Michigan Transportation Asset Management Council: Investment Data Collection Internet Application

TRB Pavement Preservation and Asset Management Conference

Kansas City, November 1, 2005

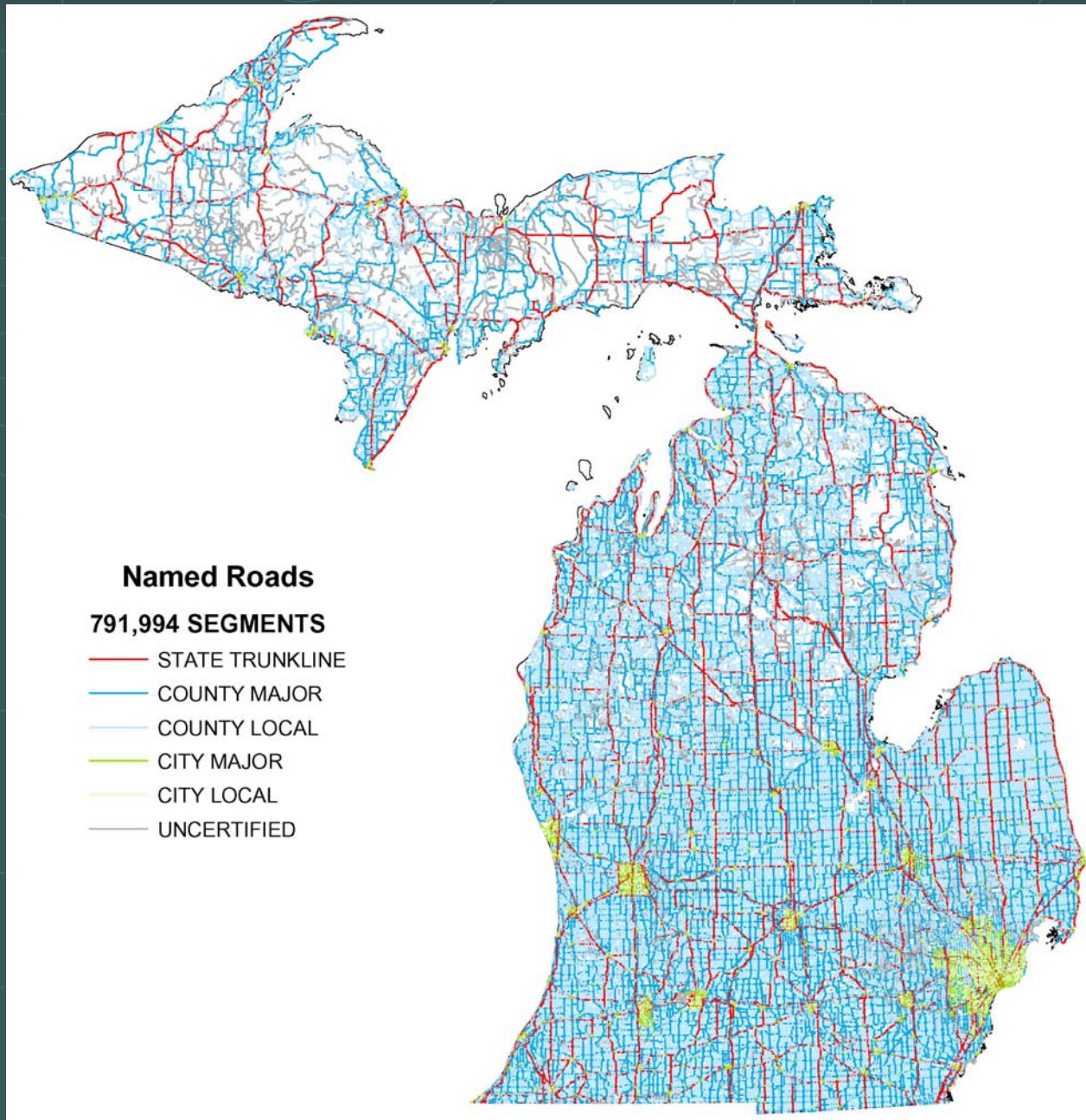
Rob Surber, Michigan Center for Geographic Information / Department of Information Technology

Introduction

- Rob Surber, Deputy Director
  - Michigan Center for Geographic Information
- Michigan asset management approach
- Context of the internet investment collection tool within the Michigan approach
- System design approach
- Overview of functions and capabilities
- Lessons learned and future directions

Michigan Geographic Framework

Statewide LRS



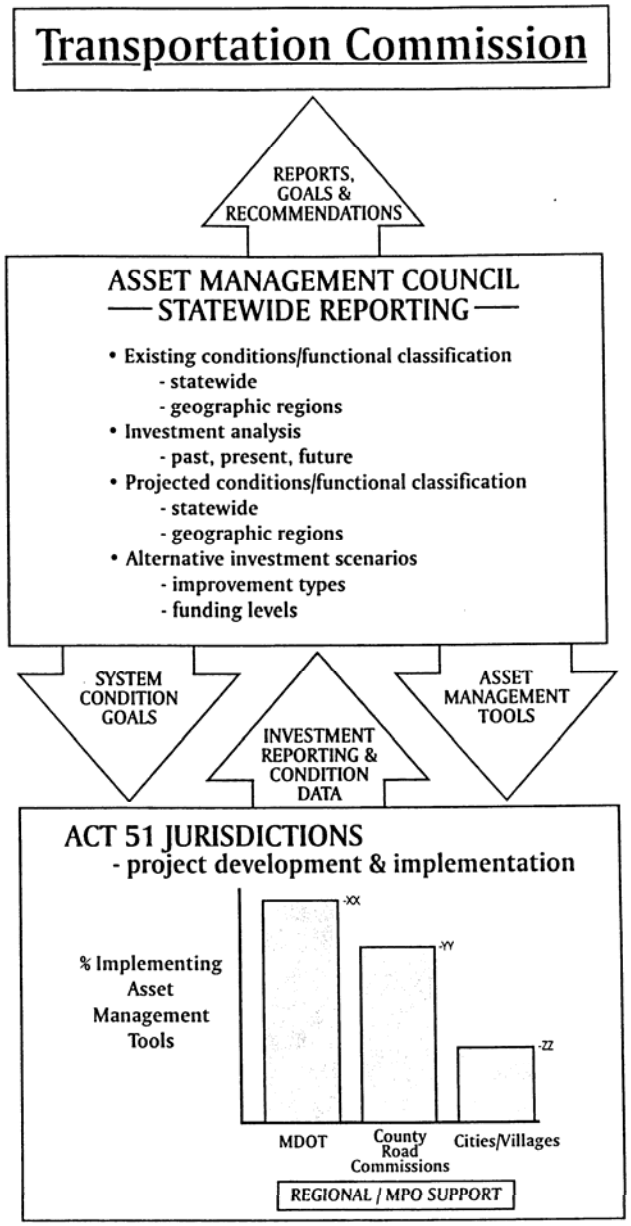
Michigan Road Network Statistics Within The System

- MGF miles by Road Ownership
  - Trunkline – 13,214 mi
  - County – 88,977 mi
  - City/village – 20,860 mi
  - Private – 13,427 mi (fastest growing segment)
- Intersections – every place where 3+ centerline approaches occur
  - Number of intersections – 307,949
- Intersection segment – centerline from one intersection to another (example: city block)
  - Number of intersection segments – 564,422

Transportation Asset Management Council

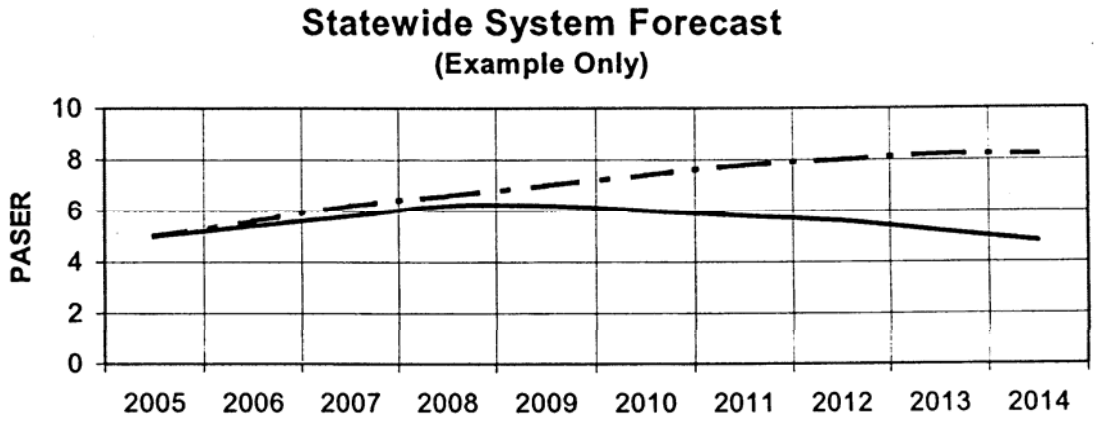
- Legislative authority
- Members by government agency level
  - Counties
  - Cities
  - Townships
  - Regions
  - State
  - Central data authority - CGI
- Multi-jurisdictional and system-wide approach to asset management

Overview of the Transportation Asset Management Council Process Flow



Statewide Strategy

Process Illustration



- Analyze current and forecasted conditions
- Report on potential trends based on alternative investment scenarios

Data Feeds to the Strategic Model

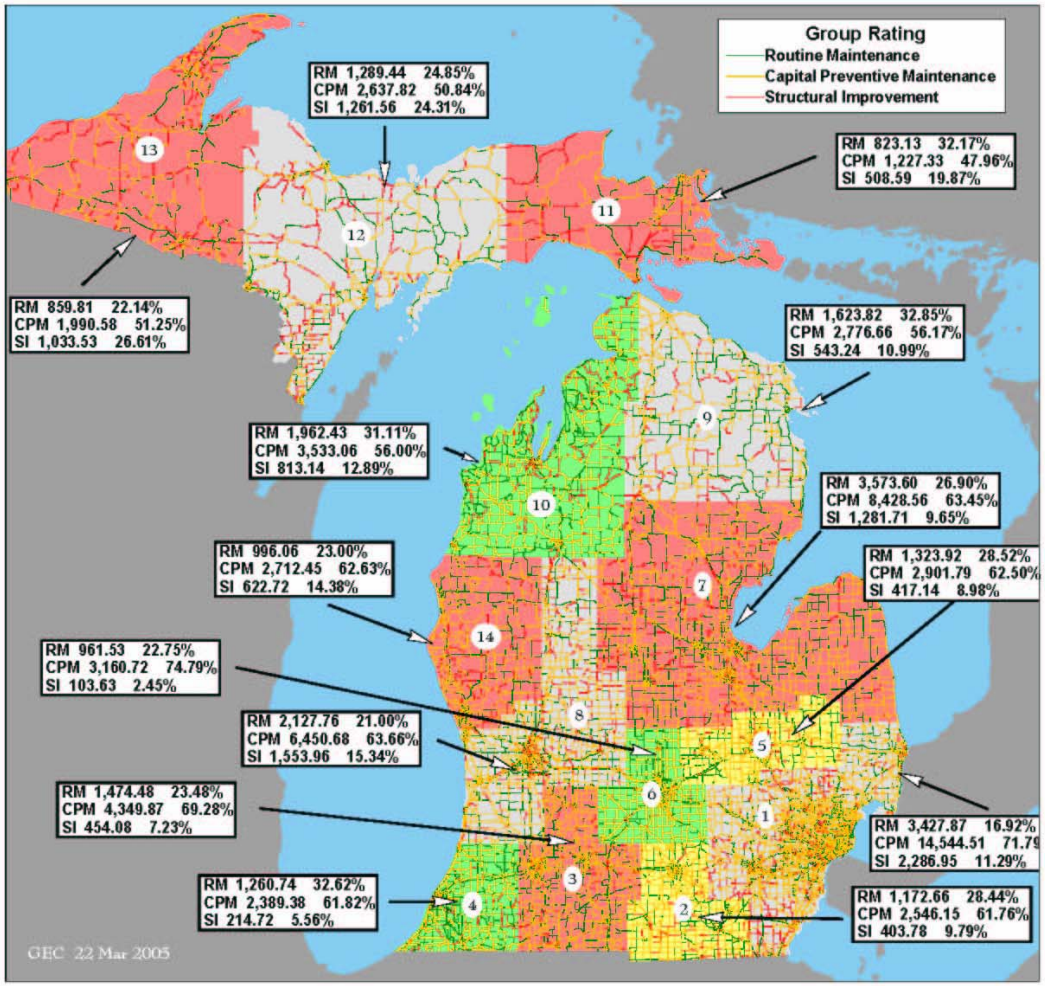
- Condition Data
  - PASER (1 – 10 scale)
- Investment Data
  - Current and Planned CPM and Structure Improvement
- Cost tables
  - By Region
  - By Treatment type

Condition Information - PASER



2004 Ratings

Lane Miles by Planning Regions



ROUTINE MAINTENANCE









Source: PASER Manuals, Transportation Information Center, University of Wisconsin-Madison

PREVENTIVE MAINTENANCE









Source: PASER Manuals, Transportation Information Center, University of Wisconsin-Madison

STRUCTURAL IMPROVEMENT









Source: PASER Manuals, Transportation Information Center, University of Wisconsin-Madison

Current/Planned Treatments and Investments

- The model needs:
  - Completed work
    - Cost of treatment
    - Treatment type
    - Location (from beginning point to end point)
  - Planned work (up to 3 years)
    - Cost of planned treatment
    - Treatment type
    - Location (if identified)

Official Treatment Lists Identified

- Routine maintenance (12)
  - Snow and ice removal
  - Mowing roadside, etc……..
- Capital preventive maintenance (27)
  - Micro-surfacing
  - Pavement crack sealing, etc……
- Structural improvement (8)
  - Reconstruction
  - Rehabilitation, etc……

Historically-
Lack of Investment Information

- Treatments were not standardized across the state
- Little, if any, location information was collected
- Financials were not specific to treatments

Rationale for an Internet Application Approach

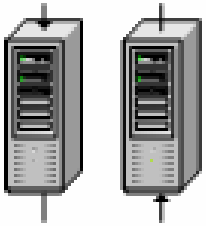
- Will provide a baseline product for gathering all required data elements
- Easy to use
- Minimal support needed
- Coordinate data flows
- Low-cost
- Met goal of TAMC providing AM tools coupled with standardized reporting requirements
- Can be used by client for daily activities

Internet Application Components

- Security module
- Treatment input
- Map navigation
  - Statewide map, aerial imagery, mapped PASER data, etc.
- Reporting and mapping
- Data import and export

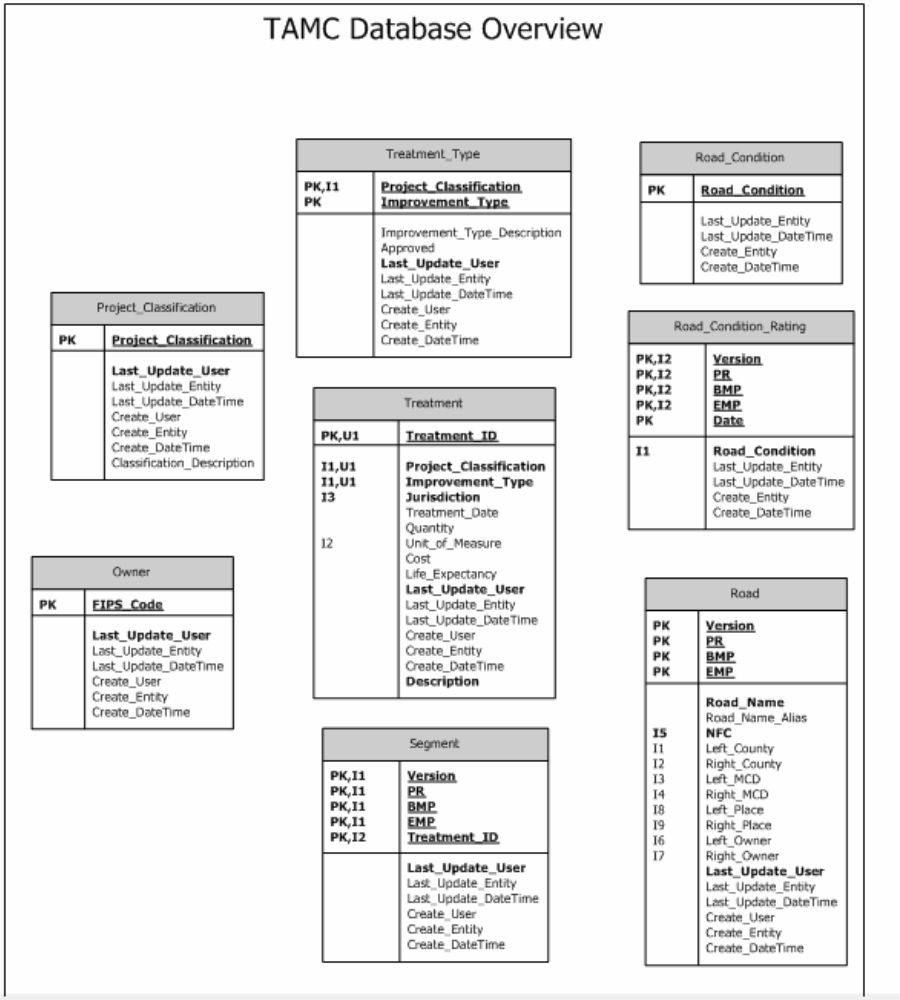
Central Application and Database Clustered Servers

Http://www.mcgi.state.mi.us/tamc

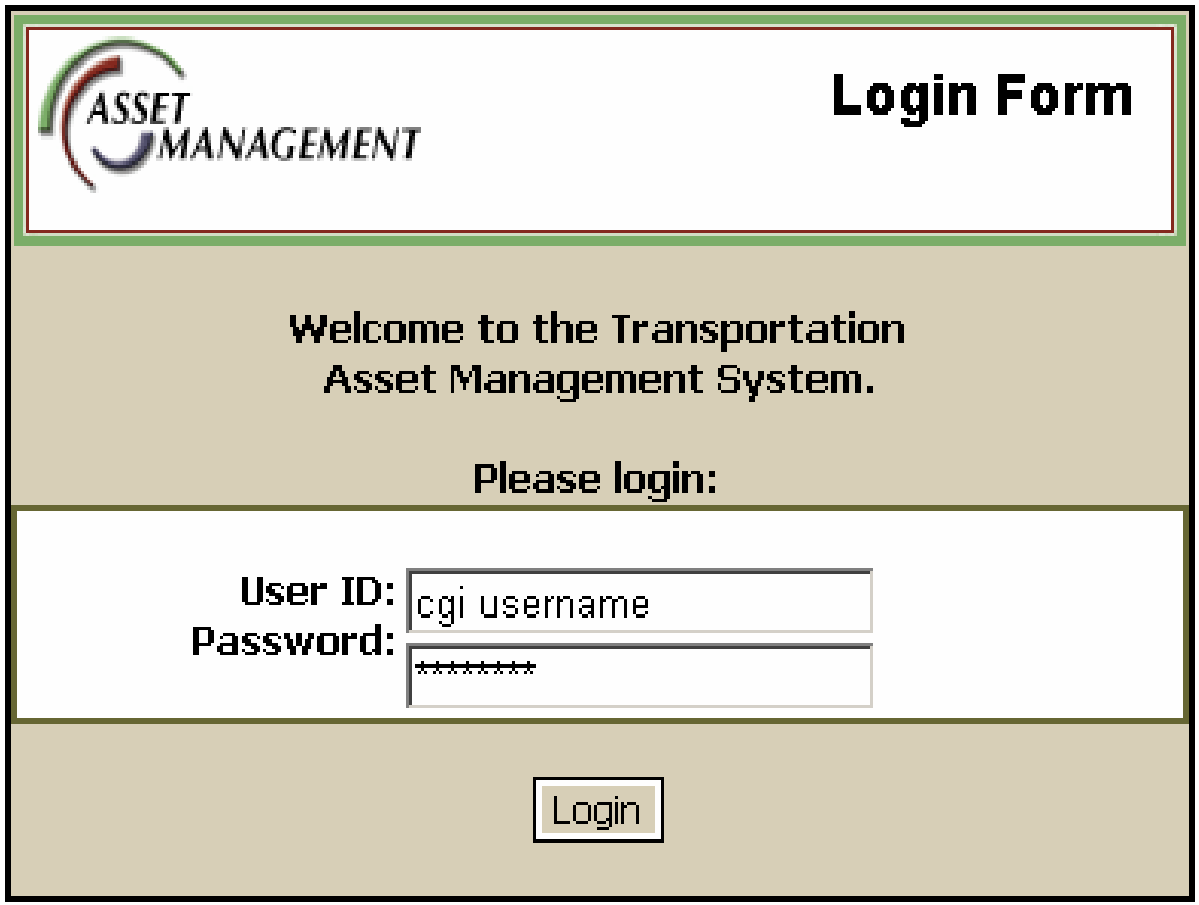


Clustered Servers

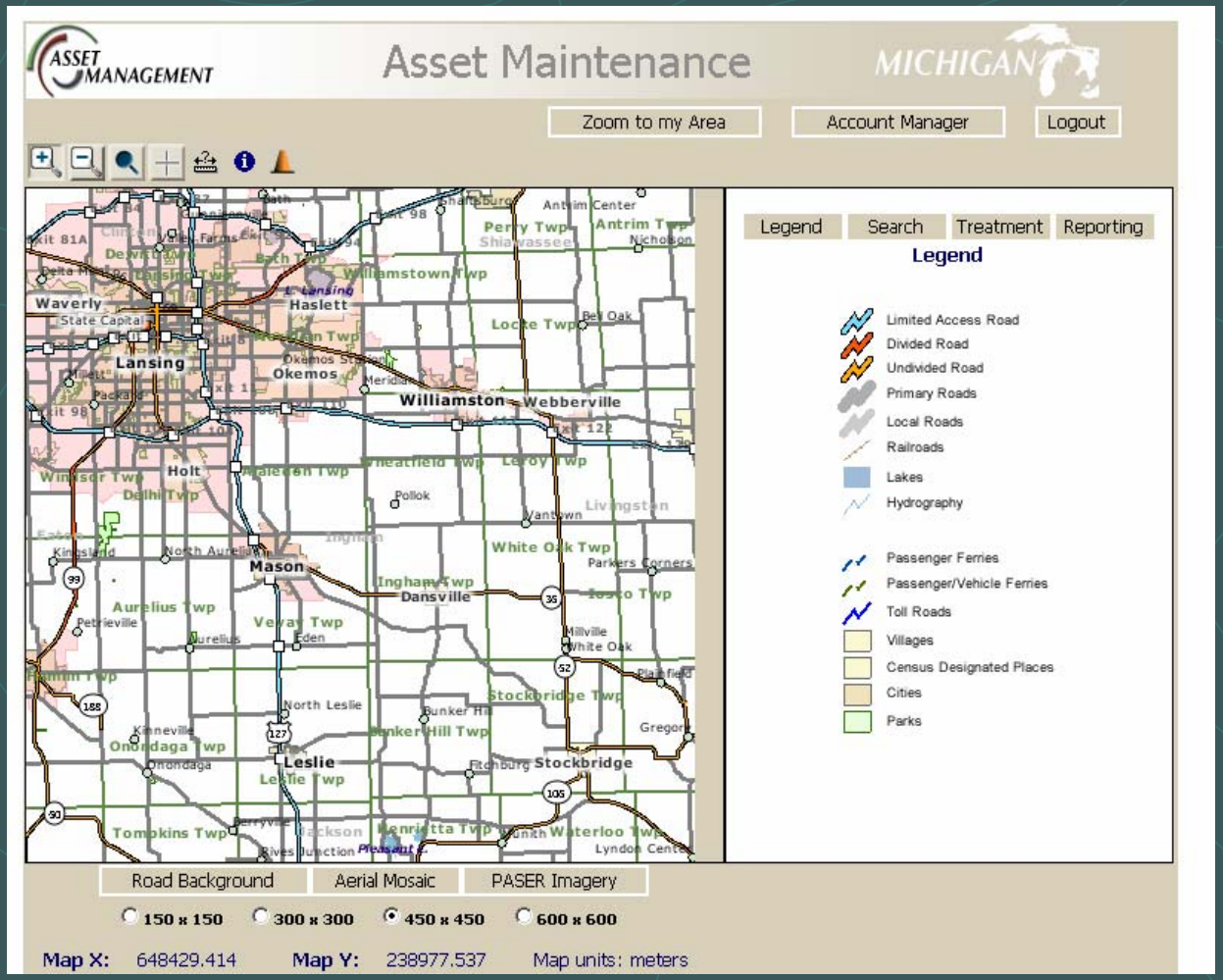
Servers are housed by MCGI. Asset Treatment db, RoadSoft db and web interface are all installed on TAMC clustered servers



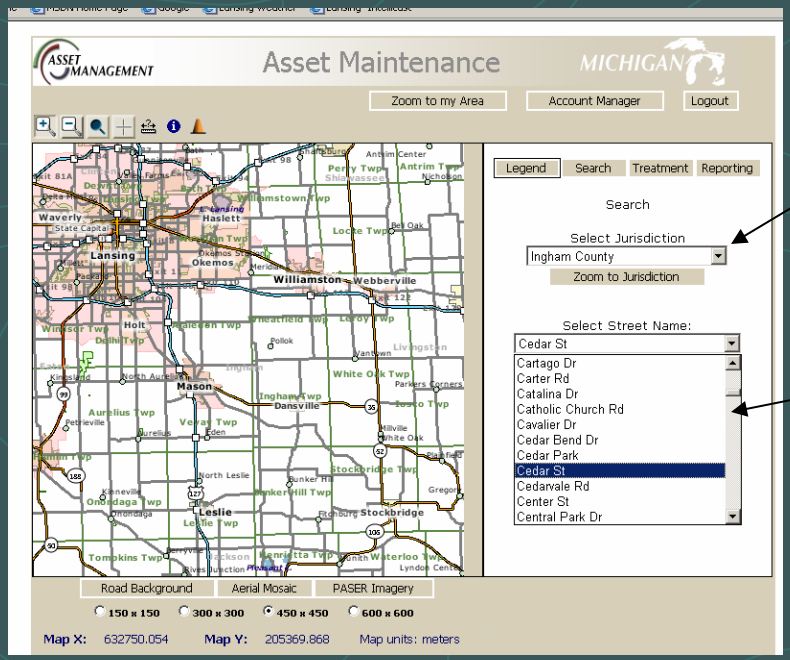
Login Page


ASSET MANAGEMENT
Login Form
Welcome to the Transportation Asset Management System.
Please login:
User ID:
cgi username
Password:
****
Login

Landing Page



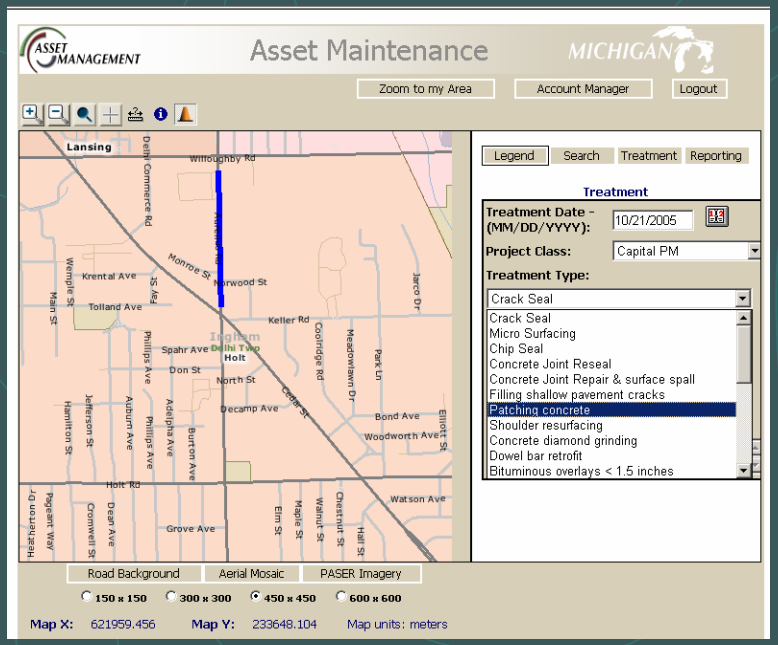
Street Search

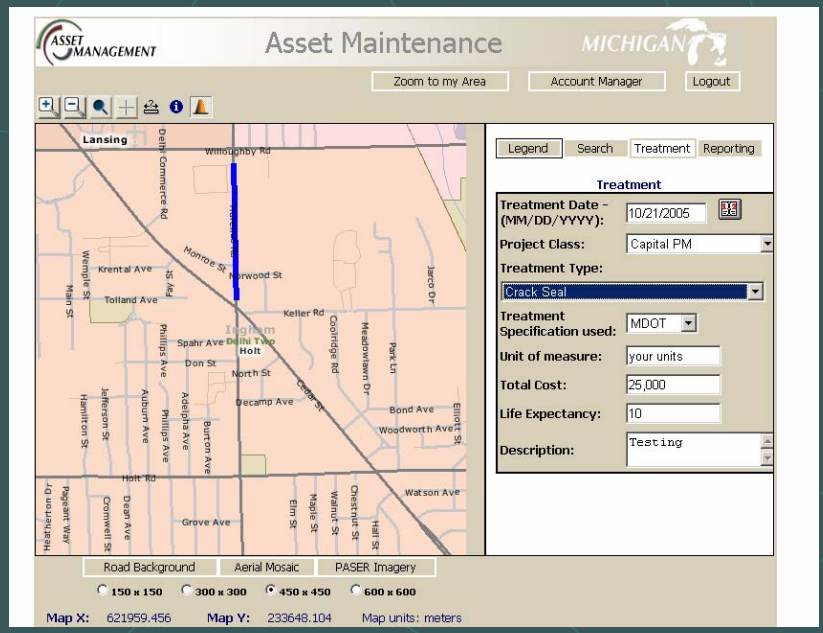


Only authorized jurisdictions are listed to choose from

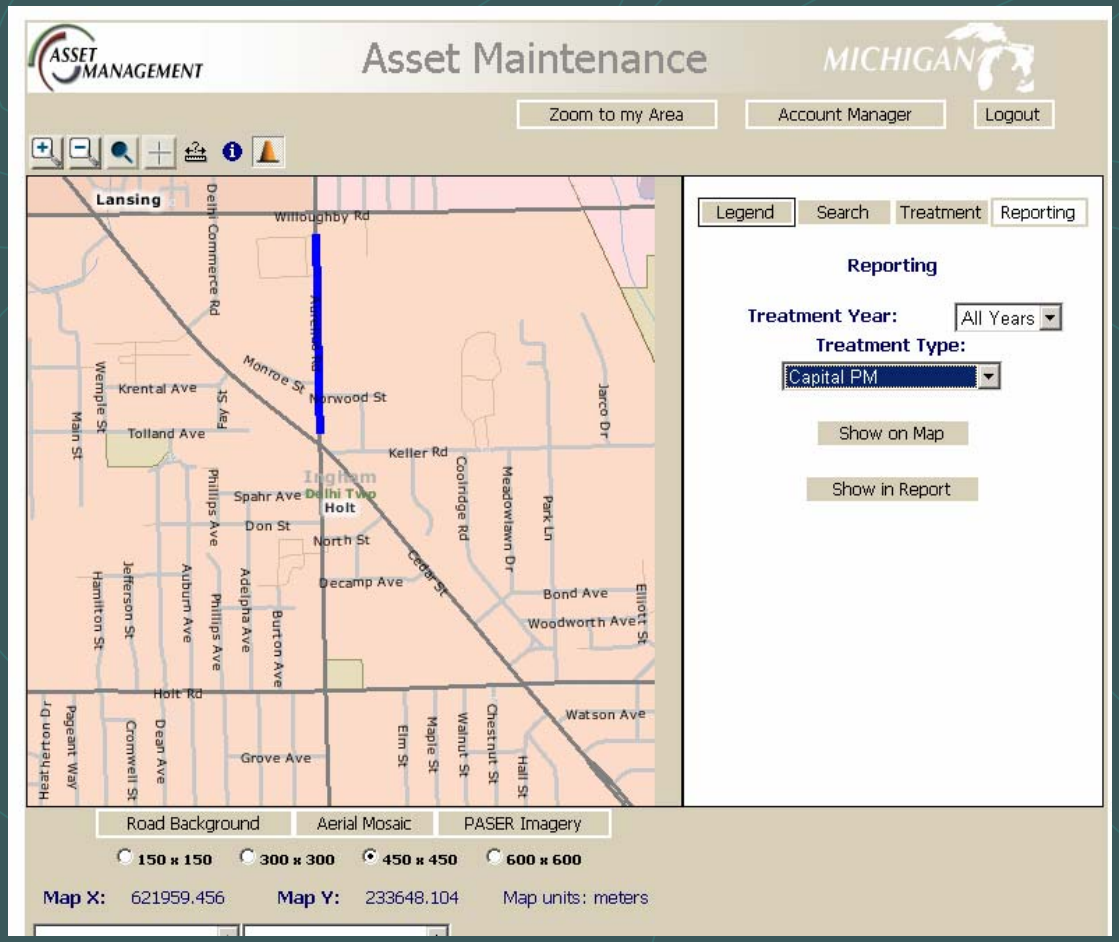
Only streets in this jurisdiction are listed to choose from

Add a Treatment/Investment

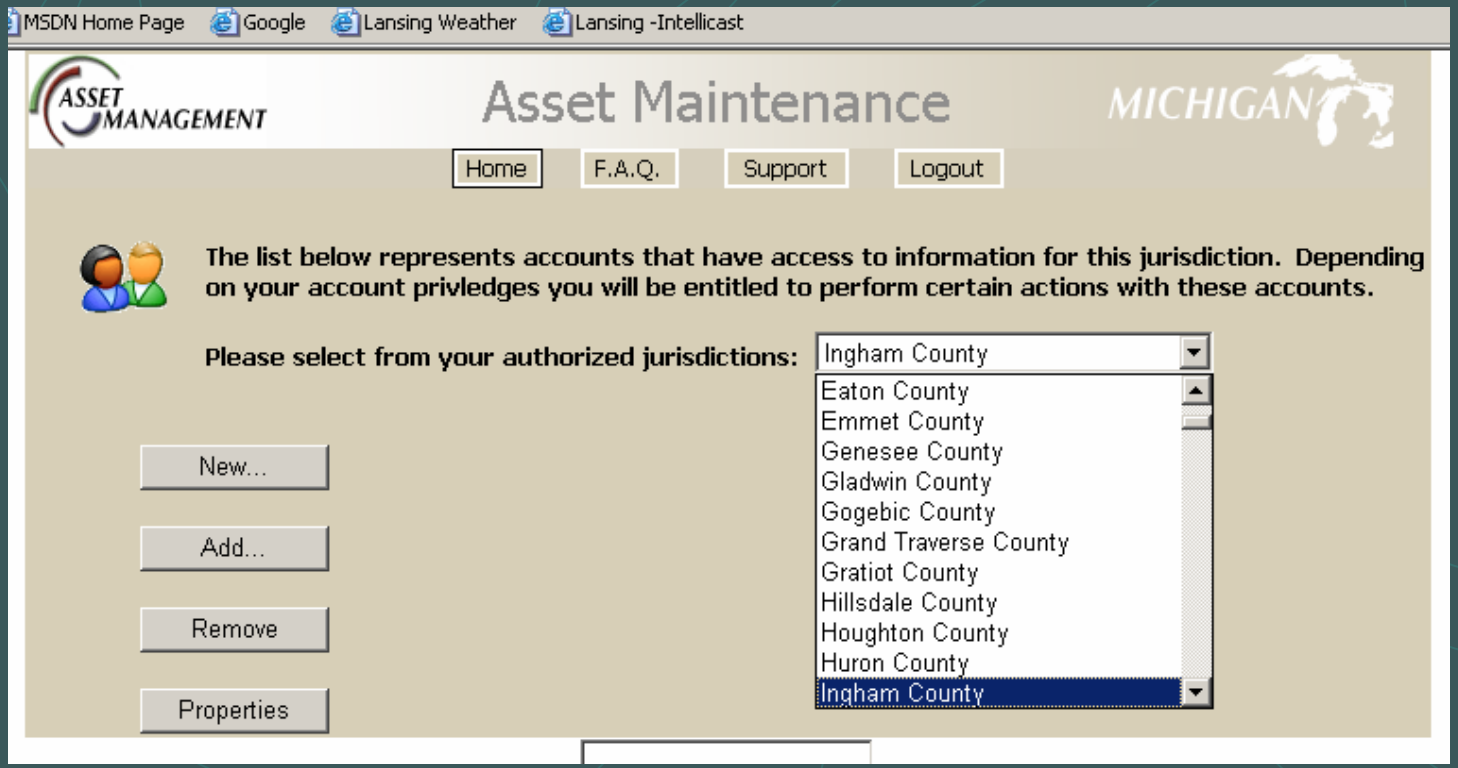




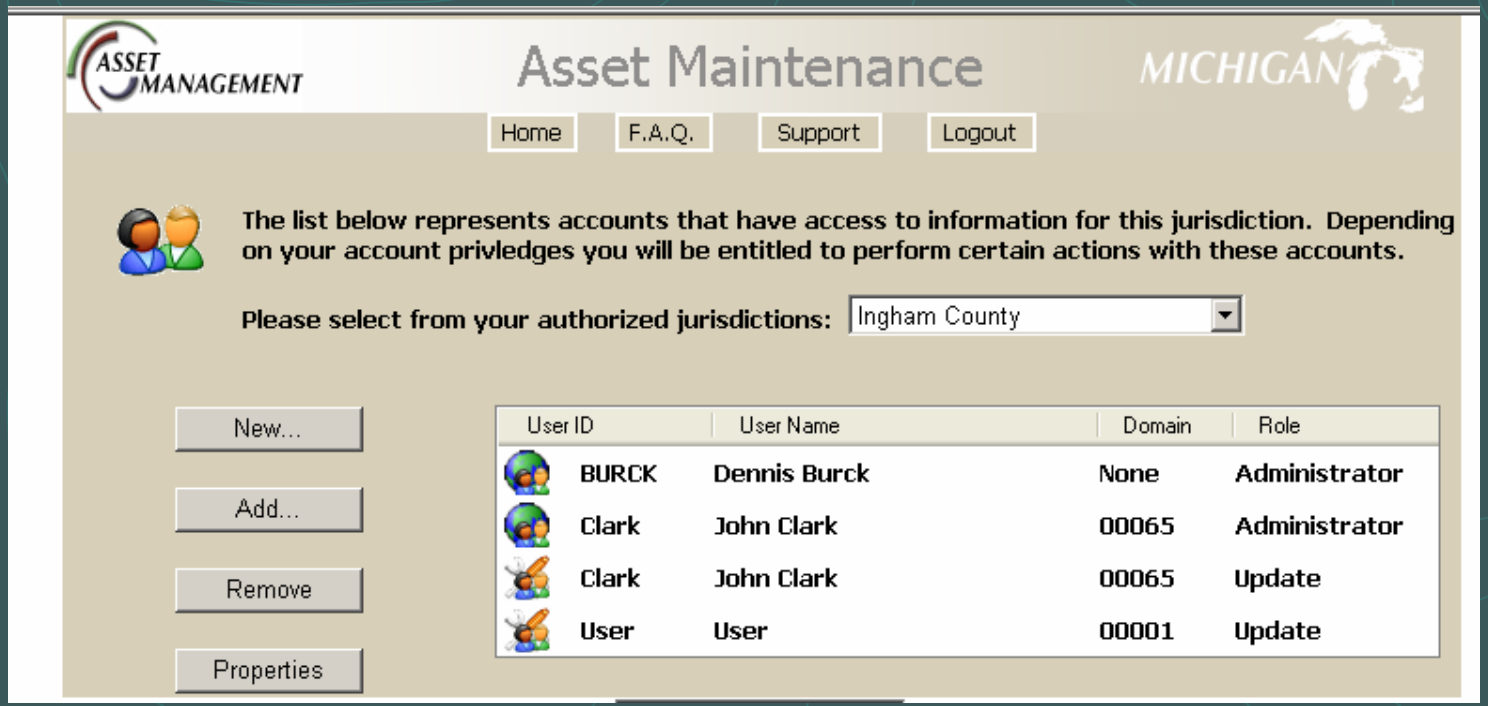
Reporting


ASSET MANAGEMENT
Asset Maintenance
MICHIGAN
Zoom to my Area
Account Manager
Logout
Legend
Search
Treatment
Reporting
Reporting
Treatment Year:
All Years
Treatment Type:
Capital PM
Show on Map
Show in Report
Lansing
Willoughby Rd
Delhi Commerce Rd
Monroe St
Norwood St
Krental Ave
Tolland Ave
Wemple St
Main St
Jarco Dr
Keller Rd
Coolridge Rd
Meadowlawn Dr
Park Ln
Ingham
Spahr Ave
Delhi Twp
Holt
Phillips Ave
Don St
North St
Cedar St
Decamp Ave
Bond Ave
Woodworth Ave
Elliott St
Hamilton St
Jefferson St
Auburn Ave
Adelpha Ave
Burton Ave
Holt Rd
Watson Ave
Heatherton Dr
Pageant Way
Cromwell St
Dean Ave
Grove Ave
Elm St
Maple St
Walnut St
Chestnut St
Hall St
Road Background
Aerial Mosaic
PASER Imagery
150 x 150
300 x 300
450 x 450
600 x 600
Map X:
621959.456
Map Y:
233648.104
Map units: meters

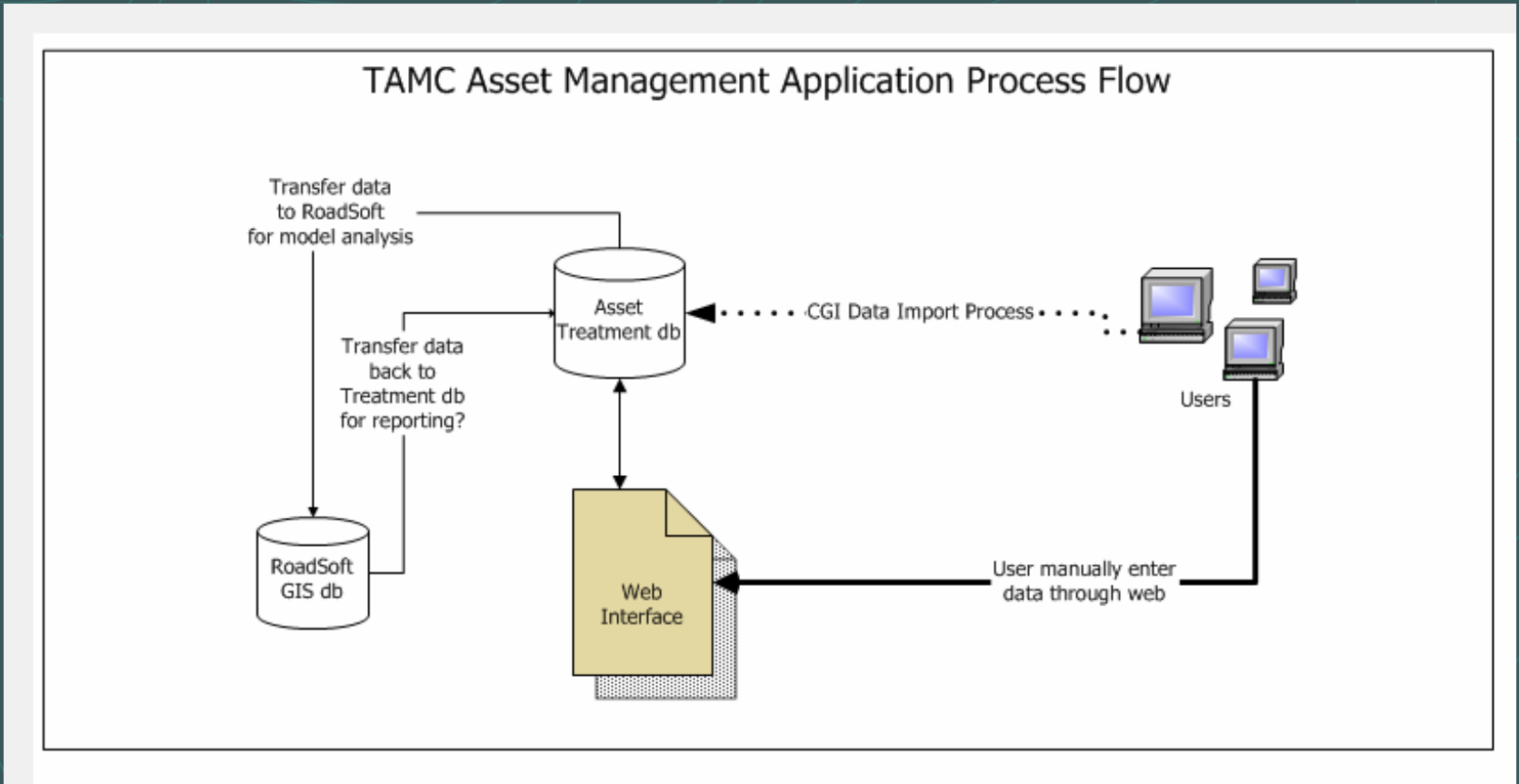
Account Management



User List Management at Client Site



Application Process Flow



Lessons Learned

- Developing an application for a new process provides extra challenges
- Technology is usually not the obstacle
- If possible, pick the strategic model before identifying the data collection tools
- Provide incentives for data collection if data entry is not legally mandated
- Continual education and promotion of AM is a must
- Having a seamless statewide LRS is a must

Next Steps

- Beta testing complete
- Roll-out by January 1
- Promotion
- Training sessions
- Reporting to council -- spring 2006
- Information ready for final reports -- summer 2006
- Additional capability requirements gathering sessions - 2006

Questions/comments??

Rob Surber, Deputy Director
MI Center for Geographic Information / MDIT
111 S Capitol Ave
Lansing, MI 48913
517-373-7910
Surberr@michigan.gov