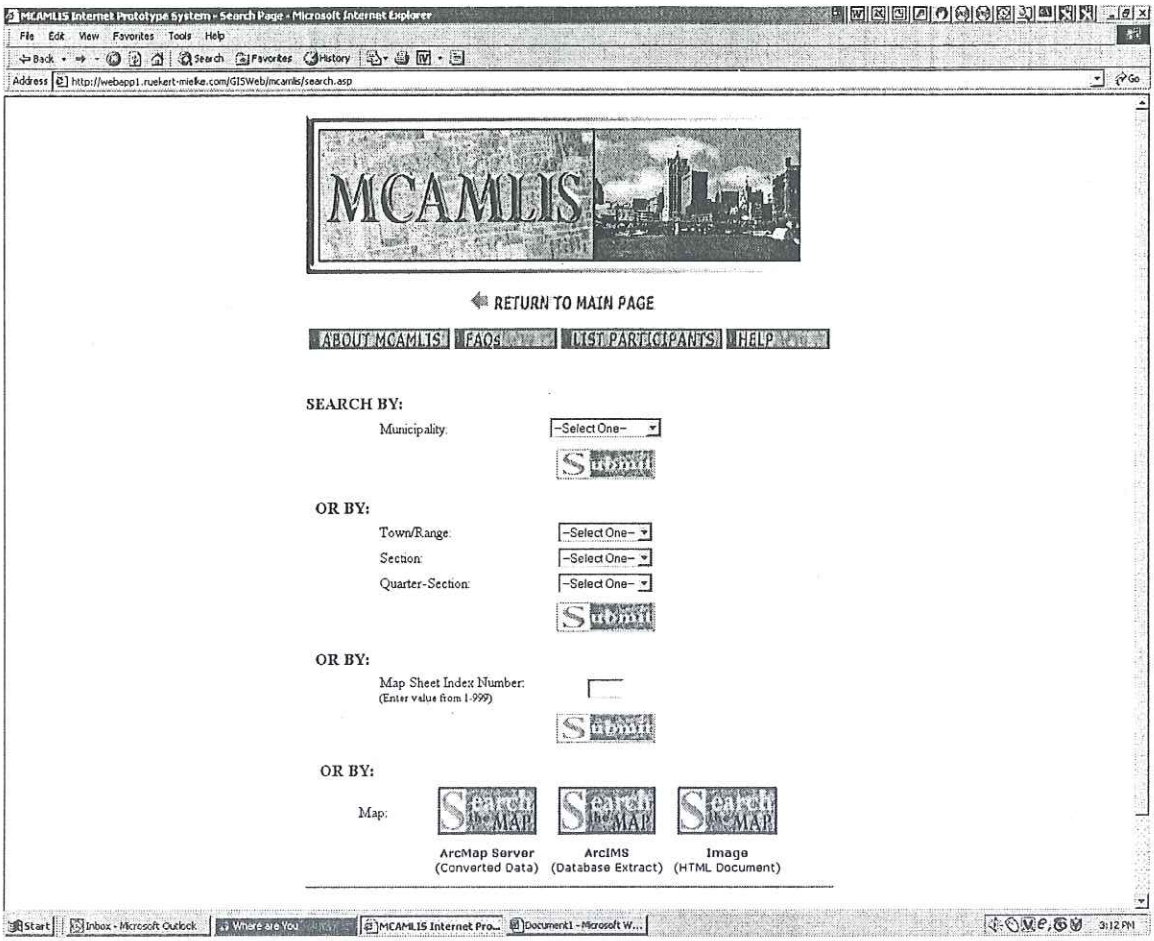
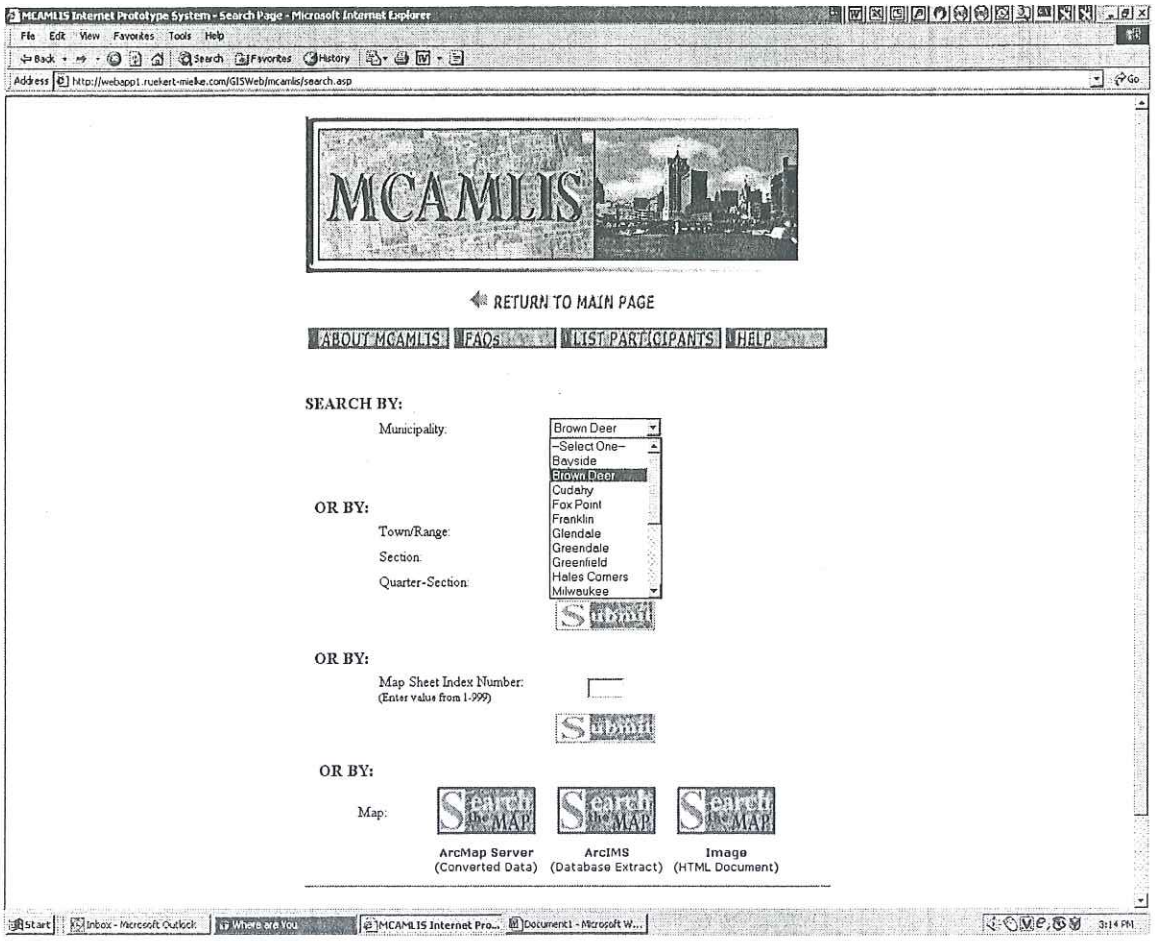


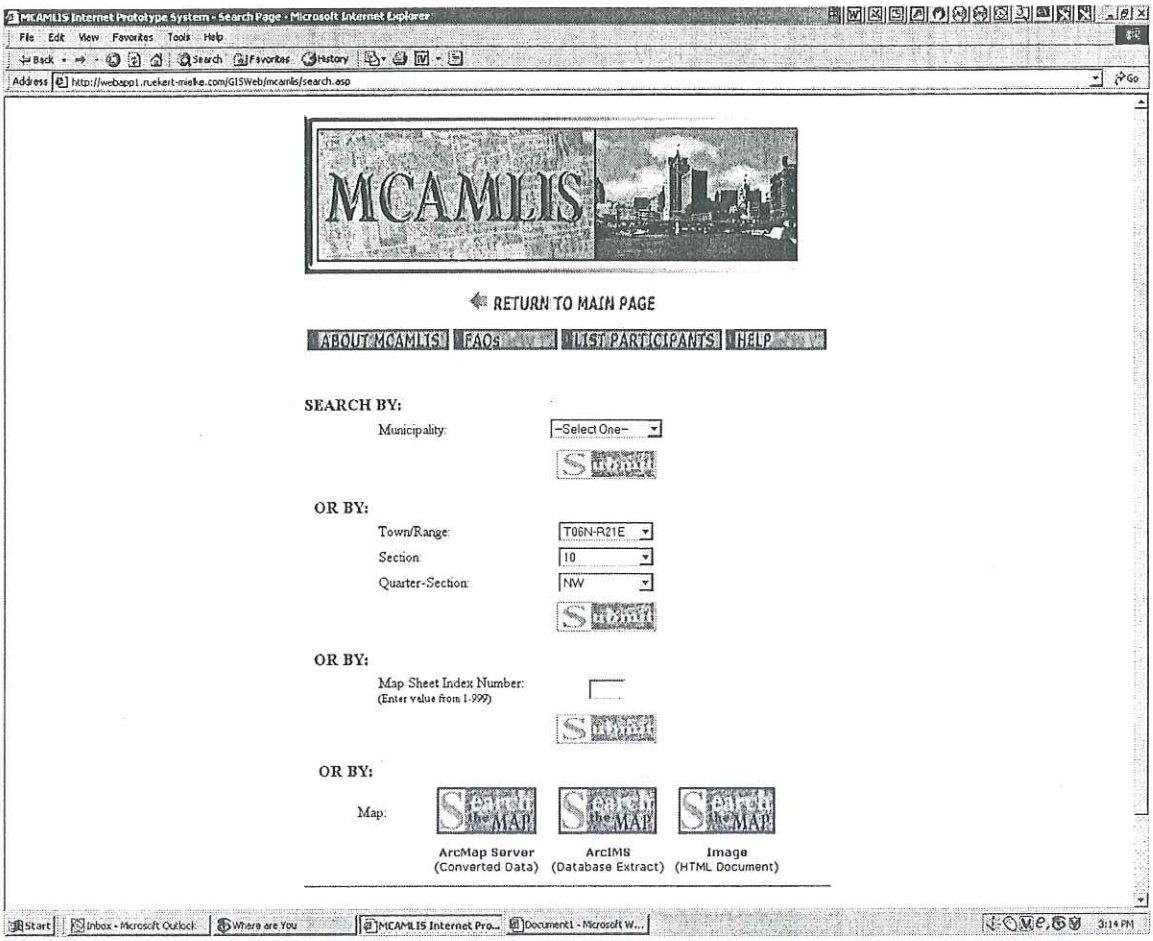
Image (HTML Document) – Search by: One-quarter Section



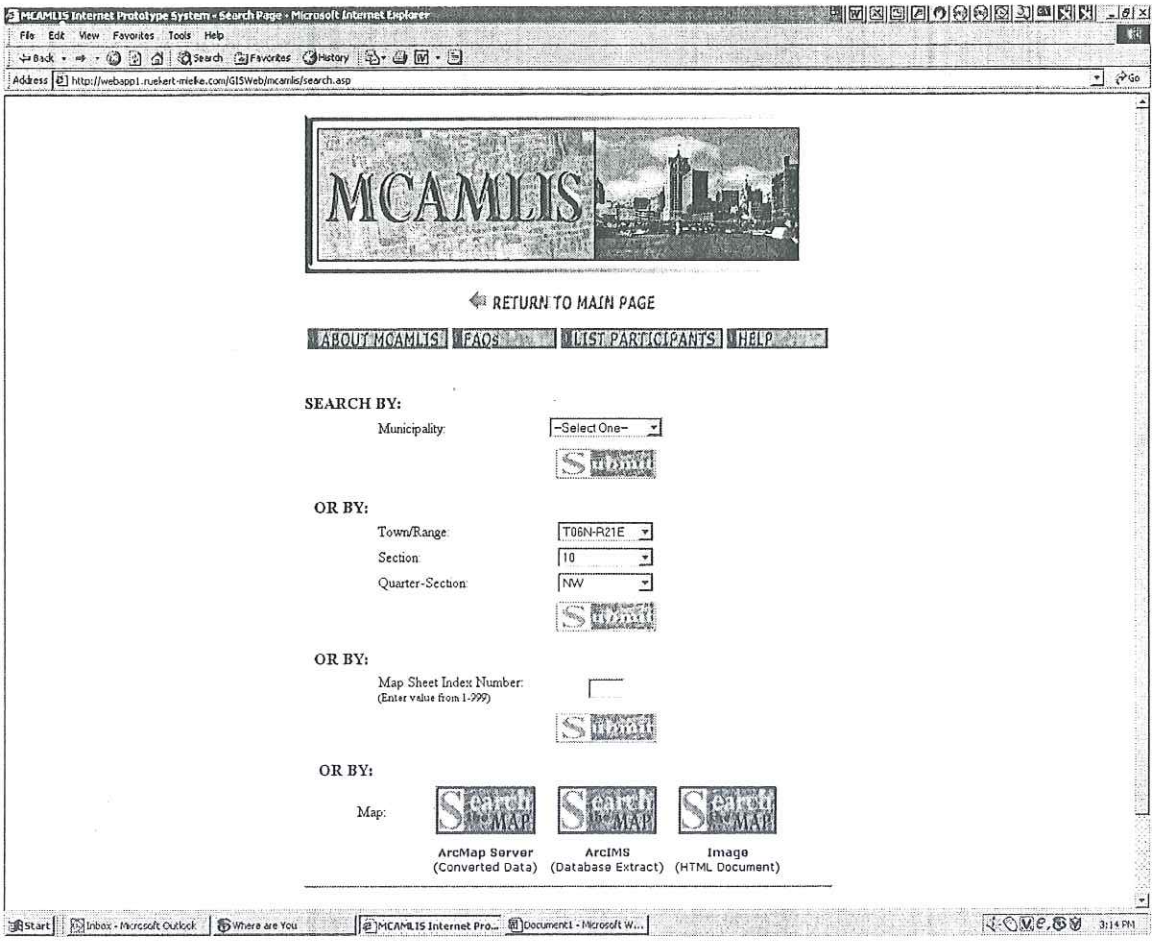
MCAMLIS Prototype Main Search Web Page



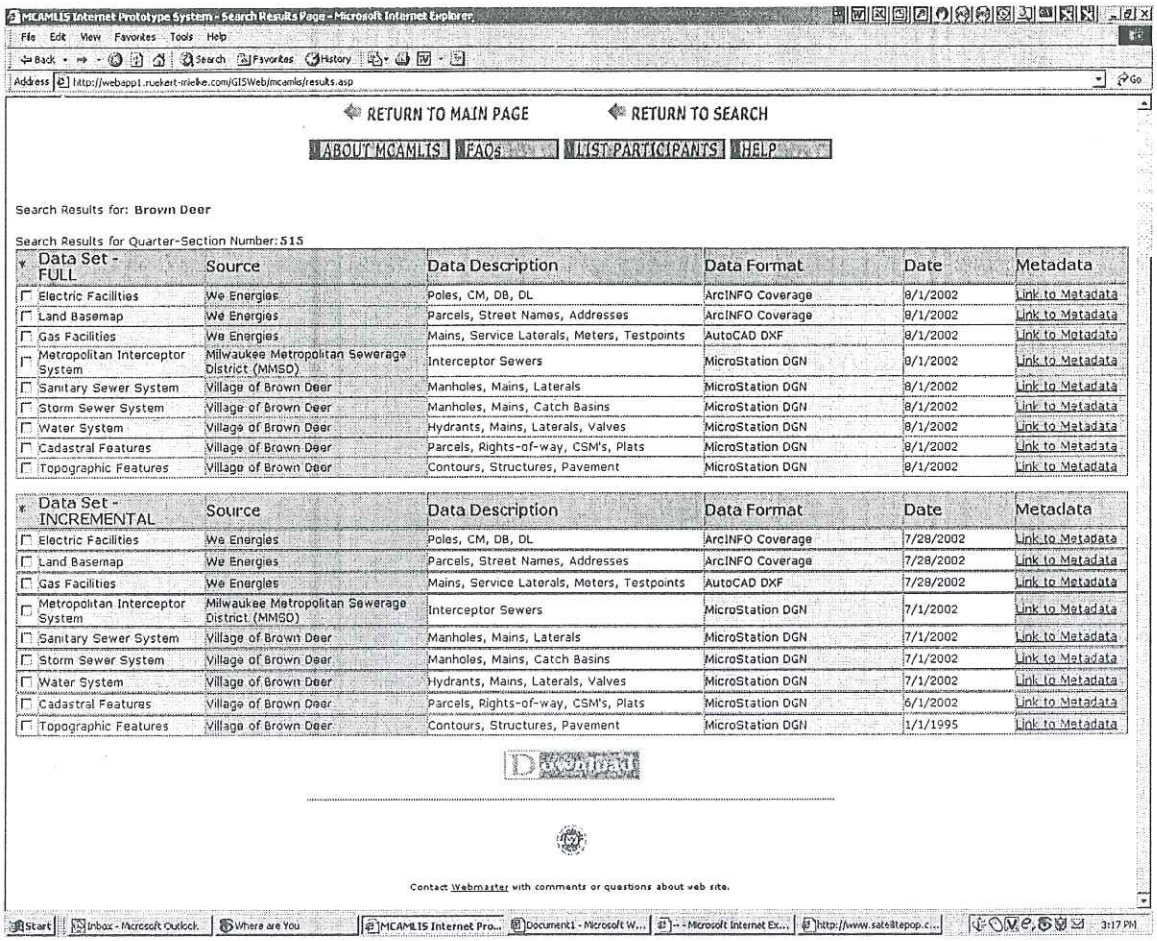
Search by: Municipality



Search by: Town, Range, Section or One-quarter Section



Search by: MCAMLIS Map Sheet Index Number Page



Search Results Page

IDENTIFY/RESOLVE PROTOTYPE ISSUES – SET STANDARDS

Data Integration

As noted previously, one of the challenges for the prototype will be the merging of data from different organizations that are using different software and have mapped their facilities to a different land base.

Ruekert/Mielke loaded all of the available digital files into an ESRI ArcMap document. Since the Technical Advisory Committee members were more interested in point and vector data (utility features and main segments) than attribute data, the conversion of the available digital files was fairly straightforward. Initial concerns about intelligent ties between land information and facility features were no longer relevant. ArcMap can import most of the file formats provided by the participants, thereby eliminating any need for conversion. The latest release of ArcIMS, version 4.0, is capable of reading directly from ArcMap documents, thereby eliminating any need to convert text features as previously required with version 3.1. Since We Energies' gas operations converted their SmallWorld files (which cannot be imported into ArcMap) into ArcInfo Interchange files, all of the participants' data were loaded and made accessible.

The digital one-quarter section cadastral and topographic files provided the greatest challenge. Due to the quantity (approximately 1,000) and size (range) of these files, the load time was extremely slow (2 minutes). The preparation of seamless, or larger tiled areas, will decrease the load time.

The varying naming conventions for feature definitions, such as the layer name or level number of the sanitary sewer mains, increased the quantity of viewable layers. All members of the Technical Advisory Committee indicated that the creation of a common specification for municipal utility features would be cumbersome and impractical. Most participants indicated they were willing and able to receive and deal with the specification issues internally. Since most of the Technical Advisory Committee has personnel that have successfully dealt with conversion issues, their recommendation may not coincide with other municipalities that do not employ technically skilled personnel.

Data Tiling

Most of the data provided for the prototype was tiled into U.S.P.L.S.S. one-quarter section survey files. Exceptions included the City of Milwaukee, Village of Brown Deer's public utility maps, and the We Energies gas data. The City of Milwaukee's water and sanitary sewer system datasets were tiled into much smaller geographic areas than one-quarter section survey files. If these data sets are not converted or recompiled into larger geographically tiled areas, the performance and display of this information in the web-based application will be significantly slower, especially for end users not having high speed internet connections.

The Village of Brown Deer's sanitary sewer, storm sewer, and water distribution facilities currently reside as individual Village-wide files, covering the entire village incorporated area. Therefore, this information cannot be easily displayed in smaller geographic areas. The We Energies' gas and electric data are stored in a much larger regional tile. The gas data is in one contiguous data set, which can be extracted into one-quarter section, municipality, or county-wide file sizes. The electric data is stored in smaller map-based tiles. Both gas and electric data can be extracted into U.S.P.L.S.S. one-quarter section, section, municipality, countywide or whatever file size that is determined to optimize the land-sharing scheme.

Recommendation

- Since most of the municipalities either currently maintain, or would like to obtain, community-wide tiled base maps for engineering, planning, and other mapping purposes, we recommend that MCAMLIS, at a minimum, recompile the digital one-quarter section cadastral maps into larger tiled areas. From a maintenance standpoint, the larger the tiled area the better. With current technology and computer processor speeds exceeding 2 gigahertz (GHz), the digital cadastral maps could be re-compiled into a County-wide coverage and exported into municipal sized files. However, since the City of Milwaukee and other MicroStation users are not currently using MicroStation V8, which supports file sizes over 32 megabytes (MB), County-wide file sizes may be too large. Additionally, since municipal boundaries do not follow other coincident geographic boundaries, such as one-quarter section or section lines, anything smaller than a County-wide coverage would require each municipality to re-compile multiple tiled area maps. Hence, MCAMLIS, or a web hosting consultant, may need to re-compile individual municipal-wide digital maps before posting on the web server. Each municipal file would require a minimal amount of data from the adjacent municipality. Preparing these files from County-wide coverages would require minimal effort - approximately 4-6 hours. On the other hand, a custom utility could be developed that would automate and simplify this process, effectively reducing the time spent to less than an hour. The cost to prepare an automated tool is estimated to be $3,000 - $5,000. Assuming Milwaukee County updates and posts the digital cadastral map files on a monthly basis, the cost of the automation tool would pay for itself within the first year.

The following is a scope of services, cost estimates, and deliverables to prepare larger tiled digital cadastral and topographic maps:

SCOPE OF SERVICES

Cadastral Maps

1. Remove redundant and duplicate text and line features.

2. Reposition text labels, wherever possible, to make them more legible and recognizable.

3. Recreate parcel polygons.

Topographic Maps

1. Remove redundant and duplicate text and planimetric line features.

2. Reposition text labels, wherever possible, to make them more legible and recognizable.

3. Reconnect planimetric features such as building outlines, walls, pavement edges, walks, etc.

4. Dissolve overlapping contour lines.

5. Create building polygons.

The majority of the cleanup effort for both types of digital maps is along the one-quarter section lines.

Deliverables

1. A single County-wide digital map file for each of the individual map layers or coverages.

2. A single County-wide digital map file for each of the individual map layers or coverages.

Due to the size and amount of information contained in digital topographic map files, we would recommend that the digital topographic map files be prepared in government township (or other smaller geographic area) files. Cost estimate for this effort would not be affected by the geographic area of the deliverable product.

Cadastral Map Cost Estimate: **$40,000 - $45,000**

Topographic Map Cost Estimate: **$35,000 - $40,000**

Coincidence & Redundancy

Several of the pilot project data sets, provided by the participants, exhibited some level of coincidence or redundancy in their respective datasets. Similar layers, such as street right-of-way lines, street names and parcel lines, were defined and named differently within the various files. Importing these files, without initially removing the redundant data layers, will seriously impede the performance of any GIS or related web-based application. Additionally, it is obvious that each of these entities is maintaining similar land base information that could be reduced or eliminated if MCAMLIS could provide these services in a more timely manner.

One of the data redundancy issues addressed in Report No. 2, has been the independent evolution of the MCAMLIS and private utility land base maps. The most noticeable anomaly resulting from this replication, is the compilation of data using different standards for layer specifications, geodetic control, and accuracy. After completing the coordinate transformation referenced

below, the data submitted by We Energies displayed minor deviations from the MCAMLIS cadastral information as expected. However, in the opinion of the Technical Advisory Committee, this deviation was well within acceptable limits based on their uniform desire to only approximately locate the private utility facilities for general usage.

There is redundancy in the content and display of public utility related data, particularly with regards to sewer mains under the jurisdiction of MMSD. Data sets provided by the Village of Brown Deer, City of West Allis, and the City of Milwaukee all contained MMSD Metropolitan Interceptor System (MIS) manholes and pipe segments immediately adjacent to, or connected with, their respective utility sewer facilities. It is unclear if all of the local communities maintain these MMSD features. If so, this would be another data set involving redundant maintenance efforts. Assuming the MCAMLIS Land Information and Utility data sharing and web application are implemented, the duplication of data and maintenance efforts could be eliminated.

Numerous Digital File Specifications
(i.e. layers, levels, object types, symbols and text fonts).

The City of West Allis utility dataset takes advantage of a custom font instead of using point features for their utility structures (i.e. a hydrant is denoted as the letter H, valves by the letter V). Because this has been developed as a custom font native to the MicroStation software environment it will not be able to be displayed properly in other GIS software programs. Since the Technical Advisory Committee has determined that associated attribute data will not be included due to potential compromises in security, this will not be a major concern. Possible solutions include recreating the font so that it can be used in the web environment, conversion of the text features to appropriate point features, or eliminating the text from the available data set. Similarly, digital files provided by the MMSD, has revealed that this may also be the case for their four CAD datasets.

The Technical Advisory Committee, consisting of experienced land and utility information experts, felt that the conversion of available digital map products should be the responsibility of the individual user. Although this makes sense for experienced GIS personnel, it may be a problem for other local units of government, which may not have technical staff, or if they do, they may have limited conversion experience. The feedback provided by other municipalities (see Survey Results), validates our concern.

Recommendation

Therefore, we believe this issue should be reevaluated and discussed within the next two years as more municipalities utilize the available digital products and develop as sense of how MCAMLIS could improve the usefulness of the digital information.

Map Projection

The MCAMLIS standard for map projection is Wisconsin State Plane, South Zone, North American Datum of 1927. Because the MCAMLIS cadastral maps are often the base maps other municipal datasets are built on, this lends itself well to most of the data involved in this study. However, because of the variable land base systems in place with the private utility companies,

there are some data transformation issues to be dealt with. For the purposes of this study the We Energies gas and electric datasets were required to be converted from Wisconsin State Plane, Central Zone, NAD 1983 and UTM, Zone 16, NAD 1927 to the MCAMLIS standard respectively. Since We Energies services a much larger region outside of Milwaukee County that encompasses much of the State of Wisconsin and the Upper Peninsula of Michigan, it is not practical for them to use a map projection centered on Southern Wisconsin. If the We Energies datasets were to be provided for Internet distribution in a known and documented projection, most of the participants would be able to re-project the data for their own use. However, some of the smaller local municipalities that lack the technical staff or knowledge, or utilize CAD, rather than GIS software, may not be able to perform the re-projection. Hence, in order to ensure the widest possible use among potential participants, we recommend that the We Energies data be re-projected before being made available for distribution in an Internet web-based application. The re-projection could be performed by We Energies or MCAMLIS staff. In the event MCAMLIS determines that the web application and data should be hosted by a third party service provider, the selected service provider could also re-project the necessary data.

MCAMLIS License Agreement

The existing MCAMLIS licensing agreement restricts use and distribution of available digital map data and does not have provisions for continuous distribution of updated digital map products without an additional cost, nor does it allow for the redistribution of the digital map products. Since the digital cadastral maps are being updated on a regular basis, each delivery of the digital files may be obsolete the moment they are distributed. Additionally, the digital cadastral and topographic maps are used extensively within municipal engineering and planning departments and are often shared and distributed to outside consultants. The digital files can save a tremendous amount of time and effort, and have a significant value for engineering and planning related projects to all communities in Milwaukee County. Numerous other County Land Information Offices throughout Wisconsin, including Waukesha, Racine, Kenosha, and Ozaukee counties, share their digital land bases with local units of government at no cost. It does not seem practical, nor financially feasible, for local units of government to make regular requests, sign license agreements, or pay additional fees for the monthly updates.

The Wisconsin Land Information Program (WLIP), built on an idea of data integration and cooperation, between and within multiple levels of government, has provided some of the funding for products included in the Internet prototype web application. Furthermore, the salary for the GIS position, and the associated cost for digital cadastral map maintenance are being paid from retained fees collected in the Milwaukee County Land Information Office and generated from an increase in the document recording fees as part of legislation enacted in 1990 to help fund Land Records Modernization. Any type of cost recovery for the MCAMLIS products from local units of government would seem to defy the mission of the WLIP.

Recommendation

Thus, the Technical Advisory Committee recommends that the MCAMLIS license agreement is eliminated from future use and does not become a part of the Internet Land and Utility Web Application.

Metadata

Since the Wisconsin Land Information Association has approved and recommended the use of the FGDC (Federal Geographic Data Committee) standard for digital information throughout Wisconsin, we recommend that metadata be compiled, maintained, updated, and posted on the web application. However, the FGDC format is very difficult to read and understand. Therefore, we also recommend that a simplified version be compiled and posted. The following is a sample of cadastral metadata as posted on the Waukesha County GIS Map Server:

1. Description	Tax ownership polygons and legal information.
2. Data Source	Waukesha County
3. Date of Mapping	1992 to present
4. Mapping Scale	1:1200 (1"=100') Menomonee Falls, New Berlin, Muskego and City of Oconomowoc. All other areas 1:2400 (1"=200').
5. Mapping Sources	Subdivision plats, CSM, Condominium and deed documents and County tax rolls. Structure outlines, where they exist, were compiled from existing, analog topographic maps at the scale of the cadastral mapping for that area.
6. Map Accuracy	+/- 3.3 feet in Menomonee Falls, New Berlin, Muskego and City of Oconomowoc. All other areas +/- 6.6 feet.
7. Map Currency	Maps current to 3/31/2002. Structures mapped date anywhere from 1967 to 1999.
8. Parcel Data Currency	Tax Parcel Data Current to 3/31/2002.
9. Coverage	Waukesha County

OTHER ISSUES

The following is a list of other data sharing issues identified in Report No. 2 and recommendations based on participant feedback and the development of the prototype web application:

Maintenance Schedule

Until recently, there wasn't a coordinated maintenance schedule for cadastral updates.

Recommendation

- Milwaukee County has reported that the digital cadastral maps for the entire county will be updated by the end of 2002. Therefore, Milwaukee County should continue to maintain the digital cadastral files for all other municipalities and distribute the updated files to these municipalities on a mutually agreed upon schedule. Some municipalities, who desire more frequent updates, may continue to maintain their set of digital cadastral maps as indicated in the survey responses. Although their reasons may be valid, the duplicate and redundant maintenance efforts increase the cost to the local taxpayers. Milwaukee County should continue to evaluate ways to satisfy the needs of those communities by increasing the frequency and distribution of the digital cadastral map updates.

Distribution System

There continues to be a limited awareness of the distribution system or published process to acquire updates.

Throughout the duration of this study, Ruekert/Mielke conducted separate demonstrations of related GIS web applications for numerous communities with Milwaukee County. The following is a list of communities and individuals that attended the demonstrations:

NAME/ORGANIZATION	TITLE	GIS INTRODUCTION	GIS DEMONSTRATION
AMERITECH			
Paulette S. Conerton	Design Office Manager	X	X
Dextra Hadnot	Director - External Affairs	X	
Ricky B. Wicklund	Telecommunications Specialist	X	X
CITY OF CUDAHY			
Craig Faucett, P.E.	Director of Engineering	X	X
Steve Miner	Assessors Office	X	X
DIGGERS HOTLINE			
Ben Zweifel	Executive Director	X	X
CITY OF GLENDALE			
Todd M. Stuebe, P.E., AICP	Director of Community Development	X	
VILLAGE OF HALES CORNERS			
Michael Martin, RLS,PE	Director of Public Works	X	X
MILWAUKEE COUNTY			
Kathleen A. Bach	Geographic Information Technician	X	X
Walter R. Barczak	Register of Deeds	X	X
Kevin Bruhn	Infrastructure Coordinator	X	X
Gary E. Drent	Fiscal & Budget Manager (A&E)	X	X
Gregory G. High, P.E.	Director, Department of Public Works	X	X
Paul Mika	Register of Deeds Office	X	X
Ignatias Niemczyk	Register of Deeds	X	X
Kevin White	GIS Supervisor, Public Works Department	X	X
CITY OF OAK CREEK			
Leslie A. Flynn	GIS Technician	X	X
Michael J. Sullivan, P.E.	Design Engineer	X	
CITY OF ST. FRANCIS			
Jack Schultz, P.E.	City Engineer, Director of Public Works	X	

NAME/ORGANIZATION	TITLE	GIS INTRODUCTION	GIS DEMONSTRATION
CITY OF SOUTH MILWAUKEE			
Jack Zader	Director of Planning and Inspections	X	X
CITY OF WAUWATOSA			
Christopher Bennett	Engineering Technician	X	X
William A. Kappel	Director of Public Works	X	X
CITY OF WEST ALLIS			
Patrick Walker	Geographic Information Systems Coordinator	X	X
VILLAGE OF WHITEFISH BAY			
Mary Jo Lange, PE	Director of Public Works/Engineer	X	

Recommendation

The MCAMLIS Steering Committee should officially announce, through the ICC representatives, the maintenance schedule and distribution process to all local units of government, with special attention to the appropriate GIS or technical staff. Since many of the local communities utilize CAD software for engineering and planning projects, and exhibit preparation, the announcement should also be directed to the Engineering and Planning departments, and to local engineering and planning consultants providing services to these municipalities. An article in each local newspaper, as well as the Milwaukee Journal Sentinel, may prove to be very beneficial.

Numerous File Formats and GIS Software Platforms

The recommended Internet Prototype Web Application provides the means for users to download available digital files in their native format. The end user will be responsible for conversion, including map projection, symbology, text fonts, etc. Although GIS software vendors have progressively worked towards standardizing data storage and feature definitions, the effort can still be extensive, depending on the source and desired file formats. The Open GIS Consortium, Inc (OGC), an international industry consortium of more than 220 companies, government agencies and universities, is participating in a consensus process to develop publicly available geoprocessing specifications. Open interfaces and protocols defined by OpenGIS® Specifications support interoperable solutions that "geo-enable" the Web, wireless and location-based services, and mainstream IT, and empower technology developers to make complex spatial information and services accessible and useful with all kinds of applications. This consortium, and the participating software vendors, are working on ways to ultimately resolve the data exchange issues.

Based on current investments in their existing data conversion efforts, and the amount of time and expense it would potentially take to convert to a new format, the Technical Advisory Committee did not think it was practical or fiscally responsible at this time, to develop a standard file format. Existing GIS software generally stores geographic data (points, lines, and polygons)

in a proprietary format, and attributes in either proprietary tables or in external databases. Technological advances in data storage, the latest being geodatabases, store geographic and attribute data in a single database, such Oracle, Microsoft Access, or Microsoft SQL Server. As each of the participants begin evaluating their plans to convert to this technology, the opportunity to discuss and develop a standard file format will arise.

Recommendation

A local user group, consisting of all interested municipalities and public utility companies, should be formed. The existing Technical Advisory Committee members could facilitate the group and continue the discussion and evaluation of a standard file format. Working together, understanding each other's goals and objectives, and recognizing the vast opportunities data sharing can provide in productivity gains and cost savings, the group will be able to develop a set of standards that all participants can live with. This is no small task and will require a significant amount of cooperation, appreciation, and upper level management from all participants.

Incomplete Data Sets

The City of Milwaukee is still uncertain of their willingness to provide, and have distributed, digital water distribution facilities over the Internet. We Energies, until recently, also reserved their right to determine the viability and practicality of providing their digital files for the MCAMLIS Land and Utility Information System Internet Prototype. At the same time this report and Internet Prototype were being developed, We Energies began implementing an agreement that includes facility locations and a limited number of attributes. On the following page is an excerpt from their agreement.

We Energies Test Data for Kenosha County
This data is owned by We Energies, C. 2002
This data is for test purposes only and is not to be re-distributed
We Energies Electric GIS projection info:
UTM (Universal Transverse Mercator) Zone 16
Spheriod is "Clark 1866"
Units = Decimeters

Data set includes 3 ESRI Shapefiles

1. KE_Poles is a point coverage of We Energies pole locations in test area
   The data field "Id_Number" is the pole tag physically attached to the pole.
2. KE_3ph is a line coverage for primary electric conductor
3. KE_12ph is a line coverage for primary electric conductor
   Both of the line coverages include a data field "Installtyp" which describes the type of conductor:

OH = Overhead conductor
DB = Buried conductor
CM = Conduit Manhole conductor
Please contact Tim Marquardt at We Energies with questions 414-221-4783

Although this is more information than provided for in the Internet Prototype, We Energies would still like to limit or restrict access to their data by having the person or organization requesting the data contact their office directly. We Energies staff would be responsible for executing agreement, compiling data, and distributing on the appropriate media. This decision dramatically affects the anticipated content and benefits of the MCAMLIS Land and Utility Information System Internet Prototype.

Transactional Updates

Some participants would like to receive incremental updates while others would replace their entire digital land base map with the updated MCAMLIS files.

Currently, Milwaukee County intends to update and post the digital cadastral files every 60-90 days. Some participants have indicated they would only want updated files every 6 months. The Internet Prototype Web Application was designed to include multiple data sets for each feature. Each set of updated digital cadastral files will be logged in the data server and made available to the end user. The results of their data search will list each of the available data sets posted by the data provider. Periodically, the available data sets could be reduced to include only those files posted over the last 1-2 years. The Technical Advisory Committee determined that the digital cadastral files were the only data set that should be posted in a manner that will allow the end user to see the incremental changes from the previous set of posted files. The GIS software industry has been developing database designs and software solutions that will track historical changes, in particular the cadastral land base, which will solve this issue. Since Milwaukee County is still in the process of updating the digital cadastral files and plans to continue maintaining these files for the majority of the Milwaukee County municipalities, now is the time for MCAMLIS to incorporate specifications and procedures that will support the creation of the incremental data sets.

The following information includes conceptual designs for the development and use of geodatabases for the digital cadastral maps and transactional processing for incremental updates. ESRI has announced that ArcMap, currently being used by Milwaukee County staff for storage and maintenance of the digital cadastral and topographic maps, will no longer support coverage editing with the release of ArcGIS 8.3. Therefore, the transaction to geodatabases, which are fully supported in ArcGIS 8.3, is inevitable.

We have investigated the opportunity to link transactional data with the existing MCAMLIS data. We concluded, based on the results of our research efforts, that there are three (3) potential options that could be incorporated into the maintenance process to prepare the necessary transactional data. The three options are presented in Table 1.

There are advantages and disadvantages to each of the three options. Option 1 is a simple approach - when a parcel, CSM, subdivision, or condominium is created, modified, or removed, it would be added to a list of cadastral updates that are stored in a separate database table. The feature identifier (tax key number, CSM number, subdivision name, or condominium name) would be added to the transaction table. This option would not require any changes to the existing cadastral data structure, and would result in only a small amount of additional effort for the County during data maintenance. However, the original geometry of removed or modified

features would not be preserved, and a moderate effort would be required to create a map showing the cadastral updates. The County would provide the municipalities with the updated GIS data and the separate database of cadastral transactions.

If Option 1 is selected, updated parcel polygons could be programmatically identified using the tax key numbers from the list of updates. However, there would be no way to systematically identify the updated CSM's, subdivisions, and condominiums using the current cadastral data model because none of the features contain the CSM number, subdivision name, or condominium name as an attribute.

Option 2 differs from Option 1 in that the GIS features would be added to a separate transactions data layer, instead of only a feature identifier being added to a tabular database. When a parcel, CSM, subdivision, or condominium is created, modified, or removed, the polygon or line, and the associated text would be added to transaction layer. As with Option 1, no changes would be needed to the existing cadastral data structure and there would be a minimal increase in the County's maintenance effort.

Option 2 has the additional benefit of making it possible to create a map of cadastral updates with minimal effort. Since the actual GIS features are preserved, it would be possible to identify the updated CSM's, subdivisions, and condominiums, as well as the parcels. During each maintenance period, a new transaction layer would be created for each of the four cadastral features being included in the transactions - parcels, CSM's, subdivisions, and condominiums. The County would provide the municipalities with the updated GIS data and the set of transaction layers.

With Option 3, the original cadastral feature is always maintained within the data, and a status code is used to differentiate between current and historical features. For example, if a parcel is split into two new parcels, the original parcel's status code is changed to "Historical", and the two new parcels are created and given a "Current" status code. The historical features can be hidden from any display or hardcopy map by only displaying features that have a status code of "Current."

Option 3 provides the added benefit of being able to query both current and historical parcels within a single data layer. It also makes it possible to create a "snapshot" of the cadastral data for any date since the transactions started being recorded. Implementing Option 3 would require modification of the cadastral data model in order to support overlapping polygons. This could be accomplished with a geodatabase, or with region features within an ArcInfo coverage. Additionally, the status, transaction date, and transaction description attributes would need to be added to the parcel, CSM, subdivision, and condominium features.

Regardless of the method selected, the recorded transaction information should include a way to identify the feature, the date of the transaction, and a description of the type of transaction (e.g. parcel split, new CSM). Alternatives and our recommendation are discussed in the following section.

TABLE 1: OPTIONS FOR TRANSACTIONAL UPDATES

Option	Method	Maintenance Efforts (County)	Preserves Geometry	Able to Create "Snapshot" Map	Maintenance Efforts (Municipalities)	Changes to MCAMLIS Database Design
1. **Separate Transaction Database** - Simple Solution - Minimal functionality	• Cadastral features are added, deleted, or modified in the GIS data • For each transaction, the tax key, CSM, Subdivision or Condo name is added to a database file • Date and description of transaction also recorded • Provide municipalities updated GIS data and transaction database.	Minimal	No	No	Significant	No changes to existing database design. Create new, separate DBMS file e.g. MS Access
2. **Separate Transaction Layers** -Moderate complexity -Moderate functionality	• New and modified features are copied to a separate transaction layer. • Associated text is also copied to transaction layer • Provide municipalities with updated GIS data and a set of data layers for each maintenance period	Minimal	Yes	Limited	Moderate	No changes to existing database design Create new transaction layers "
3. **Integrated Transaction Features** -Complex data model -Potential for more applications	• Features are not deleted from cadastral GIS layers • Updated features are saved in existing data layer and given a status code – Active, Historical, Proposed Date Field used to create snapshot in time of cadastral map • Comments describe reason for update (new CSM, parcel split, etc.) • Provide municipalities with updated GIS data that includes features and text involved in transactions	Moderate	Yes	Yes	Moderate	Use ArcInfo coverage* regions or a geodatabase to support overlapping polygons. Add status, date, description attributes to features

*ESRI has announced that ArcMap will no longer support coverage editing with the release of ArcGIS 8.3. ArcEdit, which is a module within ArcInfo Workstation, is the only application that will continue to support coverage editing.

Conceptual Database Designs

In order to support transactional updates, we have also prepared conceptual database designs for each of the options described above. The three options and their associated conceptual database designs are shown in Table 2.

Table 2: Conceptual Database Designs For Transaction Options		
OPTION	**CONCEPTUAL DATABASE DESIGNS**	
1. Separate Transaction Database	**Design 1A: Separate Database Tables**	
	Parcel transaction table	
	Subdivision transaction table	
	CSM transaction table	
	Condominium transaction Table	
2. Separate Transaction Layers	**Design 2A: Geometry Layers**	
	Transaction Line Layer	
	Transaction Text Layer	
	Transaction Polygon Layer	
	Design 2B: Feature/Geometry Layers	
	Cadastral Feature	Transaction Layers
	Parcel	Parcel Line, Polygon, and Text
	Subdivision	Subdivision Line and Text
	CSM	CSM Line and Text
	Condominium	Condominium Line and Text
	Design 2C: Match MCAMLIS Layers	
3. Integrated Transaction Features	**Design 3A: Add Attributes to GIS Data Layers** **Design 3B**: Store transaction attributes in separate table GIS data, which joins to transaction table using a transaction ID	

A cadastral transaction involving a parcel, subdivision, CSM, or condominium could impact several different data layers. For each of these four cadastral features, Table 3 shows which type of GIS layers from the current MCAMLIS database design could be affected by a cadastral transaction.

TABLE 3: GIS Layers Affected by Cadastral Transactions	
Cadastral Feature	**Affected Layers**
Parcel	Parcel Line, Parcel Area, Parcel Dimension, Parcel ID Number, Tie Mark Line, Text Related Line, Note Text
Subdivision	Subdivision Line, Subdivision Text, Text Related Line, Note Text
CSM	CSM Line, CSM Text, Text Related Line, Note Text
Condominium	Condominium Line, Condominium Text, Text Related Line, Note Text

Regardless of the method used for preserving cadastral transactions, there are several pieces of information, or attributes, that should be recorded. These attributes are listed in Table 4.

TABLE 4: Attributes of Cadastral Transactions
Feature identifier (tax key number, CSM number, subdivision name, or condominium name)
Transaction date
Transaction description
Name/initials of person who performed the transaction edits
PLSS location (section and quarter-section, or quarter-section map number)

Option 1

If Option 1 were selected as the method for preserving cadastral transactions, information about the transactions would be added to set of database tables, then the features would be removed from the GIS data. A separate table would be created for each type of cadastral feature, so there would be a parcel table, a subdivision table, a CSM table, and a condominium table. Each table would store the attributes listed in Table 4.

Option 2

With Option 1, none of the GIS features from the layers affected by cadastral transactions (as shown in Table 2) would be saved. If Option 2 were chosen, the affected GIS features would be stored in separate transaction layers. The transaction layers would include the same information as in the database table with Option 1, but would also preserve the GIS data of the affected features.

The transaction layers could be designed three different ways:

Design 2A. One transaction layer for each type of geometry (line, polygon, text)

Design 2B. One set of transaction layers for each of the four cadastral features: parcel, subdivision, CSM, and condominium. A set of layers would consist of a line layer and a text layer. Parcels would also have a polygon layer.

Design 2C. Create a matching transaction layer for each layer in the current MCAMLIS database design.

Design 2A

The transaction features would be stored in one layer for each type of geometry. This would result in the following three transaction layers:

Transaction Line layer
Transaction Text layer
Transaction Polygon layer

The Transaction Line layer would contain all line features involved in transactions. The Transaction Polygon layer would contain all affected polygons, and the Transaction Text layer would contain all affected text. A new set of these three transaction layers would be created during each maintenance period. The original attributes of each line, polygon, and text element would be saved, so the individual feature types could be identified. For example, the parcel lines could be distinguished from the subdivision lines, and the condominium text could be distinguished from the CSM text. This is a simple design that would minimize the effort required to preserve transaction information during data maintenance. However, this design does not follow the current MCAMLIS specifications, which may make it difficult to use with the existing cadastral data.

Design 2B

Create a separate data layer for each type of cadastral feature. This would require the nine separate layers listed in Table 5. For example, all line features involved in a "combine parcels" transaction would be stored in the Parcel Line transaction layer. This would include parcel lines, tie lines, tie mark lines, and text related lines. The Parcel Text transaction layer would include parcel dimension text, parcel ID number text, and any note text associated with the affected parcels.

TABLE 5: Transaction Layers for Each Cadastral Feature

Cadastral Feature	Transaction Layers
Parcel	Parcel Line, Parcel Polygon, Parcel Text
Subdivision	Subdivision Line, Subdivision Text
CSM	CSM Line, CSM Text
Condominium	Condominium Line, Condominium Text

Creating a greater number of separate transaction layers could increase the work effort required to record transaction information during data maintenance. Design B has a somewhat higher degree of complexity than Design A, since there are more data files that need to be edited and managed. This design is closer to the existing cadastral specifications than Design 2A. However, the remaining deviations from existing design may still cause problems for users of the data.

Design 2C

The third design option would create a matching transaction layer for each layer in the current MCAMLIS database design. This would require approximately fourteen different transaction layers. The larger number of transaction layers could make it more difficult to view, edit, and manage the transaction information. However, the advantage of this design is that the transaction data follows the same specification as the cadastral data, which may be very helpful to people who are familiar with the cadastral data.

Option 3

The biggest difference between the first two options and Option 3 is that Option 3 does not remove the modified or replaced features from the GIS data. Instead, historical information is stored within the existing layers. A "status" attribute is added to each layer to define features as either "current" or "historical". For example, if a parcel is replaced by a subdivision, the original parcel is not deleted, but its status is changed from current to historical. The new subdivision and its associated parcels would have a "current" status.

Design 3A

In addition to the status attribute, each of the attributes listed above in Table 4 would be added to each of the layers listed in Table 3. The transaction attributes could be used to display only the current cadastral data, or only the transactions that have been recorded since a certain date. A status of "proposed" could also be used to identify cadastral features, such as subdivisions and condominiums that have been planned but not yet created.

In order to implement Option 3, the cadastral database design needs to be modified to support overlapping polygons. This can be accomplished by using region features within ArcInfo coverages, or by using a geodatabase. Using a geodatabase is the recommended approach, for several reasons:

- The GIS industry as a whole is moving toward geodatabase technology, and away from proprietary data formats such as coverages
- ESRI's software development strategy is focused on geodatabases
- ArcInfo coverages can no longer be edited with ArcMap - ArcInfo workstation is required

The recommended geodatabase design for implementing Option 3 would replicate the current MCAMLIS database structure as much as possible. It would have essentially the same data layers, the same attributes (e.g. TAG), and would support creation of the same types of hardcopy map products. The only changes would be:

- Conversion to geodatabase format
- Addition of status attribute and the attributes listed in Table 4 to the layers associated with parcels, subdivisions, CSM's, and condominiums.

Design 3B

An alternative to adding all of the transaction attributes directly to the cadastral features is to store the transaction attributes in a separate, related table. Each cadastral feature would still receive a status code of current or historical, and they would also be assigned a unique transaction ID number. In a separate database table, a corresponding record for each transaction ID would store the transaction information for that cadastral feature.

Recommendation

Based on the combined needs and resources of the MCAMLIS participants, Ruekert/Mielke recommends Option 2 and database design 2C as a solution for maintaining a record of cadastral transactions. Option 1 does not make it possible to easily view the updated features, which is important for both the County and the municipalities. Option 3 requires substantial changes to the current MCAMLIS cadastral data model and would only provide a marginal increase in benefits. Option 2 provides the ability to view the features affected by maintenance and does not require any changes to the current cadastral data model. Design 2C, which corresponds to the existing cadastral specifications, will minimize the complexity of preserving and using transactional records. Our recommendation is also based on the preparation of larger tiled digital cadastral maps as discussed in the "Data Tiling" section of this report. The cost to implement the recommended procedures and database design is estimated between $6,000-$8,000.

The cost to convert the existing digital cadastral maps to the recommended specifications is estimated between $20,000-$30,000. Unfortunately, due to existing digital cadastral map specifications, the original exterior boundaries of subdivision and condominium plats, and certified survey maps are not maintained if subsequent development created new, or combined parcels. The conversion cost does not include re-establishing the original exterior boundaries. Should MCAMLIS decide to proceed with the recommended development of larger tiled digital cadastral maps, this effort could be completed at the same time and would reduce the cost estimate by approximately $5,000.

Regardless of the selected option or database design used for transactional updates, we strongly recommend the following changes to the MCAMLIS cadastral database design:

- Maintain cadastral data as seamless county-wide layers
- Represent subdivisions, CSM's, and condominiums as polygons with attributes for subdivision name, CSM name, and condominium name and phase.

SUMMARY

Based on the review and recommendations made by the Technical Advisory Committee of the Internet Prototype Web Application, the implementation of a Land and Utility Information System Web Application will provide useful benefits for data sharing and distribution purposes. While most of the issues were resolved to the satisfaction of the Technical Advisory Committee, there are a couple of issues that need to be addressed and resolved. The key issues include:

- File formats and specifications
- Incremental updates

Both of these issues will require an extensive amount of time by all interested parties. File formats and specifications could be accomplished by the creation of a separate Technical Committee or by extending the responsibilities to the Technical Advisory Committee assigned to this project. It should include all other local units of government currently utilizing, or intending to utilize, the digital cadastral map files for base map purposes. As noted, current software advances in database design and data storage, may have an effect on existing participants, and their plans for conversion. Since these items were included in the scope of this project, Ruekert/Mielke should be responsible for conducting the necessary research and assisting in the development of standard file formats and specifications, and for assisting Milwaukee County with the implementation of procedures for maintaining and deploying incremental digital cadastral updates.

The following are other Technical Advisory Committee recommendations that require formal action by the MCAMLIS Steering Committee:

- Elimination of MCAMLIS license agreement for the use of MCAMLIS digital cadastral and topographic products.

- Preparation and maintenance of larger tiled digital cadastral and topographic files. Total cost for the preparation of larger tiled digital cadastral and topographic file was estimated to be between $75,000 - $85,000.

- Data conversion tool. The total cost to develop an automated tool to systematically prepare the required municipality tiled digital cadastral maps from county-wide coverages was estimated to be between $3,000 - $5,000.

- Implement procedures and database design recommendations to support transactional updates. Cost estimate: $26,000-$38,000.

Finally, Report No. 4 will include a summary of all information collected and will include an analysis of the project results, and summary of costs

APPENDIX A – PARTICIPANT QUESTIONNAIRES

MCAMLIS Inventory Questionnaire Attachment 1

Organization: _____ Date: _____

Completed by: _____

Define the extent of the geographic area for which you use, or would use, the MCAMLIS products:

_____

SECTION A: MCAMLIS PRODUCTS

1. Do you use MCAMLIS products: ☐ Yes ☐ No

   Please describe your department or organization's use of the following MCAMLIS products, including both hard copy and digital:

Cadastral	Hard Copy:	
	Digital:	
Topographic	Hard Copy:	
	Digital:	

SECTION A: MCAMLIS - Cadastral Files

1. **Do you update the digital cadastral files: Yes ☐ No ☐**

   If yes, please answer the following:

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: _____

2. **Would you like to see MCAMLIS update the cadastral files more often? Yes ☐ No ☐**

   If yes, how often

   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☐ Yearly

   If yes, please explain which cadastral features need to be provided:

   _____

   Delivered in what software? _____

3. **Do you use custom tools Yes ☐ No ☐**

   If yes, who developed tools? _____

   In what software or macro language was tool developed? _____

4. **Explain process of obtaining source materials**

   _____

   _____

5. **Is it important to track the history of updates** Yes ☐ No ☐

6. **Do you think updates could be handled by an outside agency?** Yes ☐ No ☐

   If no, please explain reason(s)

   _____

   _____

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☐ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital cadastral maps?** Yes ☐ No ☐

   If yes, what software File format *(Please describe information that was integrated or imported)*

   _____

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain _____

   _____

   _____

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☐ No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☐

   If yes, what would be the desired extent of your seamless map? _____

SECTION A: MCAMLIS – Topographic Files

1. **Do you update the digital topographic files: Yes ☐ No ☐**
   If yes, please answer the following:

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: _____

2. **Would you like to see MCAMLIS update the topographic files more often? Yes ☐ No ☐**
   If yes, how often
   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☐ Yearly
   If yes, please explain which topographic features need to be provided:

   _____

   Delivered In what software: _____

3. **Do you use custom tools Yes ☐ No ☐**

   If yes, who developed tools? _____

   In what software or macro language was tool developed? _____

4. **Explain process of obtaining source materials**

_____

_____

5. **Is it important to track the history of updates** **Yes ☐ No ☐**

6. **Do you think updates could be handled by an outside agency?** **Yes ☐ No ☐**
   If no, please explain reason(s)

   _____

   _____

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☐ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital topographic maps?** Yes ☐ No ☐

   If yes, what software File format *(Please describe information that was integrated or imported)*

   _____

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain _____

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☐ No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☐

   If yes, what would be the desired extent of your seamless map? _____

SECTION B: SOFTWARE

Do you use CAD or GIS software: Yes ☐ No ☐

If yes, please list software products, operating system, your staff's expertise with each, and, if applicable, what MCAMLIS product is used with each software:

Software	OS	Expertise 1(low)-3(high)	MCAMLIS Product

SECTION C: INTERNET

Do you have internet access: Yes ☐ No ☐

If no, do you have plans to obtain access? Yes ☐ No ☐

If yes, how soon?

1-3 months ☐ 3-6 months ☐ 6-12 months 1-2 years ☐ more an 2 years ☐

If yes, what type and speed of an internet connection do you have:

56 K ☐ 128 KB ☐ Cable ☐ DSL ☐ T1 ☐ Other ☐ Connection Speed _____

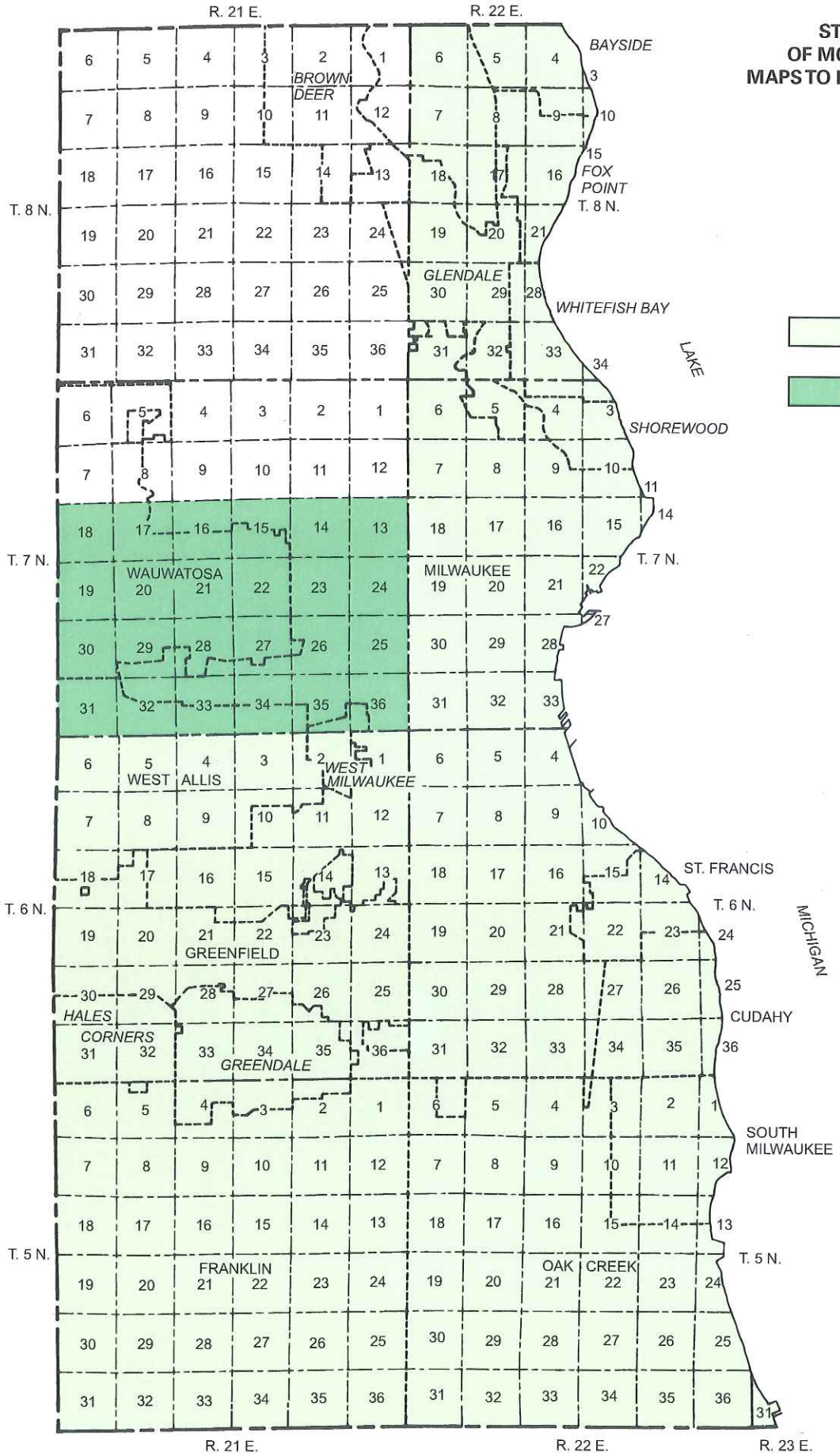
If yes, what type of internet browser do you use: _____

Please return to:

Thomas J. Tym
Ruekert/Mielke
W233 N2080 Ridgeview Parkway
Waukesha WI 53188-1020
tjtym@ruekert-mielke.com

By: Friday, August 2, 2002

IV A



STATUS OF THE CONVERSION OF MCAMLIS DIGITAL TOPOGRAPHIC MAPS TO ESRI ARCINFO COVERAGE FORMAT

CONVERTED AND AVAILABLE FOR DISTRIBUTION

CONVERSION AND QUALITY CONTROL IN PROGRESS - - NOT AVAILABLE FOR DISTRIBUTION

OCTOBER 31, 2002

GRAPHIC SCALE

0 1½ 3 MILES

Source: MCAMLIS PROJECT MANAGER.

IV B

STATUS OF MCAMLIS MAPPING PROJECTS BEING CARRIED OUT BY CITY OF MILWAUKEE STAFF

The City of Milwaukee recompilation project is comprised of 40 U.S. Public Land Survey one-quarter section-based maps as delineated on the accompanying status map. These cadastral maps are being compiled to fit the MCAMLIS survey control system utilizing original land records and associated descriptions and documents. This work has been carried out by the staff of the City of Milwaukee, Infrastructure Service Division, Central Drafting and Records Office. As of November 30, 2001, all 40 of the quarter-section maps have been completed by the City of Milwaukee staff and have been accepted by the SEWRPC staff as of this date as being in compliance with those specifications.

The City of Milwaukee cadastral map transformation project (Phase 1) consists of 93 U.S. Public Land Survey one-quarter-section-based existing City of Milwaukee maps that are being refit to the MCAMLIS survey control system utilizing computer algorithms. These 93 one-quarter section maps are delineated on an accompanying status map. This work is being carried out by the staff of the City of Milwaukee, Department of Administration, Information and Technology Management Division. As of October 31, 2002, City of Milwaukee Geographic Information Systems staff have completed the transformation all 93 of these map sheets, all of which have been sent to SEWRPC staff for their review to determine compliance with MCAMLIS specifications and standards. Of the 93 map sheets submitted, 73 have been accepted by SEWRPC staff as meeting the relevant specifications. The agreement governing this project calls for work to be completed by October, 2002. Currently, expect that this project will be completed by first quarter 2003.

The City of Milwaukee cadastral map transformation project (Phase 2) consists of 24 U.S. Public Land Survey one-quarter-section-based maps as delineated on an accompanying status map. All 24 of the map sheets have been accepted as being in compliance with the specifications in this project area. The agreement governing this project calls for work to be completed by June 2002. This project was completed February 14, 2002.

The City of Milwaukee cadastral map transformation project (Phase 3) also consists of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. All 24 map sheets have been accepted as being in compliance with the specifications. The agreement governing this project calls for work to be completed by June 2002. This project was completed February 14, 2002.

The City of Milwaukee cadastral map transformation project (Phase 4) also consists of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. As of October 31, 2002, City of Milwaukee Geographic Information Systems staff have completed the transformation of all 24 map sheets. All 24 maps from this project area have been submitted to SEWRPC staff for review and, accordingly, 16 map sheets have been accepted as being in compliance with the specifications. The agreement governing this project calls for work to be completed by December 2002. There is currently no reason to expect that the project completion schedule will not be met.

The City of Milwaukee cadastral map transformation project (Phase 5) also consists of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. As of October 31, 2002 City of Milwaukee Geographic Information Systems staff have completed the transformation of all 24 of these map sheets. All 24 maps from this project area have been submitted to SEWRPC staff for review and, accordingly, 15 map sheets have been accepted as being in compliance with the specifications. The agreement governing this project calls for work to be completed by December 2002. There is currently no reason to expect that the project completion schedule will not be met.

The City of Milwaukee cadastral map transformation project (Phase 6) consists of 26 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. No maps from this project area have been submitted to SEWRPC staff for review. The agreement governing this project

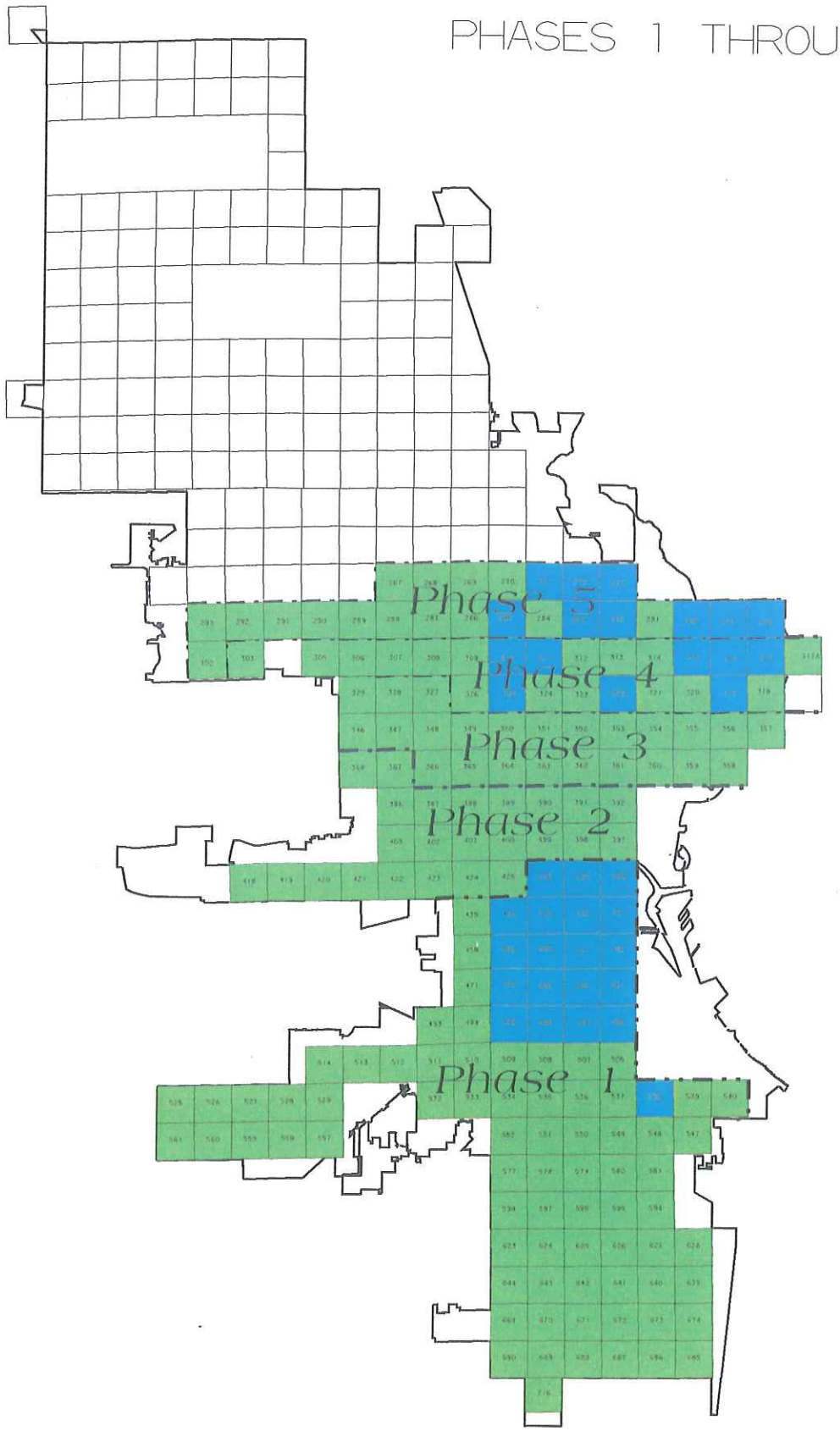
calls for work to be completed by December 2003. There is currently no reason to expect that the project completion schedule will not be met.

* * *

NAO/TDP/ame
10-31-02
#43453 v1 - status-mcamlis projects at c/milw staff

MCAMLIS Transformation Project Progress Map

PHASES 1 THROUGH 5



Legend

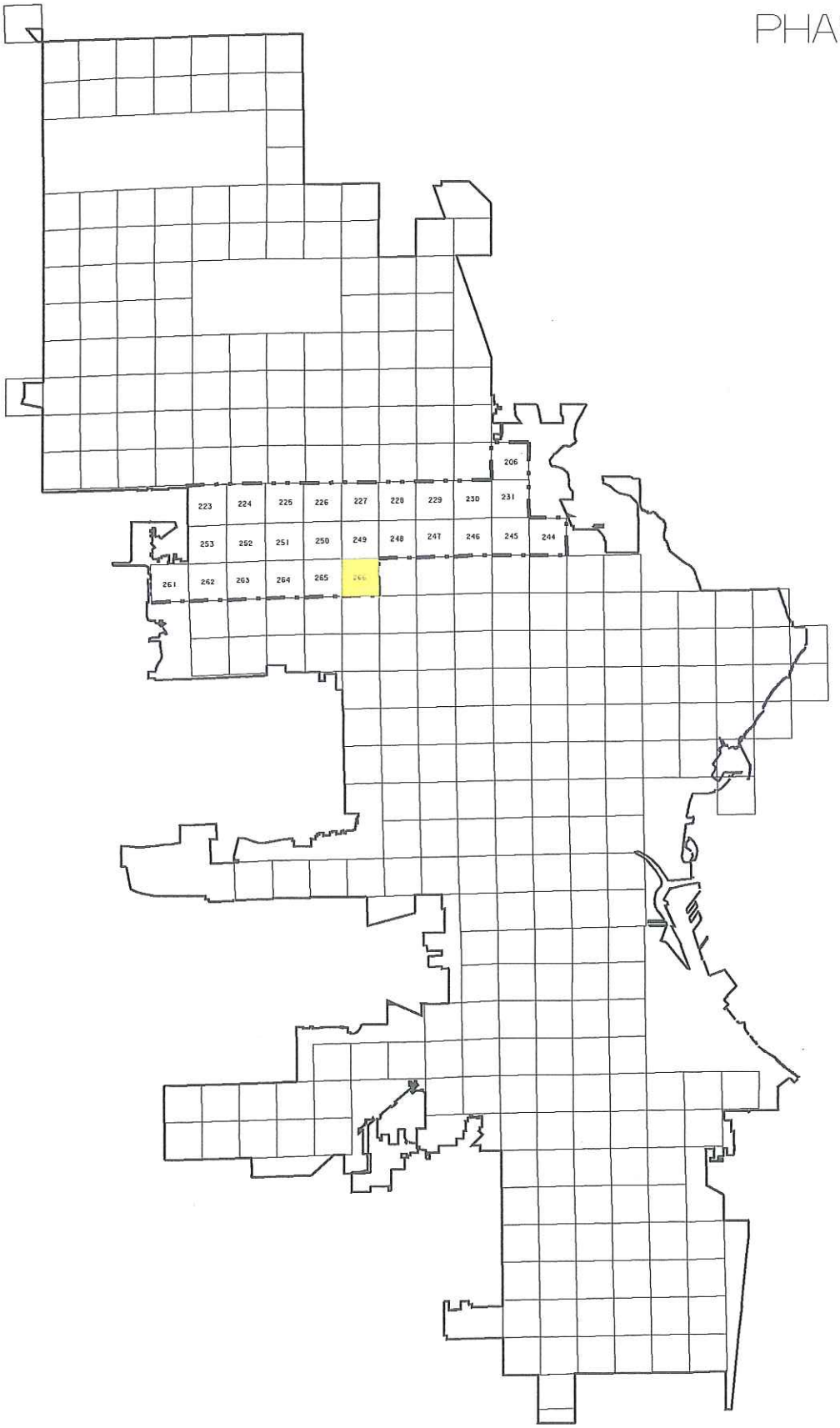
- Accepted (151)
- Delivered (38)
- In Progress (0)
- Contract Boundaries

STATUS AS OF 10/31/02

PREPARED BY: CITY OF MILWAUKEE - ITMD/GIS

MCAMLIS Transformation Project Progress Map

PHASE 6



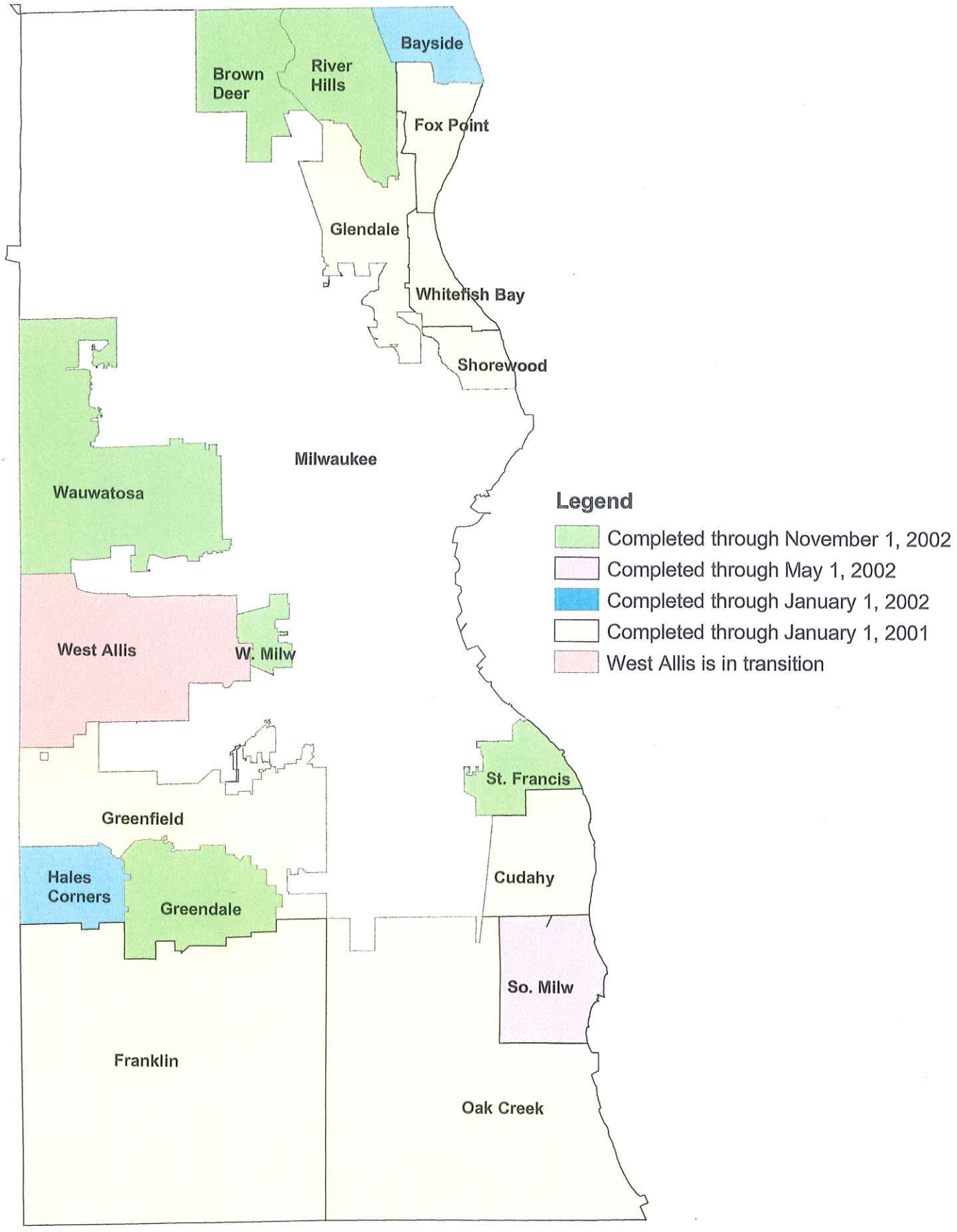
Legend

- Accepted (0)
- Delivered (0)
- In Progress (1)
- Contract dated 03/01 24 quarter sections Boundary

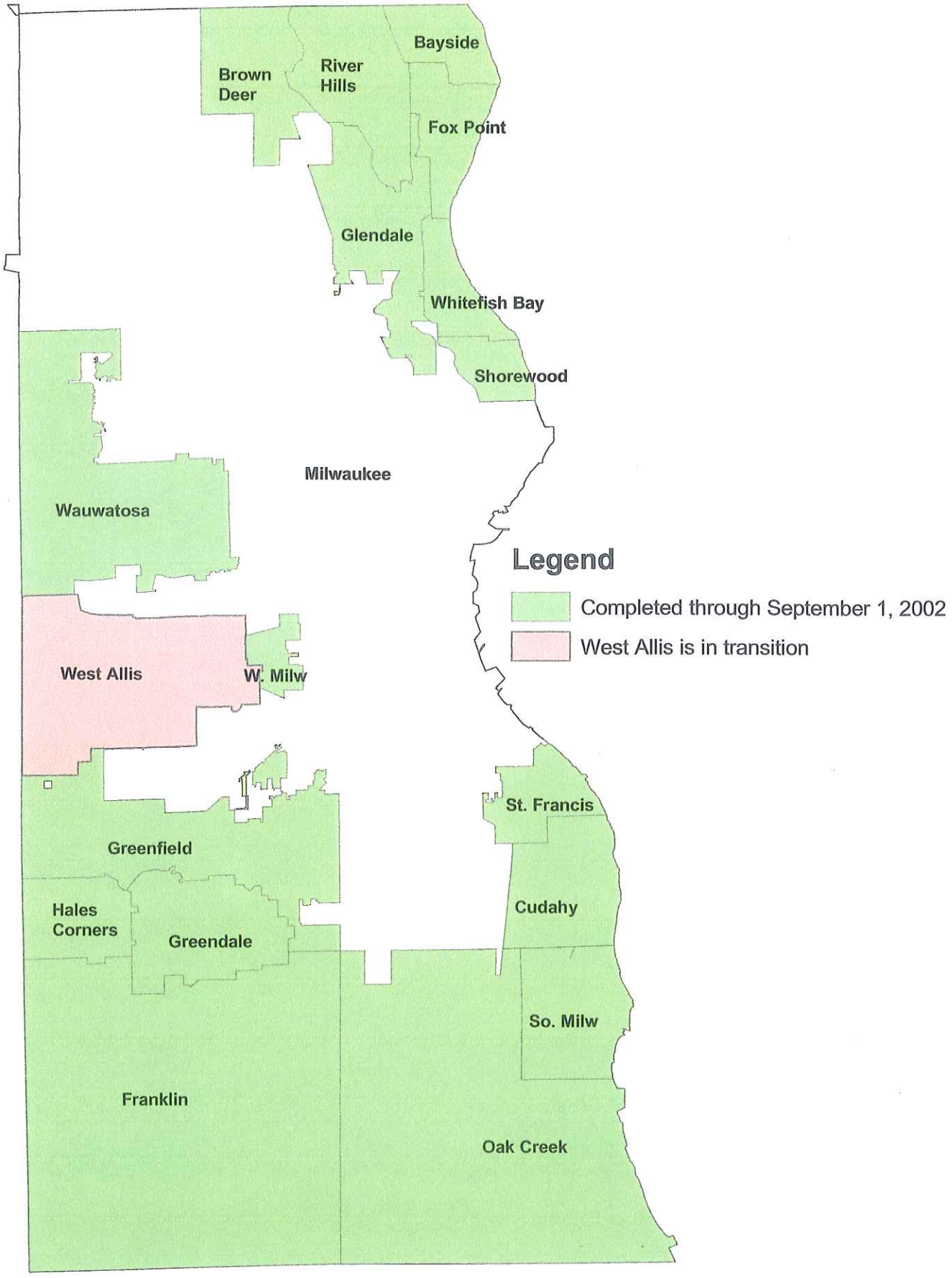
STATUS AS OF 10/31/02

PREPARED BY: CITY OF MILWAUKEE - ITMD/GIS

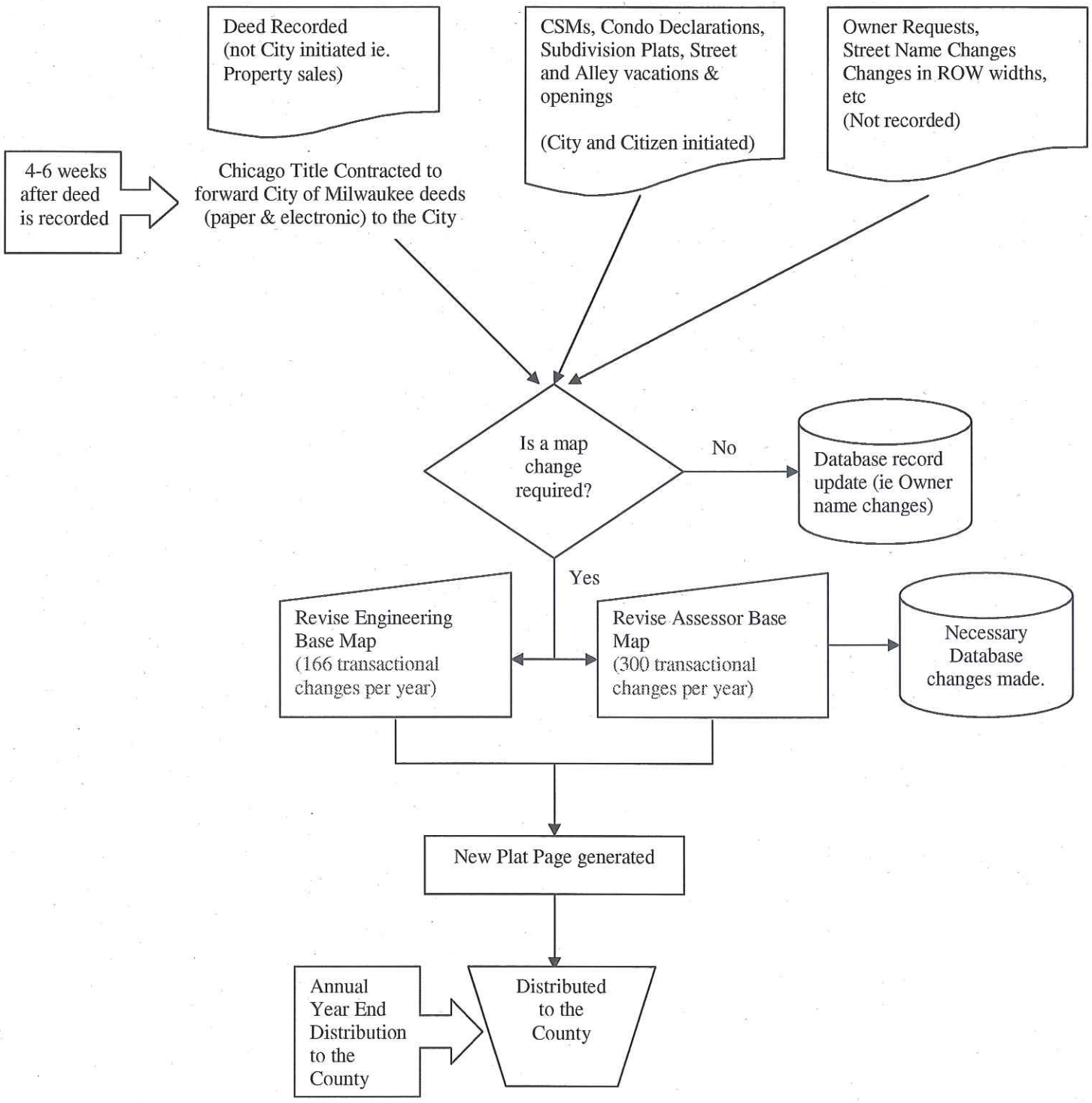
Milwaukee County Address Status as of November 6, 2002



Milwaukee County Cadastral Status as of November 6, 2002



Current Workflow of Changes to City of Milwaukee Cadastral Maps



EXECUTED LICENSE AGREEMENTS

Number of Executed Agreements		Licensee	Effective Date
Since 1995	For 2002	**2002**	
70.	1.	Urban Ecology Center, Inc.	01/28/02
71.	2.	PBS & J	02/19/02
72.	3.	Schlitz Audubon Nature Center	03/18/02
73.	4.	URS Corporation	05/10/02
74.	5.	Architects/Planners	05/22/02
75.	6.	STS Consultants, Ltd.	07/19/02
76.	7.	HNTB Corporation	07/26/02
77.	8.	Farr Associates, Inc.	08/06/02
78.	9.	Welch Hanson Associates	08/23/02
79.	10.	Walker Parking Consultants, Inc.	08/27/02
80.	11.	Central City Construction, Inc.	10/03/02
81.	12.	R. A. Smith & Associates	10/08/02
82.	13.	University of Wisconsin-Madison Department of Landscape Architecture	10/15/02
83.	14.	HDR, Inc.	10/17/02
84.	15.	Hey and Associates, Inc.	10/22/02

IV F

	1990 Actual	1991 Actual	1992 Actual	1993 Actual	1994 Actual	1995 Actual	1996 Actual	1997 Actual	1998 Actual	1999 Actual	2000 Actual	2001 Actual	10/312002 Actual	TOTAL
Beginning Period Reserve-January 1	0	283,340	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	183,752
Mid-Year Reserve Changes	0	0	0	0	0	0	0	0	0	0	0	0		0
Current Period Reserve	0	283,340	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	183,752
Recording Fees (**$4.00** Portion)	101,886	324,983	612,592	676,093	647,355	503,342	574,328	644,508	769,820	773,078	609,683	743,977	731,404	7,713,049
Recording Fees (**$1.00** Portion)												72,968	183,753	256,721
State Grants	0	0	0	150,000	200,000	165,000	138,500	55,300	139,226	152,270	103,895	325,997	125,090	1,555,278
1 Private Utility Contributions	312,000	312,000	312,000	312,000	312,000	0	0	0	0	0	0	0		1,560,000
2 MMSD Contribution	0	0	0	50,000	50,000	50,000	50,000	50,000	50,000	50,000	170,000	0		520,000
Annual Revenue	413,886	636,983	924,592	1,188,093	1,209,355	718,342	762,828	749,808	959,046	975,348	883,578	1,142,942	1,040,247	11,605,048
TOTAL FUNDS AVAILABLE	413,886	920,323	1,420,514	1,761,142	1,504,485	1,778,755	2,073,474	2,024,667	2,041,364	2,101,100	1,992,266	1,707,402	1,223,999	11,788,800
Additional Encumbrance	100,000	22,075	534,849	272,943	-900,864	112,067	308,902	367,776	361,580	386,754	586,545	737,559	694,139	3,584,325
Legal Fees	0	350	600	0	0	0	0	0	0	0	0	0		950
Systems Consulting (UGC)	0	128,638	0	0	0	0	0	0	0	0	0	0		128,638
USPLS Remonumentation	0	41,260	0	0	0	0	0	0	0	0	0	0		41,260
Horizontal/Vertical Control Surveys	0	144,443	0	0	0	0	0	0	0	0	0	0		144,443
Aerial Photos/Mapping	21,555	17,925	292,060	1,178,794	1,340,370	356,953	490,821	576,268	556,108	608,450	842,594	787,620	823,638	7,893,155
Project Facilitator	8,991	73,567	21,650	14,995	0	0	0	0	0	0	0	0		119,203
Conference	0	59	1,046	319	0	0	528	0	0	0	0	0		1,953
Project Conversion Costs														0
SEWRPC Staff and Training														0
Computer Hardware/Software														0
ROD Materials Copied	0	0	0	0	6,291	797	0	0	0	0	0	0		7,088
Computer Maintenance														0
Computer/Office Supplies	0	0	0	0	0	0	26	0	0	0	0	0		26
Rent and Utilities														0
Database Maintenance and Updates														0
Contractual Crosscharges	40	554	13	0	0	0	3	5	0	0	343	0	295	1,252
Charges Paid By Other Departments	0	-4,470	-2,752	-1,040	-1,724	-1,708	-1,664	-1,700	-2,116	-2,792	-1,676	-1,529	-1,540	-24,711
Miscellaneous									40	0	0	0		40
Annual Expenditures	30,586	402,326	312,616	1,193,069	1,344,936	356,042	489,713	574,573	554,032	605,658	841,261	786,091	822,393	8,313,297
TOTAL EXPS / ENCUMBRANCES	130,586	424,401	847,466	1,466,012	444,072	468,109	798,615	942,349	915,612	992,412	1,427,806	1,523,650	1,516,532	11,897,622
NET AVAIL FUNDS (END RESERVE)	283,300	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	-292,533	-108,822

1. 1994 was the final year for this revenue source.
2. $50,000 will be paid each year through 2002, and $20,000 in 2003.

IV B

AGREEMENT

THIS AGREEMENT, entered into this ____ day of _____, 2002, 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, the Commission is authorized by Section 66.0309 of the *Wisconsin Statutes* to make studies and prepare plans for, and to provide advisory services to local governments, and to act as a coordinating agency for planning activities within its jurisdictional area; and

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. 127; and

WHEREAS, the aforereferenced 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 aforereferenced 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 Steering Committee on July 29, 1991, formally requested the Commission to accept the responsibilities of Project Manager for the implementation of the recommended automated mapping and land information system; and

WHEREAS, the Executive Committee of the Commission on August 21, 1991, authorized Commission assistance in execution of the work required to implement the Milwaukee County automated mapping and land information system in the manner envisioned in the aforereferenced Commission report; and

WHEREAS, the Southeastern Wisconsin Regional Planning Commission, since September, 1991, has carried out the role of Project Manager on behalf of the Steering Committee; and

WHEREAS, the Steering Committee is desirous of continuing the current project management relationship with the Commission; 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

In general, the Commission agrees to perform all of the tasks specified herein which include Project Management and Related Staff Services, and Operations Services. Other tasks to be completed by the Commission not covered herein will be carried out under separate agreements.

A. Project Management and Related Staff Services

The Commission will provide the professional staff services, including the services of a Project Manager, necessary to manage the Milwaukee County automated mapping and land information system projects throughout the duration of this agreement, and beyond subject to amendment of this agreement. This responsibility includes the identification and recommendation of work projects to be carried out under the MCAMLIS program, the preparation and submittal of grant applications to the Wisconsin Land Information Board on behalf of the MCAMLIS Steering Committee, the fiscal management of MCAMLIS projects, and the quality control of end products produced under MCAMLIS contracts and subcontracts.

The Commission as Project Manager will serve as staff to the Steering Committee in the preparation for and the carrying out of its meetings. Additionally, the Commission will keep all minutes of the Steering Committee meetings and will house the records of the Steering Committee in the Commission offices.

B. Operations Services

The Commission agrees to perform day-to-day operations services attendant to the Milwaukee County automated mapping and land information system until the end of the period specified in this contract. This will include housing the MCAMLIS produced end products, handling requests for the distribution of MCAMLIS produced products as approved by the Steering Committee, and researching and implementing hardware and software data transfer protocols and standards. Additionally, the Commission will supply routine maintenance as required in the housing of MCAMLIS data, and continue to integrate new materials created under MCAMLIS projects as they become available.

In addition to the services described above, the Commission will be responsible for developing and managing any and all sub-contracts to qualified engineering firms participating in the conduct of MCAMLIS mapping projects. Furthermore, the MCAMLIS Project Manager as an employee of the Commission will serve as liaison to the MCAMLIS attorney related to the development of the MCAMLIS datasharing policy,

and in matters pertaining to the copyright of MCAMLIS derived products.

II. Timing

All services to be performed under this Agreement shall be carried out over the period beginning January 1, 2003, and ending on December 31, 2004.

III. Compensation to Commission

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

SERVICES PROVIDED	AMOUNT
Project Management and Related Staff Services	$150,000
Operations Services	$ 50,000
TOTAL	$200,000

IV. Method of Compensation

The Commission shall submit invoices to the Steering Committee during the course of this Agreement for partial payment of the total Agreement amount of $200,000. The Steering Committee shall pay to the Commission the amounts shown on the invoices upon receipt of said invoices.

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 judgement of the Commission or in the judgement of the Steering Committee, then it is agreed that the Commission can request an amendment to the scope of work, with an attendant increase in the maximum amount payable to the Commission under this Agreement. Such an amendment would require the approval of both the Commission and the Steering Committee before becoming effective.

The Commission shall permit authorized representatives of the Steering Committee or its member organizations to inspect and audit all data and records of the Commission related to carrying out this Agreement for a period of up to three years after completion of the Agreement.

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 Commission all existing digital and hardcopy maps, documents, reports, legal records, and related materials deemed by the Commission 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 Commission 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

It is agreed that all of the automated mapping base data and related materials collected and developed under this Agreement shall be the exclusive property of the Steering Committee. The Steering Committee hereby grants to the Commission permission to use such data in

performing its regional planning work program. The Commission agrees not to release such data to others without the prior consent of the Steering Committee. At the end of the Agreement, the Commission agrees to turn over to a designated MCAMLIS Project Manager all materials and computer hardware and software acquired and/or developed as a part of this Agreement.

VII. Subcontracts

The Commission and Steering Committee agree that it may be desirable to perform certain of the tasks associated with work projects conducted during the life of this Agreement through subcontracts with qualified firms. In addition, it is envisioned that subcontracts may be required for the acquisition of computer hardware and software and communication devices. The Commission 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 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 it's (their) 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 (both public and property) 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. Authorization

The Steering Committee approved the execution of this Agreement by action taken on October 8, 2002.

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

ATTESTING WITNESS

By_____
Philip C. Evenson
Deputy Secretary

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

By_____
Thomas H. Buestrin
Chairman

ATTESTING WITNESS

By_____
Thomas D. Patterson
Project Manager

MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM STEERING COMMITTEE

By_____
Kurt W. Bauer
Chairman

APPROVED AS TO FORM

By_____
Timothy R. Schoewe (Date)
Milwaukee County Corporation Counsel

REVIEWED AS TO INDEMNIFICATION AND INSURANCE

By_____
John R. Rath (Date)
Milwaukee County Department of Risk Management

APPROVED AS TO CHAPTER 42 DBE PROVISIONS

_____
David W. Stokes (Date)
Milwaukee County DBD Director

McAMLis/city 11-15-02

ROD has the public inputs for plats to be received maybe incorporated into web page

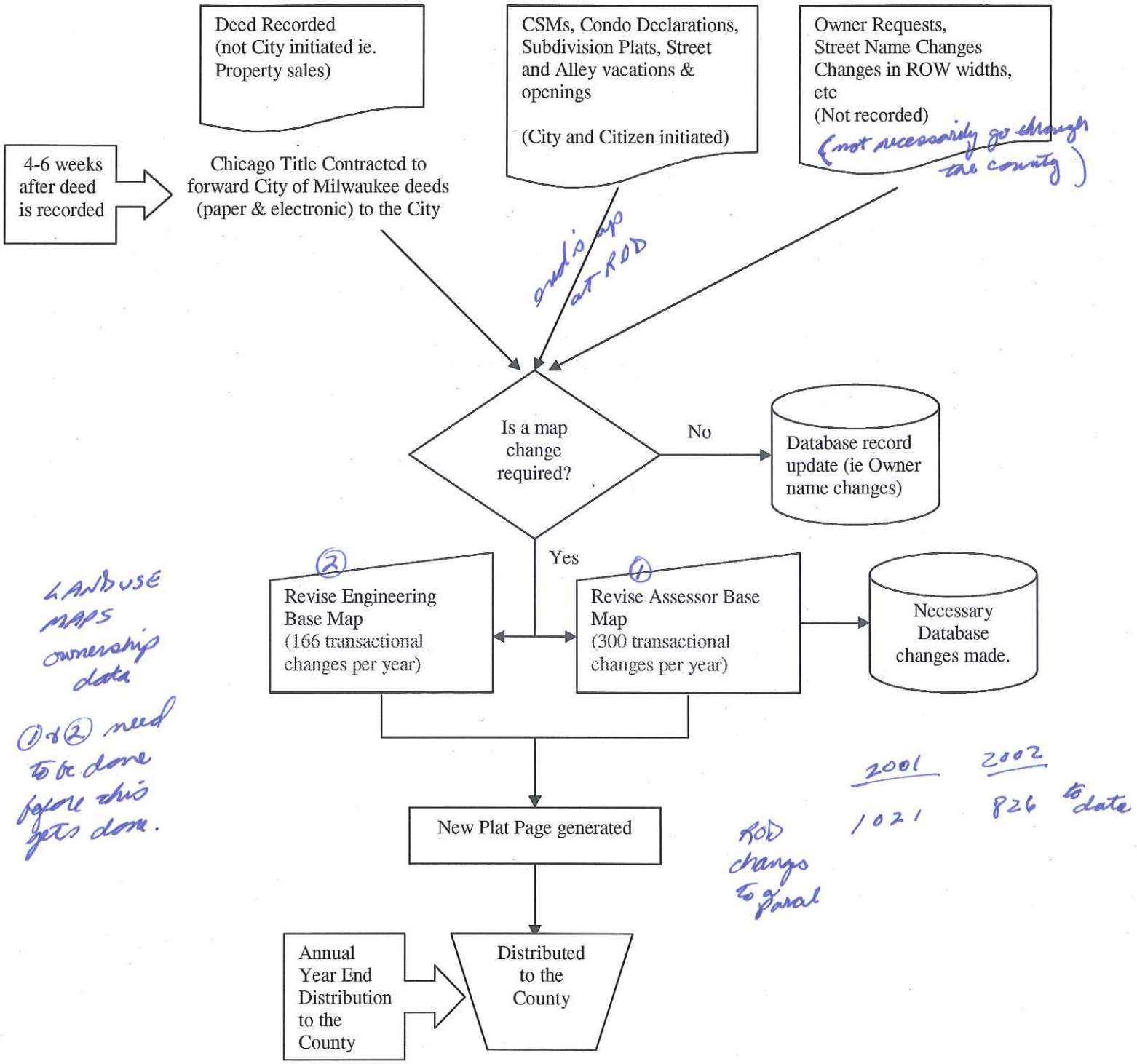
city & mlw needs to assess what Chicago title gives them after they received (Chicago) gets info from County - maybe we can eliminate this back & forth process that now exists

city assessor to meet w/ ROD

- contract between Steering comm & ROD will allow Kathy to do updates

12/3/02 - McAMLis Meeting

Current Workflow of Changes to City of Milwaukee Cadastral Maps



DEPARTMENT OF PUBLIC WORKS

Milwaukee County

September 26, 2002

Kurt W. Bauer, Chairman
Milwaukee County Automated Mapping and
Land Information System Steering Committee
W239 N1812 Rockwood Drive
Waukesha, WI 53188-1113

Dear Mr. Bauer,

As you know the Southeastern Wisconsin Regional Planning Commission provides project management services to the MCAMLIS Steering Committee. The current agreement expires on December 31, 2002. The cooperative agreement between Milwaukee County, Milwaukee Metropolitan Sewerage District, Ameritech, Wisconsin Electric Power Company, and Wisconsin Gas Company that created the MCAMLIS Steering Committee, calls for Milwaukee County to eventually assume the management of the MCAMLIS project. Additionally, the updated Land Records Modernization Plan for Milwaukee County (1999) specifically calls for the identification and establishment of a permanent institutional structure for custody and management of MCAMLIS. Therefore, we would like to propose the transition of selected MCAMLIS project management responsibilities to Milwaukee County Department of Public Works as shown on the attached.

On several occasions, the Commission staff has asked Milwaukee County Department of Public Works whether or not it was prepared to undertake MCAMLIS project management. At those times, after assessing the Department of Public Works capabilities, we had to decline. In July 2002, Milwaukee County Department of Public Works asked the Commission staff to detail the scope of MCAMLIS project management responsibilities: After several meetings with the Commission staff and internal discussions, we believe the Milwaukee County Department of Public Works is prepared to assume selected MCAMLIS project management responsibilities.

MILWAUKEE COUNTY-CITY CAMPUS • 2711 WEST WELLS STREET • MILWAUKEE, WI 53208
FAX NUMBERS: Director's Office 223-1899 • Architecture & Engineering 223-1366 • Transportation 223-1850
Administrative Support Services 223-1803

To make this transition as seamless as possible for the MCAMLIS Steering Committee, we are proposing a two year, three phase transition period. Enclosed are a breakdown of the MCAMLIS project management responsibilities, as provided by the Commission staff, and our preliminary transition plan.

We request that the MCAMLIS Steering Committee take this under consideration at its earliest convenience.

Sincerely,

Thomas D. Kenny, Acting Director
Milwaukee County Department of Public Works

Enclosures: MCAMLIS Project Management Responsibilities, MCAMLIS Proposed Transition Plan
Cc: Gregory G. High, Director, Architectural, Engineering & Environmental Services Division, Milwaukee County Department of Public Works
Gary A. Drent, Support Services Section, Milwaukee County Department of Public Works

MCAMLIS Proposed Transition Plan

To make this transition as seamless as possible for the MCAMLIS Steering Committee, we are proposing a two year, three phase transition period. The plan is broken down into three separate phases. The responsibilities detailed in each of the phases correspond to the project management responsibilities outlined by the Commission staff. The intent of the transition plan is not that the phases need to be complete to initiate the next phase, rather that they overlap to provide for a more balanced changeover.

Phase 1

Milwaukee County Department of Public Works would assume the responsibility for the day to day operations services of the MCAMLIS program. This would include housing the MCAMLIS produced end products, handling requests for the distribution of MCAMLIS produced products as approved by the Steering Committee, and researching and implementing new hardware and software data transfer protocols and standards. Also, this would include routine maintenance of the MCAMLIS data server and the integration of new materials, as they become available.

Phase 2

Milwaukee County Department of Public Works would provide the professional staff services necessary to mange MCAMLIS projects. This would include identification and recommendation of projects to be carried out by the MCAMLIS program, the fiscal management of MCAMLIS projects, and quality control of end products produced under MCAMLIS contracts.

Phase 3

Milwaukee County Department of Public Works would assume the responsibilities of the preparation and submittal of grant applications to the Wisconsin Land Information Board, fiscal monitoring and reporting of grant awards and providing technical support to Milwaukee County LIO for updating land records plans.

NOTE: At this time no fiscal budget has been prepared. After MCAMLIS Steering Committee has agreed conceptually to the plan and Milwaukee County Department of Public Works has had more in depth discussions with the Commission staff, a more detailed budget can be proposed.

****

MCAMLIS Project Management Responsibilities

I. MCAMLIS Steering Committee Coordination (Remain SEWRPC Responsibility)

- Organization of meetings
- Preparation of agendas
- Organization of material prior to meetings
- Completion of minutes following meetings
- Follow-up on any assignments made.

II. WLIP Coordination (Phase III Implementation)

- Monitoring of program activities
- Preparation of grant applications
- Dealing with State staff to resolve issues and questions
- Negotiation of grant agreements following awards
- Writing and filing of project completion reports for grant-funded MCAMLIS projects
- Fiscal monitoring of grant awards

III. Distribution of MCAMLIS Digital Mapping Materials (Phase I Implementation)

- Answering general inquires
- Providing consultation on specific products
- Securing and filing executed MCAMLIS license agreements
- Managing copyright requirements and distributing data

IV. Coordination MCAMLIS Budget Preparation and Accounting Activities with Milwaukee County Staff (Phase II Implementation)

- Preparation of annual budget
- Monitoring of project revenues and expenditures and other associated tasks
- Interaction with County staff to carry out the annual Milwaukee County single audit

V. General Project Management (Phase II Implementation)

- Conceptual development of individual projects
- Development of project specifications, where needed
- Writing contracts
- Preparing invoices to draw down funds as expended
- Payment of subcontractors
- Associated record keeping

VI. General Maintenance of MCAMLIS Data Holdings and Introduction of New Material to Archive Files (Phase I Implementation)

- Occasional reorganization for more efficient storage and other associated tasks
- Data file translations
- General maintenance activities, including backups

VII. Clerical and Technical Staff Support for Above-Listed Activities (Excluding SEWRPC Responsibilities)

DEPARTMENT OF PUBLIC WORKS

Milwaukee County

September 26, 2002

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NOTE: At this time no fiscal budget has been prepared. After MCAMLIS Steering Committee has agreed conceptually to the plan and Milwaukee County Department of Public Works has had more in depth discussions with the Commission staff, a more detailed budget can be proposed.

****

MCAMLIS Project Management Responsibilities

I. MCAMLIS Steering Committee Coordination (Remain SEWRPC Responsibility)

- Organization of meetings
- Preparation of agendas
- Organization of material prior to meetings
- Completion of minutes following meetings
- Follow-up on any assignments made.

II. WLIP Coordination (Phase III Implementation)

- Monitoring of program activities
- Preparation of grant applications
- Dealing with State staff to resolve issues and questions
- Negotiation of grant agreements following awards
- Writing and filing of project completion reports for grant-funded MCAMLIS projects
- Fiscal monitoring of grant awards

III. Distribution of MCAMLIS Digital Mapping Materials (Phase I Implementation)

- Answering general inquires
- Providing consultation on specific products
- Securing and filing executed MCAMLIS license agreements
- Managing copyright requirements and distributing data

IV. Coordination MCAMLIS Budget Preparation and Accounting Activities with Milwaukee County Staff (Phase II Implementation)

- Preparation of annual budget
- Monitoring of project revenues and expenditures and other associated tasks
- Interaction with County staff to carry out the annual Milwaukee County single audit

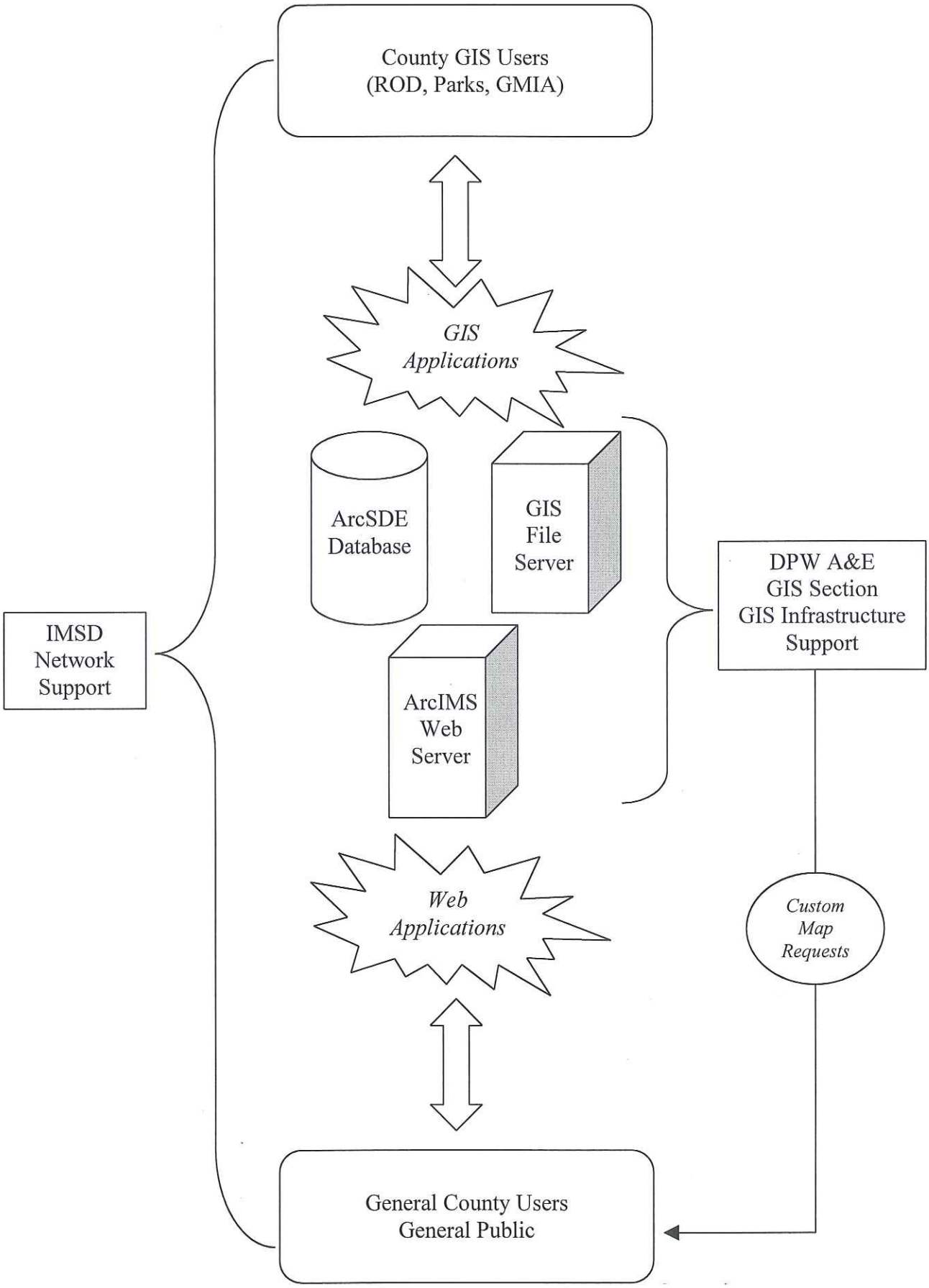
V. General Project Management (Phase II Implementation)

- Conceptual development of individual projects
- Development of project specifications, where needed
- Writing contracts
- Preparing invoices to draw down funds as expended
- Payment of subcontractors
- Associated record keeping

VI. General Maintenance of MCAMLIS Data Holdings and Introduction of New Material to Archive Files (Phase I Implementation)

- Occasional reorganization for more efficient storage and other associated tasks
- Data file translations
- General maintenance activities, including backups

VII. Clerical and Technical Staff Support for Above-Listed Activities (Excluding SEWRPC Responsibilities)


County GIS Users
(ROD, Parks, GMIA)
GIS
Applications
ArcSDE
Database
GIS
File
Server
ArcIMS
Web
Server
IMSD
Network
Support
DPW A&E
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GIS Infrastructure
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Web
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Custom
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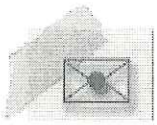
General County Users
General Public



Greg High

10/15/02 05:01 PM

To: Thomas Kenney/DPW/Milwaukee County@milwco
cc: Gary Drent/DPW/Milwaukee County@milwco, Kevin White/DPW/Milwaukee County@milwco
Subject: MCAMLIS and DPW operations

Tom:

As we discussed, under separate cover, are the materials regarding the proposed DPW assumption of MCAMLIS Project Management duties and responsibilities. This is proposed by DPW to be completed using a phased transition period of at least 2 years during which time DPW will assume more of the work from SEWRPC staff as time goes by. I anticipate there would always be some activities which DPW would request that SEWRPC perform in addition to the County Land Surveyor responsibilities which are related but separate from the MCAMLIS work .

For your information in discussion with the County Exec. included are :

- a copy of the letter from the DPW Director to Kurt Bauer, the Chairman of MCAMLIS steering committee
- a copy of the proposed contract with SEWRPC to perform County Surveyor duties
- a copy of the proposed contract with SEWRPC to perform the MCAMLIS project management duties
- a copy of the SEWRPC recommendations for MCAMLIS program Strategic Assessment for the next 4 years.

Also a meeting has been scheduled for 10/21/02 @10:00:00 AM with **Timothy Russell/**Co Exec/Milwaukee County, **Tom Lewandowski**/DOA/Milwaukee and **DPW staff** to discuss the subject of the attached letter which appeared on the last MCAMLIS steering committee meeting on 10/8/02.

The meeting topics will include:

- MCAMLIS steering committee option of having DPW-A/E division take over some roles that currently are being done by steering staff.
- Status of DPW's GIS system
- DPW E-Procurement goals for 2003
- County Executive's and DOA's support for Owner department training and accountability for use of the web based County facilities inventory and assessment software.

attachments

DRAFT I
8/1/02

MCAMLIS Transition

TASK		
I. MCAMLIS Steering Committee Coordination	SEWRPC	
II. WLIP Coordination	SEWRPC	
III. Distribution of MCAMLIS Digital Mapping Materials	County	
IV. Coordination of MCAMLIS Budget Preparation	County	
V. General Project Management	SEWRPC/County	% based on transition plan
VI. General Maintenance of MCAMLIS Data Holdings	County	
VII. Clerical/Technical Support	SEWRPC/County	% based on transition plan

PROJECTS		
Cadastral Map Project (City of Milwaukee)	County	
Floodplain Mapping	SEWRPC	
Balance of outstanding Projects	SEWRPC	Projects to be finished by 2002 or 2003
New Projects	County ?, SEWRPC	

#70535 v1 - MCAMLIS RESPONSIBILITIES
06/17/02

MCAMLIS PROJECT MANAGEMENT RESPONSIBILITIES

I. MCAMLIS Steering Committee Coordination

- Organization of meetings
- Preparation of agendas
- Organization of material prior to meeting
- Completion of minutes following meeting
- Follow-up on any assignments made

This generally requires approximately one to two weeks of effort prior to the meeting and two to three weeks of effort following the meeting. Amount of time required on an annual basis depends on the number of meetings held, but generally amounts to two to three man months annually.

II. WLIP Coordination

- Monitoring of program activities
- Preparation of grant applications
- Dealing with State staff to resolve issues and questions
- Negotiation of grant agreements following awards
- Writing and filing of project completion reports for grant-funded MCAMLIS projects
- Fiscal monitoring of grant awards - 8 contracts beyond one fiscal year.

Generally requires two to three man months annually.

✓ III. Distribution of MCAMLIS Digital Mapping Materials - follows copyright ruling that has been established.

- Answering general inquiries
- Providing consultation on specific products
- Securing and filing executed MCAMLIS license agreements - 65
- Managing copyright requirements and distributing data

Generally requires about one man month annually, but can run as high as two man months annually

✓ IV. Coordination of MCAMLIS Budget Preparation and Accounting Activities with Milwaukee County Staff

- Preparation of an annual budget
- Monitoring of project revenues and expenditures and other associated tasks
- Interaction with County staff to carry out the annual Milwaukee County single audit

Generally requires about one man month annually, but due to increased time requirements relating to the annual County audit, this amount has been increasing in recent years.

V. General Project Management

- Conceptual development of individual projects
- Development of project specifications, where needed
- Writing of contracts
- Preparing invoices to draw down funds as expended
- Payment of subcontractors
- Associated recordkeeping

Fiscal Management

Generally requires about two man months annually.

VI. General Maintenance of MCAMLIS Data Holdings and Introduction of New Material to Archive Files

Technical support

- Occasional reorganization for more efficient storage and other associated tasks
- Data file translations
- General maintenance activities, including backups

Generally requires between one and two man months a year, although this amount has been declining in recent years as lesser amounts of data are being created. This task can generally be carried out by a technical level employee with some supervision.

VII. Clerical and Technical Staff Support for the Above-Listed Activities

General support in the form of clerical and technical staff is also required. This generally amounts to approximately eight man months on an annual basis.

VI

City of Milwaukee

Department of Administration
Information and Technology
Management Division

John O. Norquist
Mayor
David R. Riemer
Administration Director
Randolf A. Gschwind
Chief Information Officer

Date: November 21, 2002

To: Mr. Kurt W. Bauer
MCAMLIS Chairman

From: Nancy A. Olson NAO

Subject: Upcoming MCAMLIS meeting and Internet Pilot Report

Since I am unable to attend the upcoming MCAMLIS meeting on December 3rd, I would ask that you consider my absence if a motion is made by the committee to proceed with the recommendations of the Internet Pilot Report. Since it appears that the materials will not reach me prior to my vacation, I would like to have an opportunity to review the report and to also have an opportunity to cast a vote regarding moving forward with any recommendations.

Thank you for your consideration in this matter.

Draft

MCAMLIS
LAND AND UTILITY INFORMATION SYSTEM INTERNET PROTOTYPE
REPORT NO. 4

NOVEMBER/2002

RUEKERT/MIELKE
W233 N2080 Ridgeview Parkway
Waukesha, Wisconsin 53188-1020

TABLE OF CONTENTS

MCAMLIS
LAND AND UTLITY INFORMATION SYSTEM INTERNET PROTOTYPE
REPORT NO. 4

PREAMBLE

This is the final report concerning the status of implementing a web based land and utility information system for the Milwaukee County Automated Mapping and Land Information System (MCAMLIS). The work effort to date represents 100% of the total project outlined in the Prospectus approved by the MCAMLIS Steering Committee.

As proposed and outlined in the Prospectus, this report includes final recommendations for the production environment, strategic implementation issues, process for connecting interested communities, and a project summary. Additionally, this report is intended to provide information for the MCAMLIS Steering Committee to determine the best alternatives for:

- Providing easy access to the MCAMLIS data base
- Exchanging and viewing utility information
- Providing easy access to the MCAMLIS data base
- Providing transactional changes to the land information system
- Providing for the spatial merging or layering of municipal and utility infrastructure

All of the efforts associated with this project were conducted with interaction and input from the Technical Advisory Committee (TAC). Recommendations are based on the research, development and installation of the Internet prototype web application and feedback provided by the TAC.

PRODUCTION ENVIRONMENT

Application Software

Based on the prevalent use of ESRI software by most of the local municipalities, and the fact that the Internet prototype web application was developed with ESRI ArcIMS and met the needs of the Technical Advisory Committee, the Land Information web application should continue to be developed using ESRI ArcIMS. Since ESRI has released a version upgrade (4.0) since the initial development of the web application, the web site should be upgraded. Ruekert / Mielke has completed other web application upgrades from ArcIMS version 3.1 and estimates that the cost would range from $1,500 - $2,000.

Database Updates

Since the Prototype Internet Web Application included a pilot project and only a sampling of the available digital files, final implementation will require updating the database tables with a record for the available digital files. Assuming local municipalities can provide a single digital file for the sanitary sewer, storm sewer, and water distribution facilities, the cost to update the web application with is estimated to be between $2,500 - $3,500.

Hosting Services

Based on the current budget restraints in Milwaukee County, the lack of trained technical staff with regards to ArcIMS development and support, and improbability that additional positions will be added, the data and web application should be hosted by a local web hosting service provider, such as the Regional Planning Commission or a private enterprise. The estimated monthly costs for web hosting services range from $800 - $1,300 or an annual cost of $9,600 - $15,600. The annual fees are much lower than the cost of additional GIS or programming staff. Additionally, it is very unlikely that a single individual could be found that possesses all of the required skills. Hence, the County may actually have to hire more than one person to acquire the skills to develop, support, and maintain the necessary hardware and web application.

Should Milwaukee County decide in the future to take over the maintenance and hosting in the future, the web application can be simply removed from the web hosting service providers' server and installed on a County server. The cost to remove and re-install the web application is estimated to range between $1,500 - $2,000.

Community Access

Since the Land Information System web application can be accessed via an Internet browser, the requirements for local communities to access, search and download the available digital data are minimal. The following is a list of the requirements:

1. Internet Connection - 768 kbps (minimum)

2. Microsoft Internet Explorer 5.x or later

3. GIS software capable of reading ESRI ArcInfo coverages, geodatabases or shape files

Of the municipalities that responded to the questionnaire, the Village of Hales Corners was the only municipality that did not have Internet access. However, the Village does have plans to obtain Internet access in the near future.

MCAMLIS License Agreement

Since the digital cadastral maps are being updated on a regular basis, making previous versions obsolete; are used extensively within municipal engineering and planning departments and are often shared and distributed to outside consultants; other local units of government share their digital land bases at no cost, and the fact that the salary for the GIS position and the associated cost for digital cadastral map maintenance are being paid from retained fees collected in the

Milwaukee County Land Information Office, it is recommended that the MCAMLIS license agreement be eliminated from future use and does not become a part of the Internet Land and Utility Web Application.

PROSPECTUS OBJECTIVES

As noted in the Preamble, the purpose of the prospectus was to provide information for the MCAMLIS Steering Committee to determine the best alternatives for key issues. The following includes an analysis of, and recommendations for, each of the key issues. A cost estimate for each of the recommendations is included in the "Strategic Implementation Tasks" section of this report.

Providing Easy Access to the MCAMLIS Data Base.

The Prototype Internet Application demonstrated the ability to easily access and download digital cadastral and topographic files provided by MCAMLIS. Web pages were developed that provided a means to search by USPLSS section, town and range, by one-quarter section, by map index sheet number, or by municipality. The resulting database search listed the available files, data source (provider), data description, data format, date last updated, and a link to metadata. The user interface is easy to understand and requires minimal training. This is extremely important, since the web application may be used by less sophisticated, or computer savvy, individuals. Technical Advisory Committee members were able to test the prototype Internet application from their own offices. Since each member's organization included a high-speed Internet connection, they experienced immediate responses to database searches.

The prototype Internet application initially included three (3) different options for viewing available data. Each option included a standard interface to search and download available digital topographic or cadastral map files from a database table. Two of the options included a method to select available files from an interactive map. One option allowed the user to actually view the contents of the digital map files, but due to the large quantity and excessive file size of the existing digital files, it was determined that this was not a viable option. The recommended web application includes the standard interface to search and download files with the ability to view a "snapshot" or sample image of the content of the available digital map files.

In order to simplify the maintenance efforts, reduce the excessive file sizes, and to respond to the local municipalities request for municipal tiled maps, it is recommended that the digital cadastral be re-compiled into larger-tiled areas. The preparation of larger tiled areas would significantly reduce the number of referenced files to a manageable number, which could be ultimately loaded into the proposed web application and potentially made accessible for viewing purposes. The recommendation is based on similar efforts in Waukesha County, where township sized tiles were created for the digital cadastral maps. Since each municipality may be interested in areas within, and immediately adjacent to, their corporate boundaries, the larger tiled areas should be individually compiled based on the needs of each municipality. In order to accommodate the individual requests of each municipality, an automation maintenance tool or conversion script should be developed for the creation of the municipal tiled areas. The automation tool would be utilized following the completion of the update process and before the digital cadastral files were uploaded to the web application.

Exchanging And Viewing Utility Information.

Although all of the Technical Advisory Committee participants provided source information, including available utility information, there remain concerns with regards to making this information accessible over the Internet. In particular, We Energies and the City of Milwaukee Water Works provided limited information with regards to complete facility location and associated attribute data that minimized the perceived benefits listed in the Prospectus. Additionally, both of these utilities continued to reserve their right to limit or withdraw any involvement with the recommendations made herein.

As part of a separate effort, We Energies has begun the development of a license agreement and mechanism to obtain and exchange digital information between We Energies and local municipalities. Since the license agreement is under development, we are not able to report We Energies has indicated a preference to deal directly with staff from the local municipalities rather than providing over the Internet in a Land and Utility Information System.

Therefore, based on this information, it is recommended that the Internet Web Application include land related information for all of Milwaukee County and utility related information from those municipalities or agencies willing to supply either complete datasets or, if partial datasets are provided, a corresponding metadata file be supplied that clearly identifies the content of the digital files and listing of missing information.

Providing Timely And Cost Effective Distribution Of Land Maintenance Activities

As of October 2002, the digital cadastral maps for Milwaukee County are currently up-to-date, and are being maintained on a regular basis. Individuals interested in obtaining a copy of these files can make a request to Mr. Thomas Patterson, MCAMLIS Project Manager at the Southeastern Wisconsin Regional Planning Commission. All Technical Advisory Committee members defined numerous benefits associated with being able to download the latest digital cadastral or topographic map files from the Prototype Internet Application. These benefits include:

1. Immediate Access.

    - Ability to download any time or day
    - No waiting for return telephone calls or email responses
    - No waiting for response based on staff schedules, vacations, or other out of office issues
    - Quick downloads - based on T1 access speeds
    - No Cost
    - User-friendly search interface
    - Eliminates staff time to prepare compact disk and transmittal letter

    Assuming that each local municipality will want updated digital cadastral maps on at least a monthly basis, and a conservative number of monthly requests from other private enterprises or public agencies, the following analysis indicates a minimum timesaving of 228 hours, or approximately 28 days, per year:

- 18 municipalities x 0.5 hours per request x 12 times per year = 108 hours (13.5 days) per year.
- 20 monthly requests x 0.5 hours per request x 12 times per year = 120 hours (15 days) per year.

Multiple requests for identical digital files, such is the case with engineering firms bidding on similar local projects, or the public utilities requesting updated files for project areas, will generate the greatest time savings. Staff would simply upload, or transfer, the latest files to the web hosting service provider, and let the end-user do the rest.

Additionally, the ease in which individuals can search for, and download their own data, transfers the process from a County or SEWRPC responsibility to an end-user function. Since most people are comfortable using the internet for data research purposes, both from a personal and business standpoint, and most Milwaukee County local participants are supportive of the proposed web application, there should be little, if any, resistance to establishing the web application as the method in which all requests for digital cadastral and topographic maps requests are handled. Municipalities, such as the Village of Hales Corners, who do not currently have a high-speed Internet connection, will need to upgrade their systems or find another location, such as the public library, to download their files. Transferring the digital files to the Villages computer network or to a compact disk (CD) will need to be resolved.

Providing Transactional Changes To The Land Information System.

Milwaukee County does not currently utilize a methodology for tracking digital cadastral map updates. Thus, a system and process was recommended that will support, not only the tracking of updates, but will also simplify the preparation and delivery of the digital cadastral map files. The recommended system requires modifications to the existing digital cadastral map specifications. The changes also take advantage of upgrades and enhancements with ESRI software that will keep Milwaukee County in sync with technology other municipalities are currently utilizing, or will be in the near future.

The Internet prototype web application provided the means to query a specific geographic area. A list of available digital files, including all of the available digital cadastral map updates. Each update was identified by the date of the latest recorded information included in the updated files. Since Milwaukee County intends to publish digital cadastral map updates every 60 days or so, the availability of all of the various digital cadastral map files will be very helpful for those municipalities that may chose to update their digital base maps on a less frequent basis, such as quarterly or biannually. The delivery of three separate digital files additions, deletions, and modifications to existing parcel polygons - will provide a quick and simple way for municipalities to identify and locate the areas that need to be updated within their own digital base maps.

While the private utilities and a few of the municipalities that have developed Geographic Information Systems (GIS) may find it difficult to adopt a new or standard file format, the majority of communities in Milwaukee County have not implemented, or are just beginning to develop, their own GIS. For the majority of the communities in Milwaukee County, a standard file format would not be problematic. In fact, a number of communities are actually looking to MCAMLIS for their direction and guidance on implementation and standardization issues.

As more municipalities begin to use the MCAMLIS data, there is the possibility that the municipalities that have already implemented their own system may see the benefits realized by these newer communities and cause them to reconsider the value in adopting the MCAMLIS digital data standard. Adopting the data standard and eliminating their own maintenance efforts would enable them to concentrate on the mapping of other municipal data layers and other application development.

For example, the City of Oak Creek currently maintains its own land information. After meeting with City GIS staff and discussing the strategic direction of MCAMLIS, they were receptive to the idea of obtaining updates from Milwaukee County - thereby allowing their staff to work on other data conversion projects that have been delayed due to the lack of available staff.

The City of West Allis also maintains its own land information. Mr. Pat Walker indicated, that if Milwaukee County can demonstrate their ability to process and distribute West Allis land information updates in a timely and consistent manner, they would consider suspending land maintenance efforts by West Allis personnel.

Local municipalities also requested that the digital topographic maps be updated more often. Although it was not included in the scope of this project, the maintenance efforts associated with updating digital topographic maps will prove to be more problematic. Since there are allowable tolerances for the spatial location of planimetric features and contours, and the fact that these features will vary from each set of aerial photography, the integration of these features and tracking of the updates will require additional research to thoroughly understand the ramifications and cost of this process.

Providing For The Spatial Merging Or Layering Of Municipal And Utility Infrastructure.

As noted above, We Energies and the City of Milwaukee have already indicated a concern regarding the deployment of digital utility information over the Internet. Although some members of the Technical Advisory Committee indicated a desire to obtain as much of the available digital utility information through the internet prototype web application, the lack of a standard data format would seriously impact the amount of time spent converting and merging the available utility infrastructure files into a common base map. Additionally, since We Energies indicated that they may provide complete data sets through requests made directly by interested parties, it seems impractical to include partial datasets from We Energies, or any other municipality or agency, in the web application that would otherwise provide full datasets through a direct request.

Instead, potential users, after obtaining the available utility infrastructure files from either the web application or directly from the data provider, would be responsible for merging the digital files into their own systems. Although this increases the amount of time and effort for the local users, the probability that a universal, standard data format could be developed and agreed upon by all local users is highly unlikely. This is evident in the fact that the members of the Technical Advisory Committee could not agree on a standard data format for the digital cadastral files. Hence, the merging of municipal and utility infrastructure information is not being recommended and should be removed from future consideration.

STRATEGIC IMPLEMENTATION PROCESS TASKS

The following recommendations have been made as part of this project and should be completed as part of a full-scale implementation effort of the Land Information System web application:

	Task	Cost Estimate
1.	Convert the digital U.S.P.L.S.S. one-quarter section cadastral map files to larger municipal tiled areas.	$ 40,000 - $ 45,000
2.	Convert the digital U.S.P.L.S.S. one-quarter section topographic map files to larger municipal tiled areas.	$ 35,000 - $ 40,000
3.	Develop an automated maintenance conversion tool for the creation of municipal tiled areas.	$ 3,000 - $ 5,000
4.	Incorporate a geodatabase design for the maintenance of the digital cadastral maps	$ 6,000 - $ 8,000
5.	Incorporate a transactional update process	$ 20,000 - $ 30,000
6.	Update existing ArcIMS 3.1 web application to ArcIMS 4.0	$ 1,500 - $ 2,000
	Total cost estimate for all recommendations:	**$105,000 - $130,000**

Local Web Hosting Service

The following is a list of required services and estimated costs for web hosting services:

Required Services	Cost
Data Storage and Web Hosting: (includes hardware, software licenses, yearly software maintenance fees)	$600 - $900 per month
Data Maintenance: (includes appending or replacing available data sets)	$200 - $400 per update
Additional Web Page or ArcIMS Development	$40 - $85 per hour
Total Monthly Data Storage and Web Hosting Fees	**$800 - $1,300**

Additional expenses for web page or ArcIMS development, software maintenance and upgrades, or data conversion may be required in the event MCAMLIS desires to modify the existing web application.

SUMMARY

The study has successfully demonstrated the ability to develop an Internet web application for the collection and distribution of digital map products. The study also identified numerous tasks that should be completed in order to facilitate and simplify the maintenance and updated process associated with the digital cadastral maps. The next step requires the approval of the MCAMLIS Steering Committee of these recommendations and the coordination and implementation of the necessary efforts.

PUBLIC WORKS ROUTING SLIP

TO:

☐ NOVAK	☐ KENNEY	☐ ZURAWIK	☐ BATEMAN
☐ HULBERT	☐ KUJAWA	☐ ABADI	☐ DEHLI
☐ HIGH	☐ MICK	☐ PONATH	☐ RUTKOWSKI
☐ TORRES	☐ IHLING	☒ DRENT	☐ _____
☐ _____	☐ _____	☐ _____	☐ _____

THE FOLLOWING ACTION IS REQUESTED

- ☐ Reply Directly to Attached Communication
- ☐ Prepare Reply for my Signature
- ☐ Your Comments in Writing to Me
- ☐ See Me
- ☐ Call Me
- ☐ For Action as Necessary
- ☐ Read, Initial & Forward - Return to _____
- ☐ File
- ☒ For Your Information

REMARKS: _____

Copy Also Sent To: _____

FROM: Tom Kenney/jn DATE: 11/11/02

(Joanne\rtslip6.doc) 2012 R6

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
W239 N1812 ROCKWOOD DRIVE • PO BOX 1607 • WAUKESHA, WI 53187-1607• TELEPHONE (262) 547-6721
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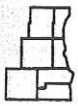


MEMORANDUM

TO: MCAMLIS Steering Committee

FROM: Kurt W. Bauer, Steering Committee Chairman

DATE: November 6, 2002

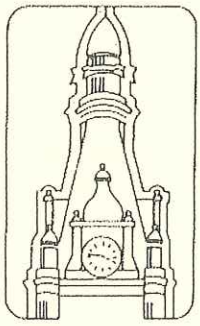
We are providing to you herewith for your files final copies of the following reports:

- "City of Milwaukee Addressing Pilot Project Memorandum" dated October 8, 2002;
- "MCAMLIS Land and Utility Information System Internet Prototype Study" Report No. 1, dated January 24, 2002; and
- "MCAMLIS Land and Utility Information System Internet Prototype Study" Report No. 2, dated May 7, 2002.

These reports, prepared by consultants pursuant to Steering Committee direction, have been reviewed and approved by the Steering Committee at past meetings. Therefore, no further action is required on these reports by the Committee.

cc: Mr. Gregory G. High, Director, Architectural and Engineering Services
Milwaukee County Department of Public Works

KWB/wb



City of Milwaukee

Addressing Pilot Project
Draft Memorandum

CITY OF MILWAUKEE
ADDRESSING PILOT PROJECT
MEMORANDUM

Prepared by: Spatial Data Solutions, Inc.
For: Milwaukee County Automated Mapping and Land Information (MCAMLIS) System Steering Committee

Approved by the MCAMLIS Steering Committee on October 8, 2002

Under the terms of a letter Agreement with the Southeastern Wisconsin Regional Planning Commission, Spatial Data Solutions, Inc. has conducted an evaluation of the accuracy and currency of the City of Milwaukee address coding file and the compatibility for integration into the MCAMLIS street address file.

The pilot project entailed the selection of a 5 percent sample of the U.S. Public Land Survey one-quarter sections for which the accuracy and currency of the City street address data were verified by field inspection. The 5 percent sample (20 one-quarter sections) was carefully selected to represent a range of land use patterns and included samples representative of the central business district of the City of Milwaukee, commercial and industrial areas.

The Memorandum evaluation includes an assessment of the compatibility of the electronic data file format used to create, maintain and integrate the Milwaukee data file with the MCAMLIS file. Finally, the memorandum includes a cost estimate for completing the balance of work for the City of Milwaukee.

TABLE OF CONTENTS

Addressing Pilot Project
Draft Memorandum

INTRODUCTION

Address Pilot Project, North Shore Communities

A consultant report completed in July 1991 for Milwaukee County and the Milwaukee County Automated Mapping Land Information System (MCAMLIS) project stated the need for an accurate and complete addressing system. Utility Graphics Consulting (UGC) worked with the individual organizations that had geographic information systems (GIS) and were part of the MCAMLIS consortium, to document their project experiences and problems associated with inaccurate or incomplete address information. *Those discussions resulted in all of the consortium members agreeing to make a comprehensive addressing system a requirement for the MCAMLIS project.* The findings and recommendations of that study were documented and incorporated as part of the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Implementation Plan, Final Report as Approved By MCAMLIS Steering Committee, July 29, 1991.

Recognizing the numerous issues and challenges for implementing a comprehensive addressing system, the MCAMLIS project staff started an evaluation of various alternative approaches and related cost considerations. While there were alternatives for completing the addressing work, it was agreed that the selected approach would, at a minimum, meet the requirements as identified in the report prepared by Southeastern Wisconsin Regional Planning Commission (SEWRPC). Addresses would be linked to street centerlines, real property boundaries, and, when appropriate, building outlines.

A major issue that needed to be resolved was the fact that there were multiple address files available including the electronic listings compiled by local units of government in support of tax assessments and billing systems. Each of the files was considered to have some problems and discrepancies inherent to systems built over time. MCAMLIS project staff concluded that the electronic files, developed by the municipalities, would be the best resource of address information.

To determine the accuracy of the electronic listings a pilot project was approved by the MCAMLIS Steering Committee to complete a field inventory of address numbers. Three communities were selected for the pilot; the Village of Shorewood, the Village of Whitefish Bay, and the City of Glendale. As part of the pilot project, addresses would be recorded from existing buildings and street names from street signs would be verified against the existing MCAMLIS maps. The results would be compared with the local digital address database and a determination made to proceed with field verification for the balance of the 18 suburban communities within Milwaukee County.

Address Verification for Milwaukee County

After a careful assessment by the SEWRPC project staff, it was concluded that a field inventory and electronic address listing comparison produced superior results. Based on SEWRPC's conclusion and recommendation, the MCAMLIS Steering Committee agreed to proceed with a field inspection for the balance of the 18 suburban communities in Milwaukee County. The Steering Committee also elected to treat the City of Milwaukee as a separate project based on the sheer number of addresses in Milwaukee and the fact that a number of work processes were already in place to maintain the City address database.

The North Shore Communities were completed first in order to complete a geographic area contiguous to the pilot area. Work on the balance of communities followed and the project was completed by the end of 1999.

With the completion of the field verification for the 18 suburban communities in Milwaukee County and based on the results of the field inspection, the MCAMLIS Steering Committee approved a pilot project to complete a similar evaluation of addresses for the City of Milwaukee. As part of the evaluation, a determination would also be made as to the compatibility and suitability of that file for integration into the MCAMLIS automated street address file and the ability to link the street addresses of buildings to the parcel identification numbers on the City of Milwaukee cadastral maps.

Finally, a memorandum would be prepared setting forth the findings of the evaluation and field verification. The memorandum would identify any needed modifications to the address listings to integrate into the MCAMLIS database and a recommendation for maintaining the currency of the City street address data.

BACKGROUND - CITY OF MILWAUKEE ADDRESS FILES

To complete the project work for the 18 suburban communities in Milwaukee County, one source of address information was used for the map preparation and field listing of house numbers. SEWRPC used the house numbers from the tax assessor files for each of the communities and layered those addresses onto planimetric maps by programmatically matching parcel identification numbers from the electronic files with the MCAMLIS cadastral maps. This resulted in the electronic listing of addresses matching precisely with the numbers appearing on the maps used for the field inspection.

In contrast, the pilot project for the City of Milwaukee used two sources of addressing information. The Department of Administration Information and Technology Management Division provided one source of address information (electronic listing) that included an electronic listing of house numbers and tax identification numbers developed over time and maintained on a regular basis. The electronic listing, used for a significant number of City applications, was most recently updated as part of the Milwaukee census.

The City of Milwaukee Infrastructures Services Division provided a second source of address information (electronic maps). Quarter section maps were electronically produced depicting addresses, lot parcels, tax identification numbers and building footprints. The addresses and tax identification numbers included on the mapping system are added or deleted as various mapping records are processed through the City Assessors Office. The addresses are graphically and spatially placed in the street in front of the appropriate parcel however, there is no intelligent tie between the address and the tax key number. Simply put, the addresses and parcel identification numbers are "dumb graphics".

It is important to note that while there is duplication of address and tax key information in the electronic address listing and the City of Milwaukee electronic mapping system, there is no programmatic or electronic tie between the two sets of data. Consequently, there are discrepancies between the two databases.

Without having a true measure concerning the accuracy of the maps or the electronic listing, and, considering that the address information on the maps was maintained on a regular basis, it was decided that the maps and the mapping addresses would be used for the field verification. Discrepancies or corrections found as a result of the field verification would be noted on the maps and transcribed to the electronic file by manually matching the tax identification numbers from the cadastral file with the electronic address file. The marked maps and the electronic listing with the field remarks would be part of the deliverables to MCAMLIS and used for making a final recommendation.

While it would have been desirable to proceed with one source of information, combining the use of the mapped addresses and the electronic listing for the project seemed to be the most expedient way to proceed with the pilot project. The results of the pilot would later prove that the integrity of those sources varied significantly.

ISSUES

While there was an assumption that the majority of findings from the field verification for the 18 suburban communities would apply to the Milwaukee pilot, there were some additional issues unique to the City of Milwaukee that would need to be addressed that perhaps set the City apart from the rest of the County. Those issues were as follows:

- Considering the advanced GIS program at the City of Milwaukee, would the addressing information from the digital mapping products and the electronic address listings be accurate enough to forgo a field verification for the entire City?

- Would the density of addresses complicate or facilitate the address verification process?

- While the technical issue of integrating Milwaukee addresses with the MCAMLIS database would be the primary issue to resolve, were there any other major differences between the types of addressing problems in an established urban community versus a growing, expanding suburban community?

- Finally, would there be any indirect benefits to the City of Milwaukee from the completion of this field listing?

PROCESS

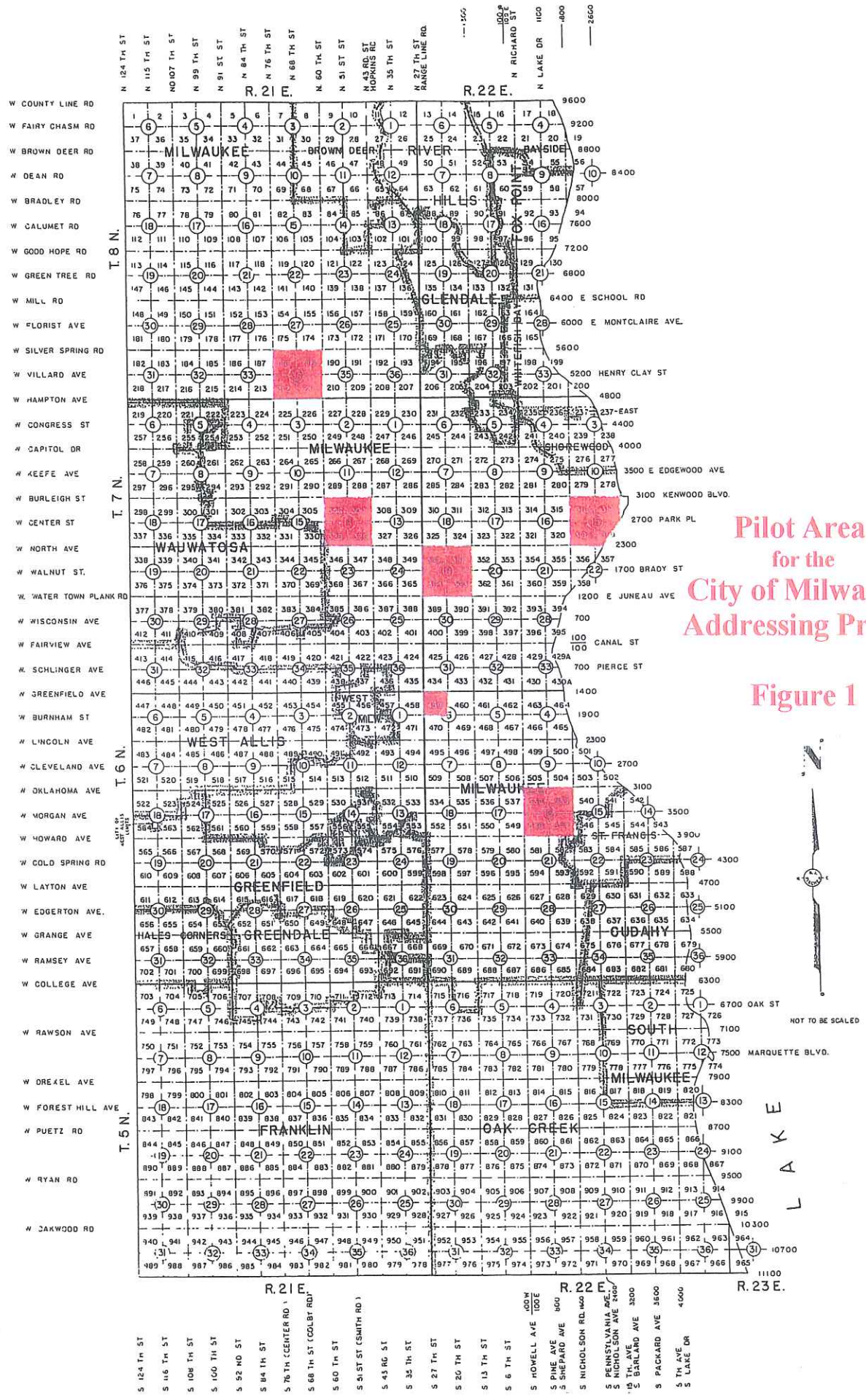
Setting Scope of Work

Based on the MCAMLIS Steering Committee's direction, the evaluation included 5 percent of the U.S. Public Land Survey one-quarter sections within the City of Milwaukee or an area covering approximately 20-quarter sections. The sampled areas were carefully selected to represent a range of land use patterns and a cross-section of Milwaukee. The pilot actually included 21 quarter sections to compensate for partial quarter sections along the lakefront.

Geographic Site Selection

Selection of the quarter section maps was made to include some of the older and newer areas of the City. A preliminary field inspection was made to insure that housing projects and commercial/business districts were part of the new and old areas selected. The final area for the pilot project included the following quarter sections and shown in Figure 1:

T6N R22E Section 16
T6N R22E Section 6 (NW Quarter Section Only)
T7N R22E Section 19
T7N R21E Section 14
T7N R22E Section 15
T8N R21E Section 34



Pilot Area for the City of Milwaukee Addressing Project

Figure 1

Number of Addresses

The electronic file listing for the 21quarter sections included 26,787 addresses. The actual number of addresses that were field verified was determined to be slightly less because there were several instances where multifamily structures with the same address were listed multiple times. Obviously, the addresses for such multiple listings were field verified only once. It is estimated that there were more than 26,000 different addresses field checked.

Materials

The project was completed using 1-inch equals 100 feet scale composite maps created specifically for use in the pilot study. The composite maps consisted of City maps showing the boundaries of real property parcels to which building outlines were added from the MCAMLIS topographic maps and to which street addresses were added from the Infrastructure Services Division.

Notification

Prior to the start of field verification, field personnel notified the appropriate Police Districts to alert them of the fact that the field inspection was underway and to give them a description of the vehicle traveling in the area.

Field Inspection

The maps were used for the field inspection and the appropriate notations were entered on the electronic listing as discrepancies were found. For example, if an address on a building did not agree with the electronic listing, the field verified number was entered in the column designated for comments or notes. If an additional address was found in the field and that address did not appear on the electronic listing, a line was inserted and the address noted. Parcel identification numbers were not incremented because it would cause a conflict with the City of Milwaukee electronic file. A blank space was temporarily left in the ID field.

Scheduling

The majority of the fieldwork was completed while schools were in session. The intent was to complete the work in some of the areas that had very narrow streets while there was less likelihood that children might be walking or playing in the street.

Address Verification

Every effort was made to find displayed house numbers for existing buildings and new construction on the maps provided. During the field inspection a number of rear homes or buildings were found to be fenced, gated or protected by dogs. A best effort was made to identify and record the addresses for those building, however, field personnel did not go beyond the fenced or gated areas if or when there was any concern for safety.

There were other instances where houses or buildings were boarded up awaiting demolition or in the process of being demolished. There was no effort made to look beyond the boarding to determine whether the address was still in place.

RESULTS

The field investigation required approximately 3 months to complete. Some of the areas were relatively easy to complete while the areas in the older section of Milwaukee required a significant effort. Some sections included homes that did not have their addresses intact while other areas had changed considerably because of homes that had been demolished or were boarded up and waiting demolition.

A statistical analysis of the findings by section is recorded in Table I:

ADDRESS FIELD VERIFICATION SUMMARY BY SECTION

"H" code represents mail that is being held "N" code represents mail that cannot be delivered

DISCREPANCY	TOTAL	SECTION 16	SECTION 6 (1 QUARTER)	SECTION 19	SECTION 14	SECTION 15 (SMALL SECTION)	SECTION 34
ADDRESS ERRORS FOUND AS A RESULT OF THE FIELD SURVEY							
Additional address, not on map, not on file	34	3	1	15	6	6	3
Additional address, on map, not on file	45	0	1	11	9	10	4
Error percentage based on number of parcels	1%	<!%	<1%	1%	<1%	<1%	<1%
FIELD PROBLEMS FOUND AS A RESULT OF THE FIELD SURVEY							
Address not found on building	1,233	121	94	484	242	235	57
Address not found on building, H or N code	263	9	11	192	16	16	19
Error percentage based on number of parcels	11%	4%	12%	29%	8%	12%	4%
MAPPING ERRORS FOUND AS A RESULT OF THE FIELD SURVEY							
Mapping correction required	142	17	10	46	25	8	36
Address not found, empty lot, building on map	251	9	3	211	13	7	8
No address, empty lot, H or N code, bldg on map	56	4	2	47	2	1	0
Address not found, building is gone	66	0	2	62	2	0	0
No address found, new bldg, old bldg on map	309	0	1	287	15	3	3
New building, map shows empty lot	84	1	0	82	1	0	0
New building, H or N code	15	0	0	15	0	0	0
Error percentage based on number of parcels	7%	1%	2%	32%	2%	1%	2%

FINDINGS, ADDRESS ISSUES

1. Additional Addresses

   Based on the field verification process, 79 additional addresses were found in the field that were not listed on the electronic file. While this constituted less than 1% of all the addresses verified in the pilot area, it is an omission of significant importance from the MCAMLIS database. It is important to note that some of the addresses were numbers not recorded correctly on the electronic file. For example, there were several instances where the electronic file listed a corner address that was different than the one that was found in the field. Of the 79 addresses, 34 were not on the map and 45 were.

2. Accuracy of Electronic File and Mapped Addresses

   Overall, the field verification confirmed that the electronic listing of addresses was more accurate than the mapped addresses. For example, addresses found to be in error on the maps were usually correct on the electronic file. This was even more apparent when checking areas in the City where buildings had been torn down for projects such as Habitat for Humanity Housing. Many of the additions for Habitat for Humanity Housing were on the electronic file but not on the map.

   The majority of problems found on the maps were for addresses that were mapped but could not be found in the field. While there were 142 corrections that pertained to incorrect numbers or additional numbers there were more than 800 additional instances, or approximately 13% of the total survey area, where addresses need to be removed from the maps. The electronic file did not have those addresses listed.

FINDINGS, MAPPING OR FIELD RELATED

1. Addresses Not Found

   In total, 1,496 addresses on the electronic listing could not be found or field verified. Of those addresses, 263 addresses were noted with a "hold or no delivery code" and would indicate that the address still exist, but the mail cannot be delivered because the building is vacant and/or scheduled for demolition. This still left 1,233 addresses that could not be found. Better than half of those addresses were for situations where there was more than one building on a parcel or more than one resident in a building (typically an "A" or "B" address).

2. Addresses Not Found, Buildings Gone

   In total 475 addresses were not found for lots where the mapping indicated that buildings still existed but in fact the buildings had been demolished. Of that number, 309 addresses had a "hold or no delivery" code assigned. This could imply that there was some type of information processed against the electronic file however, the map had not been updated or corrected. A field verification could improve on the accuracy of the mapped information

by including symbols that indicate that buildings have been added to the base map. The symbols could be removed once the updated topographic information is available.

3. New Buildings

   As a result of the field inspection, 99 new buildings were found that were not on the maps. Approximately half of the new buildings were part of the Habitat for Humanity Housing. Again, symbology could be entered to indicate that new buildings were added. The symbols could be removed once new topographic mapping was available.

4. Geographic Area Impact

   After tabulating all of the field findings, it was found that the majority of mapping errors occurred in the older sections of the City. When looking at the percentage of problems by area, the most northerly and southerly sections accounted for 4% of the addressing and mapping discrepancies. Discrepancies in other areas ranged from 10% to 61%.

General Comments

1. In contrast to the field verification for the 18 suburban communities where most of the effort focused on identifying all of the addresses not on the file, the major challenge for the Milwaukee pilot project was in identifying all of the addresses that no longer existed but were still recorded on the maps or the electronic listing. As noted earlier, more than 1,400 addresses that were listed or mapped could not be found.

2. What became apparent as the field inspection proceeded was the fact that there was an obvious degradation of addressing for homes and buildings in the older neighborhoods. While the addressing information was on the map and on the electronic file, a significant number of homes were missing all or portions of their address numbers.

3. In contrast to the field verification for the 18 suburban communities where much of the new construction work was missing from the maps and addressing listing, discrepancies for the City of Milwaukee project were primarily the result of identifying addresses that no longer existed but were still on the map or electronic listing. There were however some instances where new construction (primarily Habitat for Humanity Housing) was not on the map or the electronic listing.

4. For the areas with new construction (Habitat for Humanity Housing) many of the parcel numbers were no longer correct or shown on the maps. A best effort was made to include those addresses by expanding the electronic file in the appropriate place.

5. There were a significant number of "A" or "B" addresses for the duplexes or back buildings. In the older neighborhoods, it was difficult to verify those numbers because there was no standard for displaying the numbers. In some situations all of the addresses were on the front building. In other situations the back building may have had an address

displayed but other numbers were simply penciled on the front mailbox. A number of other addresses could not be verified because the dwelling was boarded and awaiting demolition.

6. Because of some narrow streets, parking conditions and some heavy traffic conditions, the time to verify addresses varied considerably from neighborhood to neighborhood. Completing the field verification before schools dismissed, was the ideal time for verification of addresses.

DATA STRUCTURE

An important issue and cost consideration is the fact that the address information from the City of Milwaukee electronic file will need to be integrated with the City cadastral/parcel files and the MCAMLIS data base. While the City of Milwaukee is not interested in completing that work, the Southeastern Wisconsin Regional Planning Commission is positioned to complete the task.

Without question the pilot project determined that the address information from the electronic file was more accurate than the mapped addresses. Additionally, and perhaps of greater importance was the fact that as discrepancies were found in the field and comments were noted on the electronic listing, it was determined that there was *nearly a perfect match* between the tax identification numbers on the cadastral maps and the tax identification numbers on the electronic file. Parcel identification discrepancies between the electronic listing and the cadastral maps are estimated at less than one percent.

The importance of this is the fact that the good match provides an opportunity to link the parcel identification numbers from the two files and programmatically integrate the addresses from the electronic listing with the electronic map. This concept has been given considerable thought and, short of actually developing the programs and proving the process, there is a strong confidence level that this can be done at minimal cost.

The Southeastern Wisconsin Regional Planning Commission and a consultant reviewed this issue and confirmed the fact that matching of the parcel identification numbers with the City of Milwaukee electronic addressing file would not be a difficult task. Some reformatting may be necessary, however, that would not entail significant effort.

MAINTENANCE

From discussions with City of Milwaukee personnel, address maintenance should not be an issue nor should it present a problem. As a result of the pilot project, it was determined that linking of parcel identification numbers from the electronic address file with the parcel identification numbers from the electronic mapping system will not require a significant effort. Consequently, a process for updating the City of Milwaukee address information by programmatically linking with the appropriate parcel identification number in the electronic address listing is doable and the appropriate direction for maintaining City addresses for

MCAMLIS.

To accomplish this, the City of Milwaukee has agreed to provide an updated address file to Milwaukee County on a quarterly basis. It is important to note that the link between the parcel identification number in the address file and the MCAMLIS database is critical so it will be vitally important that the parcel information in MCAMLIS is current before the updated address file for any quarterly update is integrated. To incorporate the address file will require a one-time programming effort for the matching process of the parcel identification numbers and graphic placement of the address numbers on the map.

BALANCE OF WORK - ALTERNATIVES FOR COMPLETION

With the completion of the pilot area, an assessment was made to determine how to proceed with the balance of addressing for the City of Milwaukee. The varying results from the different areas selected within the City, prompted consideration of several alternatives:

1. Complete the field verification for the balance of addresses in the City of Milwaukee.

   This approach would result in a consistency of addressing throughout all of Milwaukee County. A complete survey would also eliminate any doubt that some unusual situation was not discovered and a number of problems have not been detected.

   After analyzing the results of the pilot project, it was apparent that completing a field verification for the entire City of Milwaukee and outside of the older area of the City would not be cost effective. As the pilot indicated, there is a great likelihood that a house to house check of every address would only uncover a few address changes or corrections and it would not be worth the costs associated with finding those instances.

2. Considering that the majority of problems were found in the older areas, focus the balance of work in those areas and accept the balance of the City as is.

   With this alternative a determination would need to be made as to how inclusive the survey area should be. While it might have been difficult to determine where the data should be accepted and where a field verification should be made, the experience gained from the pilot project helped to make that determination.

3. Accept the files as they are and do nothing.

   Some of the areas that were field verified were in good order and only a few errors or corrections were noted. In older areas of Milwaukee, there were a significant number of mapping discrepancies and a number of instances where the address tiles on the buildings were partially ore entirely missing. By integrating the electronic addresses with the electronic map, a few of those problems could be corrected however, the field verification would not necessarily improve the overall electronic file content. Consequently, one alternative was to do no more field verification.

The pilot project however, clearly identified the fact that there were areas in the City where mapping and problems with did exist. The pilot project also identified other problems or corrections that were needed in those same areas. While many of those problems were related to topographic mapping issues, a field inventory could identify or note those problems and corrections in the MCAMLIS database until new topo mapping was produced.

Considering that the City of Milwaukee data will soon be part of the MCAMLIS database, it would be an ideal time to identify and correct as many of those problems before that responsibility is taken on. Therefore, integrating the electronic address listing along with a limited field survey would benefit the MCAMLIS project.

RECOMMENDATIONS

The pilot project confirmed that the majority of mapping and addressing errors were concentrated in the older areas of the City. Outside of those areas, the City composite maps, the electronic address listing, and information taken from MCAMLIS, provided a very accurate record of the land parcels, tax key numbers, house numbers and buildings.

Based on the increased number of mapping and addressing errors in the older areas of the City, two recommendations are submitted to the Committee for consideration and approval:

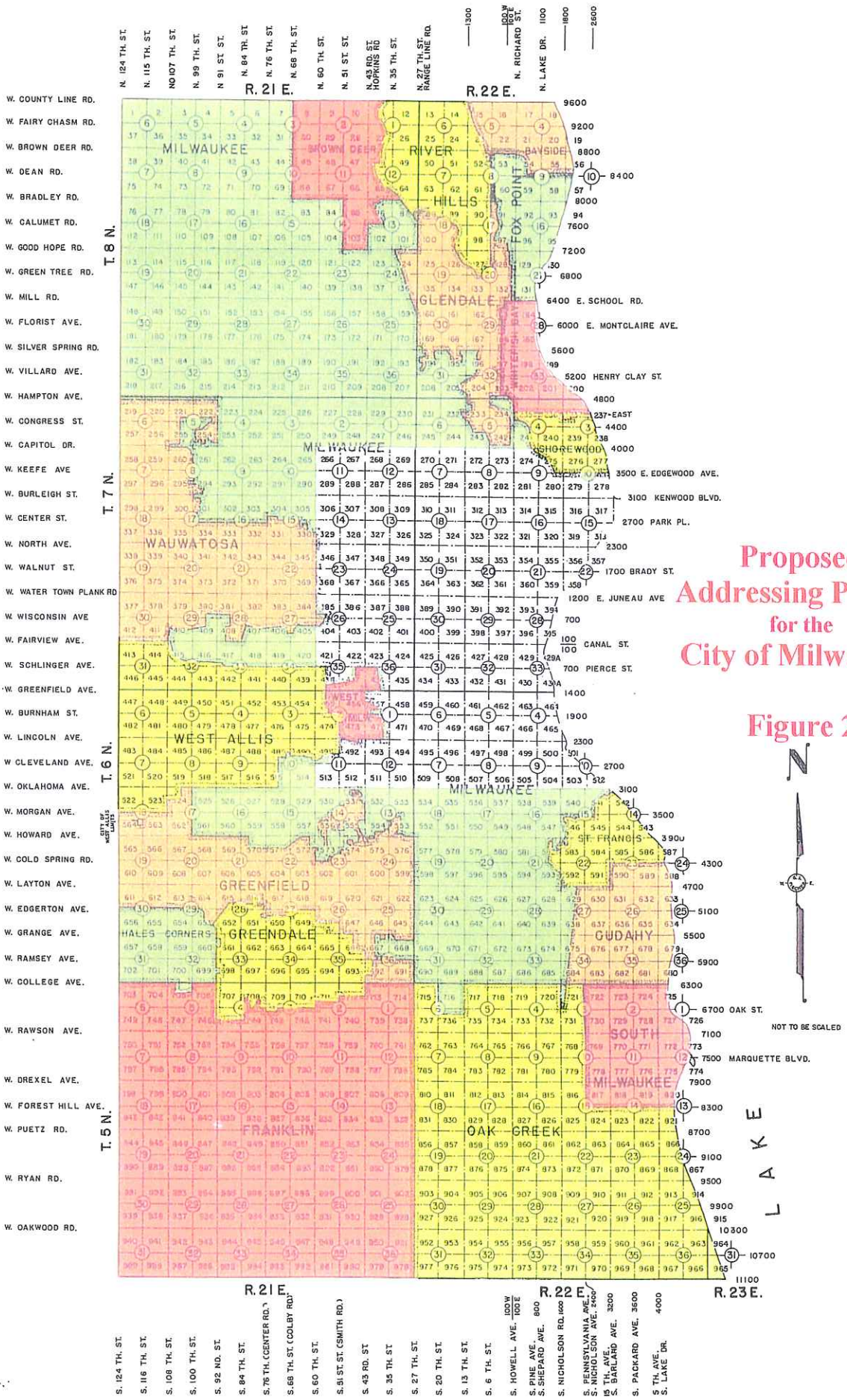
- *The first recommendation is to replace the addresses from the mapping system with the house numbers from the electronic listing. The electronic listing is clearly the more accurate database and that information will facilitate the field checking process. Having those addresses included on the maps for any future field verification work will produce superior results for MCAMLIS.*

  The replacement of addresses would be accomplished by matching the parcel identification numbers from the two databases (the electronic listing and the cadastral maps) and programmatically positioning the house number in the appropriate lot parcel.

- *The second recommendation is to field verify only the sections of the City illustrated in Figure 2.*

  The area in white includes less than half of all the parcels in the City of Milwaukee and is bordered by Capitol Drive on the north, 60th Street on the west, Oklahoma Avenue on the south and Lake Michigan on the east.

  It should also be noted that the field verification and the integration of the electronic address file would be coordinated with the transformation project that is currently underway. Based on the status report provided at the last MCAMLIS meeting (May 7, 2002), coordinating the completion of this work should not be a problem.


Proposed
Addressing Project
for the
City of Milwaukee
Figure 2
N
NOT TO BE SCALED
R. 21 E.
R. 22 E.
R. 23 E.
T. 8 N.
T. 7 N.
T. 6 N.
T. 5 N.
MILWAUKEE
BROWN DEER
RIVER HILLS
BAYSIDE
FOX POINT
GLENDALE
WHITEFISH BAY
SHOREWOOD
WAUWATOSA
WEST ALLIS
WEST MILWAUKEE
ST. FRANCIS
GREENFIELD
HALES CORNERS
GREENDALE
HALES CORNERS
CUDAHY
SOUTH MILWAUKEE
FRANKLIN
OAK CREEK
LAKE
N. 124 TH. ST.
N. 115 TH. ST.
NO107 TH. ST.
N. 99 TH. ST.
N 91 ST ST.
N. 84 TH. ST.
N. 76 TH. ST.
N. 68 TH. ST.
N. 60 TH. ST.
N. 51 ST. ST.
N. 43 RD. ST. HOPKINS RD
N. 35 TH. ST.
N. 27 TH. ST. RANGE LINE RD.
N. RICHARD ST.
N. LAKE DR.
W. COUNTY LINE RD.
W. FAIRY CHASM RD.
W. BROWN DEER RD.
W. DEAN RD.
W. BRADLEY RD.
W. CALUMET RD.
W. GOOD HOPE RD.
W. GREEN TREE RD.
W. MILL RD.
W. FLORIST AVE.
W. SILVER SPRING RD.
W. VILLARD AVE.
W. HAMPTON AVE.
W. CONGRESS ST.
W. CAPITOL DR.
W. KEEFE AVE
W. BURLEIGH ST.
W. CENTER ST.
W. NORTH AVE.
W. WALNUT ST.
W. WATER TOWN PLANK RD
W. WISCONSIN AVE
W. FAIRVIEW AVE.
W. SCHLINGER AVE.
W. GREENFIELD AVE.
W. BURNHAM ST.
W. LINCOLN AVE.
W CLEVELAND AVE.
W. OKLAHOMA AVE.
W. MORGAN AVE.
W. HOWARD AVE.
W. COLD SPRING RD.
W. LAYTON AVE.
W. EDGERTON AVE.
W. GRANGE AVE.
W. RAMSEY AVE.
W. COLLEGE AVE.
W. RAWSON AVE.
W. DREXEL AVE.
W. FOREST HILL AVE.
W. PUETZ RD.
W. RYAN RD.
W. OAKWOOD RD.
6400 E. SCHOOL RD.
6000 E. MONTCLAIRE AVE.
5200 HENRY CLAY ST.
3500 E. EDGEWOOD AVE.
3100 KENWOOD BLVD.
2700 PARK PL.
1700 BRADY ST.
1200 E. JUNEAU AVE
CANAL ST.
700 PIERCE ST.
6700 OAK ST.
7500 MARQUETTE BLVD.
S. 124 TH. ST.
S. 116 TH. ST.
S. 108 TH. ST.
S. 100 TH. ST.
S. 92 ND. ST.
S. 84 TH. ST.
S. 76 TH. (CENTER RD.)
S. 68 TH. ST. (COLBY RD.)
S. 60 TH. ST.
S. 51 ST. ST. (SMITH RD.)
S. 43 RD. ST
S. 35 TH. ST
S. 27 TH. ST.
S. 20 TH. ST.
S. 13 TH. ST.
S. 6 TH. ST.
S. HOWELL AVE.
S. PINE AVE.
S. SHEPARD AVE.
S. NICHOLSON RD.
S. NICHOLSON AVE.
S. 13TH. AVE.
S. BALLARD AVE.
S. PACKARD AVE.
S. LAKE DR.

BENEFITS

Based on the results of the pilot project, it was difficult to show any significant benefit for field verifying every address in the City of Milwaukee. An entire inventory would more than double the cost for completing the project and not measurably improve the address information.

The pilot project did however identify the fact that there were a number of mapping errors and a number of address tiles missing from the buildings in the older areas of the City. A field verification for just that area could significantly improve the data for MCAMLIS.

It is important to restate that while a number of the discrepancies identified were mapping errors or corrections and not necessarily related to addressing issues, MCAMLIS will benefit by having those corrections made as it takes on the responsibility of maintaining the parcel mapping for all of Milwaukee County including the City of Milwaukee. Adding a symbol for missing or new buildings or removing buildings that have been demolished would add value to the MCAMLIS data. The entire database will improve as a result of the survey.

RECOMMENDED SCOPE OF WORK AND ATTENDANT COSTS

The estimates for completing the addressing work for the City of Milwaukee were based on the need to complete the following work efforts:

- Access and import addressing data in a spreadsheet format from the City of Milwaukee.
- Create digital map files for the City of Milwaukee from data provided by the City. Digital maps will include attributed structures, right-of-way centerlines, parcel boundaries, parcel identification numbers, and addresses from the City of Milwaukee electronic address file.
- From the digital map files, 2 complete sets of hard copy plots will be prepared for the proposed project area in the City of Milwaukee. One set of maps will be used for the field verification and the second set will be used to update the MCAMLIS database.
- Complete the field verification of all addresses for the area identified in Figure 1, (approximately 70,000 parcels). Discrepancies will be noted on the maps and the electronic address spread sheet file.
- Revise the address database based on notations made to the electronic listing and maps.
- Revise digital files of structures and centerlines from field-collected data.

Information provided by SEWRPC and a consultant would indicate that the total project cost will not exceed $149,000.

SUMMARY

Background

Based on the results of an addressing pilot project initiated in 1996 a determination was made by the MCAMLIS Steering Committee to proceed with a field verification to produce the most accurate address database for MCAMLIS and facilitate future application development by municipalities and utilities. The field verification was decided as the appropriate direction after it was found that all of the existing available address files contained some problems and discrepancies inherent to systems built over time. Those discrepancies could best be identified and corrected by a field inventory.

After completing the field inventory for 18 suburban communities in Milwaukee County, the Steering Committee agreed to proceed with a pilot project for the City of Milwaukee to determine and resolve whether the City of Milwaukee addresses would conform and integrate with the MCAMLIS address data structure. Additional issues specific to the City of Milwaukee would also be addressed.

Issues Specific to the City of Milwaukee Address Verification

To complete the project work for the 18 suburban communities in Milwaukee County, only one source of address information was used for the map preparation and field listing of house numbers. SEWRPC extracted the house numbers from tax assessor files and layered those addresses onto planimetric maps by programmatically matching parcel identification numbers from the electronic files and the MCAMLIS maps. This resulted in the electronic listing of addresses matching precisely with the numbers appearing on the maps used for the field inspection.

The City of Milwaukee pilot project used two sources of addressing information. One source was provided by the Department of Administration Information and Technology Management Division and included the house numbers from an electronic listing used for a variety of City applications. The second source included addresses from the electronic maps that were provided by the City of Milwaukee Infrastructure Services Division. While both address files were thought to be good sources of information, it was concluded from the results of the pilot project proved that the electronic address listing more complete and accurate.

The major shortcoming of the electronic file was that the addresses were linked to a parcel identification number in the electronic file but not electronically tied to the same parcel identification number in the computer mapping system. Incorporating the addresses from the electronic file with the electronic map would have required a programming effort. In the interest of getting the field verification process for the pilot project completed in a timely fashion, it was decided to proceed with the just the addresses from the electronic mapping system.

Any discrepancies found in the field would be noted on the electronic address listing by manually matching the parcel identification numbers of the two systems.

Results

The pilot project verified that the electronic file was the more complete and more accurate source of information. The findings also identified a number of discrepancies between the field conditions, the electronic listing and the maps provided for the field verification. The clear majority of those problems were in the older areas of Milwaukee.

Those results were somewhat different from the first phase of address verification in the 18 suburban communities. In some areas of the pilot, the addressing was complete and matched well with the maps and electronic listing. In older neighborhoods however, there was a greater likelihood that the removal of buildings or renewal project work created discrepancies between the maps and the address listing. Overall it was more likely that the electronic listing was correct and that the corrections were not posted to the maps.

Recommendation

From the results of the pilot project, it has been determined that the electronic listing of addresses was far more accurate than the addresses included on the electronic maps. Therefore, the recommendation for MCAMLIS is that the addresses from the electronic file be matched and linked with the parcel identification number from the City of Milwaukee mapping database and replace the addresses in the mapping system. *This should be completed no matter what the decision is concerning the balance of field verification for the City of Milwaukee.*

Based on the results of the pilot project, it is further recommended that aselected area in the City of Milwaukee be field verified. While it would be desirable to complete the field verification process for the entire City, the benefits would not justify the costs for such an effort. The entire process should be coordinated with the transformation effort currently underway. And finally, the Milwaukee County GIS Technician should be positioned to take over maintenance as soon as a quarter section is completed.

Benefits

First and foremost, the field verification for the selected area in the City and the integration of the electronic addressing information will significantly improve the integrity of information for MCAMLIS. This will have special importance as the data from the City of Milwaukee is integrated with the MCAMLIS database. While many of the corrections relate to topographic features such as building footprints, the field verification would allow for the entry of a symbol that could be replaced with actual footprints once the updated mapping is developed.

Finally, the verification of all addresses will benefit field personnel who are involved with the day to day operations for the municipalities and the private utilities. Field personnel typically require precise addresses associated to specific buildings. As a Southeastern Wisconsin Regional Planning Commission report has already verified, a field inspection is the best and most effective way to record the actual address located on the premise.

MCAMLIS
LAND AND UTILITY INFORMATION SYSTEM INTERNET PROTOTYPE
Report No. 1

Prepared by: Ruekert & Mielke, Inc.
For: Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee

Approved by the MCAMLIS Steering Committee
On January 24, 2002

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TABLE OF CONTENTS

Preamble

This is the first of four reports concerning the implementation of a web supported land and facility information system for the Milwaukee County Automated Mapping and Land Information System (MCAMLIS). The work effort represents approximately 20% of the total project outlined in the Prospectus approved by the MCAMLIS Steering Committee.

As proposed and outlined in the Prospectus, this report covers the results of the project initiation, team organization and formulation of the objectives and needs analysis. In large part, the work effort focuses on bringing together a team of individuals having the technical expertise and experience necessary for identifying all of the issues and potential solutions for project implementation and confirmation of the issues identified in the Prospectus.

The results of this work effort confirm the findings and recommendations of the Prospectus. Ruekert & Mielke would therefore request that the MCAMLIS Steering Committee approve continuation to the next phase of work including the inventory of existing systems (hardware/software) and the identification of issues and solutions for a data sharing web supported process.

INTRODUCTION

In September of 2000, the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee approved a prospectus to investigate the opportunities and ramifications of a distributed internet-based network of land and utility record information. Based on decisions made by the Steering Committee, a Land and Utility Information System prototype will be developed. The Southeastern Wisconsin Regional Planning Commission, acting as agent for the MCAMLIS Steering Committee retained Ruekert/Mielke to carry out the tasks as outlined in the prospectus. In May of 2001, SEWRPC prepared a letter informing the Steering Committee that the project was underway and to expect to be contacted to answer questions or address concerns regarding the scope of the project and the goals and objectives of the prototype.

Implementation of the project is underway and Ruekert/Mielke is taking this opportunity to identify the major elements of the study that have been completed and the overall status of the project. Report No. 1, part one of a four part report, summarizes commentary from the initial interviews and represents the progress made toward the development of a needs analysis. The needs analysis will ultimately address the issues concerning the project, and potential solutions.

ADVISORY COMMITTEE

One of the first tasks completed by Ruekert/Mielke was the organization of an Advisory Committee comprised of individuals having IT backgrounds and a familiarization with their organizations geographic information system (GIS) software. To complete this task, individual meetings were held with the Steering Committee members (Table I) and their selected representative for the Advisory Committee (Table II). An overview of MCAMLIS history was presented to the Advisory Committee members not familiar with the Milwaukee County project followed by a discussion of the goals and objectives of the Land and Utility Information System Internet Prototype. Meeting individually with each member organization provided an opportunity for all of the Advisory Committee members to have the same level of understanding of the MCAMLIS program and to get some level of appreciation for the interests and concerns of the other member organizations. Organization of the Advisory Committee was completed the first week of August, 2001.

GOALS

New members were informed of the fact that utilities have long understood the potential for facilitating access to an accurate source of land information. In large part, the appreciation for a central land information system accounted for their participation and contributions to the MCAMLIS project. Now, with the lowering of costs for implementing and using geographic information systems (GIS), municipalities are rapidly implementing the use of the technology and also have an increased need for MCAMLIS information that is current, more accessible and easily distributed in an electronic format. For example, the Village of Brown Deer and the City of West Allis are just two of the communities in Milwaukee County now using GIS for engineering, planning and public works. The MCAMLIS land information is the foundation for many of the drawings and mapping products produced for the work directives and the recording of as-laid information. The Village of Brown Deer uses data that was produced as part of the

original MCAMLIS project. The City of West Allis uses the digital land information that it develops and reformats to the specifications required for integration with the MCAMLIS data in Milwaukee County.

As both of the communities continue with their project work, all of the field information and changes posted to their mapping systems reside only at the community level and is not being forwarded to MCAMLIS. This is resulting in the fact that some information at the community level is more current and complete than the MCAMLIS files. It is also resulting in the fact that the information at the local municipality is developing more into a land information system (LIS) while information in MCAMLIS remains an automated parcel mapping system. More important is the fact that the parcel maps and associated databases are no longer in sync with one another.

Consequently, communities performing the most work with their GIS recognize the urgency for developing a process to facilitate the easy exchange of information and insure that the information is correct and integratable with their enterprise systems. The expectation is that a land information system supported by web technology will help to reduce redundant work activities within Milwaukee County, reduce conflicting information between the MCAMLIS and municipality files, and ultimately make the MCAMLIS database a more comprehensive land information system.

To facilitate this effort, the Advisory Committee findings are in agreement with the MCAMLIS Steering Committees decision to explore an initiative to facilitate the maintenance of land information and expand the accessibility and distribution of spatially referenced land and utility information over the Internet.

OBJECTIVES

From the findings of the prospectus and initial interviews with individuals from the MCAMLIS Advisory Committee, it was determined that this study will focus on the following objectives and the feasibility of each:

- Improve the process for maintaining land information
- Improve on the accessibility and distribution of land information
- Provide for access to private and public sector utility information

Improve the Process for Maintaining Land Information

Currently, land information is being maintained in a number of locations. While the Southeastern Wisconsin Regional Planning Commission (SEWRPC) had the initial responsibility for preparing the Milwaukee County land parcel database, maintenance of the land information is now the responsibility of the GIS Technician at the Register of Deeds Office in Milwaukee County. The City of Milwaukee and the City of West Allis have always maintained their own land information. Whether other communities are going to want to be more involved in the updating of information in the future is still an unknown.

Considering that the maintenance of the land records occurs in different locations, the efforts associated with compiling that information into one comprehensive land information system (MCAMLIS) is significant. Additionally, having all of that information conform to a standard format so that it can be accessed and distributed to multiple users on a variety of different GIS software platforms is an even greater challenge.

The investigation of a web supported land information system will establish a set of standards and procedures for data exchange. Based on previous learning experiences, particularly in Waukesha County, it is also expected that a prototype will result in substantial evidence that the information can actually be integrated from remote locations and multiple software platforms while minimizing or eliminating redundant land maintenance work activities.

Improve Accessibility and Distribution of Land Information

The prototype will provide the opportunity to demonstrate whether a web supported land information system will improve access to MCAMLIS data and facilitate the more timely distribution of land information to member organizations of the consortium and municipalities in Milwaukee County. The viewing tools available in a web environment should, at a minimum, facilitate the viewing, extracting and plotting of information for municipalities and utilities.

The prototype will also determine how to best distribute maintenance information to the different users of land information. From initial meetings with the Advisory Committee members, it has been determined that some users of information prefer to have the incremental updates identified and distributed. Other users have stated that their preference would be to have the entire land base refreshed on a periodic basis. Another group of users may selectively take only certain types of updates. The prototype will attempt to identify the alternatives for distributing updates and establish quality control measures for insuring the integrity of information delivered to the users.

Provide for Access to Private and Public Utility Information

As more municipalities begin to use the MCAMLIS database for land related applications and the mapping of their utility information, the interest in having access to information about private utility information has increased. For example, the Village of Brown Deer has indicated that a system that would indicate where gas and electric facilities were buried would be very helpful for their project planning. Utilities have indicated that they have the same interest in knowing where municipal utilities are located.

Therefore, one objective of the investigation will be to determine the feasibility of providing access to utility information from the 3 private utilities, the Milwaukee Metropolitan Sewerage District, and all communities in Milwaukee County. Along with providing access to the information, the investigation will explore pertinent issues such as privacy, and security.

PROTOTYPE

The Advisory Committee agreed that a prototype will provide the best opportunity for successfully demonstrating the ability to maintain land information at various locations and compiling that information with the MCAMLIS database. The prototype will further test the

ability to provide incremental updates or entire map area replacements. If successful, the prototype will demonstrate that the use of the Internet will facilitate the distribution of land information and that the data will be compatible with the multiple user formats as a result of standards and maintenance procedures. This will be done without sacrificing content or accuracy of information.

The prototype will include a pilot area that has been selected to include the greatest variety of land and utility information and provide the most representative results for MCAMLIS. The interchange of that information will utilize the Internet to determine and ensure that information assembled under the MCAMLIS program is readily translatable and available for use by various units of government, utilities and other private sector organizations.

Based on privacy and security concerns, members of the Advisory Committee have agreed to provide their data for the pilot area with the understanding that the information will be used only for the prototype and will not be distributed to anyone except the participants in the MCAMLIS prototype.

The prototype should provide the necessary information to develop cost estimates for the implementation of an internet GIS (or intranet/extranet as deemed necessary). Considering that not every community will be connecting to the system immediately, the prototype will also establish the incremental costs for adding more municipalities.

After having the opportunity to study the results of the GIS prototype, the Advisory Committee will be positioned to make a recommendation to the Steering Committee on whether or not to proceed with countywide implementation.

PILOT AREA

To best meet all of the objectives for the prototype, the Advisory Committee selected 3 square miles for a pilot area. The area includes the following:

- T8N R21E Section 14
- T6N R21E Section 10
- T5N R22E Section 31

One of the three square miles (Section 14) borders the Village of Brown Deer and the City of Milwaukee. A second area (Section 10) borders the City of West Allis and the City of Milwaukee. The last of the 3 areas (Section 31) is in the City of Oak Creek.

The selection was based on the assumption that the pilot areas will provide a credible test and an opportunity to meet all of the objectives of the project and resolve many of the issues that are addressed later in this report. Perhaps of greatest importance is the fact that two of the areas include communities that border the City of Milwaukee. Those areas will provide an opportunity to overlay facilities from multiple sources, spanning two communities on two different landbase systems.

A portion of the City of Oak Creek was selected to include an area in Milwaukee County that is experiencing significant growth. The expectation is that Oak Creek will provide the best opportunity to test procedures for distributing additions and changes to the land information system.

Special consideration was given to the selection of the Village of Brown Deer, the City of Milwaukee and the City of West Allis because of their extensive experience with GIS related issues in their communities. That experience will facilitate the development of the prototype and contribute to the successful completion of the project.

Finally, the pilot areas were selected because the providers of information for those areas are using all of the GIS platforms that will need to be considered for the MCAMLIS project. The following list represents the software systems used by MCAMLIS participants:

- Village of Brown Deer – ArcView, AutoCad Map
- City of Milwaukee – MicroStation, ArcInfo, ArcView, GeoMedia
- City of West Allis – MicroStation, MGE, GeoMedia
- Milwaukee County – ArcInfo, AutoCad Map
- Milwaukee Metropolitan Sewerage District – MicroStation, ArcView
- Wisconsin Gas – Smallworld
- Wisconsin Electric – ArcInfo
- City of West Allis – MicroStation, MGE

In preparation for the prototype, the communities and utilities are in the process of preparing and delivering data sets for the pilot area to Ruekert/Mielke. The development of the prototype will commence upon receipt of this information.

ISSUES

Based on previous discussions with members from the Steering Committee and the recent meetings with the Advisory Committee, a number of issues will need to be resolved as the implementation of the prototype proceeds. As noted earlier, careful consideration as to the selection of the pilot area and the contributors of information for those areas will help to resolve several of the following issues:

Copyright

Until now the land information has been distributed based on licensing agreements between the users and MCAMLIS. Making the land information available through a web environment will require an agreement as to who will have access and how the information will be controlled so as not to violate the intent of the copyright agreement. There is the possibility that the entire copyright issue may need to be revisited.

Seamless Database

Numerous discussions have already been had concerning the issue of a seamless database. The communities using GIS and having experience with maintaining their land information clearly understand the importance of eliminating redundant information such as duplicate parcel lines and text labels. In fact, the communities that are implementing a GIS have already made significant investments in creating a seamless database for their community and eliminated much of the duplicate information.

In preparation for the prototype, some preprocessing of information will need to be completed to eliminate the duplicate information from bordering. This preprocessing should assist in developing a cost estimate for the balance of MCAMLIS data.

Privacy and Security

All of the Advisory Committee members have expressed concerns about security and privacy of information. Communities have expressed concerns that information linking resident names should not be distributed over the Internet without tight controls.

Utilities have additional concerns. They are concerned that easy access to information about the distribution systems or networks could jeopardize public safety. Providing information about facilities could also jeopardize market share and a competitive advantage that they may have over other utilities.

The Committee does understand that the information provided for the prototype will only be used as a proof of concept for the land information system and will not constitute an agreement to provide any remaining data. Finally, the data will be used only for the prototype and will not be distributed to anyone except the participants in the MCAMLIS prototype.

While the issue of privacy and security will offer a challenge, the Advisory Committee agrees that the issues can be resolved. Alternatives will be explored to address these concerns including recommendations for either a secured internet, intranet or extranet system.

Finally, with the terrorist attacks that occurred in September, 2001, an investigation will also be made into the other agencies of government that specialize in emergency government issues. For example, FEMA may have information that could be contributed to the MCAMLIS database which may need to be returned to FEMA in times of emergency.

Multiple GIS Platforms

A fully functional land and facility information system in a web environment will require a thorough understanding of all GIS platforms used by the members of the consortium and specific requirements that each system may have in order to exchange data electronically. For this reason, Ruekert/Mielke has developed a MCAMLIS Inventory Questionnaire (Attachment 1) to correctly identify what hardware and software is being used and, how land and utility information is being used and shared.

Work is already underway to identify how land and facility information is being structured in each of the member organizations and estimating the effort to merge multiple data sets for display and reference in a web environment. Perhaps the greatest issue will be the database links that some users may have or desire, between land information and facilities. How the different GIS software handles these links will be critically important when attempts are made to integrate land record with different databases.

Standards

Establishing standards for the maintenance procedures of land records will be extremely important. For the project to succeed, standards will need to be developed to ensure that information assembled under the program is readily translatable and available for use by both the public and private sector. Standards will be extremely important considering the strong likelihood that maintenance of land information will be occurring at multiple locations. For the information to be readily translatable and compiled in the MCAMLIS database, procedures will need to be developed and followed by all of the entities conducting the maintenance of the land or utility records.

Accuracy/Metadata

The Advisory Committee discussed the fact that the accuracy of information for land and utility data will vary significantly from one organization to another. For example, while the MCAMLIS land information can be relied on to meet National Map Accuracy standards (2'±), not every one of the utilities are using the MCAMLIS land for the mapping of facilities. In general, it can be said that the facility information for the private utilities will be schematic representations of the facility locations without corresponding attribute data.

As part of the land and facility information system Internet prototype, metadata will be developed. Metadata is best described as "data about data" and generally includes the content, quality, condition and characteristics of data.

AREA OF STUDY

While the study will focus on the land information system for Milwaukee County, the investigation will proceed with the knowledge and understanding that all counties in southeastern Wisconsin already expressed interest in developing a similar web supported land information system. The entire process is being developed so that the processes could eventually be expanded to all of southeastern Wisconsin.

While municipalities, for the most part, operate within the jurisdiction of their communities, infrastructure frequently spans those borders and often times impacts decision making by utilities and municipalities on a regular basis. Additionally, because all of the counties in southeastern Wisconsin are served by the same utilities participating in the prototype, a regional solution would be beneficial and a realistic undertaking after the MCAMLIS project has been completed.

BENEFITS

Accessibility/Currency

If successful, the prototype will benefit MCAMLIS by demonstrating to the communities in Milwaukee County that land information can be easily accessed, that new land information can be integrated with existing GIS data, and finally, that land information can be easily reproduced and distributed. The development of a web based land and facility information system is intended to provide the most current information from all of the data suppliers, including facilities from municipalities and utilities. Finally, the opportunity to access and view proposed land development and utility locations could be added in the future to aid local communities and utilities in their planning efforts.

Data Integration

To meet the different requirements of MCAMLIS land information users, the prototype will explore the possibility and practicality of distributing only the updates of the MCAMLIS digital maps and associated database information to members of the consortium. If accomplished, this will provide significant benefit to those users of land information who are altering the land base in order to facilitate the posting of utilities. Currently, entire quarter sections are being distributed when updates are posted to MCAMLIS. Integrating the updated information requires a significant amount of extra effort on the users part to identify where the changes occurred so that changes to the original version of land information are not lost.

Distributed Maintenance Activities

The prototype will benefit all of the users of MCAMLIS by establishing a process for maintaining various segments of the land database at various site locations and making that information available in a very timely fashion to users at remote locations. This will be of significant importance and potentially provide for access to extra resources when a backlog of work occurs. Currency of information is one of the core issues concerning the digital map updates and database. It will be important to assign additional resources for maintenance activities to ensure that users have access to the latest set of records.

Time Savings

For planning purposes and construction project work, utilities and municipalities historically spend numerous hours of research determining land ownership and accurate property descriptions, and utility locations. Much of that effort is done by traveling to various units of government and manually searching for that data or making formal requests through letter notification. If successful, the prototype will demonstrate that the information could be made available over the Internet. Staff currently fulfilling these requests could be available for other more important tasks.

Cost Estimates

A prototype will provide the best opportunity to estimate costs for a countywide Internet GIS. Cost estimates and expected benefits of a fully implemented system will also be prepared for incrementally expanding the system to all of the municipalities in Milwaukee County.

SUMMARY

Based on meetings with the MCAMLIS Steering Committee and the Advisory Committee, there is agreement that if successful, an Internet prototype will provide an excellent opportunity to demonstrate important benefits for having a MCAMLIS land and facility information system in a web environment. While there will be a number of issues to address and resolve as the prototype moves forward, the objectives are of paramount importance to the future success of MCAMLIS. In the opinion of the Advisory Committee, most of the issues should be resolved and the objectives accomplished.

If successful, an Internet prototype should improve the process for maintaining MCAMLIS information, improve the accessibility and distribution of the MCAMLIS data, and finally, provide access to the private and public sector utility information. The following represents the focus for each objective:

One of the more important objectives of the prototype is to improve the maintenance process for MCAMLIS. Of great concern is whether the integrity of information can be insured, especially when changes are being posted to the land base from different locations and on different software platforms. For example, the prototype should determine whether standards and controls can be established that will adequately control the information generated from SEWRPC, Milwaukee County, the City of Franklin, etc.

In addition to the integrity issue, the prototype will provide an opportunity to test the distribution of incremental changes versus updating an entire map. Some of the users of information prefer to have the incremental updates while others prefer to have the entire land base refreshed. If successful, the prototype will identify the alternatives for distributing updates and will establish quality control measures for insuring the integrity of information.

While all of the participants in the consortium are already using some information from the MCAMLIS database, access through the Internet could potentially improve the ability to use and distribute that information. Whether or not the final recommendation is for an Internet, Extranet, or Intranet environment, the process should ultimately improve the ability for users of information in Milwaukee County to access and use the land information.

The final objective of the prototype is to determine the feasibility of accessing utility information from the 3 private utilities, the Milwaukee Metropolitan Sewerage District, and all communities in Milwaukee County. Municipalities and utilities routinely gather information for planning and engineering work. Having access to that information through MCAMLIS would reduce much of that work effort and provide significant benefits to the public/private sector.

Letters of introduction for the Internet prototype were distributed to all of the Steering Committee members. Meetings were held with the Steering Committee (Table I) and the Advisory Committee member (Table II) to present an overview of MCAMLIS and discuss the objectives of the Land and Utility Information System Prototype. Meeting individually with each member organization provided an opportunity for those individuals who knew little about MCAMLIS to become familiarized with the other member organizations. Organization of the Advisory Committee was completed the first week of August.

The following lists the organization, date of the meeting, individuals in attendance, and the designated Advisory Team member.

TABLE I
MCAMLIS STEERING COMMITTEE

MEMBER	ORGANIZATION
Kurt W. Bauer, Chairman	Milwaukee County Surveyor
Walter R. Barczak, Vice Chairman	Register of Deeds, Milwaukee County
John M. Bennett, City Engineer	City of Franklin, representing Intergovernmental Coordination Council of Milwaukee County
Earl R. Hawkins, Jr. Director,	Milwaukee County Department of Administration
David A. Novak, Director	Department of Public Works, Milwaukee County
Nancy A. Olson, Manager	Geographic Information Systems, City of Milwaukee
John Place, Manager	Maps and Records, Wisconsin Gas Company
Nancy U. Schultz, Facility Information Manager	Milwaukee Metropolitan Sewerage District
William C. Shaw, GIS Coordinator,	Wisconsin Electric Power Company
Ricky B. Wicklund, Telecommunications Specialist	Ameritech Services, Inc.

TABLE II
MCAMLIS ADVISORY COMMITTEE

ORGANIZATION	MEMBER
Ameritech Services, Inc.	Ricky Wicklund, Telecommunications Specialist
Village of Brown Deer	James Buske, GIS Technician
City of Milwaukee	Nancy Olson, Manager, GIS, City of Milwaukee
Milwaukee County	Kevin Bruhn, Infrastructure Coordinator
Milwaukee County	Kathy Bach, GIS Technician
Milwaukee Metropolitan Sewerage District	David Misun, Asset Evaluation Supervisor
Southeastern Wisconsin Regional Planning Commission	Thomas Patterson, MCAMLIS Project Manager
City of West Allis	Patrick Walker, GIS Coordinator
Wisconsin Gas	Ed Hohl, Information Consultant
Wisconsin Electric	Tim Marquardt, Electric Mapping Supervisor

ATTACHMENT 1
MCAMLIS INVENTORY QUESTIONNAIRE

(see attached)

ATTACHMENT 2 – MEETING COMMENTS

Date: **September 5, 2001**

Location: **Ruekert/Mielke Corporate Office**

Present: **Village of Brown Deer, James Buske, GIS Technician**
City of Milwaukee, Nancy Olson, Manager, GIS, City of Milwaukee
Milwaukee County, Kevin Bruhn, Infrastructure Coordinator
Milwaukee County, Kathy Bach, GIS Technician
MMSD, David Misun, Asset Evaluation Supervisor
SEWRPC, Thomas Patterson, MCAMLIS Project Manager
City of West Allis, Patrick Walker, GIS Coordinator
Wisconsin Electric, Tim Marquardt, Electric Mapping Supervisor
Wisconsin Electric, William Shaw, Manager GIS
Wisconsin Gas, Ed Hohl, Information Consultant

From the meeting on September 5th, the following comments:

1. West Allis and Brown Deer both have different street name files for different scales of reporting. In other words, a standard would have to be considered that could address or be based on multiple or different scales.

2. Both Wisconsin Gas and Wisconsin Electric are using the MCAMLIS data. Wisconsin Gas has mapped a significant portion of its facilities in Milwaukee County to MCAMLIS and the balance to the base mapping provided by the City of Milwaukee. Wisconsin Electric has electronically mapped its facility information to what was the existing land base. However, Wisconsin Electric has also requested MCAMLIS information for some new construction projects and could, over time, move all of the mapped information to MCAMLIS. The prototype may provide a process for migrating to the MCAMLIS land base by programmatically moving these facilities without having to go through a second conversion. This would provide future benefits such as using global positioning system (GPS) technology for accurately recording and mapping new construction facilities.

3. MMSD is using MCAMLIS "as is" – not making any changes to the land information. Their ability to accept changes or corrections should be one of the easiest to address.

4. Street name repositioning seems to be an important issue for the private utilities and the municipalities. Each has a need to move text to eliminate over-striking of street name text and facility information.

5. It was noted that several of the users use the MCAMLIS land information as is and do not make changes to the information for their application. For those users, receiving full map replacements versus parcel changes would be easier to accept. While the municipalities may be very interested in land ownership and changes made to individual parcels, the utilities are more interested in ROW changes or changes that could impact the locations of facilities.

Parcel splits, deletions, and property line changes are something that the individual utilities may not be interested in maintaining. This could mean that some utilities and municipalities want their own version of land information for their infrastructure mapping - relying on the MCAMLIS master file for the total land information database.

6. Easements are important to utilities but are not currently complete or fully integrated with the GIS land information system.

7. Polygon changes are important when property line changes occur.

8. It is not important to track historical information concerning land changes. Utilities and municipalities would rather refer to the master file. (Where the historical should be kept).
9. The frequency of parcel map updates and land information is an important issue, however, it varies by community. For example, the City of West Allis updates from their backlog of work to their GIS on a daily basis. The Village of Brown Deer updates when time permits. It is anticipated that more frequent updates will not be a problem for municipalities as long as they are not required to do the actual work.

10. City of Milwaukee will not adopt the MCAMLIS standards. Too many applications are tied to current processes to justify changes. This may mean that once the initial delivery of Milwaukee data is made, MCAMLIS would maintain that information along with the majority of other communities in Milwaukee County. At some future date, it is anticipated that the City would adopt the MCAMLIS process and eliminate the procedures and duplication in effort.

11. Data changes would have impact on other related database information for each municipality. This issue will need to be sorted out when interviewing each of the municipalities. Tax key numbers and addresses are handled differently between municipalities.

Date: **September 17, 2001**

Location: **Southeastern Wisconsin Regional Planning Commission**

Present: **Ameritech, Ricky Wicklund, Telecommunications Specialist**
Village of Brown Deer, James Buske, GIS Technician
City of Milwaukee, Nancy Olson, Manager, GIS, City of Milwaukee
Milwaukee County, Kevin Bruhn, Infrastructure Coordinator
MMSD, David Misun, Asset Evaluation Supervisor
SEWRPC, Thomas Patterson, MCAMLIS Project Manager
City of West Allis, Patrick Walker, GIS Coordinator
Wisconsin Electric, Tim Marquardt, Electric Mapping Supervisor
Wisconsin Electric, William Shaw, Manager GIS

From the meeting on September 17th, the following comments:

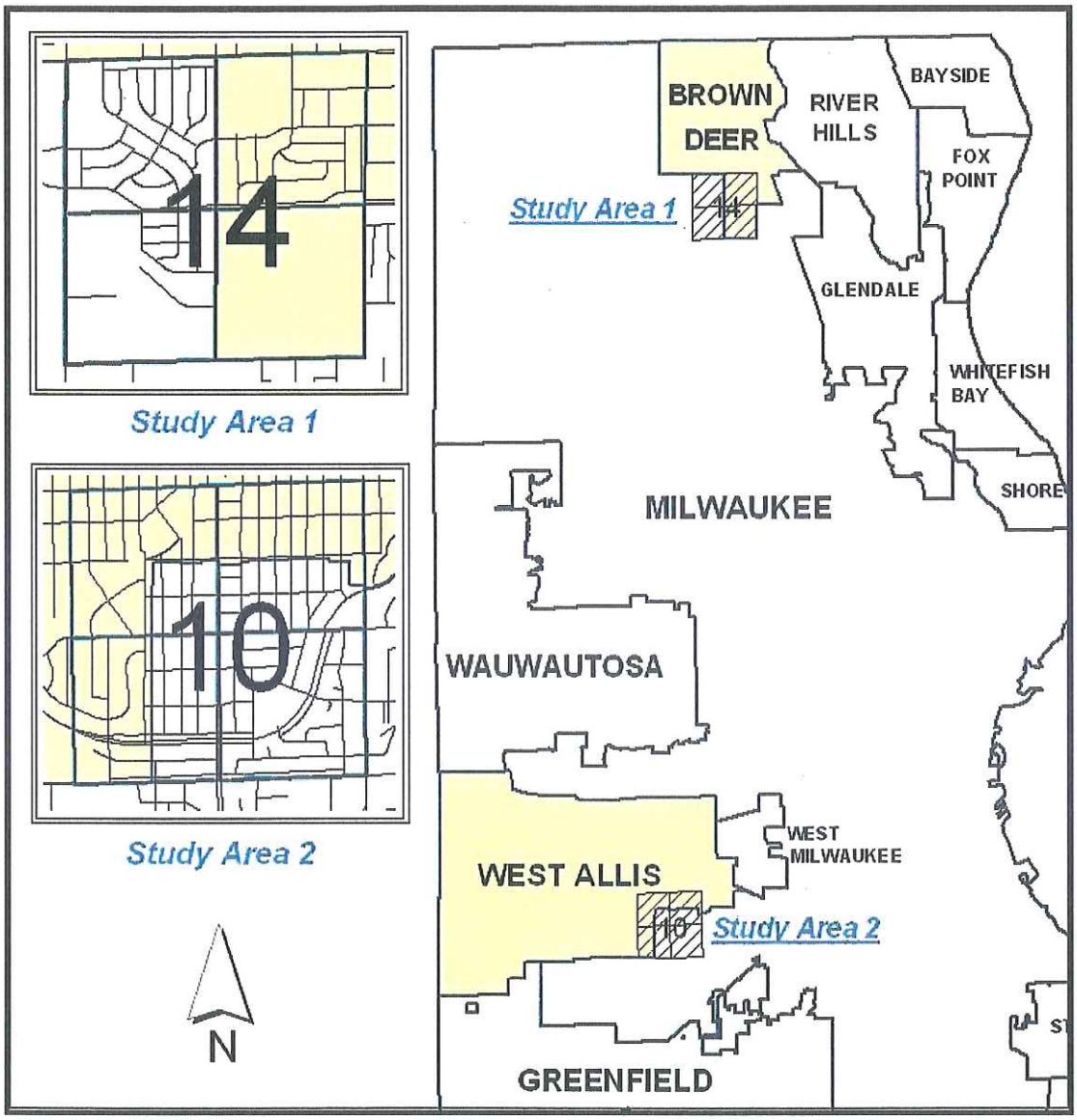
1. A revised inventory questionnaire (Attachment 1) was distributed. A discussion on the questions and format followed. Appropriate changes were noted. The revisions were completed and the form was e-mailed to all of the Advisory Committee. The questionnaire is to be returned to Ruekert/Mielke by October 5th, 2001

2. There will be value in including portions of the Village of Brown Deer and the City of West Allis in the pilot area. Both communities border the City of Milwaukee. The Advisory Committee sees value in selecting an area where public utilities will extend across municipal boundaries. The merging or integration of data from two different GIS systems will provide significant information for the development of the ultimate system.

3. It was decided to include a third area in the pilot project to incorporate an area where there is significant growth. A significant part of the prototype is intended to improve the process for updating land information. An area in the City of Oak Creek could provide that type of feedback.

4. The municipalities and utilities will provide the appropriate data sets for the designated pilot project areas. Information should be provided in approximately two weeks.

MCAMLIS Land Information System Internet Prototype - Study Areas



Legend

- Milwaukee County Civil Divisions
- MCAMLIS Participating Study Communities
- MCAMLIS Study Areas

0 0.5 1 2 3 4 Miles

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MCAMLIS Inventory Questionnaire Attachment 1

Organization: _____ Date: _____

Completed by: _____

Define the extent of the geographic area for which you use, or would use, the MCAMLIS products:

_____

SECTION A: MCAMLIS PRODUCTS

1. Do you use MCAMLIS products: ☐ Yes ☐ No

   Please describe your department or organization's use of the following MCAMLIS products, including both hard copy and digital:

Cadastral	Hard Copy:	
	Digital:	
Topographic	Hard Copy:	
	Digital:	

SECTION A: MCAMLIS - Cadastral Files

1. **Do you update the digital cadastral files: Yes ☐ No ☐**

   If yes, please answer the following:

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: _____

2. **Would you like to see MCAMLIS update the cadastral files more often? Yes ☐ No ☐**

   If yes, how often

   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☐ Yearly

   If yes, please explain which cadastral features need to be provided:

   _____

   Delivered in what software? _____

3. **Do you use custom tools Yes ☐ No ☐**

   If yes, who developed tools? _____

   In what software or macro language was tool developed? _____

4. **Explain process of obtaining source materials**

   _____

   _____

5. **Is it important to track the history of updates** Yes ☐ No ☐

6. **Do you think updates could be handled by an outside agency?** Yes ☐ No ☐

   If no, please explain reason(s)

   _____

   _____

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☐ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital cadastral maps?** Yes ☐ No ☐

   If yes, what software File format *(Please describe information that was integrated or imported)*

   _____

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain _____

   _____

   _____

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☐ No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☐

   If yes, what would be the desired extent of your seamless map? _____

SECTION A: MCAMLIS – Topographic Files

1. **Do you update the digital topographic files: Yes ☐ No ☐**
   If yes, please answer the following:

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: _____

2. **Would you like to see MCAMLIS update the topographic files more often? Yes ☐ No ☐**
   If yes, how often
   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☐ Yearly
   If yes, please explain which topographic features need to be provided:

   _____

   Delivered In what software: _____

3. **Do you use custom tools Yes ☐ No ☐**

   If yes, who developed tools? _____

   In what software or macro language was tool developed? _____

4. **Explain process of obtaining source materials**

_____

_____

5. **Is it important to track the history of updates** **Yes ☐ No ☐**

6. **Do you think updates could be handled by an outside agency?** **Yes ☐ No ☐**
   If no, please explain reason(s)

   _____

   _____

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☐ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital topographic maps?** Yes ☐ No ☐

   If yes, what software File format *(Please describe information that was integrated or imported)*

   _____

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain _____

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☐ No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☐

   If yes, what would be the desired extent of your seamless map? _____

SECTION B: SOFTWARE

Do you use CAD or GIS software: Yes ☐ No ☐

If yes, please list software products, operating system, your staff's expertise with each, and, if applicable, what MCAMLIS product is used with each software:

Software	OS	Expertise 1(low)-3(high)	MCAMLIS Product

SECTION C: INTERNET

Do you have internet access: Yes ☐ No ☐

If no, do you have plans to obtain access? Yes ☐ No ☐

If yes, how soon?

1-3 months ☐ 3-6 months ☐ 6-12 months 1-2 years ☐ more an 2 years ☐

If yes, what type and speed of an internet connection do you have:

56 K ☐ 128 KB ☐ Cable ☐ DSL ☐ T1 ☐ Other ☐ Connection Speed _____

If yes, what type of internet browser do you use: _____

Please return to:

Thomas J. Tym
Ruekert/Mielke
W233 N2080 Ridgeview Parkway
Waukesha WI 53188-1020
tjtym@ruekert-mielke.com

By: Friday, August 2, 2002

MCAMLIS
LAND AND UTILITY INFORMATION SYSTEM INTERNET PROTOTYPE
Report No. 2

Prepared by: Ruekert & Mielke, Inc.
For: Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee

Approved by the MCAMLIS Steering Committee
On May 7, 2002

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TABLE OF CONTENTS

PREAMBLE

This is the second of four reports concerning the status of implementing a web based land and utility information system for the Milwaukee County Automated Mapping and Land Information System (MCAMLIS). The work effort to date represents approximately 37% of the total project outlined in the Prospectus approved by the MCAMLIS Steering Committee.

As proposed and outlined in the Prospectus, this report covers the completion of an inventory to gather information regarding the hardware and software of the organizations included in the pilot area. Ruekert/Mielke also collected a representative sample of data from those organizations to use for the prototype and has merged the data from the various organizations with the MCAMLIS database.

Ruekert/Mielke also met with the MCAMLIS Technical Advisory Committee on Friday, April 22, 2002 to review the first results of that effort and to discuss some of the expected data sharing issues identified in this report. The meeting generated suggestions from Committee members as to how some of those issues could be resolved. Wisconsin Electric and MMSD were not represented at the meeting. Recommendations provided herein are based on feedback from the Technical Advisory Committee members in attendance at this meeting.

Much of what was completed during this phase of work was facilitated by the fact that the pilot area was already determined. As noted in the first report, the selection of the pilot area was moved up in the schedule to expedite the collection of various digital data sets from the participants.

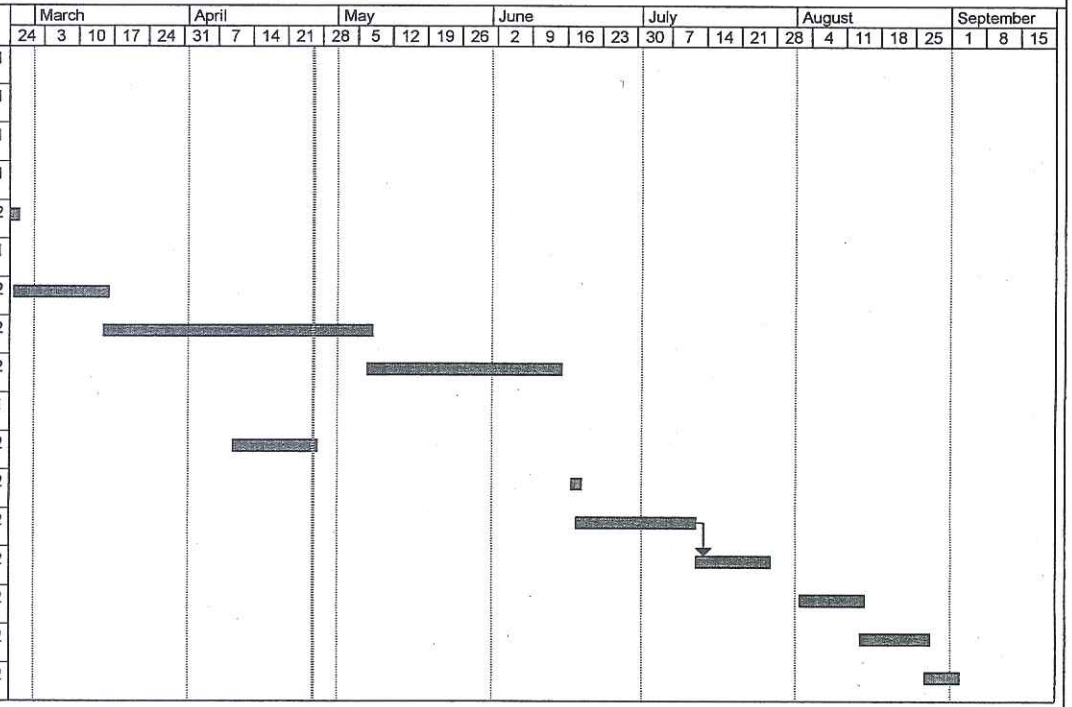
Based on the results of this portion of work, Ruekert/Mielke requests that the MCAMLIS Steering Committee gives their approval to continue with the next phase of the project, the implementation of the web based prototype. The prototype will provide an opportunity to identify the majority of critical issues and the potential solutions. The prototype will provide the best opportunity to test the proposed solutions in the pilot area and determine the applicability of those solutions to a regional application.

Since We Energies was established after the commencement of this study, and although it is not specifically referenced in this report, it should be noted that We Energies is the registered trade name under which Wisconsin Electric Power Company and Wisconsin Gas Company engage in business.

Due to complications and delays in requesting and acquiring the digital data sets from the City of Milwaukee, we have updated the schedule for the remaining efforts to reflect a practical timeframe to complete the remaining tasks. The updated schedule follows this page.

INTERNET PROTOTYPE
IMPLEMENTATION SCHEDULE

ID	Task Name	Duration	Start	Finish
1	**Project Initiation**	**5 days**	**Mon 2/26/01**	Fri 3/2/01
2	**Select GIS/Internet Firm**	**15 days**	**Mon 3/12/01**	Fri 3/30/01
3	**Team Organization**	**15 days**	**Tue 5/22/01**	Mon 6/11/01
4	**Formulate Objectives**	**9 days**	**Wed 9/5/01**	Mon 9/17/01
5	**Develop Needs Analysis**	**110 days**	**Tue 9/25/01**	Mon 2/25/02
6	**Inventory Existing Systems**	**20 days**	**Tue 9/25/01**	Mon 10/22/01
7	**Identify Data Sharing Issues**	**15 days**	**Mon 2/25/02**	Fri 3/15/02
8	**Develop Data Sharing Solutions**	**38 days**	**Fri 3/15/02**	Tue 5/7/02
9	**Prototype Installation**	**29 days**	**Tue 5/7/02**	Fri 6/14/02
10	**Select Pilot Area**	**1 day**	**Mon 9/17/01**	Mon 9/17/01
11	**Data Conversion/Clean-up**	**13 days**	**Wed 4/10/02**	Fri 4/26/02
12	**Site Installation and Training**	**2 days**	**Mon 6/17/02**	Tue 6/18/02
13	**Evaluate Results**	**18 days**	**Tue 6/18/02**	Thu 7/11/02
14	**Identify/Resolve Technical Issues**	**11 days**	**Fri 7/12/02**	Fri 7/26/02
15	**Establish Standards**	**9 days**	**Fri 8/2/02**	Wed 8/14/02
16	**Recommend Final Implementation Plan**	**10 days**	**Wed 8/14/02**	Tue 8/27/02
17	**Summarize Results/Present to MCAMLIS**	**5 days**	**Tue 8/27/02**	Mon 9/2/02



Project: Project2
Date: Fri 4/26/02

Task
Split
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Split
Rolled Up Milestone
Rolled Up Progress
External Tasks
Project Summary

MCAMLIS

BACKGROUND

The Internet Prototype required an inventory of pertinent information for each of the participants in the pilot project area. The information was considered important to provide an understanding of the basic uses of the MCAMLIS products which will be used to determine the requirements of a successful web based system.

As noted in the first report, one of the greater challenges of this project is the fact that users will be viewing and maintaining land or utility information with different software and hardware. The Prospectus identified at least one user for each of the major software platforms (SmallWorld, ESRI, Intergraph, and Autodesk). Having a clear understanding of the supported hardware and software versions being utilized by each of the participants is necessary in order to develop a solution that can be easily integrated into each one of the individual GIS environments.

SECURITY

Since September 11, there is a heightened concern for the security of information and the risk associated with freely distributing digital land, and especially, utility information over the internet. In fact, the American Water Works Association sent a letter to the President of the United States, Congressional Leadership, Director of the FBI, Director of the Office of Homeland Security and Comptroller General urging the "*reevaluation of the type of information made available to the public by government agencies*". They also recommended using the following statement in response to local concerns: *"We support the principles of our community's 'right to know,' but believe that many details currently required to be made public go beyond a reasonable standard for information availability and make our community less secure, not more."*

Concerns of this nature, were also the primary reason why the City of Milwaukee Water Works decided to remove a pumping station and a main feed from the data sets transmitted for inclusion in the prototype project. Ruekert/Mielke understands the issues and concerns related to the information provided by the project participants and will take precautions to insure and protect the use and distribution of this information during the development of the prototype project. It is also understood that each participant reserves the right to determine their involvement and participation in any future data sharing agreement and the content of any future deliverables. Any decision to not participate, limitations on the distribution or sharing of files, or data content, may affect the finding or recommendations contained in this report.

INVENTORY EXISTING SYSTEMS

Survey

Questionnaire

To complete this work, Ruekert/Mielke prepared and distributed a survey to all participants of the Technical Advisory Committee, asking questions pertaining to the use of the MCAMLIS data, CAD and/or GIS software uses, and internet accessibility.

MCAMLIS data questions were divided into two sections; cadastral and topographic information. The survey included questions regarding the frequency of use, type of use, currency of information, and the ease of use and integration of information pertaining to other enterprise systems within the respondents' organization. The participants were also asked if they required any other information or needed access to updated information on a more frequent basis.

Questions regarding software products, staff's expertise with each, the MCAMLIS product used with each software program, and the organization's operating system were also included. Internet availability, connection speed and software browser was also solicited.

A copy of the participant questionnaires is included in Appendix A.

Survey Responses

With one exception, all of the questionnaires were returned and the information from those responses is summarized on pages **5 – 12** of this report. While Ameritech-SBC did not return information and has not provided a sample of their data, efforts are still underway to encourage their participation.

First and foremost, it should be stated that all of the participants in the prototype are using MCAMLIS information at some level. Some are using it as their sole source of land information, which acts as a base map for their GIS. Others, such as Wisconsin Electric, mapped their facility locations to their own land information before the MCAMLIS parcel mapping project was completed. Now however, they are using the MCAMLIS data for special projects and for processing some updates to their land information system.

Cadastral and Topographic Information

The survey confirmed that the hard copy cadastral and topographic maps are typically used by municipalities for exhibits, presentations and reports. In some instances hard copy maps are provided to individuals and/or organizations having specific needs for land data. The respondents indicated that they are not maintaining or updating the hard copy cadastral or topographic maps.

Digital information, on the other hand, is used for a variety of applications including day to day planning, project work, plotting of utility locations, permitting, recording new construction of utility information, updating of existing land information, engineering design and analysis, such as for determining sewer and water service areas, and finally, diggers hotline identification. Since software tools simplify the viewing and plotting of certain features, selective cadastral and/or topographic map features can be displayed based on the users needs. Most of the respondents, to some degree, were maintaining and updating the digital cadastral files. On the other hand, the Village of Brown Deer was the only respondent updating the digital topographic maps - primarily pavement edges, walks, and building outlines.

Respondents also mentioned that they would like to see house numbers displayed with the digital cadastral map products. Currently, house numbers are updated and maintained as building outline attributes in separate digital shape files. Consideration should be given to incorporating the house numbers as text features.

When MCAMLIS products are provided to others, the organization requesting the digital information must sign a license agreement and agree not to distribute information to other organizations.

MCAMLIS QUESTIONNAIRE Responses

1. Do you use MCAMLIS Products?	Y	N	CAD Hard Copy	CAD Digital	Topo Hard Copy	Topo Digital
City of West Allis	X		N	*	N	*
MMSD	X		Historically used for facility Planning and Design Backgrounds	Current facilities planning & design backgrounds, etc. General facilities information questions	Historically used for facilities, planning and design backgrounds (watercourse & flood mgt)	Current, facilities, planning and design backgrounds (watercourse & flood mgt)
City of Milwaukee	X			Info source outside the City boundary		Curb/Edge of pavement inside City Building footprints inside City General info source outside City boundary Eng. & plan'g consultants data source for City contracts
Village of Brown Deer	X		Occasionally sold externally to outside agencies or individuals and customized maps are also used internally for various presentations, planning purposes, etc. on an as-need basis	Digital cadastral maps are used to quickly determine the locations of utilities when Diggers locate requests are received, and also for internal planning purposes. Digital info is also sometimes shared with contractors working for the Village, but they are required to sign an "Agreement Not to Reproduce Digital Data:	Occasionally sold externally to outside agencies or individuals and customized maps are also used internally for various presentations, planning purposes, etc. on an as-need basis	Digital cadastral maps are used to quickly determine the locations of utilities when Diggers locate requests are received, and also for internal planning purposes. Digital info is also sometimes shared with contractors working for the Village, but they are required to sign an "Agreement Not to Reproduce Digital Data:
Milwaukee Co. Register of Deeds	X		Not currently used*	Update & maintenance MCAMLIS CAD maps*	Currently not used in ROD office*	Research & updating parcel info for address records (especially water info & bldgs)
Wisconsin Electric -Wisconsin Gas		X		Would used to drop-in significant land changes such as new subdivisions		

*=see individual questionnaire for response

SECTION A: MCAMLIS – Cadastral Files

1. Do you update the digital cadastral files:	Y	N	In What Dept?	By How Many Employees	Individual Responsible for Updates	How Often
City of West Allis	X		Engineering, checked by GIS	2	GIS	As rec'd from Co. ROD
MMSD	X					
City of Milwaukee		X				
Village of Brown Deer	X		Community Development; Engineering Section	1	Jim Buske	As needed.
Milwaukee Co. Register of Deeds	X		Register of Deeds-Milwaukee County	1	Kathleen Bach	Daily after conversion and lag time
Wisconsin Electric -Wisconsin Gas		X				

			If yes, how often?						
2. MCAMLIS Update the CAD files more often?	N	Y	Daily	Weekly	Bi-Monthly	Monthly	Qtr'ly	If yes, explain which CAD features need to be provided	Delivered in what software?
City of West Allis	X								
MMSD	X								
City of Milwaukee	X								
Village of Brown Deer		X					X	Land splits and acquisitions; new tax key numbers; CSM numbers	Autocad.dwg or .dxf
Milwaukee Co. Register of Deeds		X	X						
Wisconsin Electric -Wisconsin Gas		X						If Milw Co. source data is viewable (web enabled browser) only need updates as requested	ESRI export or Shapefile

3. Do you use custom tools?	N	Y	If yes, who developed tools?	In what language was tool developed?
City of West Allis	X			
MMSD		X	City of Milwaukee Information System	MDL
City of Milwaukee				
Village of Brown Deer		X	Third Party	Arcview Avenue
Milwaukee Co. Register of Deeds	X			
Wisconsin Electric -Wisconsin Gas		X	In-house IT development	ESRI (v 7.2) and Small world

4. Explain process of obtaining source materials:	
City of West Allis	City Assessor's office will compile a list of lot splits, combines, CSM's, etc. received from the County. This data copied to depts. Making changes, and revisions to maps occurs as necessary
MMSD	Obtained from MCAMLIS, Cities of Milwaukee and West Allis
City of Milwaukee	
Village of Brown Deer	We obtained base maps directly from MCAMLIS in late 1995
Milwaukee Co. Register of Deeds	At this time, anyone interested in receiving the MCAMLIS cadastral information would put a request in through Tom Patterson and SEWRPC would complete the order
Wisconsin Electric -Wisconsin Gas	Gather land changes throughout our territory via developers and County courthouses

5. Is it important to track the history of updates?	Y	N
City of West Allis	X	
MMSD	X	
City of Milwaukee		
Village of Brown Deer	X	
Milwaukee Co. Register of Deeds	X	
Wisconsin Electric -Wisconsin Gas		X

6. Do you think updates could be handled by an outside agency?	Y	N	If no, explain reasons
City of West Allis	X		
MMSD	X		
City of Milwaukee			
Village of Brown Deer	X		
Milwaukee Co. Register of Deeds		X	I think it would be very difficult for an outside source to handle the updates based on my past years experience. I have found that communication was very difficult & many items were missed in the process
Wisconsin Electric -Wisconsin Gas	X		

7. If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?	Y	N
City of West Allis	X	
MMSD	X	
City of Milwaukee	X	
Village of Brown Deer	X	
Milwaukee Co. Register of Deeds		X
Wisconsin Electric -Wisconsin Gas		X

				Were custom tools developed?		If yes, explain
8. Have you successfully integrated or imported digital information from other software into the digital cadastral maps:	Y	N	If yes, what software File format	Y	N	
City of West Allis	X		Survey Fieldwork InRoad V8 .sdr format and AutoCad .dwg construction plans		X	
MMSD		X				
City of Milwaukee						
Village of Brown Deer		X				
Milwaukee Co. Register of Deeds		X				
Wisconsin Electric -Wisconsin Gas	X		Dgn, dxf, e00, shapefile of new subdivisions or road projects	X		ESRI drop-in tools (aml based code)

9. Have you compiled a seamless map of the digital cadastral maps?	Y	N	If Yes, what would be the desired extent of your seamless map?	If no, would you like to have this done by MCAMLIS?
City of West Allis		X		
MMSD	X			
City of Milwaukee	X		City of Milwaukee	
Village of Brown Deer	X			
Milwaukee Co. Register of Deeds		X	Milwaukee County	Yes
Wisconsin Electric -Wisconsin Gas	X			

SECTION A: MCAMLIS – Topographic Files

1. Do you update the digital topographic files?	Y	N	In What Dept?	By How Many Employees	Individual Responsible for Updates	How Often
City of West Allis		X				Very few updates done to Topos, only for special projects
MMSD		X				
City of Milwaukee		X				
Village of Brown Deer	X		Community Development; Engineering Section	1	Jim Buske	As needed
Milwaukee Co. Register of Deeds		X				
Wisconsin Electric -Wisconsin Gas		X				

			If yes, how often?						
2. MCAMLIS Update the topographic files more often?	N	Y	Daily	Weekly	Bi-Monthly	Monthly	Qtr'y	Yearly	If yes, explain which topographic features need to be provided
City of West Allis		X						X	Curbs, walks, Building Outlines would be helpful delivered w/each Digital OrthoPhoto update.
MMSD	X								
City of Milwaukee		X					X		Since many of the topos are several years old-they do not show many buildings or pavement
Village of Brown Deer		X						X	New buildings, new contours
Milwaukee Co. Register of Deeds		X				X			Water features and building footprints
Wisconsin Electric -Wisconsin Gas	X								If Milw. Co. source data is viewable (web enabled browser), only need updates as requested

3. Do you use custom tools?	N	Y	If yes, who developed tools?	In what language was tool developed?
City of West Allis	X			
MMSD		X	City of Milwaukee Information Systems	MDL
City of Milwaukee				
Village of Brown Deer		X	Third party	Arcview Avenue
Milwaukee Co. Register of Deeds	X			
Wisconsin Electric -Wisconsin Gas	X			

4. Explain process of obtaining source materials:	
City of West Allis	In the few cases we adjusted a topo map for our users, we obtained digital data from consultants and brought in the graphics and added content to an available level not used in the topo data dictionary
MMSD	Obtained from MCAMLIS, Cities of Milwaukee and West Allis
City of Milwaukee	
Village of Brown Deer	We obtained base maps directly from MCAMLIS in late 1995
Milwaukee Co. Register of Deeds	Currently, I would put in a request to SEWRPC if I need any source materials.
Wisconsin Electric -Wisconsin Gas	

5. Is it important to track the history of updates?	Y	N
City of West Allis	X	
MMSD	X	
City of Milwaukee		X
Village of Brown Deer	X	
Milwaukee Co. Register of Deeds	X	
Wisconsin Electric -Wisconsin Gas		X

6. Do you think updates could be handled by an outside agency?	Y	N	If no, explain reasons
City of West Allis	X		
MMSD	X		
City of Milwaukee	X		
Village of Brown Deer	X		
Milwaukee Co. Register of Deeds	X		
Wisconsin Electric -Wisconsin Gas	X		

7. If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?	Y	N
City of West Allis	X	
MMSD	X	
City of Milwaukee	X	
Village of Brown Deer	X	
Milwaukee Co. Register of Deeds	X	
Wisconsin Electric -Wisconsin Gas		

				Were custom tools developed		If yes, explain
8. Have you successfully integrated or imported digital information from other software into the digital topographic maps:	Y	N	If yes, what software File format	Y	N	
City of West Allis	X		Usually Autocad, converted to MicroStation .dgn format and transformed to proper coordinates		N	
MMSD		X				
City of Milwaukee						
Village of Brown Deer		X				
Milwaukee Co. Register of Deeds		X				
Wisconsin Electric - Wisconsin Gas						

9. Have you compiled a seamless map of the digital Topographic maps?	Y	N	If Yes, what would be the desired extent of your seamless map?	If no, would you like to have this done by MCAMLIS?
City of West Allis	X		City of West Allis	
MMSD	X			N
City of Milwaukee		X		N
Village of Brown Deer	X			
Milwaukee Co. Register of Deeds		X	Milwaukee County	Y
Wisconsin Electric -Wisconsin Gas		X		N

SECTION B: SOFTWARE

Do you use GIS software?	N	Y	If Yes, please list operating system, your staff's expertise with each, and if applicable, software what MCAMLIS product is used with each software			
			Software Products	Operating System	Expertise 1 (low) 3 (high)	MCAMLIS Product
City of West Allis		X	GeoMedia	Windows 98 + NT4	2	Parcel Base & Topos
			MGE	Windows NT4	2	Parcel Base Maps
			MicroStation SE + J	Windows NT4	3	Parcel Base + Topos
			Oracle 8	Windows NT Server	2	Parcel Base Maps
MMSD		X	Microstation SE	Win NT 4.0 SP 6	2	Cadastral, Topo
			ArcView 3.2	Win NT 4.0 SP 6	2	Cadastral, Topo
City of Milwaukee		X	MicroStation	NT	3	Topo & Cad
			ArcInfo	NT	3	
			ArcView	NT	3	
			GeoMedia	NT	2	
Village of Brown Deer		X	Autocad Map 2000	Windows 98	3	Cadastral & Topo
			Arcview v3.2	Windows 98	2	Cadastral & Topo
Milwaukee Co. Register of Deeds		X	ArcGIS	Windows 2000	1	
			Smallworld	NT	3	

SECTION C: INTERNET

Do you have internet access?	N	Y	If no, do you have plans to obtain access?	If yes, how soon?					If Yes, speed	If Yes, Browser
				Months			Years			
City of West Allis		X		1-3 ☐	3-6 ☐	6-12 ☐	1-2 ☐	> 2 ☐	DSL	Internet Explorer 6.0
MMSD		X		1-3 ☐	3-6 ☐	6-12 ☐	1-2 ☐	> 2 ☐	1.544 MBS	IE 5.5 SP 1
City of Milwaukee		X		1-3 ☐	3-6 ☐	6-12 ☐	1-2 ☐	> 2 ☐	T1	Internet Explorer and Netscape
Village of Brown Deer		X		1-3 ☐	3-6 ☐	6-12 ☐	1-2 ☐	> 2 ☐	T1	Internet Explorer
Milwaukee Co. Register of Deeds		X		1-3 ☐	3-6 ☐	6-12 ☐	1-2 ☐	> 2 ☐	?	?
Wisconsin Electric -Wisconsin Gas		X		1-3 ☐	3-6 ☐	6-12 ☐	1-2 ☐	> 2 ☐	T1	MS Explorer

Maintenance

Currently, the City of Milwaukee and the City of West Allis update or maintain the cadastral information for their communities. The City of Milwaukee is currently involved in a project to transform previously compiled U.S.P.L.S.S. one-quarter section parcel maps to the geodetic control framework established for Milwaukee County. The City intends to deliver the completed digital parcel maps to the Southeastern Wisconsin Regional Planning Commission in a format that is compatible with the remainder of the MCAMLIS cadastral map products. The City of West Allis maintains their own cadastral maps in a Microstation (.dgn) file format – the City does not transit updates to Milwaukee County. Wisconsin Gas and Wisconsin Electric update their cadastral information using custom tools developed in-house or by third party developers. Information and updates for their land base comes from land developers and county land record offices throughout the franchise area. Updates are completed as needed for current or proposed project work and are best fit to the gas and electric land information systems.

In September of 2000, Milwaukee County hired Kathleen Bach as a GIS technician to be responsible for updating and maintaining the digital cadastral map files. Ms. Bach initially started updating the digital cadastral maps at SEWRPC's office in Genamap format. In November of 2001, Ms. Bach relocated to Milwaukee County's office and began updating the digital cadastral maps as ESRI ArcInfo coverages. As of April 2002, the following municipalities have been updated to reflect recorded documents through December 31, 2001:

City of Franklin
City of Oak Creek
City of South Milwaukee
City of Cudahy
City of St. Francis
Village of Greendale

All remaining areas of Milwaukee County, excluding the City of Milwaukee, have been updated by Ms. Bach through December 31, 2000. It is anticipated that these remaining areas will be updated through December 31, 2001, by October, 2002. In addition, cadastral updates for completed areas will be updated on a daily basis as new documents are recorded and as staff time permits. By December 31, 2002, all areas of Milwaukee County, excluding the City of Milwaukee, should be updated to within 60-90 days of the date of the recorded document. Based on the survey results, this should accommodate the needs of the participants who rely on the MCAMLIS digital cadastral files for their GIS base map. Assuming staff is available, it is anticipated that future updates will be made within 60-90 days of the date of the recorded document, and will be available to potential users upon request.

While Milwaukee County has assumed responsibility for the maintenance activities, there are numerous reasons why local communities have proceeded with their own internal maintenance procedures. Some of these reasons include:

- Due to the delay in establishing a coordinated maintenance system, some participants have established internal maintenance procedures. Unfortunately, the updates have not been transmitted back to MCAMLIS.
- Since there are different CAD and GIS software products in use throughout the County, some participants have converted some of the features in MCAMLIS cadastral maps into their own defined layers, levels or objects.
- Since the MCAMLIS cadastral maps are used for various purposes, some participants have altered the line work and/or repositioned, removed or inserted text features to suit their internal needs.
- Some of communities have invested in creating a seamless mapping environment. Consequently, the compatibility of data has been lost between those communities and MCAMLIS. The ability to accept new updates from MCAMLIS could be very complicated, if not impossible.
- They are able to track the history of digital cadastral updates.

Currency of Information

Cadastral Maps

The communities that rely on the MCAMLIS cadastral mapping products would like to see the updates provided more frequently. Since the City of Milwaukee and the City of West Allis update their own cadastral maps, they do not need updated MCAMLIS cadastral maps. Neither community transmits their updated cadastral maps to MCAMLIS.

Numerous participants, including the Village of Brown Deer, the City of West Allis, City of Milwaukee and the Milwaukee Metropolitan Sewerage District, typically track historical information concerning changes in the cadastral and topographic information. The private utilities have expressed no interest for historical information.

Topographic Maps

The majority of users would like to see the topographic map files updated more often. In many instances the topographic maps are used for planning purposes, such as for new building or site development, that requires the existing location of pavement edges, sidewalks, and building outlines.

The digital topographic maps include pertinent information that is used to respond to constituent requests or departmental personnel. The utilities indicated that it was unlikely that topographic updates would ever be current enough, or compiled to the required level of accuracy, to support any type of engineering or planning work.

Accuracy/Metadata

In general, most participants utilize the MCAMLIS products as the land base for their internal GIS. However, since Wisconsin Electric began the conversion of their facilities before the completion of the MCAMLIS cadastral maps, they converted various hard copy maps for their digital land base by judiciously placing section and one-quarter monuments in their digital files and rectifying them to the geodetic control network.

Wisconsin Electric and Wisconsin Gas do not use the same land base. This is due, in most part, to the fact that each utility's conversion projects started before their recent merger. When the acquisition occurred, Wisconsin Natural Gas (previously managed by Wisconsin Electric) and Wisconsin Gas Company merged their land information into one contiguous mapping system. To accomplish this, adjustments were made to match or stitch the two systems along the franchise lines. Consequently, the land base for electric facilities in Milwaukee County matches the gas utility land everywhere south of the Wisconsin Gas franchise, but does not match north of that line.

The Technical Advisory Committee recognizes that the accuracy of information for land and utility data will vary significantly from one organization to another. The MCAMLIS topographic maps meet National Map Accuracy Standards, which specify that for large-scale maps, 90 percent of all well defined points must be within $1/30^{th}$ of an inch of their true position measured at the publication scale, which for the MCAMLIS topographic maps would be equivalent to a maximum allowable error of 3.33 feet. The MCAMLIS cadastral maps meet Regional Planning Commission standards, which require that real property boundary lines be located within $1/40^{th}$ of an inch of their true positions measured at the publication scale, which for the MCAMLIS cadastral maps would permit a maximum error of 2.5 feet. Various methods, such as digitizing or placement by reference, were used by public utilities and local municipalities to convert their facility locations into their GIS. MMSD is the only participant that conducted field inventories of the facilities. Each of these methods should result in spatially accurate locations compatible with the accuracy standards used in the MCAMLIS topographic and cadastral mapping programs. Therefore, the facility information, excluding information provided by MMSD, should be consider as schematic representations of the facility locations, including in some cases, corresponding attributes tables.

Seamless Database

Numerous discussions have already transpired concerning the development of a seamless cadastral map file. Some communities that have extensive experience with GIS and maintaining their land information clearly understand the importance of eliminating redundant line work and text features. In fact, some communities and utilities have already made significant investments in creating a seamless database for their community and eliminated much of the duplicate information. The City of Franklin is one of the municipalities that recently outsourced the preparation of a digital seamless map for the purposes of their GIS.

Although most of the respondents indicated that they have not yet compiled a seamless digital cadastral map, there seems to be enough evidence from other participants and from experiences gathered in Waukesha County, where seamless township cadastral maps are being used, that MCAMLIS should address this issue soon before others consider compiling their own.

Data Formats

Due to the various CAD and GIS software being used by local participants, for preparing and distributing digital map files, data is available in numerous different file formats. The list includes ESRI coverages and shapefiles, ESRI ArcSDE, MicroStation Design Files (.dgn), GE Network Solutions (formerly Smallworld) AutoCAD drawings (.dwg) and Drawing Exchange Files (.dxf).

The following list represents the software systems used by MCAMLIS participants:

- Village of Brown Deer – ArcView, AutoCad Map
- City of Milwaukee – MicroStation, ArcInfo, ArcView, GeoMedia
- City of West Allis – MicroStation, MGE, GeoMedia
- Milwaukee County – ArcInfo, AutoCad Map
- Milwaukee Metropolitan Sewerage District – MicroStation, ArcView
- Wisconsin Gas – Smallworld
- Wisconsin Electric – ArcInfo
- City of West Allis – MicroStation, MGE

The sole source of land information for the Milwaukee Metropolitan Sewerage District is from MCAMLIS and the City of West Allis. The Village of Brown Deer took the initial delivery of their information from MCAMLIS and has been subsequently maintaining their own set of digital cadastral land base. The delivery of cadastral map updates for Brown Deer will require extensive evaluation. During Technical Advisory Committee meetings, Mr. Buske stated that he would prefer that Milwaukee County conduct cadastral map maintenance and deliver a fully updated seamless digital cadastral file to the Village. Since the City of Milwaukee and the City of West Allis both maintain their own digital cadastral information, the County may be able to obtain the digital cadastral files from each, rather than updating themselves.

Internet

Each of the respondents have access to the internet. The majority of them indicated having a high-speed T1 connection. High-speed internet connections will be important when justifying the benefits of deploying land and utility information in a web-based data sharing environment.

Miscellaneous Information

During our research, it became apparent, that some local communities are not aware of the MCAMLIS products, the method to obtain, or the maintenance process. In order to gain support for the maintenance and use of the available digital map products, MCAMLIS should immediately notify local municipalities. Notification should include public officials, including City Council and Village Board representatives, mayors, village presidents, and department heads.

A meeting should also be held by the Intergovernmental Cooperation Council to inform local participants of the MCAMLIS prototype project and to solicit feedback and concerns that could be used to improve the success and usefulness of the MCAMLIS products.

IDENTIFY DATA SHARING ISSUES & SOLUTIONS

Data Requested

To identify data sharing issues and possible solutions, Ruekert/Mielke requested, from each participant, samples of digital data for a pilot project area within Milwaukee County. As noted previously, the specific pilot project area was selected in an area that included the City of Milwaukee and one of the other local participants and met the objectives for the project prototype.

The pilot area includes the following:

- T8N R21E Section 14 (Village of Brown Deer)
- T6N R21E Section 10 (City of West Allis)
- T5N R22E Section 31 (City of Oak Creek)

The areas within the Village of Brown Deer and the City of West Allis also border the City of Milwaukee. These areas will provide an opportunity to overlay facilities from multiple sources, spanning two communities on two different land base systems. It is anticipated that the different file formats, specifications, data integrity and positional accuracy of features in these areas will provide enough information to assist with the resolution of data sharing issues.

A portion of the City of Oak Creek was selected to include an area in Milwaukee County that is experiencing significant growth. It is anticipated that this area of Oak Creek will provide the best opportunity to test procedures for distributing additions and changes to the land information system.

Special consideration was given to the selection of the Village of Brown Deer, the City of Milwaukee and the City of West Allis because of their extensive experience with GIS related issues in their communities. That experience will facilitate the development of the prototype and contribute to the successful completion of the project.

Finally, the pilot areas were selected because the providers of information for those areas are using all of the GIS platforms that will need to be considered for the MCAMLIS project.

Data Received

The Village of Brown Deer, the City of Milwaukee, the City of West Allis, the Milwaukee Metropolitan Sewerage District, Wisconsin Electric and Wisconsin Gas have all delivered files containing land base and facility locations for the pilot area. The City of Milwaukee Department of Water Works expressed some concern for data security and selectively eliminated a pumping station and a main feed from the data delivered for the prototype.

At this time, SBC-Ameritech, has opted not to participate and has not provided any data for the prototype. The concerns expressed are not so much because of security but more from the fact that they may be compromising their competitive position with others in the communications industry. Discussions are continuing with Ameritech to gain their confidence in the project and include their participation. Therefore, it should be noted, that the prototype project will not include fiber optic cable or other telecommunication facilities that would also prove beneficial to local participants .

Data Integration

As noted previously, one of the challenges for the prototype will be the merging of data from different organizations that are using different software and have mapped their facilities to different land base. The following represents the native formats that were delivered for the prototype:

BrownDeer:
Native format Provided:
AutoCAD .dwg files
Coordinate System:
Wisconsin State Plane – South Zone – NAD 27
Coverage Area:
Topo & Cadastral: T8N-R21E, NE1/4 & SE 1/4 Sec14
Public Utilities: City of Brown Deer
Data Provided:
Bd141t.dwg - Topo
Bd144t.dwg - Topo
Bd141c.dwg - Cadastral
Bd144c.dwg - Cadastral
system_san.dwg - Sanitary Sewer System
Watbase1.dwg - Water System
Newstorm.dwg - Storm Sewer System

Milwaukee:
Native Format Provided:
Sewer: MicroStation .dgn files
Water: MicroStation .dgn files
Cadastral: MicroStation .dgn files
Coordinate System:
Wisconsin State Plane – South Zone – NAD 27
Coverage Area:
Sewer & Water: T6N-R21E, Sec10 / T8N-R21E, NW1/4 & SW1/4 Sec14
Cadastral: T8N-R21E, NW1/4 & SW1/4 Sec14
Data Provided:
*.san – Sanitary Sewer
*.stm – Storm Sewer
*.mis – Interceptor Sewer
*.cad – Cadastral
*.wat – Water

MMSD:
Native Format Provided:
MicroStation .dgn files
Coordinate System:
Wisconsin State Plane – South Zone – NAD 27
Coverage Area:
T6N-R21E, Sec10 / T8N-R21E, Sec14
Data Provided:
*.cso - combined sewer outfall
*.iss - inline storage system
*.mis - metropolitan interceptor system
*.nsc - near surface collector

SEWRPC:
Native Format Provided:
Cadastral: ArcINFO Coverages
Topo: MicroStation .dgn files
Coordinate System:
Wisconsin State Plane – South Zone – NAD 27
Coverage Area:
T5N-R22E, Sec31 / T6N-R21E, Sec10 / T8N-R21E, Sec14
Data Provided:
xx52231x - Cadastral
xx62110x - Cadastral
xx82114x - Cadastral
t52231x.dgn - Topo
t62110x.dgn - Topo
t82114x.dgn – Topo

WEPCO:
Native Format Provided:
ArcInfo Export (.E00) files
Coordinate System:
UTM – Zone 16 – NAD 27
Coverage Area:
T5N-R19E, Sec33 / T6N-R21E, Sec10 / T8N-R21E, Sec14
Data Provided:
mc519-33_e.e00 - electric
mc519-33_l.e00 - land
mc62110_e.e00 - electric
mc62110_l.e00 - land
mc62110_swl.e00 - small world land
mc82114_e.e00 - electric
mc82114_l.e00 – land

WestAllis:
Native format Provided:
MicroStation .dgn files
Coordinate System:
Wisconsin State Plane – South Zone – NAD 27
Coverage Area:
City of West Allis
Data Provided:
WestAllisUt1.uti – public utilities (native format & units)
WestAllisFont.rsc - project font resource file
WestAllisUti.uti – public utilities (converted to MCAMLIS units)

WiGAS:
Native Format Provided:
AutoCAD .dxf file
Coordinate System:
Wisconsin State Plane – Central Zone – NAD 83
Coverage Area:
T5N-R21E, Sec20 / T6N-R21E, Sec10 / T8N-R21E, Sec14
Data Provided:
5n21e20nw.dxf - gas
6n21e10.dxf - gas
8n21e14.dxf – gas

Ruekert/Mielke has successfully loaded all of the files and work is now underway to identify how land and facility information is being structured by each of the member organizations and estimating the effort to merge multiple data sets for display and reference in a web environment.

Perhaps the greatest issue will be the intelligent ties that some users may make between land information and facilities. How the different GIS software handles those ties will be critically important when attempts are made to integrate land record updates to different databases. Establishing standards that all of the maintainers of land records follow will be extremely important.

From the testing completed so far, it would appear that the facilities from all of the data provided fall within the street right-of-way as shown in the MCAMLIS database. From the results in the area studied in the pilot area, it is believed that the information provides a good starting point for the sharing of information.

The following is list of data sharing issues provided by the participants or discovered during the analysis of the data provided:

- Lack of a coordinated maintenance schedule for cadastral updates
- Limited awareness of the distribution system or published process to acquire updates
- MCAMLIS Licensing Agreement restricts use and distribution of available digital map products
- Multiple projections and coordinate systems
- Numerous file formats and GIS software platforms
- Accuracy of land base varies
- Incomplete data sets
- Numerous digital file specifications (i.e. layers, levels and/or object types and text fonts)
- Lack of metadata
- Existing MCAMLIS digital cadastral and topographic maps are compiled as separate U.S.P.L.S.S. one-quarter section maps rather than as seamless maps.
- Some participants may want to receive incremental updates while others may want to replace their entire digital land base map with the updated MCAMLIS files.
- Some participants have altered or enhanced the MCAMLIS digital cadastral files to meet internal needs.

The distribution and sharing of utility and/or other geographic data will have similar consequences as those listed above.

Options

Lack Of A Coordinated Maintenance Schedule For Cadastral Updates.

1. Clearly define and publish a maintenance schedule for cadastral map updates. The schedule, based on participant feedback, should be completed on at a least a monthly basis. Participants, currently conducting their own cadastral maintenance, such as the City of Milwaukee, City of West Allis and Wisconsin Gas and Wisconsin Electric, may re-evaluate their internal needs and recognize the opportunities and associated cost savings should MCAMLIS decide to provide these services. A coordinated maintenance schedule would enable each potential user to plan their internal functions. Additionally, each local municipality could schedule time for internal staff to gather and submit source materials to the County, which may enhance the accuracy and completeness of the digital cadastral maps.

2. Abandon the cadastral map maintenance efforts and rely on the individual municipalities to provide these services. Realizing that numerous Milwaukee County departments require the digital cadastral maps for internal projects, the amount of effort required to coordinate the updated files from the nineteen municipalities within Milwaukee County could be an even greater task than actually maintaining the files. The major benefit would be the cost savings to the County.

3. Develop a cooperative effort between local participants willing and able to conduct their own cadastral map maintenance that would enable Milwaukee County to receive updated files in a predetermined format and schedule. Waukesha County began with a similar approach following the completion of the digital cadastral maps. Each municipality was expected to make their own digital cadastral map updates and transmit them to the County on a monthly basis. Unfortunately, due to various scheduling conflicts and the lack of dedicated municipal staff, the updates were not being completed and delivered as planned, which prevented the County from having digital cadastral maps updated to a single date in time. Hence, this approach did not meet the goals and objectives of Waukesha County's maintenance schedule.

4. Develop a cooperative effort between local participants willing and able to conduct their own cadastral map maintenance that would enable Milwaukee County to receive updated files in a predetermined format and schedule. Milwaukee County would continue to maintain the digital cadastral files for all other municipalities and would distribute the updated file to these municipalities on a mutually agreed upon schedule. Although Milwaukee County may be required to maintain the digital cadastral files for internal department purposes, this option may result in duplicate efforts, but may satisfy the objectives of the municipalities maintaining their own digital cadastral maps.

Since Wisconsin Electric and Wisconsin Gas require updated digital cadastral maps more frequently than within the proposed 60-90 day delay, it is reasonable to think they will continue to conduct their own internal digital map maintenance. Instead, they would be more interested in using the MCAMLIS digital cadastral maps to verify and finalize their own maintenance efforts.

In most casts, smaller communities, such as the Villages of Fox Point and Shorewood, and the City of Cudahy, do not currently have dedicated staff available to conduct digital cadastral map maintenance. The amount of effort to conduct maintenance in these communities is fairly minimal and will probably not warrant the hiring of an individual specifically for these purposes. Therefore, Option 2 can be reasonably eliminated.

Limited Awareness Of The Distribution System Or Published Process To Acquire Updates.

Currently, digital cadastral maps are distributed upon request. A coordinated process, published schedule, and notification to interested parties on how to obtain digital cadastral would allow existing and potential users the ability to plan and schedule their efforts around the latest available digital files. The Prospectus discussed the possibilities of utilizing a web-based system for sharing and distributing these files. The web-based system and alternatives include:

1. Web-Based System.

   An internet based mapping system that would enable users to select geographic areas either by "clicking" on individual map files, by selecting within a window defined by "clicking" on two points within the map, or from predetermined map sets. Available digital layers of data and/or attributes could be extracted and downloaded.

2. An FTP Site (File Transfer Protocol).

   An internet-based storage location that allows users to download and upload digital files. Security and access rights can be established using user names and passwords. Directory trees can be provided to organize the various data sets. Digital files could be provided in one or multiple file formats, projections, and coordinate systems, based on the participants' needs.

3. An Automated Email System.

   Although a "timed" distribution system could be developed that would automatically transmit digital cadastral map updates to predetermined email distribution lists, the size of files, and file size limitations enforced by some network administrators or internet providers, make this an unsuitable solution.

4. Compact Disks (CD).

   Compile a list of interested participants. Prepare and transmit updated digital cadastral map files on CD's to each participant. CD's could contain predetermined areas or the entire set of County files.

5. No change.

   Continue to deliver digital cadastral maps on request.

Although the Prospectus was approved and awarded based on the merits of the web-based system, the prototype project will include an evaluation of some of the options listed above.

During discussions at the April 22, 2002 Technical Advisory Committee meeting, the City of Milwaukee and the Village of Brown Deer indicated an interest in receiving a yearly archive of the MCAMLIS digital cadastral maps and associated tax database files for historical purposes. These files should be updated through December 31 of the previous year. It is reasonable to believe that other municipal participants will also be interested in the yearly archive files for similar reasons.

MCAMLIS Licensing Agreement Restricts Use And Distribution of Available Digital Map Products.

The existing MCAMLIS licensing agreement does not have provisions for continuous distribution of updated digital map products without an additional cost, nor does it allow for the redistribution of the digital map products. Since the digital cadastral maps are being updated on a regular basis, each delivery of the digital files are basically obsolete the minute they are distributed. It would seem that it would be more prudent to encourage the use of the digital map products than to have too many restrictions, which may reduce the number of potential users and damage the reputation of the MCAMLIS program. The licensing agreement should be reevaluated to determine its usefulness and necessity, and if required, how such an agreement could be utilized in a web application.

Numerous file formats and GIS software platforms.

As noted in the Data Format section of this report, there are numerous file formats being used throughout the County. Each of the existing GIS software programs being used by local participants is capable of importing various file formats. The most interchangeable formats include ESRI shapefiles and AutoCAD drawing (.dwg) or Drawing Exchange Files (.dxf). Unfortunately, none of the GIS software programs support importing and exporting to all of

the native GIS formats. Since all of the GIS software packages are capable of reading .dxf files, this may prove to be the most viable solution.

There are currently multiple projections and coordinate systems for storing digital map information (see Data Format section).

Multiple Projections and Coordinate Systems.

Although MCAMLIS developed a standard projection and coordinate system (Wisconsin State Plane - South Zone - NAD 27) for the digital map products, Wisconsin Electric is using a universal map projection - Universal Transverse Mercator (UTM) - Zone 16 - NAD 27, for their digital land base. Wisconsin Gas, on the other hand, utilizes Wisconsin State Plane - Central Zone - NAD 27 for their land base. Since their service areas extends well beyond the Southeastern Wisconsin area, both utilities chose a map projection that would simplify the use of available digital map data from other counties and municipalities.

For various reasons, it is unrealistic and unwarranted, to expect each and every participant to agree on a common map projection and coordinate system. These reasons include:

- Most GIS software is capable of reprojecting digital map files "on the fly".
- Conversion costs may be cost prohibitive based on the limited amount of benefit.

Therefore, the existing MCAMLIS map projection and coordinate system will meet the needs of the local participants with minimal conversion efforts for those that need to utilize other published map projects.

Accuracy Of Land Base Varies

All participants, excluding the City of Milwaukee and Wisconsin Electric, are currently using the MCAMLIS digital map products as the land base for their GIS. Since the City of Milwaukee is currently adjusting their digital cadastral maps to the geodetic control network for Milwaukee County, and will deliver the adjusted files to Milwaukee County upon completion, Wisconsin Electric will be the only participant not using the MCAMLIS land base. Although Wisconsin Electric and Wisconsin Gas are now under single management, Wisconsin Electric would not convert their facilities to the MCAMLIS digital map products without analyzing the benefits of such a costly endeavor. It seems reasonable to think that Wisconsin Electric will progressively convert their facilities to the MCAMLIS land base. Hence, the MCAMLIS digital map products, which meet the needs of a majority of the potential users, should not to adjusted to conform to other available land bases.

Incomplete Data Sets

Since the City of Milwaukee was concerned about security and freely distributing digital map products and attributes, some of the available data was not delivered. Wisconsin Electric and Wisconsin Gas did not withhold data from the prototype project, but may withhold data in the future. Each participant should clearly define the digital files they will make available and share with existing or potential users. Additionally, digital information from local cable companies were not requested as part of the prototype.

Numerous digital file specifications (i.e. layers, levels and/or object types and text fonts).

Although MCAMLIS has developed and published a set of standards for feature definitions, each participant has developed their own set of digital specifications based on internal use. In order to meet the needs of a broader range of participants, the following are a couple of solutions that could improve the usefulness of the MCAMLIS digital cadastral maps. Possible solutions include:

1. Assemble a Technical Committee to re-evaluate the set of digital specifications that would simplify the seamless transfer of information from one system to the other. The Technical Committee would be commissioned with developing, if necessary, an alternative set of specifications that would include all of the individual feature types used by the local participant. Examples of these feature types include:

Points	Infrastructure facilities, such as manholes, catch basins, valves, hydrants, utility poles and boxes, and services.
Lines	property, right-of-way, easement, pavement and sidewalk edges, pipes, and transmission mains.
Polygons	property and service areas.
Text	Size and font.
Attributes	Stored data about features.

   Realizing this may require each participant to convert their files to the agreed upon format, the amount of effort, cost, transition, and impact on each organization may make be unrealistic.

2. Develop a single, custom translation tool that would enable Milwaukee County to export to each of the required file formats. This is probably the simplest and least costly solution.

Lack of Metadata.

Metadata should be compiled and distributed as part of the updated digital cadastral map files. At a minimum, the metadata should include:

Data of currency
Accuracy of data
Source materials
Horizontal datum
Organization responsible for update
Individual responsible for update
Contact person (name, email address and telephone number)

Existing MCAMLIS digital cadastral maps are compiled as separate U.S.P.L.S.S. one-quarter section maps rather than as seamless maps.

Prepare seamless files.

MCAMLIS digital map products could be recompiled as seamless maps in one of the following formats:

Municipal files.

Tiled areas representing specific geographic areas (i.e. Town / Range).

The preparation of seamless files will require the removal of redundant line work and text features. Each parcel within one of the U.S.P.L.S.S. one-quarter digital cadastral maps is represented as a closed polygon. Since parcels can extend across numerous one-quarter section maps, the common lines along the one-quarter section line would have to be removed in order to recompile the parcels as single polygons representing the entire parcel. Similarly, since the digital cadastral maps were prepared as individual map files, text features such as subdivision names, street names, parcel dimensions, which span across one-quarter section maps, are placed in adjacent maps, which could be removed if compiled as seamless maps. Additionally, some text was repositioned so that it was more legible. In many cases, this meant that text was placed outside of the map area. Therefore, some of the cleanup effort will require time to remove or reposition text during the process of preparing seamless cadastral maps. Topographic map files have similar redundant linework and overlapping text and require cleanup.

While the creation of the re-tiled seamless files would provide several benefits including fewer and more manageable files, less redundant data, and reduced maintenance efforts, it would also require minor changes to some of the participants' existing workflows. It should also be noted that some of the Technical Advisory Committee members using MicroStation software expressed a concern about the seamless files causing overly large file sizes. This concern, while valid, is a function of older versions of software, and the newer versions do not have the same file size limitations.

Some participants may want to receive incremental updates while others may want to replace their entire digital land base map with the updated MCAMLIS files.

Develop an automated method to select digital cadastral updates based on a user-defined date. The process should identify the updated parcels and return digital files that include parcel polygons and database records that have been updated, removed or altered since the user-defined data.

The automated tool could be developed in the form of a web application that uses digital maps as the interface for selecting the required land base or could be a tabular database that has predefined geographic areas, such as local municipalities, government Town and Ranges, or by predetermined user-defined areas, such as utility service areas.

Some participants have altered or enhanced the MCAMLIS digital cadastral files to meet internal needs.

Examples of altered or enhanced data includes:

- Repositioning of Street Names outside of the street right-of-way
- Resizing text features and/or use of different fonts
- Removal of extraneous text not required within the participant's organization
- Addition of other pertinent information (i.e. utility locations, easements, zoning, etc.)
- Aggregation or separation of levels and/or layers

Participants could separate and prepare individual overlays, levels, layers, or files of the selected information that has been altered within their set of MCAMLIS digital cadastral files. The MCAMLIS digital cadastral file specifications may need to be altered in order to support this type of update process. Ideally, updated digital cadastral files could be simply imported into the organizations GIS with minimal conversion or maintenance effort. Although initially, the level of effort and impact of converting each participant's GIS to conform to a local set of specifications seems monumental, the long term benefit and savings associated with lower maintenance costs, may prove to be worth the effort. Communities experiencing little or no growth, that have significantly altered the MCAMLIS digital cadastral maps, such as the City of West Allis, could also utilize the metadata and then make the changes at their location requiring minimal time and effort. The prototype project will include an evaluation of this approach.

SUMMARY

Based on meetings with the MCAMLIS Steering Committee and the Advisory Committee, there is agreement that if successful, an Internet prototype will provide an excellent opportunity to demonstrate important benefits for having a MCAMLIS land and facility information system in a web environment. While there will be a number of issues to address and resolve as the prototype moves forward, the objectives are of paramount importance to the future success of MCAMLIS. In the opinion of the Advisory Committee, most of the issues should be resolved and the objectives accomplished. This could be accomplished by the creation of a separate Technical Committee or by extending the responsibilities to the Technical Advisory Committee assigned to this project. The key issues that require some further evaluation include:

- File formats and specifications
- Seamless map production
- MCAMLIS licensing agreement

If successful, an Internet prototype should improve the process for maintaining MCAMLIS information, improve the accessibility and distribution of the MCAMLIS data, and finally, provide access to the private and public sector utility information. The following represents a summary of the major concerns:

- Security
- Published Maintenance Schedules
- Distribution System
- MCAMLIS Licensing Agreements
- Data Formats/Integration
- Accuracy/Metadata
- Evaluation of Existing Digital File Specifications
- Seamless Files

The prototype will provide an opportunity to further evaluate these major items while refining and implementing potential solutions identified in this report.

While all of the participants in the consortium are already using some information from the MCAMLIS database, it is understood that access through the Internet will improve the usefulness and distribution of the digital MCAMLIS products.

The final objective of the prototype is to determine the feasibility of accessing utility information from the 3 private utilities, the Milwaukee Metropolitan Sewerage District, and all communities in Milwaukee County. Municipalities and utilities routinely gather information for planning and engineering work. Having access to that information through MCAMLIS would reduce much of that work effort and provide significant benefits to the public/private sector.

Report No. 3 will follow the development of the prototype application and will include items discovered during the implementation process.

APPENDIX A – PARTICIPANT QUESTIONNAIRES

MCAMLIS Inventory Questionnaire

Organization: Village of Brown Deer Date: 09/19/01

Completed by: Jim Buske

Define the extent of the geographic area for which you use, or would use, the MCAMLIS products:

Corporate limits of the Village of Brown Deer

SECTION A: MCAMLIS PRODUCTS

1. Do you use MCAMLIS products: ☒ Yes ☐ No

   Please describe your department or organization's use of the following MCAMLIS products, including both hard copy and digital:

Cadastral	Hard Copy:	Hard copies are occasionally sold to outside agencies or Individuals, and customized maps are also used internally for various presentations, planning purposes, etc. on an as-needed basis.
	Digital:	Digital cadastral maps are used to quickly determine the Locations of utilities when Digger's Hotline locate requests are received, and also for internal planning purposes. Digital Information is also sometimes shared with contractors working for the Village, but they are required to sign an "Agreement Not to Reproduce Digital Data".
Topographic	Hard Copy:	Same as above.
	Digital:	Same as above.

SECTION A: MCAMLIS - Cadastral Files

1. **Do you update the digital cadastral files: Yes ☒ No ☐**

   If yes, please answer the following:

   In what department: Community Development; Engineering Section

   By how many employees: One

   Individual responsible for updates: Jim Buske

   How often: As needed

2. **Would you like to see MCAMLIS update the cadastral files more often? Yes ☒ No ☐**

   If yes, how often

   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☒ Quarterly ☐ Yearly

   If yes, please explain which cadastral features need to be provided:New lot lines and dimensions for land splits and acquisitions; new tax key numbers; CSM numbers

   Delivered in what software? Autocad .dwg or .dxf

3. **Do you use custom tools Yes ☒ No ☐**

   If yes, who developed tools? Third party

   In what software or macro language was tool developed? Arcview Avenue

4. **Explain process of obtaining source materials**

   If I understand the question, we obtained base maps directly from MCAMLIS in late 1995.

5. **Is it important to track the history of updates** Yes ☒ No ☐

6. **Do you think updates could be handled by an outside agency?** Yes ☒ No ☐

   If no, please explain reason(s)

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☒ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital cadastral maps?** Yes ☐ No ☒

   If yes, what software File format *(Please describe information that was integrated or imported)*

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☒ No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☐

   If yes, what would be the desired extent of your seamless map?

SECTION A: MCAMLIS – Topographic Files

1. **Do you update the digital topographic files: Yes ☒ No ☐**
   If yes, please answer the following:

   In what department: Community Development; Engineering Section

   By how many employees: One

   Individual responsible for updates: Jim Buske

   How often: As needed

2. **Would you like to see MCAMLIS update the topographic files more often? Yes ☒ No ☐**
   If yes, how often
   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☒ Yearly
   If yes, please explain which topographic features need to be provided:
   New buildings, new contours

   Delivered In what software: Autocad

3. **Do you use custom tools Yes ☒ No ☐**

   If yes, who developed tools? Third party

   In what software or macro language was tool developed? Arcview Avenue

4. **Explain process of obtaining source materials**
   Same as Cadastral

5. **Is it important to track the history of updates** Yes ☒ No ☐

6. **Do you think updates could be handled by an outside agency?** Yes ☒ No ☐
   If no, please explain reason(s)

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☒ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital topographic maps?** Yes ☐ No ☒

   If yes, what software File format *(Please describe information that was integrated or imported)*

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☒ No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☐

   If yes, what would be the desired extent of your seamless map?

SECTION B: SOFTWARE

Do you use CAD or GIS software: Yes ☒ No ☐

If yes, please list software products, operating system, your staff's expertise with each, and, if applicable, what MCAMLIS product is used with each software:

Software	OS	Expertise 1(low)-3(high)	MCAMLIS Product
Autocad Map 2000	Windows 98	3	Cadastral & Topo
Arcview v3.2	Windows 98	2	Cadastral & Topo

SECTION C: INTERNET

Do you have internet access: Yes ☒ No ☐

If no, do you have plans to obtain access? Yes ☐ No ☐

If yes, how soon?

1-3 months ☐ 3-6 months ☐ 6-12 months 1-2 years ☐ more an 2 years ☐

If yes, what type and speed of an internet connection do you have:

56 K ☐ 128 KB ☐ Cable ☐ DSL ☐ T1 ☒ Other ☐ Connection Speed _____

If yes, what type of internet browser do you use: Internet Explorer

Please return to: Thomas J. Tym
Ruekert/Mielke
W239 N1812 Rockwood Drive
Waukesha WI 53188-1113
tjtym@ruekert-mielke.com

By: Friday, October 5, 2001

MCAMLIS Inventory Questionnaire

Organization: City of Milwaukee Date: 9/21/01

Completed by: Nancy A. Olson

Define the extent of the geographic area for which you use, or would use, the MCAMLIS products:

City of Milwaukee and a small area outside the city boundary

SECTION A: MCAMLIS PRODUCTS

1. Do you use MCAMLIS products: ☒ Yes ☐ No

   Please describe your department or organization's use of the following MCAMLIS products, including both hard copy and digital:

Cadastral	Hard Copy:	
	Digital:	Information source outside the City boundary.
Topographic	Hard Copy:	
	Digital:	Curb/Edge of pavement inside the City Building footprints inside the City General information source outside the City boundary Engineering and planning consultants data source for City contracts

SECTION A: MCAMLIS - Cadastral Files

1. **Do you update the digital cadastral files: Yes ☒ No ☒**

   If yes, please answer the following: We currently update our own maps for the City. We do not update any cadastral files for MCAMLIS.

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: _____

2. **Would you like to see MCAMLIS update the cadastral files more often? Yes ☐ No ☒**

   If yes, how often

   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☐ Yearly

   If yes, please explain which cadastral features need to be provided:

   _____

   Delivered in what software? _____

3. **Do you use custom tools Yes ☐ No ☐**

   If yes, who developed tools? _____

   In what software or macro language was tool developed? _____

4. **Explain process of obtaining source materials**

   _____

   _____

5. **Is it important to track the history of updates** Yes ☐ No ☐

6. **Do you think updates could be handled by an outside agency?** Yes ☐ No ☐

   If no, please explain reason(s)

   _____

   _____

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☒ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital cadastral maps?** Yes ☐ No ☐

   If yes, what software File format *(Please describe information that was integrated or imported)*

   _____

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain _____

   _____

   _____

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☒ No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☐

   If yes, what would be the desired extent of your seamless map? City of Milwaukee

SECTION A: MCAMLIS – Topographic Files

1. **Do you update the digital topographic files: Yes ☐ No ☒**
   If yes, please answer the following:

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: _____

2. **Would you like to see MCAMLIS update the topographic files more often? Yes ☒ No ☐**
   If yes, how often
   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☒ Quarterly ☐ Yearly
   If yes, please explain which topographic features need to be provided:
   Since many of the topos are several years old – they do not show many buildings or pavement.

   Delivered In what software: MicroStation – DGN format

3. **Do you use custom tools Yes ☐ No ☐**

   If yes, who developed tools? _____

   In what software or macro language was tool developed? _____

4. **Explain process of obtaining source materials**

5. **Is it important to track the history of updates** Yes ☐ No ☒

6. **Do you think updates could be handled by an outside agency?** Yes ☒ No ☐
   If no, please explain reason(s)
   Outside where? Hasn't SEWRPC has always outsourced this work? I would say 'Yes' since a more frequent update may be a production problem for SEWRPC

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☒ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital topographic maps?** Yes ☐ No ☐

   If yes, what software File format *(Please describe information that was integrated or imported)*

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain _____

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☐ No ☒

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☒

   If yes, what would be the desired extent of your seamless map? _____

SECTION B: SOFTWARE

Do you use CAD or GIS software: Yes ☒ No ☐

If yes, please list software products, operating system, your staff's expertise with each, and, if applicable, what MCAMLIS product is used with each software:

Software	OS	Expertise 1(low)-3(high)	MCAMLIS Product
MicroStation	NT	3	Topo & Cad
ArcInfo	NT	3	
ArcView	NT	3	
GeoMedia	NT	2	

SECTION C: INTERNET

Do you have internet access: Yes ☒ No ☐

If no, do you have plans to obtain access? Yes ☐ No ☐

If yes, how soon?

1-3 months ☐ 3-6 months ☐ 6-12 months 1-2 years ☐ more an 2 years ☐

If yes, what type and speed of an internet connection do you have:

56 K ☐ 128 KB ☐ Cable ☐ DSL ☐ T1 ☒ Other ☐ Connection Speed _____

If yes, what type of internet browser do you use: Internet Explorer and Netscape

Please return to:

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Ruekert/Mielke
W239 N1812 Rockwood Drive
Waukesha WI 53188-1113
tjtym@ruekert-mielke.com

By: Friday, October 5, 2001

MCAMLIS Inventory Questionnaire

Organization: Milwaukee Metropolitan Sewerage District Date: 9/18/01

Completed by: Dave Misun, Nancy Schultz

Define the extent of the geographic area for which you use, or would use, the MCAMLIS products:
Milwaukee County entire extent (Other counties would be nice, but wouldn't be MCAMLIS)

SECTION A: MCAMLIS PRODUCTS

1. Do you use MCAMLIS products: x Yes ☐ No

   Please describe your department or organization's use of the following MCAMLIS products, including both hard copy and digital:

Cadastral	Hard Copy:	Historically used for facilities planning and design backgrounds
	Digital:	Current facilities planning and design backgrounds, etc.
		General facilities information questions
Topographic	Hard Copy:	Historically used for facilities planning and design backgrounds
		(Especially for watercourse and flood management)
	Digital:	Current facilities planning and design backgrounds, etc.
		(Especially for watercourse and flood management)
		General facilities information questions

SECTION A: MCAMLIS - Cadastral Files

1. **Do you update the digital cadastral files: Yes ☐ No x**

   If yes, please answer the following:

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: _____

2. **Would you like to see MCAMLIS update the cadastral files more often? Yes ☐ No x**

   If yes, how often

   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☐ Yearly

   If yes, please explain which cadastral features need to be provided:

   _____

   Delivered in what software? _____

3. **Do you use custom tools Yes x No ☐**

   If yes, who developed tools? City of Milwaukee Information Systems

   In what software or macro language was tool developed? Microstation Dev. Lang. (MDL)

4. **Explain process of obtaining source materials**

   Obtained from MCAMLIS, Cities of Milwaukee and West Allis

5. **Is it important to track the history of updates** Yes x No ☐

6. **Do you think updates could be handled by an outside agency?** Yes x No ☐

   If no, please explain reason(s)

   _____

   _____

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes x No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital cadastral maps?** Yes ☐ No x

   If yes, what software File format *(Please describe information that was integrated or imported)*

   _____

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain _____

   _____

   _____

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes x No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No x

   If yes, what would be the desired extent of your seamless map? _____

SECTION A: MCAMLIS – Topographic Files

1. **Do you update the digital topographic files: Yes ☐ No x**
   If yes, please answer the following:

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: _____

2. **Would you like to see MCAMLIS update the topographic files more often? Yes ☐ No x**
   If yes, how often
   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☐ Yearly
   If yes, please explain which topographic features need to be provided:

   _____

   Delivered In what software: _____

3. **Do you use custom tools Yes x No ☐**

   If yes, who developed tools? City of Milwaukee Information Systems

   In what software or macro language was tool developed? MDL

4. **Explain process of obtaining source materials**
   Obtained from MCAMLIS, Cities of Milwaukee and West Allis

5. **Is it important to track the history of updates** **Yes x No ☐**

6. **Do you think updates could be handled by an outside agency?** **Yes x No ☐**
   If no, please explain reason(s)

   _____

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes x No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital topographic maps?** Yes ☐ No x

   If yes, what software File format *(Please describe information that was integrated or imported)*

   _____

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain _____

9. **Have you compiled a seamless map of the digital topographic maps?** Yes x No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No x

   If yes, what would be the desired extent of your seamless map? _____

SECTION B: SOFTWARE

Do you use CAD or GIS software: Yes x No ☐

If yes, please list software products, operating system, your staff's expertise with each, and, if applicable, what MCAMLIS product is used with each software:

Software	OS	Expertise 1(low)-3(high)	MCAMLIS Product
Microstation SE	Win NT 4.0 SP 6	2	Cadastral, Topo
ArcView 3.2	Win NT 4.0 SP 6	2	Cadastral, Topo

SECTION C: INTERNET

Do you have internet access: Yes x No ☐

If no, do you have plans to obtain access? Yes ☐ No ☐

If yes, how soon?

1-3 months ☐ 3-6 months ☐ 6-12 months 1-2 years ☐ more an 2 years ☐

If yes, what type and speed of an internet connection do you have:

56 K ☐ 128 KB ☐ Cable ☐ DSL ☐ T1 x Other ☐ Connection Speed 1.544 MBS

If yes, what type of internet browser do you use: IE 5.5 SP 1

Please return to:

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Ruekert/Mielke
W239 N1812 Rockwood Drive
Waukesha WI 53188-1113
tjtym@ruekert-mielke.com

By: Friday, October 5, 2001

MCAMLIS Inventory Questionnaire

Organization: Register of Deeds Milwaukee County Date: 9-25-01

Completed by: Kathleen Bach _GIS Tech Register of Deeds

Define the extent of the geographic area for which you use, or would use, the MCAMLIS products:

All of Milwaukee County

SECTION A: MCAMLIS PRODUCTS

1. Do you use MCAMLIS products: X Yes ☐ No

   Please describe your department or organization's use of the following MCAMLIS products, including both hard copy and digital:

Cadastral	Hard Copy:	At this time, the cadastrals are not being used in the ROD office because the Tax listing area maintains there own Tax Parcel Maps. However, I believe there will be an increase in hard copy use when I am up and running full time in the ROD office.
	Digital:	Currently, I am in the position of updating and maintaining the MCAMLIS cadastral maps. At this time, the maps are months out of date but hopefully after the conversions is done and my training is complete I will be in a position of updating parcel information on daily basis. Thus, I obtain the new tax description changes, research the records, and cogo the changes on the cadastrals
Topographic	Hard Copy:	At this time, the topographic maps are not being used in the ROD office. However, I feel as more people become aware of the features on the topo. maps there will be increase in the demand.
	Digital:	I use many aspects of the Topo. maps on a daily basis to complete my research for updating the parcel information and for maintaining my address records. I especially use the water information and buildings to complete my research.

SECTION A: MCAMLIS - Cadastral Files

1. **Do you update the digital cadastral files:** Yes X ☐ No ☐

   If yes, please answer the following:

   In what department: Register of Deeds Milwaukee County

   By how many employees: 1 employee

   Individual responsible for updates: Kathleen Bach

   How often: Daily after the conversion and lag time

2. **Would you like to see MCAMLIS update the cadastral files more often?** Yes X ☐ No ☐

   If yes, how often

   X ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☐ Yearly

   If yes, please explain which cadastral features need to be provided:

   Delivered in what software?

3. **Do you use custom tools** Yes ☐ No ☐ X

   If yes, who developed tools?

   In what software or macro language was tool developed?

4. **Explain process of obtaining source materials**

   At this time, anyone interest in receiving the MCAMLIS cadastral information would put a request in through Tom Patterson and SEWRPC would complete the order.

5. **Is it important to track the history of updates** Yes X ☐ No ☐

6. **Do you think updates could be handled by an outside agency?** Yes ☐ No X ☐

   If no, please explain reason(s)

   I think it would be very difficult for an outside source to handle the updates based on my past years experience. I have found that communication was very difficult & many items were missed in the process.

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☐ No X ☐

8. **Have you successfully integrated or imported digital information from other software into the digital cadastral maps?** Yes ☐ No X ☐

   If yes, what software File format *(Please describe information that was integrated or imported)*

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☐ No X ☐

   If no, would you like to have this done by MCAMLIS? Yes X ☐ No ☐

   If yes, what would be the desired extent of your seamless map? Milwaukee County

SECTION A: MCAMLIS – Topographic Files

1. **Do you update the digital topographic files: Yes ☐ No X☐**
   If yes, please answer the following:

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: _____

2. **Would you like to see MCAMLIS update the topographic files more often? Yes X☐ No ☐**
   If yes, how often
   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐X Monthly☐ Quarterly ☐ Yearly
   If yes, please explain which topographic features need to be provided:
   Water features and building footprints

   Delivered In what software: _____

3. **Do you use custom tools Yes ☐ NoX☐**

   If yes, who developed tools? _____

   In what software or macro language was tool developed? _____

4. **Explain process of obtaining source materials**
   Currently, I would put in a request to SEWRPC if I need any source materials.

5. **Is it important to track the history of updates** Yes X☐ No ☐

6. **Do you think updates could be handled by an outside agency?** Yes X☐ No ☐
   If no, please explain reason(s)

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes X☐ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital topographic maps?** Yes ☐ No X☐

   If yes, what software File format *(Please describe information that was integrated or imported)*

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain _____

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☐ No X☐

   If no, would you like to have this done by MCAMLIS? Yes X☐ No ☐

   If yes, what would be the desired extent of your seamless map? Milwaukee County

SECTION B: SOFTWARE

Do you use CAD or GIS software: YesX ☐ **No** ☐

If yes, please list software products, operating system, your staff's expertise with each, and, if applicable, what MCAMLIS product is used with each software:

Software	OS	Expertise 1(low)-3(high)	MCAMLIS Product
ArcGis	Windows 2000	low	

SECTION C: INTERNET

Do you have internet access: Yes X ☐ **No** ☐

If no, do you have plans to obtain access? Yes ☐ No ☐

If yes, how soon?

1-3 months ☐ 3-6 months ☐ 6-12 months 1-2 years ☐ more an 2 years ☐

If yes, what type and speed of an internet connection do you have:

56 K ☐ 128 KB ☐ Cable ☐ DSL ☐ T1 ☐ Other ☐ Connection Speed Unkown

If yes, what type of internet browser do you use: Unkown

Please return to: Thomas J. Tym
Ruekert/Mielke
W239 N1812 Rockwood Drive
Waukesha WI 53188-1113
tjtym@ruekert-mielke.com

By: Friday, October 5, 2001

MCAMLIS Inventory Questionnaire

Organization: City of West Allis Date: September 24, 2001

Completed by: Patrick Walker

Define the extent of the geographic area for which you use, or would use, the MCAMLIS products:

City of West Allis and the surrounding periphery (usually within one quarter section) of our city

SECTION A: MCAMLIS PRODUCTS

1. Do you use MCAMLIS products: ☒ Yes ☐ No

   Please describe your department or organization's use of the following MCAMLIS products, including both hard copy and digital:

Cadastral	Hard Copy:	Not Used
	Digital:	Parcel Base Maps used as the base for our GIS mapping. Our Capital Improvements and Development projects all start using Copies of the base maps to build on. Survey fieldwork is brought In and referenced to the parcel base maps for our const. projects. West Allis uses different working units, referenced to NAD27.
Topographic	Hard Copy:	Not Used
	Digital:	Topographic maps are used in Engineering, Development, Police, Building Inspection, Public Works, & Forestry Depts. as a Compliment to the Parcel base maps to display recognizable Features within our city and surrounding communities.

SECTION A: MCAMLIS - Cadastral Files

1. **Do you update the digital cadastral files: Yes ☒ No ☐**

   If yes, please answer the following:

   In what department: Engineering, checked by GIS

   By how many employees: 1 making changes, 1 checking work

   Individual responsible for updates: GIS

   How often: As they are received from the County Register of Deeds office

2. **Would you like to see MCAMLIS update the cadastral files more often? Yes ☐ No ☒**

   If yes, how often

   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☐ Yearly

   If yes, please explain which cadastral features need to be provided:

   Delivered in what software? MicroStation .DGN format

3. **Do you use custom tools Yes ☐ No ☒**

   If yes, who developed tools?

   In what software or macro language was tool developed?

4. **Explain process of obtaining source materials**

   City Assessor's office will compile a list of lot splits, combines, CSM's, etc. received from the County. This data copied to depts. making changes, and revisions to maps occurs as necessary.

5. **Is it important to track the history of updates** Yes ☒ No ☐

6. **Do you think updates could be handled by an outside agency?** Yes ☒ No ☐

   If no, please explain reason(s)

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☒ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital cadastral maps?** Yes ☒ No ☐

   If yes, what software File format *(Please describe information that was integrated or imported)*
   Survey Fieldwork InRoads V8 .sdr format and AutoCad .dwg construction plans.

   Were custom tools developed? Yes ☐ No ☒

   If yes, please explain

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☐ No ☒

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☐

   If yes, what would be the desired extent of your seamless map?

SECTION A: MCAMLIS – Topographic Files

1. **Do you update the digital topographic files: Yes ☐ No ☒**
   If yes, please answer the following:

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: Very few updates done to Topos, only for special projects.

2. **Would you like to see MCAMLIS update the topographic files more often? Yes ☒ No ☐**
   If yes, how often
   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☒ Yearly
   If yes, please explain which topographic features need to be provided:
   Curbs, walks, Building Outlines would be helpful delivered with each Digital OrthoPhoto update.

   Delivered In what software: MicroStation .DGN Format

3. **Do you use custom tools Yes ☐ No ☒**

   If yes, who developed tools? _____

   In what software or macro language was tool developed? _____

4. **Explain process of obtaining source materials**
   In the few cases we adjusted a topo map for our users, we obtained digital data from consultants and brought In the graphics and added content to an available level not used in the topo data dictionary.

5. **Is it important to track the history of updates** **Yes ☒ No ☐**

6. **Do you think updates could be handled by an outside agency?** **Yes ☒ No ☐**
   If no, please explain reason(s)

   _____

   _____

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☒ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital topographic maps?** Yes ☒ No ☐

   If yes, what software File format *(Please describe information that was integrated or imported)*
   Usually AutoCad, converted to MicroStation .dgn format and transformed to proper coordinates

   Were custom tools developed? Yes ☐ No ☒

   If yes, please explain. _____

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☒ No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☐

   If yes, what would be the desired extent of your seamless map? City of West Allis

SECTION B: SOFTWARE

Do you use CAD or GIS software: Yes ☒ No ☐

If yes, please list software products, operating system, your staff's expertise with each, and, if applicable, what MCAMLIS product is used with each software:

Software	OS	Expertise 1(low)-3(high)	MCAMLIS Product
GeoMedia	Windows 98 + NT4	2	Parcel Base + Topos
MGE	Windows NT4	2	Parcel Base Maps
MicroStation SE + J	Windows NT4	3	Parcel Base + Topos
Oracle 8	Windows NT Server	2	Parcel Base Maps

SECTION C: INTERNET

Do you have internet access: Yes ☒ No ☐

If no, do you have plans to obtain access? Yes ☐ No ☐

If yes, how soon?

1-3 months ☐ 3-6 months ☐ 6-12 months 1-2 years ☐ more an 2 years ☐

If yes, what type and speed of an internet connection do you have:

56 K ☐ 128 KB ☐ Cable ☐ DSL ☒ T1 ☐ Other ☐ Connection Speed _____

If yes, what type of internet browser do you use: Internet Explorer 6.0

Please return to:

Thomas J. Tym
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W239 N1812 Rockwood Drive
Waukesha WI 53188-1113
tjtym@ruekert-mielke.com

By: Friday, October 5, 2001

MCAMLIS Inventory Questionnaire

Organization: Wisconsin Electric - Wisconsin Gas Date: 9/26/01

Completed by: Ed Hohl

Define the extent of the geographic area for which you use, or would use, the MCAMLIS products:

Entire Milwaukee County

SECTION A: MCAMLIS PRODUCTS

1. Do you use MCAMLIS products: ☐ Yes ☒ No

   Please describe your department or organization's use of the following MCAMLIS products, including both hard copy and digital:

Cadastral	Hard Copy:	
	Digital:	We would use it to drop-in significant land changes such as new subdivisions.
Topographic	Hard Copy:	
	Digital:	

SECTION A: MCAMLIS - Cadastral Files

1. **Do you update the digital cadastral files: Yes ☐ No ☒**

   If yes, please answer the following:

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: _____

2. **Would you like to see MCAMLIS update the cadastral files more often? Yes ☒ No ☐**

   If yes, how often

   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☐ Yearly

   If yes, please explain which cadastral features need to be provided:

   If Milw Co source data is viewable (web enabled browser), only need updates as requested

   Delivered in what software? ESRI export or Shapefile

3. **Do you use custom tools Yes ☒ No ☐**

   If yes, who developed tools? in-house IT development

   In what software or macro language was tool developed? ESRI (v 7.2) and Smallworld

4. **Explain process of obtaining source materials**

   gather land changes throughout our territory via developers and County courthouses

5. **Is it important to track the history of updates** Yes ☐ No ☒

6. **Do you think updates could be handled by an outside agency?** Yes ☒ No ☐

   If no, please explain reason(s)

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☒ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital cadastral maps?** Yes ☒ No ☐

   If yes, what software File format *(Please describe information that was integrated or imported)*

   dgn, dxf, e00, shapefile of new subdivisions or road projects

   . Were custom tools developed? Yes ☒ No ☐

   If yes, please explain ESRI drop-in tools (aml based code)

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☒ No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☐

   If yes, what would be the desired extent of your seamless map? Whole county

SECTION A: MCAMLIS – Topographic Files

1. **Do you update the digital topographic files: Yes ☐ No ☒**
   If yes, please answer the following:

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: _____

2. **Would you like to see MCAMLIS update the topographic files more often? Yes ☐ No ☒**
   If yes, how often
   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☐ Yearly
   If yes, please explain which topographic features need to be provided:

   _____

   Delivered In what software: _____

3. **Do you use custom tools Yes ☐ No ☒**

   If yes, who developed tools? _____

   In what software or macro language was tool developed? _____

4. **Explain process of obtaining source materials**

   _____

   _____

5. **Is it important to track the history of updates** **Yes ☐ No ☒**

6. **Do you think updates could be handled by an outside agency?** **Yes ☒ No ☐**
   If no, please explain reason(s)

   _____

   _____

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☐ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital topographic maps?** Yes ☐ No ☐

   If yes, what software File format *(Please describe information that was integrated or imported)*

   _____

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain _____

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☐ No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☒

   If yes, what would be the desired extent of your seamless map? _____

SECTION B: SOFTWARE

Do you use CAD or GIS software: Yes ☒ No ☐

If yes, please list software products, operating system, your staff's expertise with each, and, if applicable, what MCAMLIS product is used with each software:

Software	OS	Expertise 1(low)-3(high)	MCAMLIS Product
ESRI	Unix	3	
Smallworld	NT	3	

SECTION C: INTERNET

Do you have internet access: Yes ☒ No ☐

If no, do you have plans to obtain access? Yes ☐ No ☐

If yes, how soon?

1-3 months ☐ 3-6 months ☐ 6-12 months 1-2 years ☐ more an 2 years ☐

If yes, what type and speed of an internet connection do you have:

56 K ☐ 128 KB ☐ Cable ☐ DSL ☐ T1 ☒ Other ☐ Connection Speed _____

If yes, what type of internet browser do you use: MS Explorer

Please return to:

Thomas J. Tym
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By: Friday, October 5, 2001