

# Roadsoft & GIS

## Panel Discussion

### Panel:

Luke Peterson – Roadsoft

Rick Sprague - Kent County Road Commission

Keith Depp - City of Rochester Hills

Erik Dziurka - Bay County Road Commission

Marcus McNamara - OHM Advisors

# Topics

- GIS to Roadsoft - Adding External Layers
  - Digital orthos, Shapefiles
  - Managing external layers
- Roadsoft to GIS - Exporting Shapefiles
  - Full layer
  - Partial layer based on Selection

# **GIS to Roadsoft**

## **External Layers**

# Adding Map Layers

The screenshot displays the Roadsoft software interface. On the left, the 'Map Layers' panel is visible, categorized into Point Layers, Line Layers, Polygon Layers, and Other Layers. The 'Line Layers' section has 'Road' selected. In the center, a map shows a street grid with labels like 'County Road 372', '56th Ave', and 'Red Arrow Hwy'. An 'Add Map Layer' dialog box is open over the map, with 'Built-In Layers' selected. The dialog lists several layers, with 'County Layer' highlighted. A red circle highlights the 'Add Map Layer' button in the top-left corner of the software window and the 'Add Map Layer' dialog box title bar.

**Map Layers Panel:**

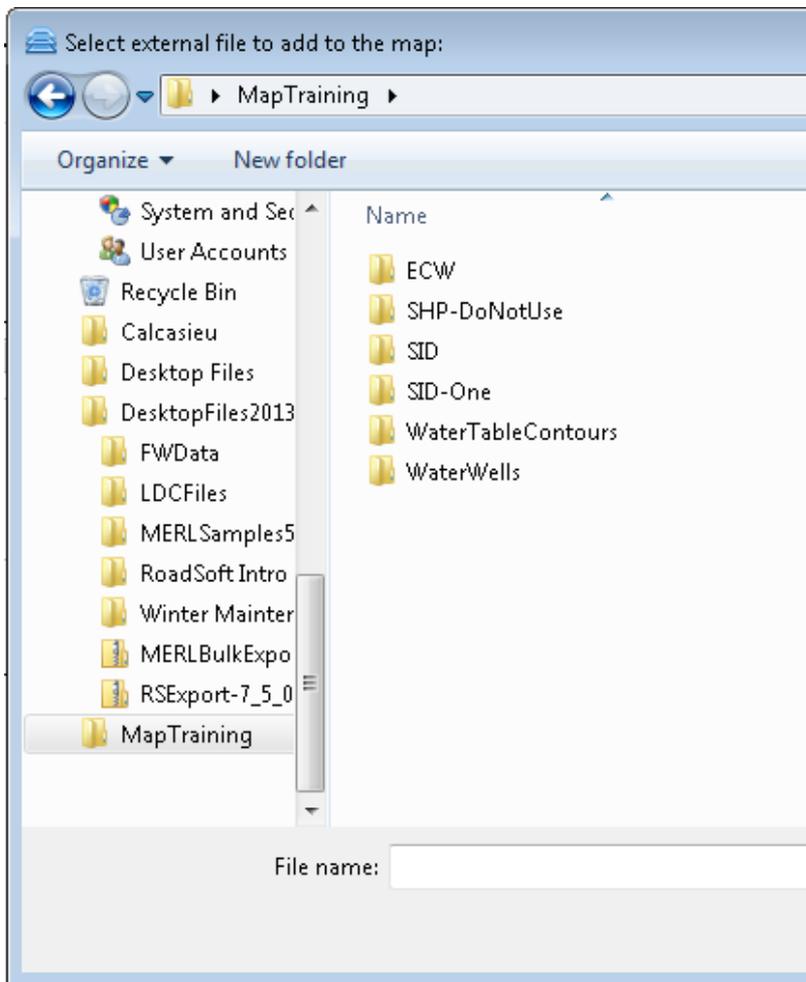
- Point Layers:** Bridge, Crash, Culvert, Intersection, Point Pavement Marking, Sign, Traffic Count, Traffic Signal.
- Line Layers:** Driveway, Guardrail, Linear Pavement Marking, **Road**, Sidewalk, URCI Sample.
- Polygon Layers:** City, Township.
- Other Layers:**

**Add Map Layer Dialog:**

- Buttons: Built-In Layers, External Layer, Photolog Layers.
- Text: Select Layer(s) to add to the map:
- List:
  - County Layer
  - Hydrography Layer
  - Hydrography Polygon Layer
  - Miscellaneous Layer
  - Non-Framework Roads
  - Railroad Layer
  - River Layer
  - School District Layer
- Buttons: Cancel, OK.

Note: Many external layers can be re-projected (if necessary) when added to the Roadsoft map, but .ecw files MUST match the Roadsoft map projection.

# Common Formats



## Common Formats (\*.SHP;\*.ECW;\*.SID)

All Supported File Types (\*.DXF;\*.BT;\*.BMP;\*.TOC;\*.RT1;\*.CSV;\*.DLG;\*.OF)

AutoCAD File Format (\*.DXF)

Binary Terrian Grid (\*.BT)

Bitmap (\*.BMP)

CADRG Format (\*.TOC)

Census 2000 TIGER/Line (\*.RT1)

Comma Seperated Values (\*.CSV)

Digial Line Graphs (\*.DLG;\*.OPT)

Digital Elevation Model (ASCII GRID or SPOT) (\*.DEM)

Digital Terrain Elevation Data (\*.DT0;\*.DT1;\*.DT2)

Enhanced Compressed Wavelet (\*.ECW)

ERDAS IMAGINE (\*.IMG)

ESRI ArcInfo ASCII Grid (\*.GRD)

ESRI ArcInfo Binary Grid (\*.ADF)

ESRI ArcInfo Export Format (\*.E00)

ESRI ArcView Shapefile Format (\*.SHP)

Geographic Data Files (\*.GDF)

Geographic Markup Language (\*.GML;\*.XML)

Google Earth Keyhole Markup Language (\*.KML;\*.KMZ)

GPS Exchange Format (\*.GPX)

Graphic Interchange Format (\*.GIF)

JPEG (\*.JPG;\*.JPEG)

JPEG 2000 (\*.JP2;\*.J2K;\*.JPF;\*.JPX;\*.JPC)

Lizardtech MrSID (\*.SID)

MapInfo Interchange (\*.MIF;\*.MID)

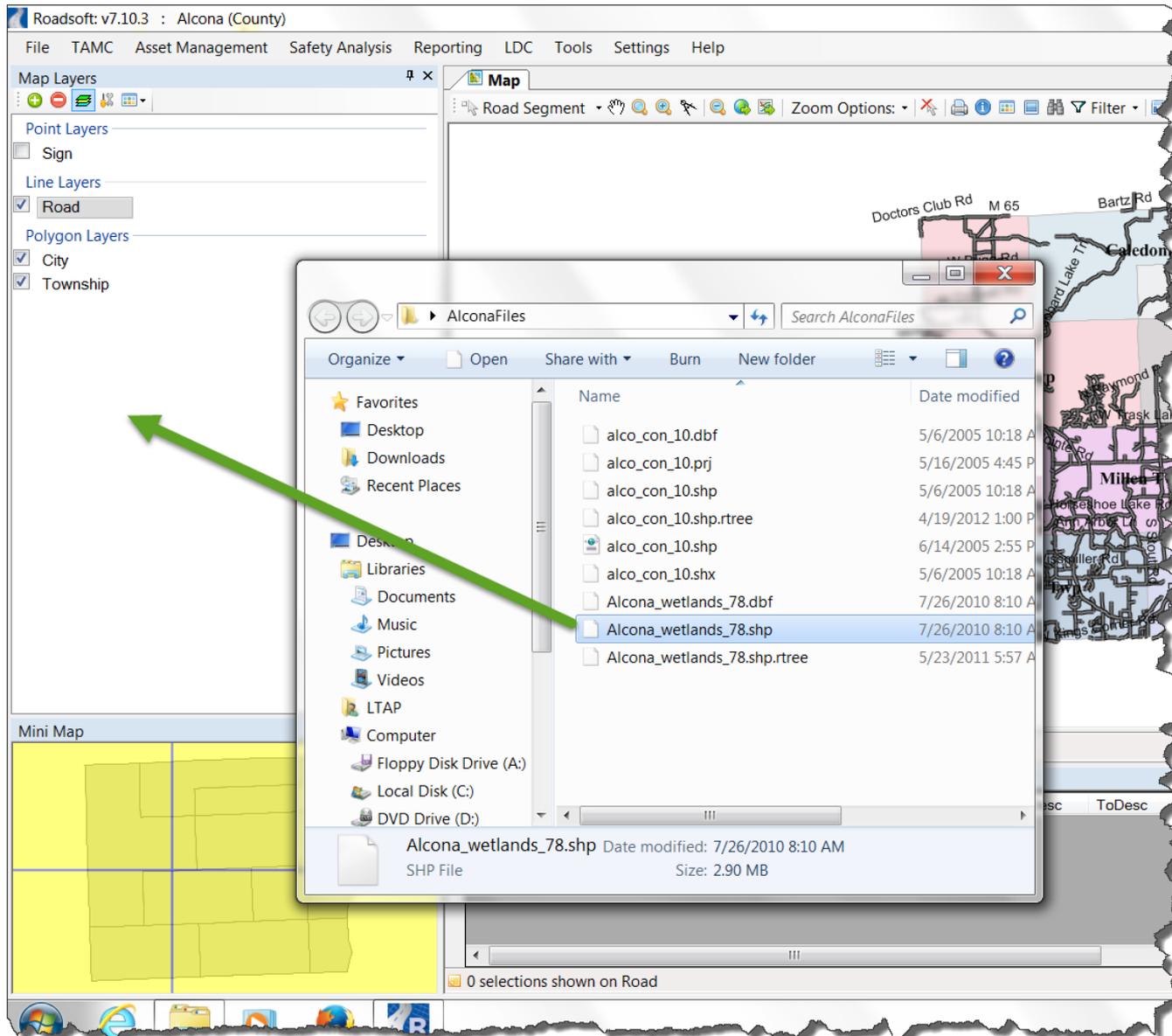
MapInfo Native Format (\*.TAB)

Microstation Native Format (\*.DGN)

PNG - Portable Network Graphic (\*.PNG)

SDTS Raster Profile and Extensions (\*.DDF)

# Drag and Drop



# Some Imagery Sources

- Michigan Geographic Data Library:  
<http://www.mcgi.state.mi.us/mgdl/>
- National Agriculture Imagery Program (NAIP)  
2009/2010 aerial imagery:
  - Contact Roadsoft

# Layer Properties

## Rendering, Labels, Legends

File TAMC Asset Management Safety Analysis Reporting LDC Tools Settings Help

Map Layers

- Point Layers
  - Sign
- Line Layers
  - Hydrography
  - Road
- Polygon Layers
  - Hydrography Polygon
  - alcona\_wetlands\_78
  - City
  - Township

alcona\_wetlands\_78 Layer Properties

Rendering Labels Legend

**Feature**

- Color: [Red]
- Pattern: BackwardDiagonal
- Transparency: 80

**Outline**

- Outline Color: [Red]

**Feature**

Layer Display Name: alcona\_wetlands\_78

Location: c:\users\ltap\Desktop\alconafiles\alcona\_wetlands\_78.shp

Apply

Mini Map

Active Layer: alcona\_wetlands\_78

Selection Information : alcona\_wetlands\_78

AREA	PERIMETER	CODE	LEVEL1	LEVEL2	LEVEL3	LABEL	ACRES	C
185865.375	2071.274	41466	4	41	414	Aspen	45.928	Al

# Layer Visibility Manager

**Map Layers**

**Point Layers**

- Bridge
- Crash
- Culvert
- Intersection
- Point Pavement Marking
- Sign
- Traffic Count
- Traffic Signal

**Line Layers**

- Driveway
- Guardrail
- Linear Pavement Marking
- Road
- Sidewalk
- URCI Sample

**Polygon Layers**

- City
- Township

**Other Layers**

- ortho\_1-1\_1n\_s\_mi159\_2009\_1

**Layer Visibility Manager**

- Point Layers
  - Bridge
  - Crash
  - Culvert
  - Intersection
  - Point Pavement Marking
  - Sign
  - Traffic Count
  - Traffic Signal
- Line Layers
  - Driveway
  - Guardrail
  - Linear Pavement Marking
  - Road
  - Sidewalk
  - URCI Sample
- Polygon Layers
  - City
  - Township
- Other Layers
  - ortho\_1-1\_1n\_s\_mi159\_2009\_1

Apply

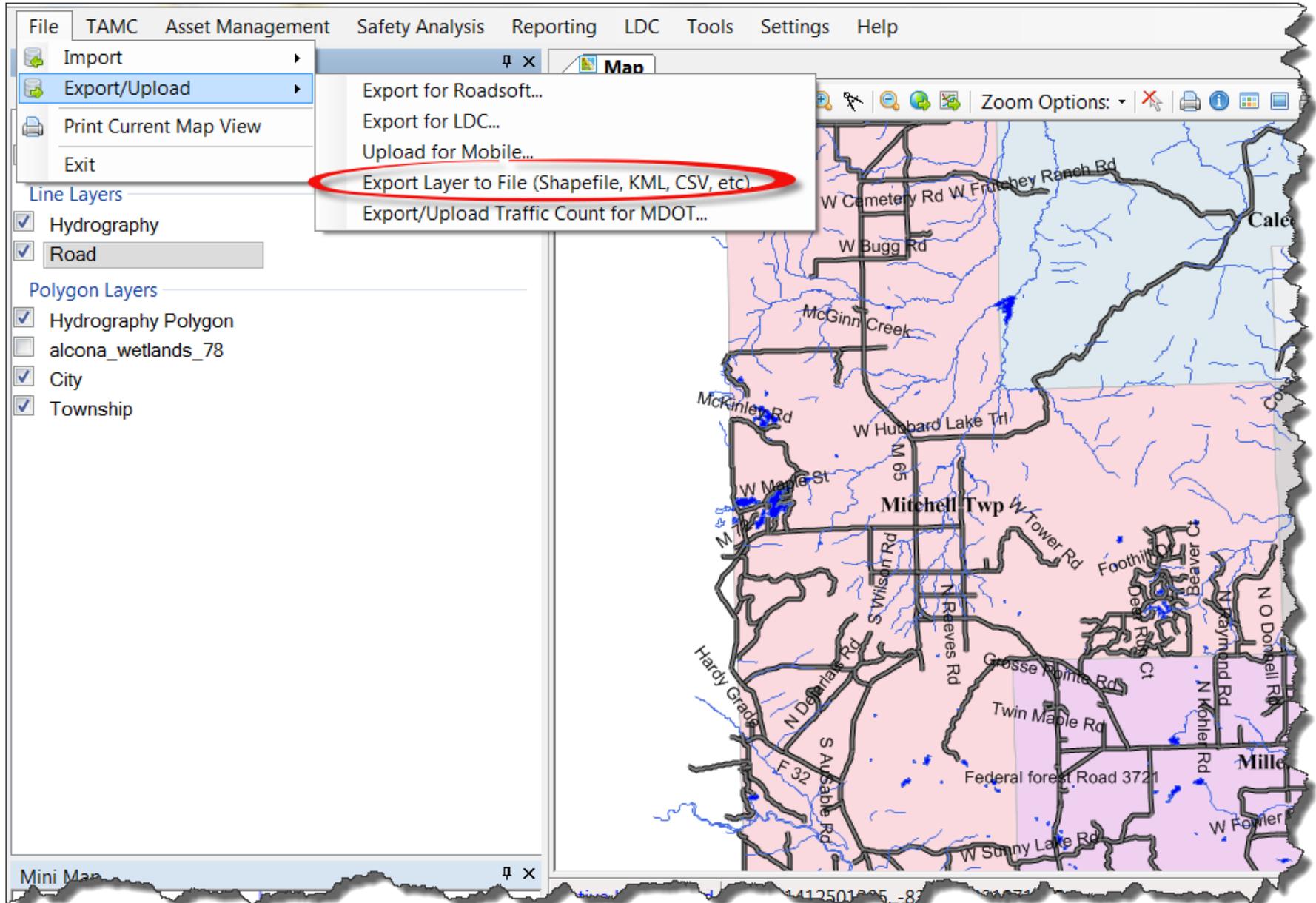
**Note:** This can be especially useful when working with external layers that are broken down into rectangular areas of the map. It will allow you to turn them all on/off at one time.

Active Layer: Road | 42° 13' 52.96" N, 86° 6' 18.68" W | Connected to [RS\_V

# **Roadsoft to GIS**

## **Exporting Shapefiles**

# Export Layer



# Export Layer Fields

Export Road To Shapefile

Find field...

Saved Filters  Use Current Filter  **Export Only Selected Items**

### Available Fields to Export

Field Name	Field Description
BaseCond	Condition Base
DrainCond	Condition Drainage
RideCond	Condition Ride
Confidence	Confidence
CtrlSect	Control Section
CtrlSecBmp	Control Section Beginning Milepoint
CtrlSecEmp	Control Section Ending Milepoint
CountyL	County Left
CountyR	County Right
CrbConfigL	Curb and Gutter Configuration Left
CrbConfigR	Curb and Gutter Configuration Right
CrbRatingL	Curb and Gutter Rating Left
CrbRatingR	Curb and Gutter Rating Right
CrbRtgYrL	Curb and Gutter Rating Year Left
CrbRtgYrR	Curb and Gutter Rating Year Right
CrbTypeL	Curb and Gutter Type Left
CrbTypeR	Curb and Gutter Type Right
CrbBuiltL	Curb and Gutter Year Built Left
CrbBuiltR	Curb and Gutter Year Built Right
CrbRevealL	Curb Reveal Left
CrbRevealR	Curb Reveal Right
FCC	FCC
LegalCode	Legal Code
LegalSys	Legal System
LengthFeet	Length in Feet
LengthMile	Length in Miles

Add

Remove

### Fields to Export

Field Name	Field Description
AA DT	AA DT
AA DT_Year	AA DT Year
Activity	Activity
ActivityDate	Activity Date
ADT	ADT
ADT_Date	ADT Date
Commercial	Commercial
FromDesc	Description From
ToDesc	Description To

Sort Field

Export Type: Shapefile - ESRI Shapefile

Export Path: C:\Users\LTAP\Desktop

File Name: Road

Selected Features: 57

# Shapefile Export

*A popular geospatial vector data format for geographic information system software.*

- Can export an entire layer or a selection on a layer
- Exports using Roadsoft's Map Projection: Michigan GeoRef (in Michigan)
- Is called a shapefile, but is actually a set of at least 4 files:
  - ✓ .shp = shape format
  - ✓ .shx = shape index format
  - ✓ .dbf = attribute format
  - ✓ .prj = projection format
  - ✓ Optionally: many other pieces

# **Creative Solutions**

**Exporting Shapefiles**

**&**

**Adding them as External Layers**

# Using Roadsoft Shapefiles as External layers in Roadsoft?

**Roadsoft Manual**

- ▼ Roadsoft
  - ▶ Getting Started
  - ▶ Manage Databases
  - ▶ Navigate the Map & Select Assets
  - ▶ Customize the Interface
  - ▶ Roads
    - ▶ Bridge
    - ▶ Crash Data
    - ▶ Culverts
    - ▶ Driveways
    - ▶ Guardrails
    - ▶ Intersection
    - ▶ Linear Pavement Marking
    - ▶ Point Pavement Marking
    - ▶ Signs
    - ▶ Work Orders
  - ▶ Roadsoft Mobile
  - ▶ Traffic Count
  - ▶ Traffic Signal
  - ▼ Advanced Features
    - Add, Open & Delete Document Attachments
    - Manage Document Attachments
    - Create Snow Plow Routes
    - **Video Tutorial: Create Snow Plow Routes**
    - Import a Photolog
    - Merge Road Data - Import Without Overwrite
  - ▶ Laptop Data Collector (LDC)

**Video Tutorial: Create Snow Plow Routes**

The screenshot displays the Roadsoft software interface. The main window shows a map of a road network with various colored overlays (purple, yellow, green, blue) representing different road segments or features. The sidebar on the left contains a menu with various options, including 'Video Tutorial: Create Snow Plow Routes' which is highlighted. The bottom of the screen shows a video player interface with a progress bar and a play button.

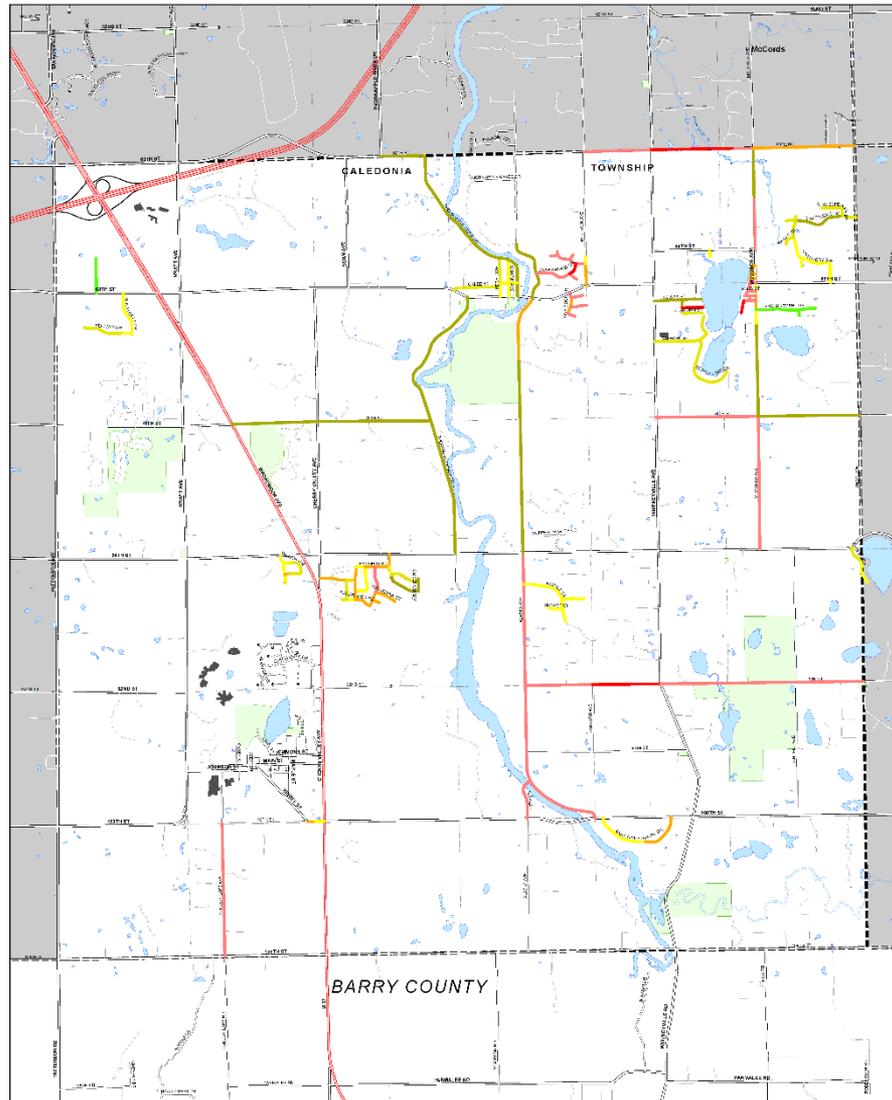
PRID	SegmentName	Bsp	Emp	Length	RoadName	FromDesc	ToDesc	SurfaceType	SurfaceSubType	CurRating	RDL	LastReed	LastRating/Validation	Lanes
0 selections shown on Road														

# **Samples**

# **Kent County Road Commission**

**Rick Sprague**

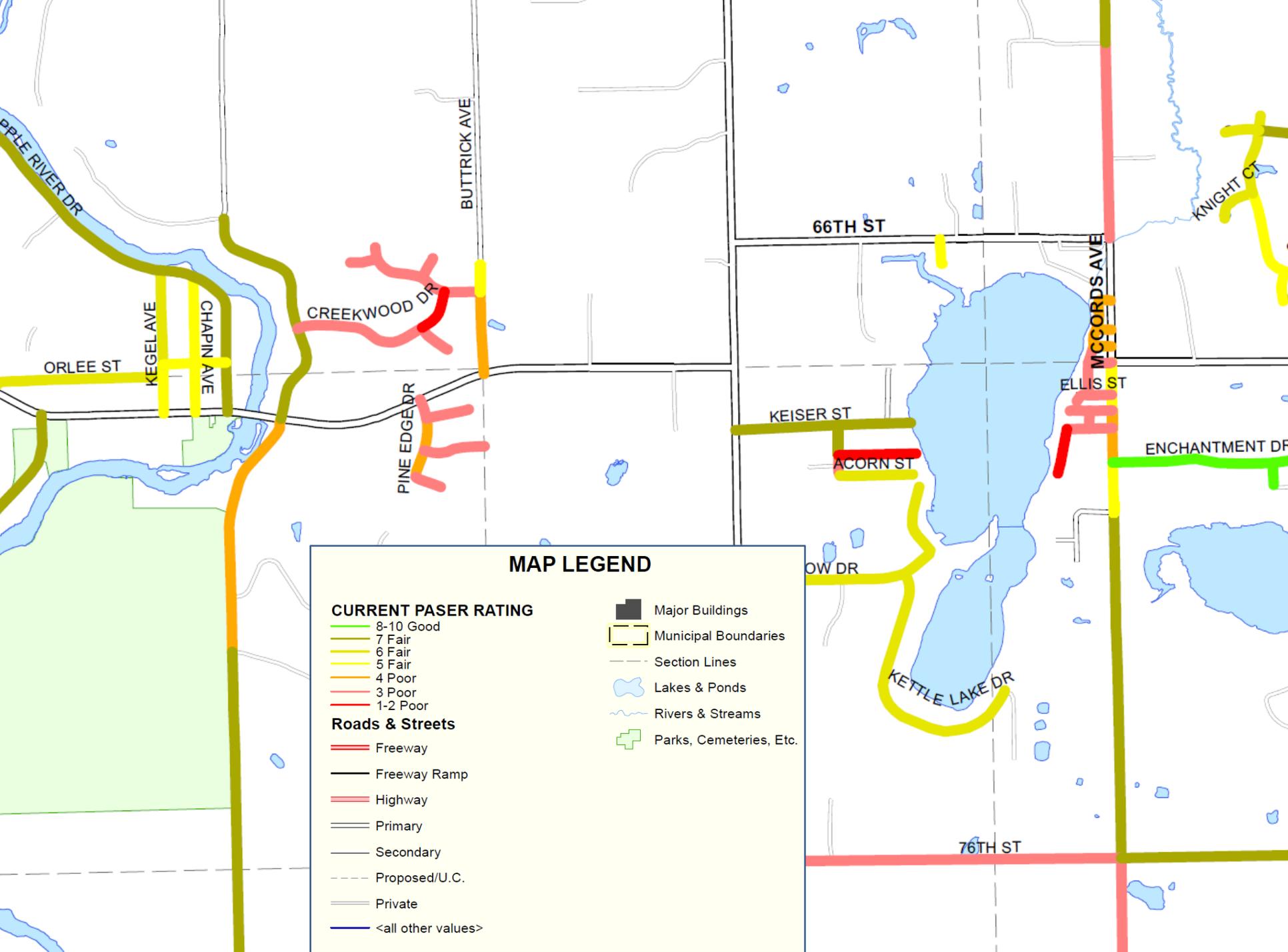
# Street Map with Ratings



MAP LEGEND	
<b>CURRENT PAVEMENT RATING</b>	<b>WATER OVERLAP</b>
1 (Poor)	Water Overlap
2 (Fair)	Public Water
3 (Good)	Public Sewer
4 (Very Good)	Public Gas
5 (Excellent)	Public Electric
<b>ROADS &amp; STREETS</b>	<b>Other Utilities</b>
Major Roadway	Public Gas
Minor Roadway	Public Electric
Intersecting Roadway	
Utility	
Property	
Subsidence	
Proposed	
Other	
Water	
Water	

**STREET MAP OF  
CALEDONIA TOWNSHIP  
KENT COUNTY, MICHIGAN**

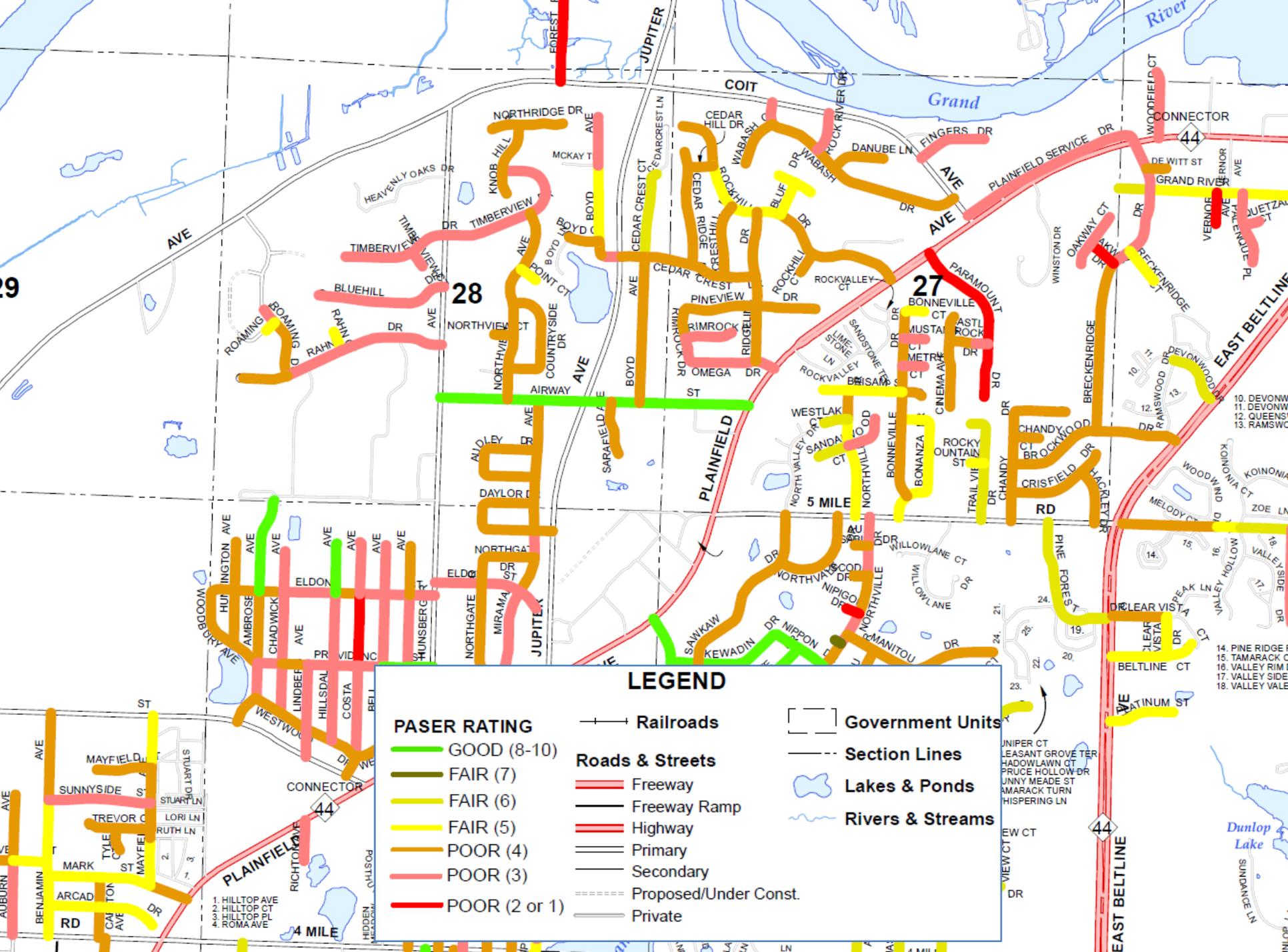
© 2014 REGIS. ALL RIGHTS RESERVED. THIS MAP IS PROVIDED AS-IS. REGIS MAKES NO WARRANTY, REPRESENTATION OR GUARANTEE OF ANY KIND, EXPRESS OR IMPLIED, REGARDING THE ACCURACY, COMPLETENESS, OR SUITABILITY OF THIS MAP FOR ANY PURPOSE. REGIS SHALL NOT BE LIABLE FOR ANY DAMAGES, INCLUDING CONSEQUENTIAL DAMAGES, ARISING FROM THE USE OF THIS MAP.



### MAP LEGEND

- |                             |                    |                         |
|-----------------------------|--------------------|-------------------------|
| <b>CURRENT PASER RATING</b> |                    | Major Buildings         |
|                             | 8-10 Good          | Municipal Boundaries    |
|                             | 7 Fair             | Section Lines           |
|                             | 6 Fair             | Lakes & Ponds           |
|                             | 5 Fair             | Rivers & Streams        |
|                             | 4 Poor             | Parks, Cemeteries, Etc. |
|                             | 3 Poor             |                         |
|                             | 1-2 Poor           |                         |
| <b>Roads &amp; Streets</b>  |                    |                         |
|                             | Freeway            |                         |
|                             | Freeway Ramp       |                         |
|                             | Highway            |                         |
|                             | Primary            |                         |
|                             | Secondary          |                         |
|                             | Proposed/U.C.      |                         |
|                             | Private            |                         |
|                             | <all other values> |                         |





28

27

5 MILE

4 MILE

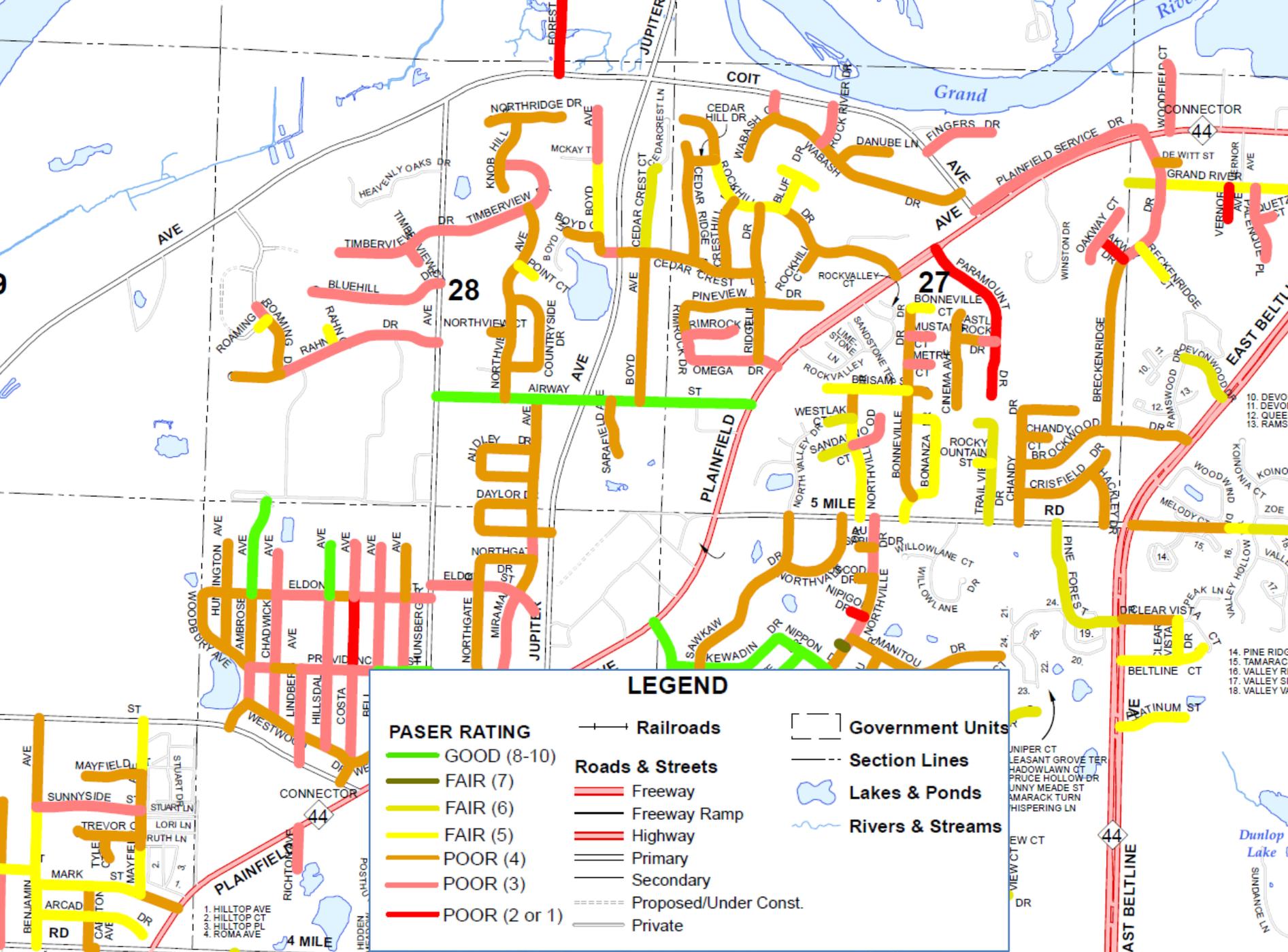
**LEGEND**

- PASER RATING**
- GOOD (8-10)
  - FAIR (7)
  - FAIR (6)
  - FAIR (5)
  - POOR (4)
  - POOR (3)
  - POOR (2 or 1)

- Roads & Streets**
- Freeway
  - Freeway Ramp
  - Primary
  - Secondary
  - - - Proposed/Under Const.
  - Private

- Government Units
- Section Lines
- Lakes & Ponds
- ~ Rivers & Streams

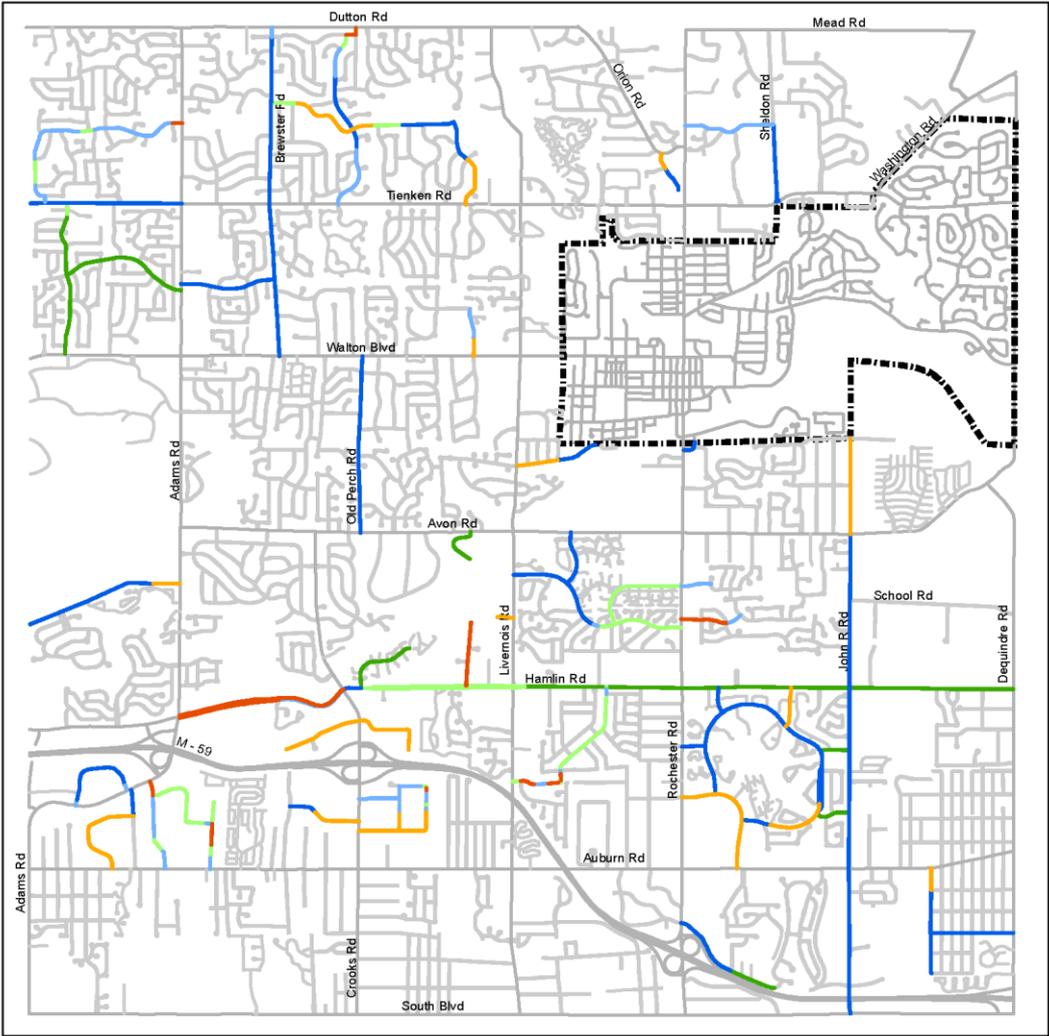
- Railroads**
- +— Railroads



# **City of Rochester Hills**

**Keith Depp**

# 2015 Major Road Conditions



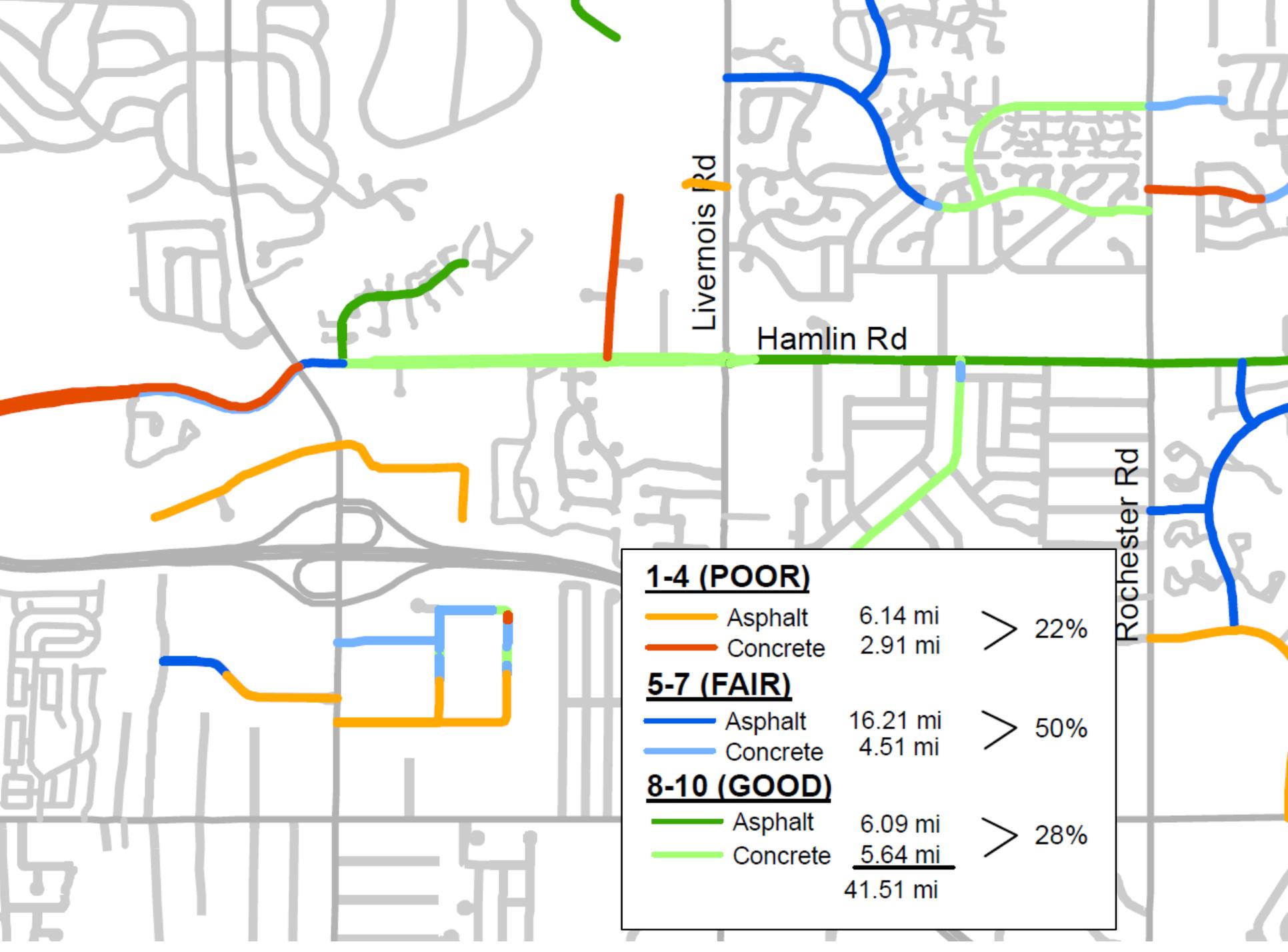
## 2015 MAJOR ROAD CONDITIONS (PUBLIC PAVED ROADS)

<b>1-4 (POOR)</b>			
Asphalt	6.14 mi	>	22%
Concrete	2.91 mi		
<b>5-7 (FAIR)</b>			
Asphalt	16.21 mi	>	50%
Concrete	4.51 mi		
<b>8-10 (GOOD)</b>			
Asphalt	6.09 mi	>	28%
Concrete	5.64 mi		
	41.51 mi		

— Others  
 City of Rochester



Note: ACT 51 mileage is 39.10 centerline miles. Roadsoft ACT 51 mileage includes both sides of Hamlin Rd boulevard and cross overs in total mileage.



**1-4 (POOR)**

Asphalt	6.14 mi	>	22%
Concrete	2.91 mi		

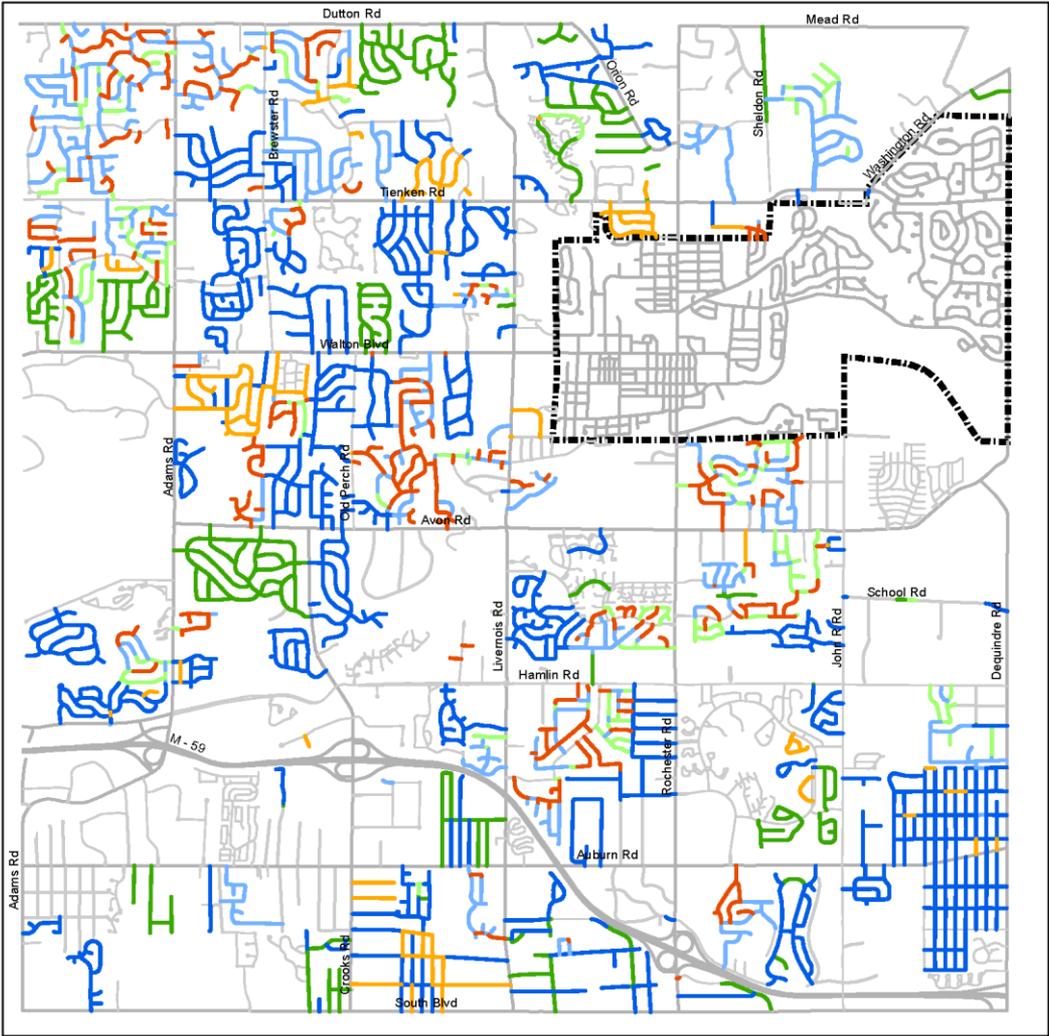
**5-7 (FAIR)**

Asphalt	16.21 mi	>	50%
Concrete	4.51 mi		

**8-10 (GOOD)**

Asphalt	6.09 mi	>	28%
Concrete	5.64 mi		
<b>41.51 mi</b>			

# 2015 Local Road Conditions



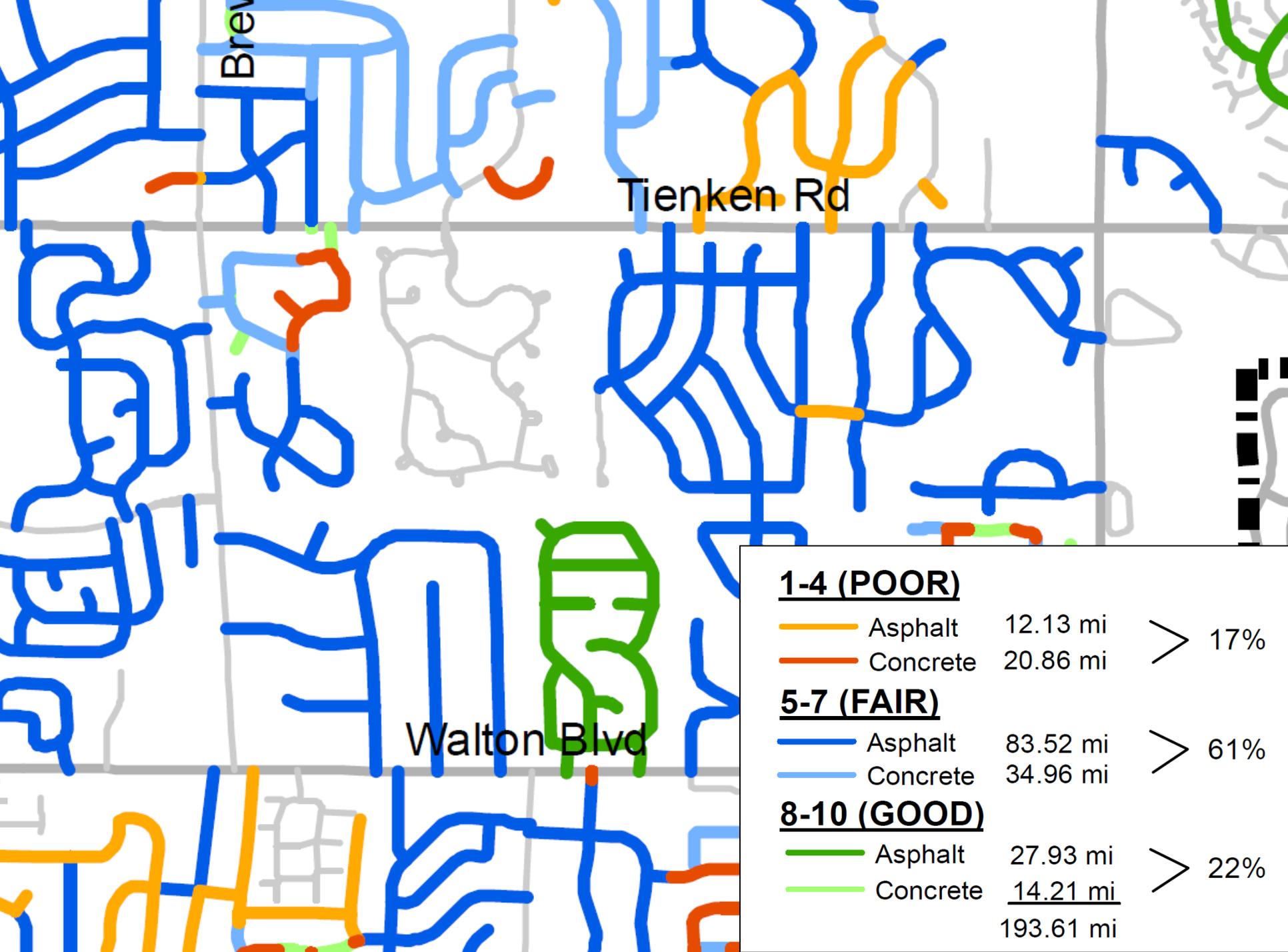
## 2015 LOCAL ROAD CONDITIONS (PUBLIC PAVED ROADS)

<b>1-4 (POOR)</b>			
	Asphalt	12.13 mi	> 17%
	Concrete	20.86 mi	
<b>5-7 (FAIR)</b>			
	Asphalt	83.52 mi	> 61%
	Concrete	34.96 mi	
<b>8-10 (GOOD)</b>			
	Asphalt	27.93 mi	> 22%
	Concrete	14.21 mi	
		193.61 mi	

— Others  
 City of Rochester



Notes:  
 1) Actual travel length (214.16 miles)  
 2) ACT 51 certified length (196.65 miles)  
 3) Roadsoft length (193.61 miles)



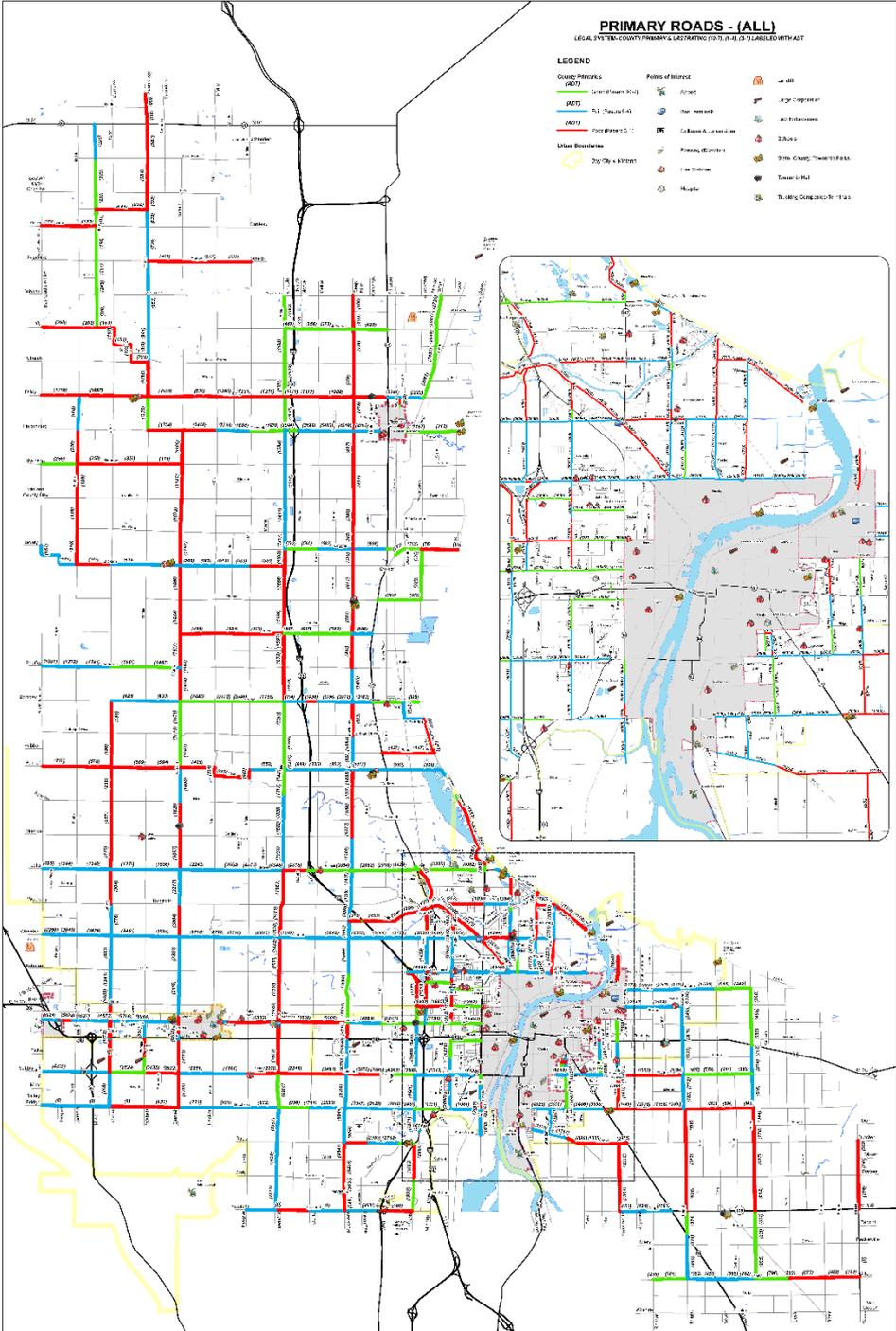
# **Bay County Road Commission**

**Erik Dziurka**

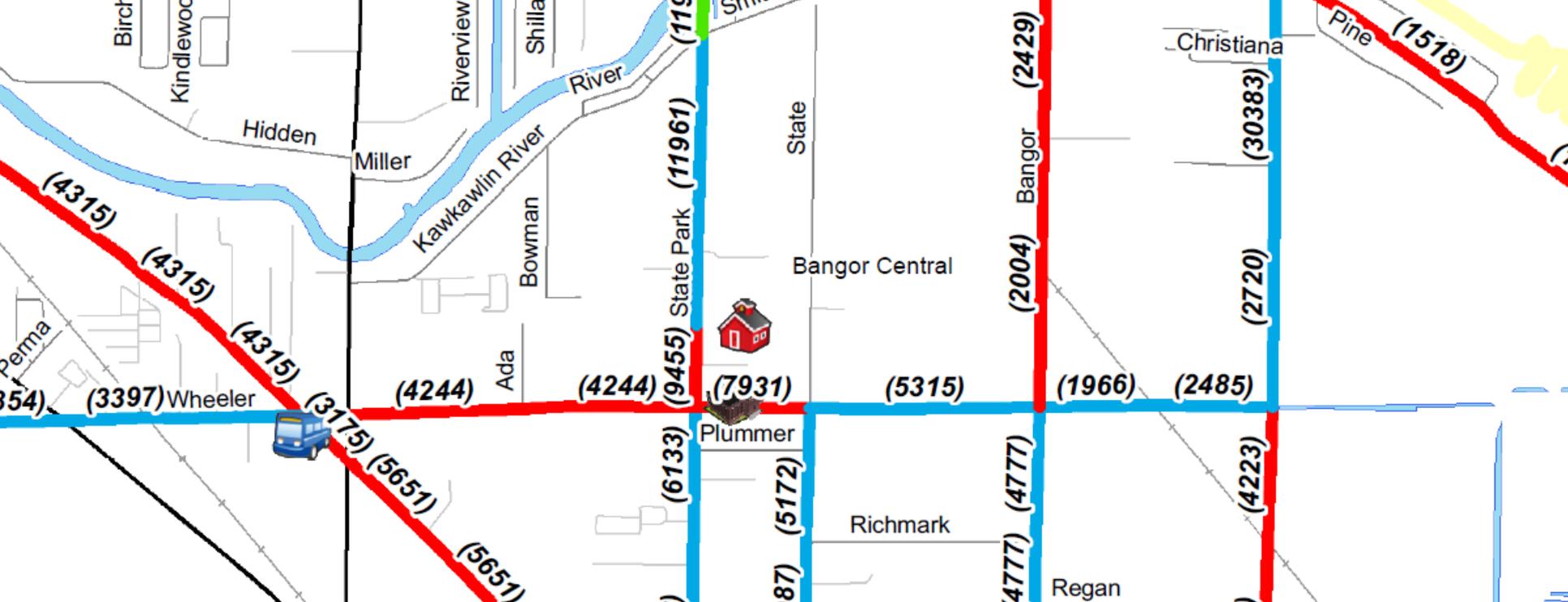
# PRIMARY ROADS - (ALL)

LEGAL SYSTEM-COUNTY PRIMARY & LOCALITY (R-1, R-1.5, R-2) LABELED WITH AST

- LEGEND**
- |                      |                   |                |                |
|----------------------|-------------------|----------------|----------------|
| County Primary (R-1) | Point of Interest | Airport        | Jail           |
| R-1.5 (County R-1)   | Fire Station      | Bus Stop       | Police Station |
| R-2 (County R-1)     | Fire Station      | Police Station | Fire Station   |
| Urban Boundary       | Fire Station      | Police Station | Fire Station   |



All Primary Roads



# PRIMARY ROADS - (ALL)

LEGAL SYSTEM=COUNTY PRIMARY & LASTRATING (10-7), (6-4), (3-1) LABELED WITH ADT

## LEGEND

### County Primaries (ADT)

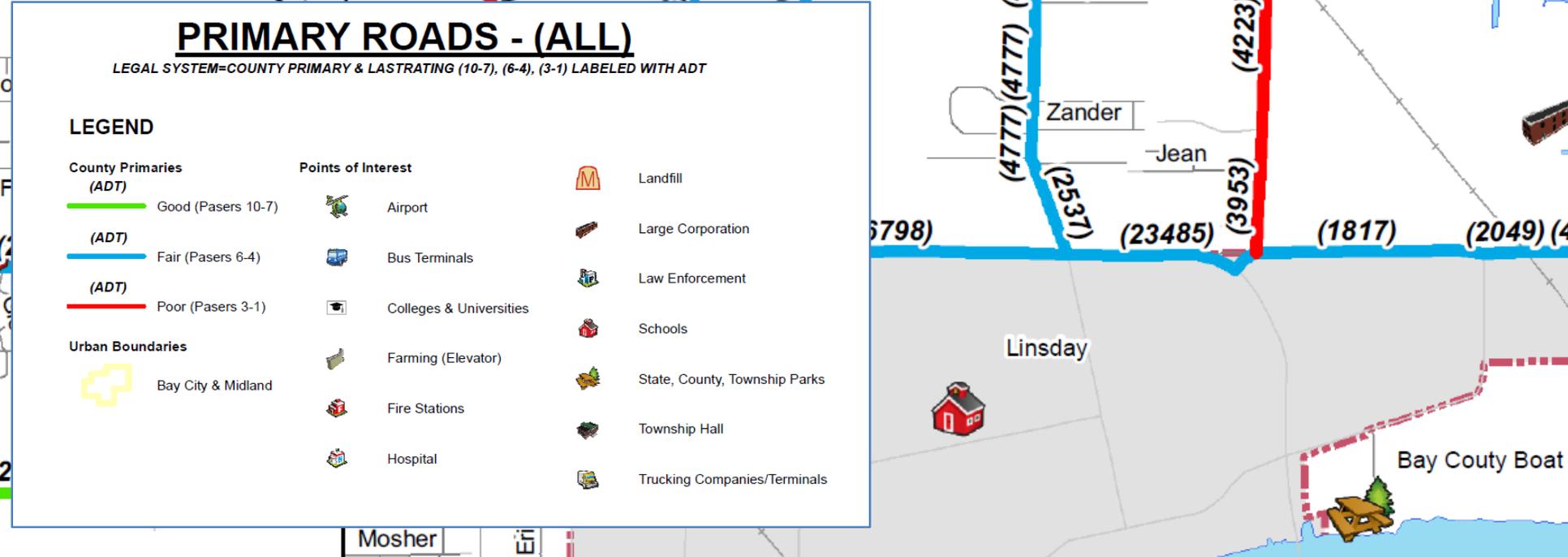
- Good (Pasers 10-7)
- Fair (Pasers 6-4)
- Poor (Pasers 3-1)

### Urban Boundaries

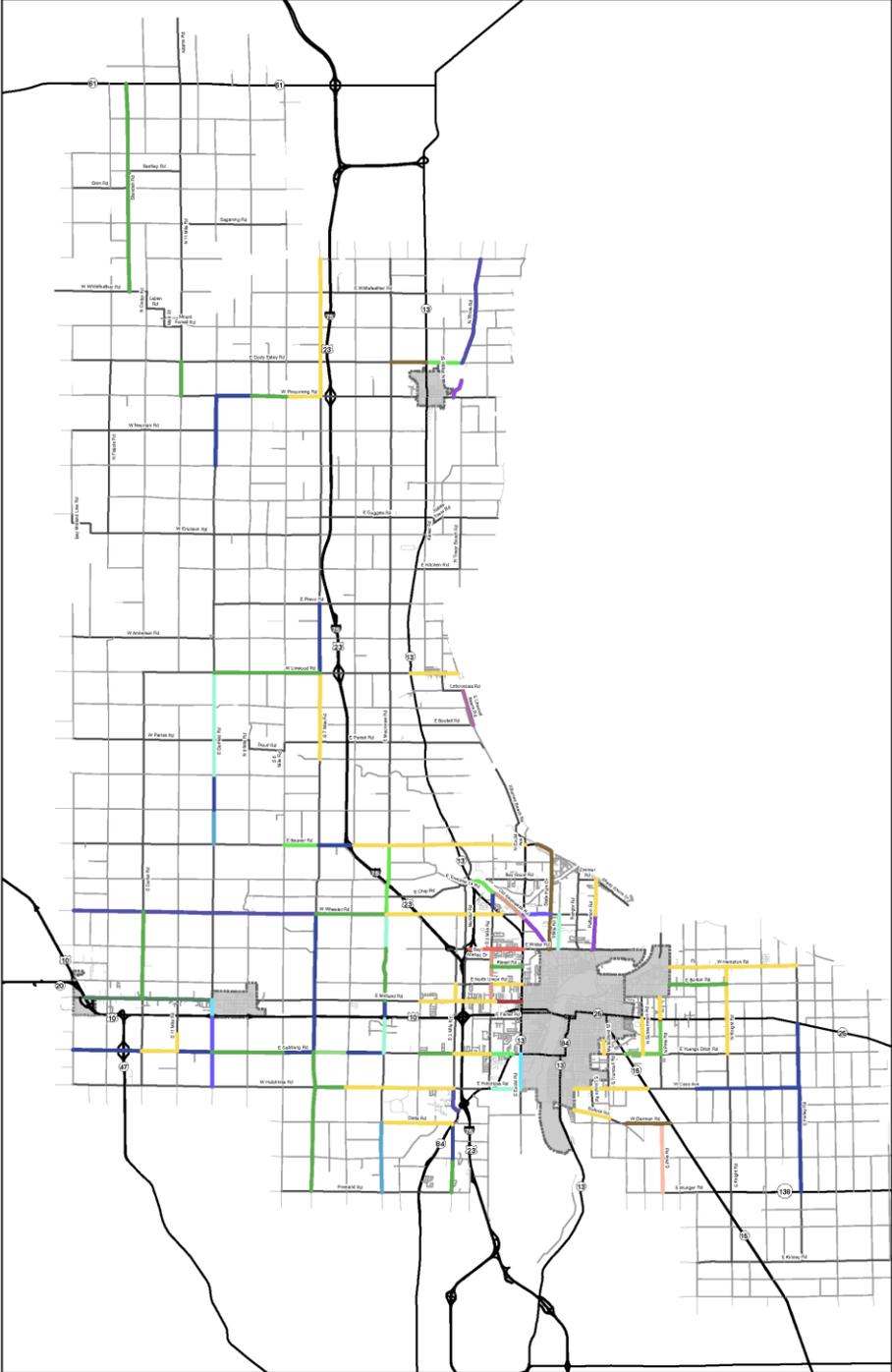
- Bay City & Midland

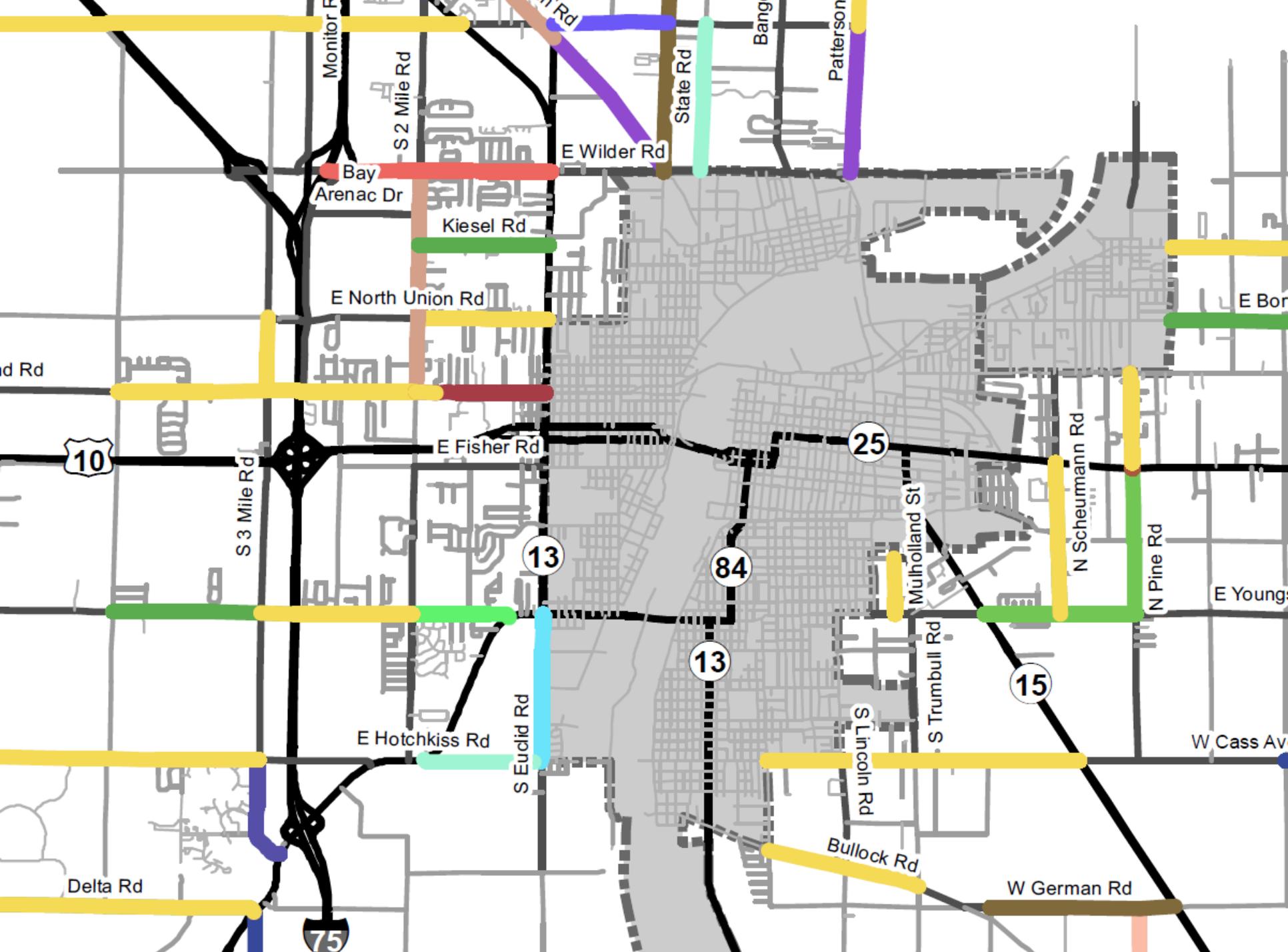
### Points of Interest

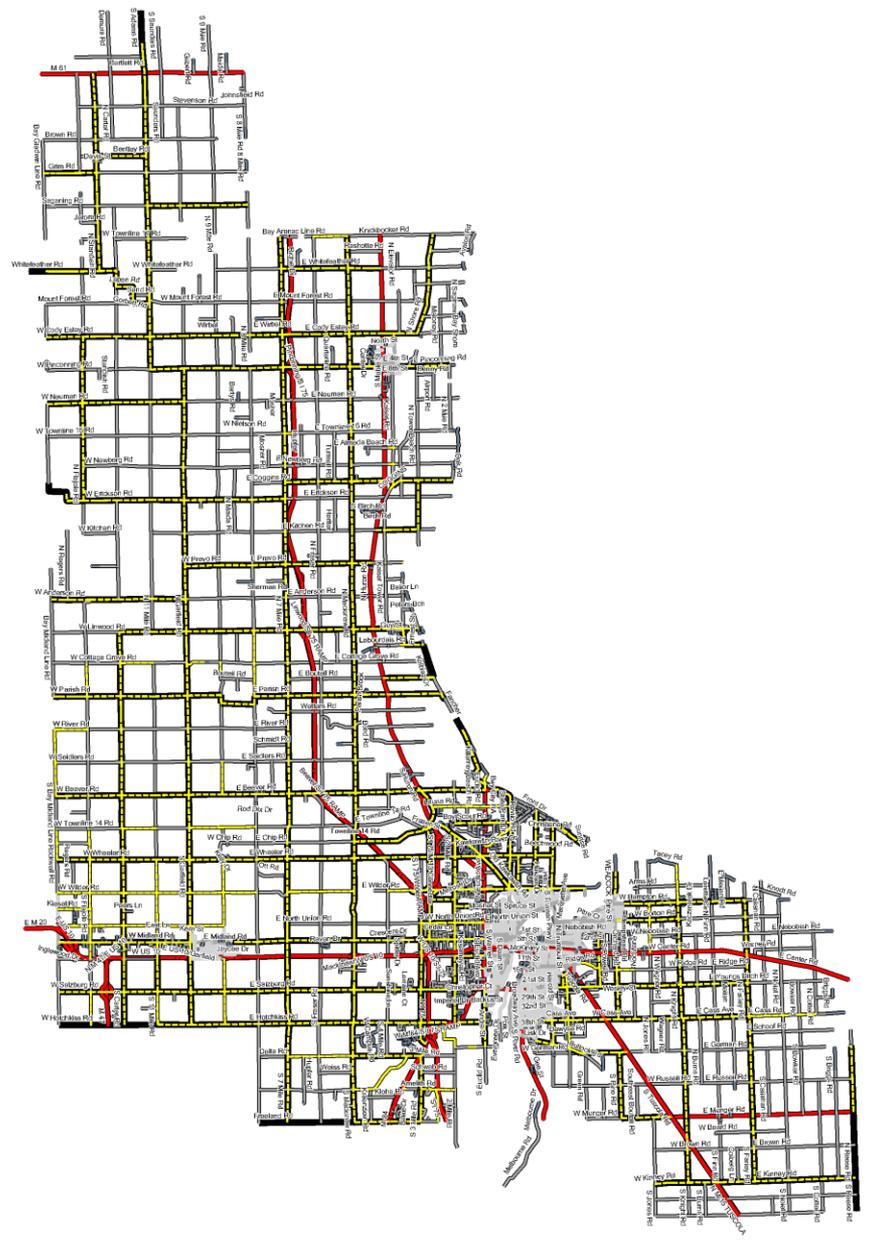
- Airport
- Bus Terminals
- Colleges & Universities
- Farming (Elevator)
- Fire Stations
- Hospital
- Landfill
- Large Corporation
- Law Enforcement
- Schools
- State, County, Township Parks
- Township Hall
- Trucking Companies/Terminals



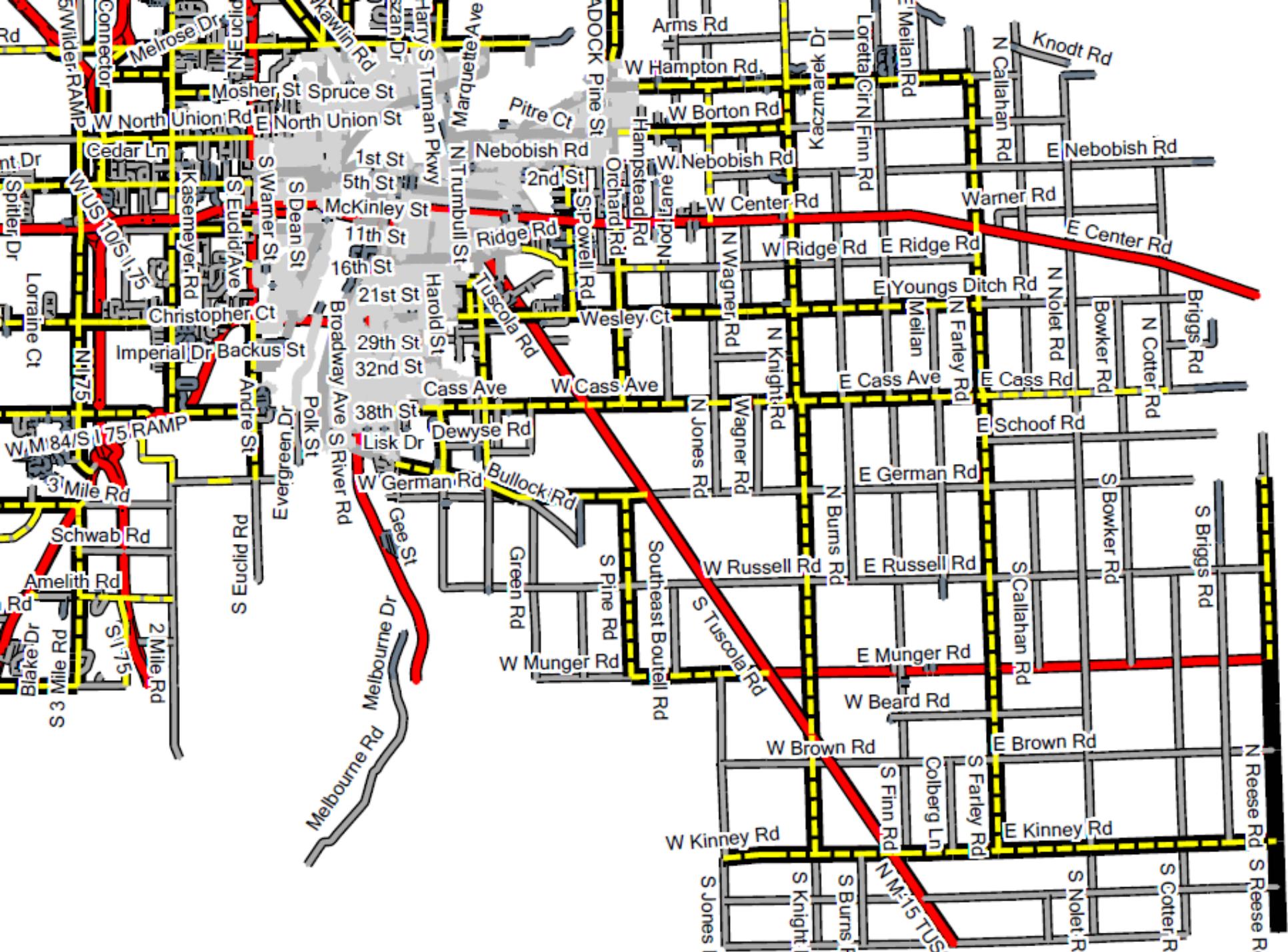
# 5 Year Improvement Plan







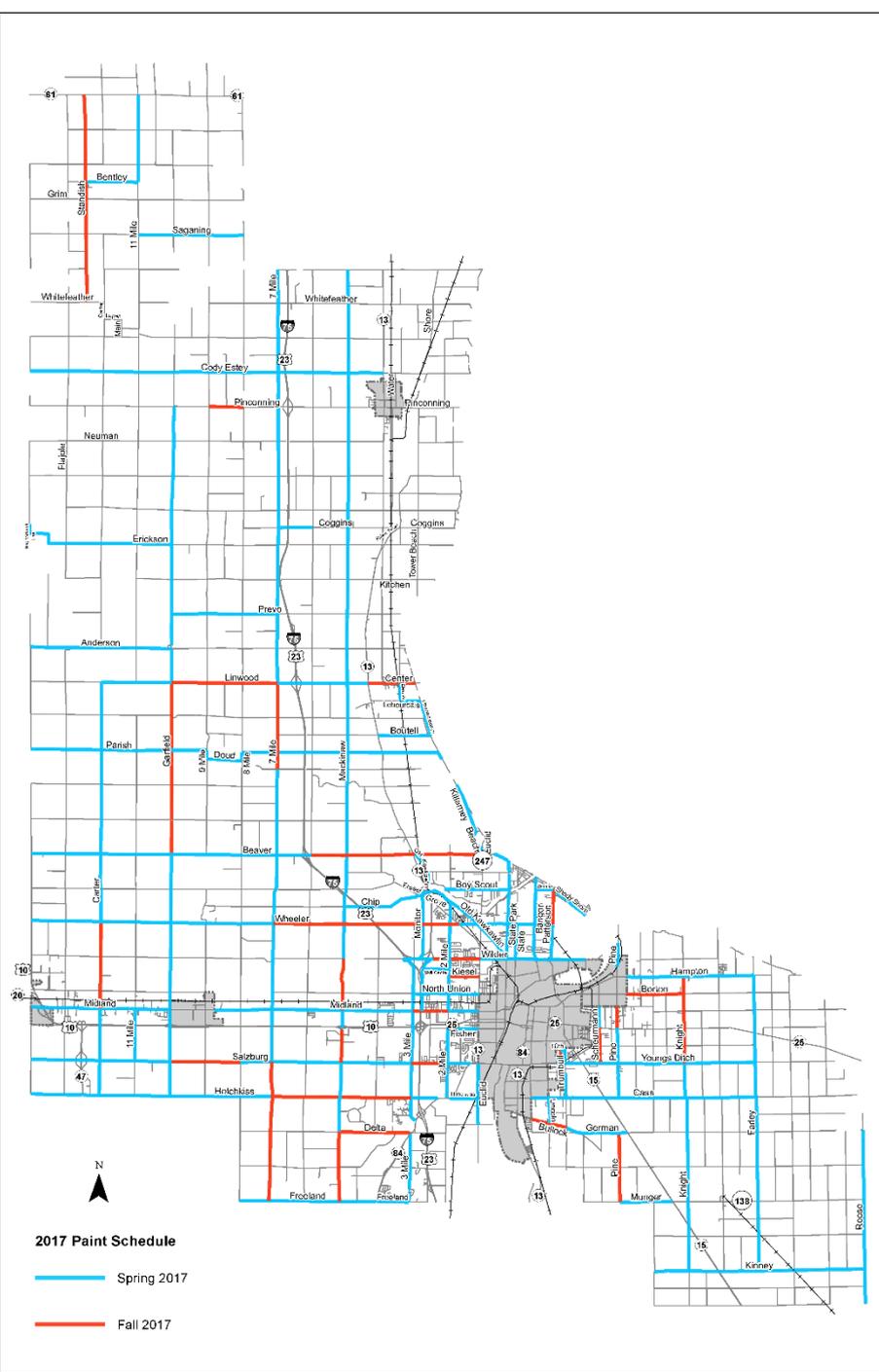
Pavement Markings



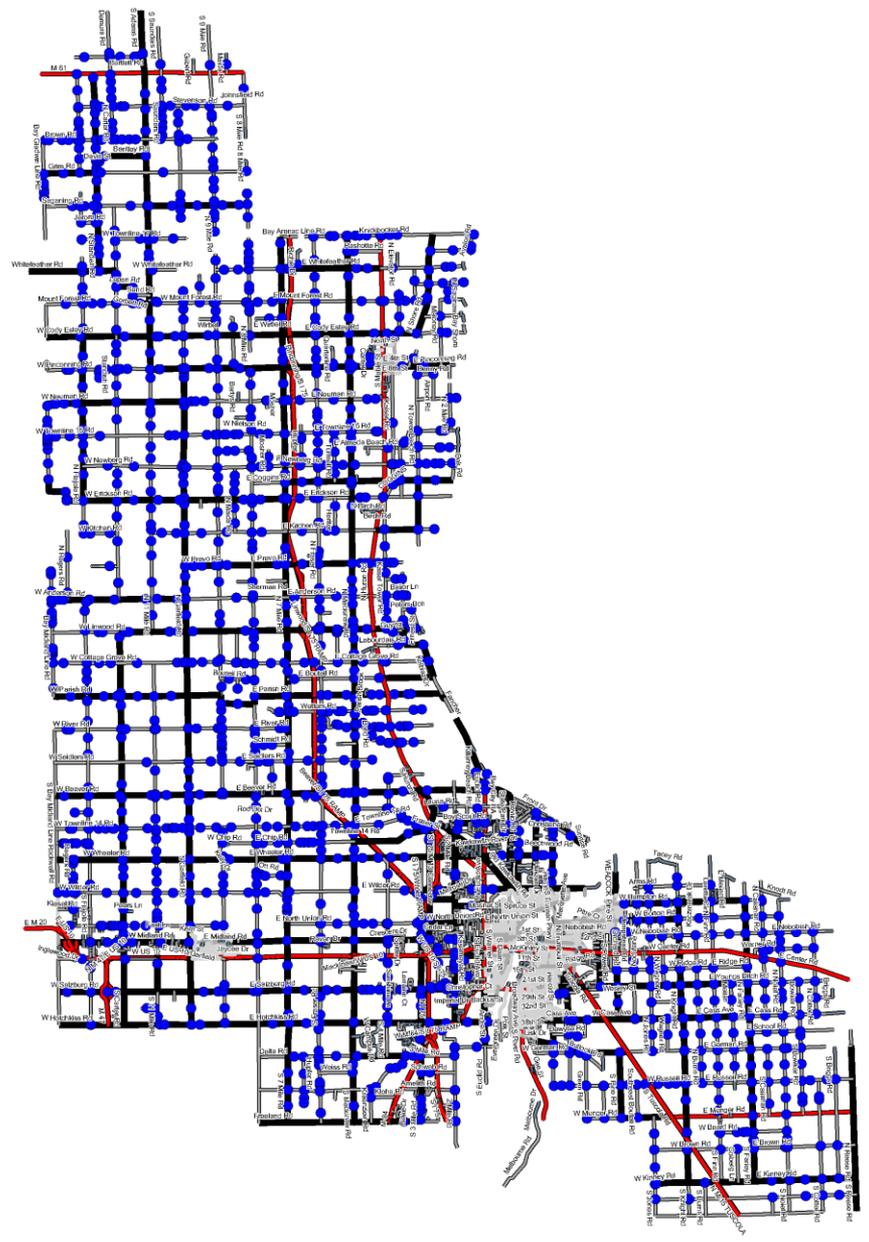




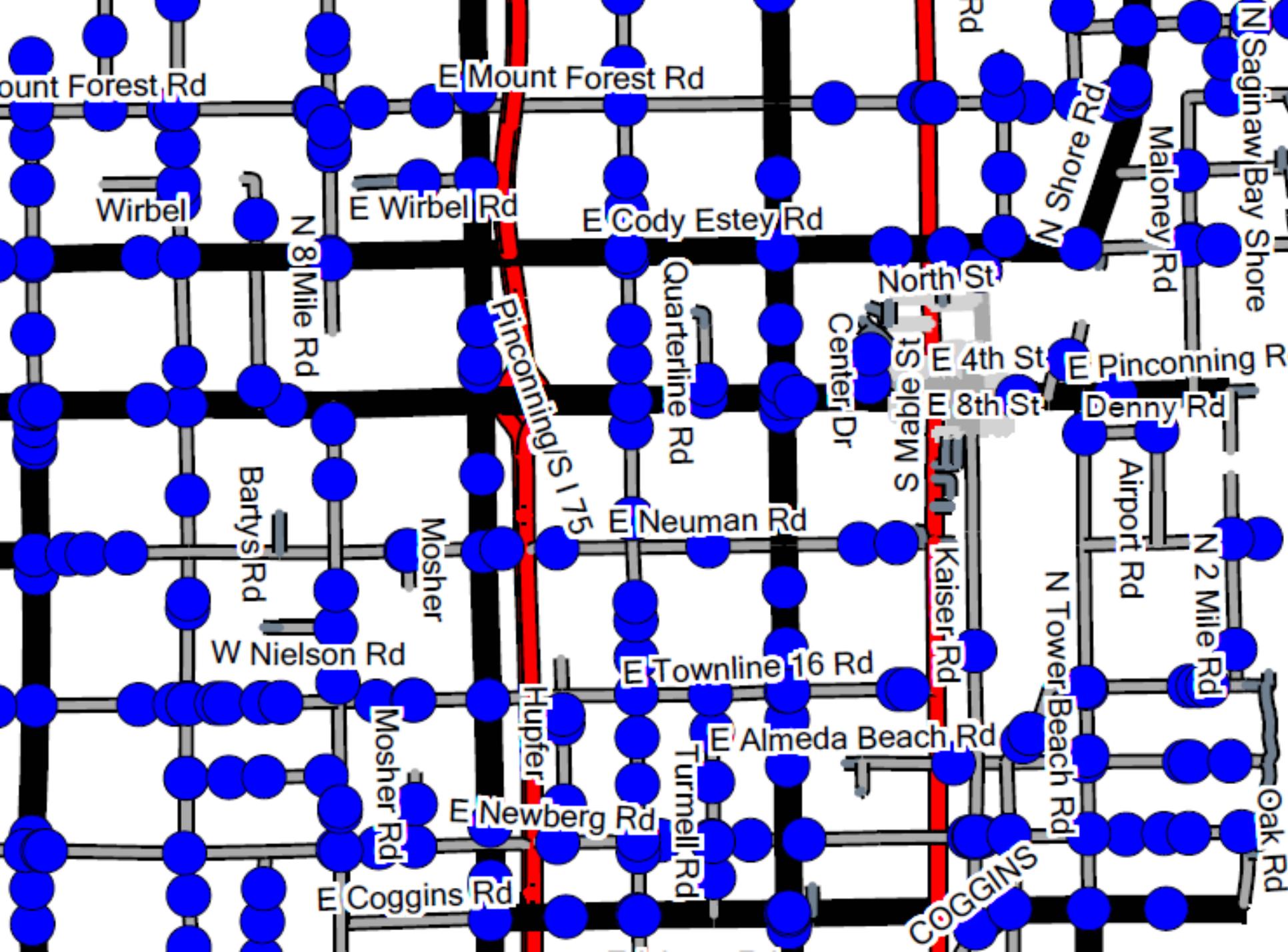
# 2017 Paint Schedule



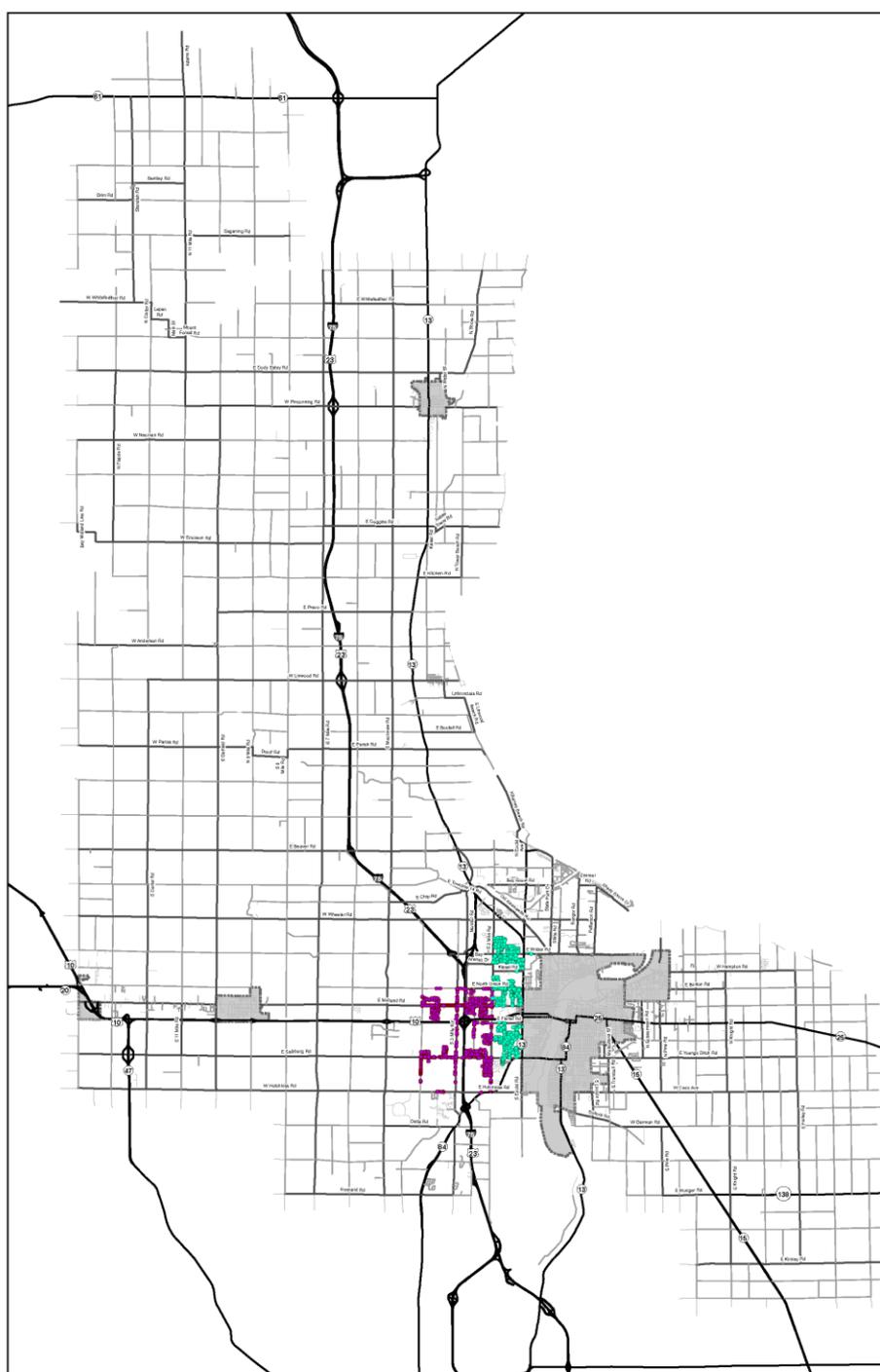


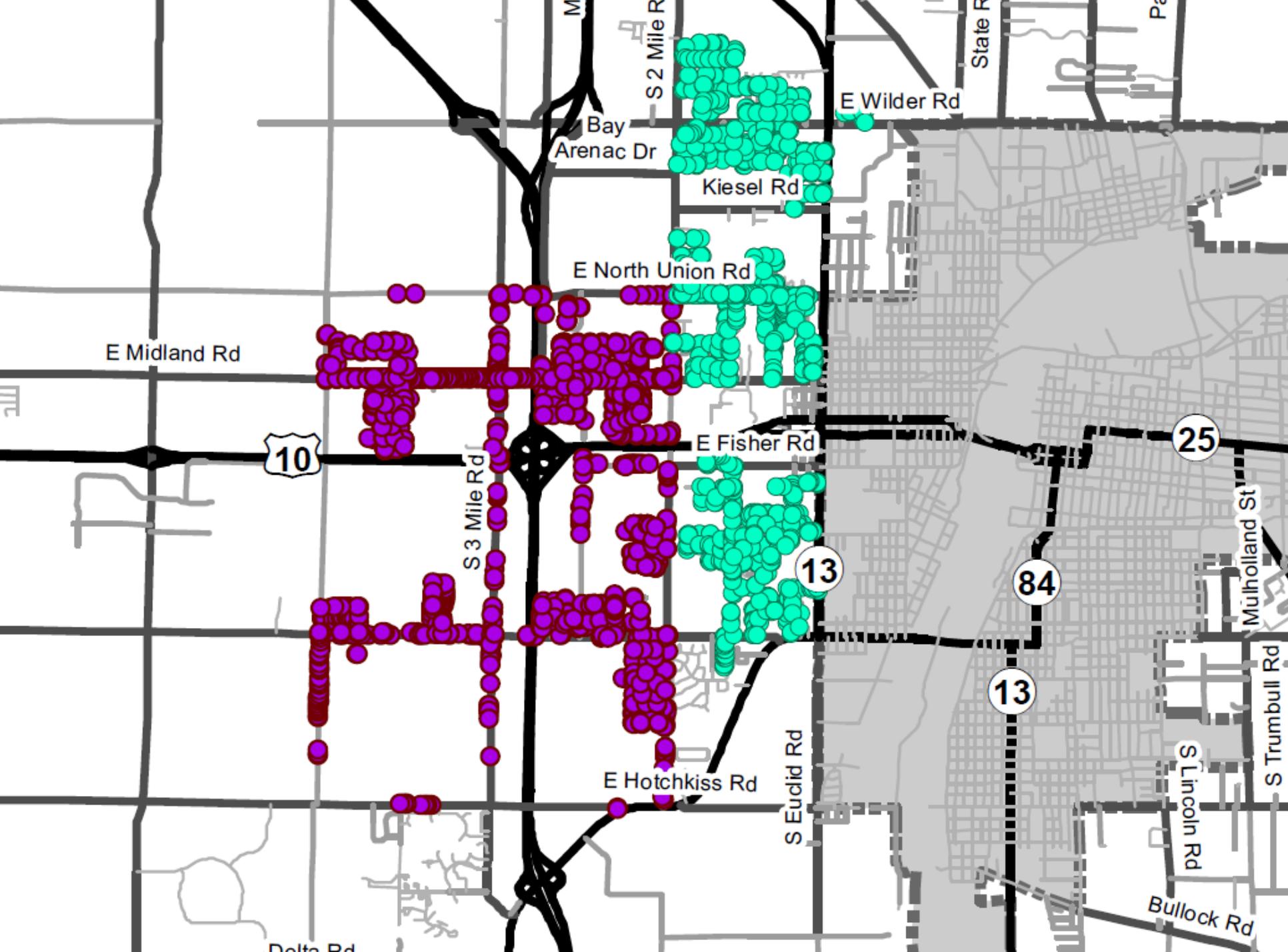


# Culverts



# Spicer and Bay Culverts







**OHM Advisors -  
Orchard, Hiltz &  
McCliment Inc.**

**Marcus McNamara**

# 2016 Paser

## Road Maintenance Program

City of Auburn Hills



### Legend:

- Roads non-City
- Excellent (9-10)
- Very Good (8)
- Good (6-7)
- Fair (5)
- Fair (4)
- 2016\_Poor



**Source:** Data provided by Oakland County and OHM, Inc. Orchard, Hiltz and McCliment does not warrant the accuracy of the data and/or the map. This document is intended to depict the approximate spatial location of the mapped features within the Community and all use is strictly at the user's own risk.

**Coordinate System:** Michigan South NAD 1983 State Plane International Feet

**Map Published:** 08/08/2016



888.522.6711  
ohm-advisors.com



Legend:

- Roads non-City
- Excellent (9-10)
- Very Good (8)
- Good (6-7)
- Fair (5)
- Fair (4)
- 2016\_Poor

Southfield  
**2016 PASER DATA**



1" = 6,000'

**Legend**

**2016 PASER DATA**

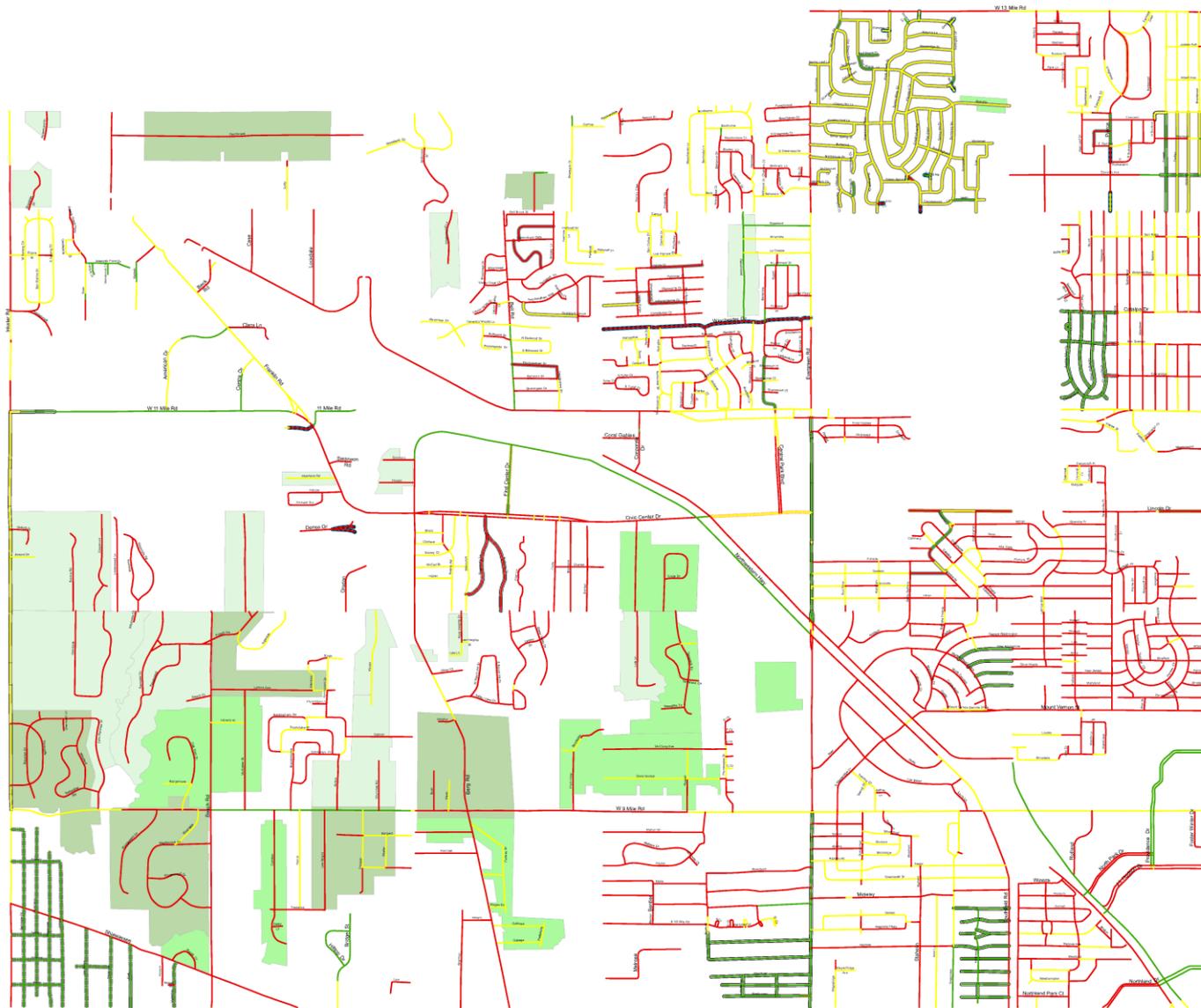
- POOR
- FAIR
- GOOD

**Recent Road Improvements**

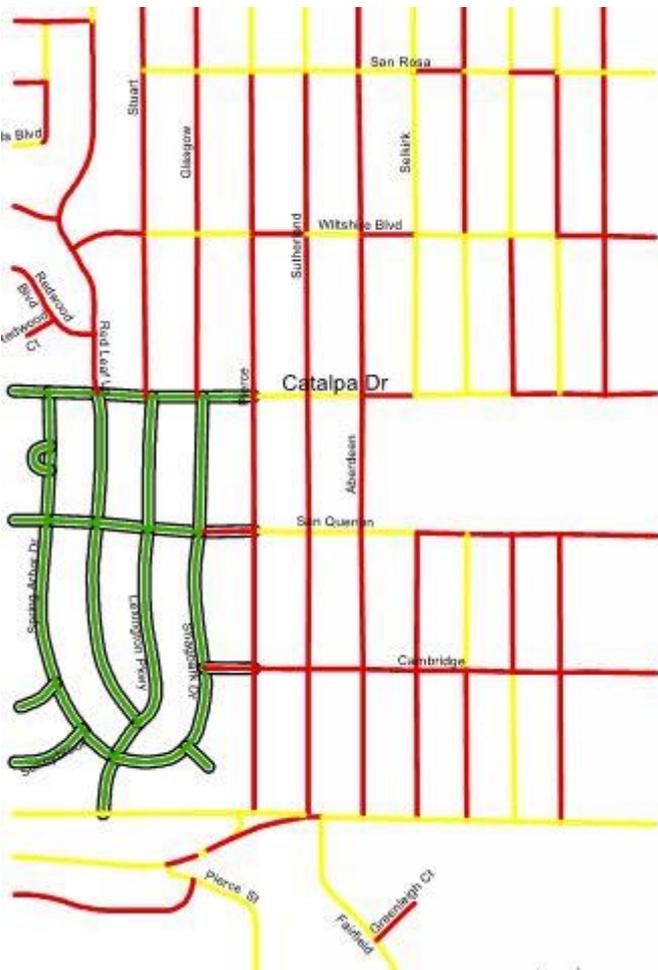
- Overlay
- Joint Seal
- Mil and Overlay
- Pulverize
- Slab Repair - 50%
- Reconstruction

**West Side Sewer Improvements**

- PHASE 1
- PHASE 2
- PHASE 3



Source: Data provided by Oakland County and MDOT. OHA Advisors does not warrant the accuracy of the data or the map. This document is intended to direct the appropriate spatial location of the mapped features within the Community and all use is strictly at the user's own risk.  
 Coordinate System: NAD 1983 North StatePlane Michigan North FIPS 2113 Feet SRS  
 Map Published: August 30, 2016



## Legend

### 2016 PASER DATA

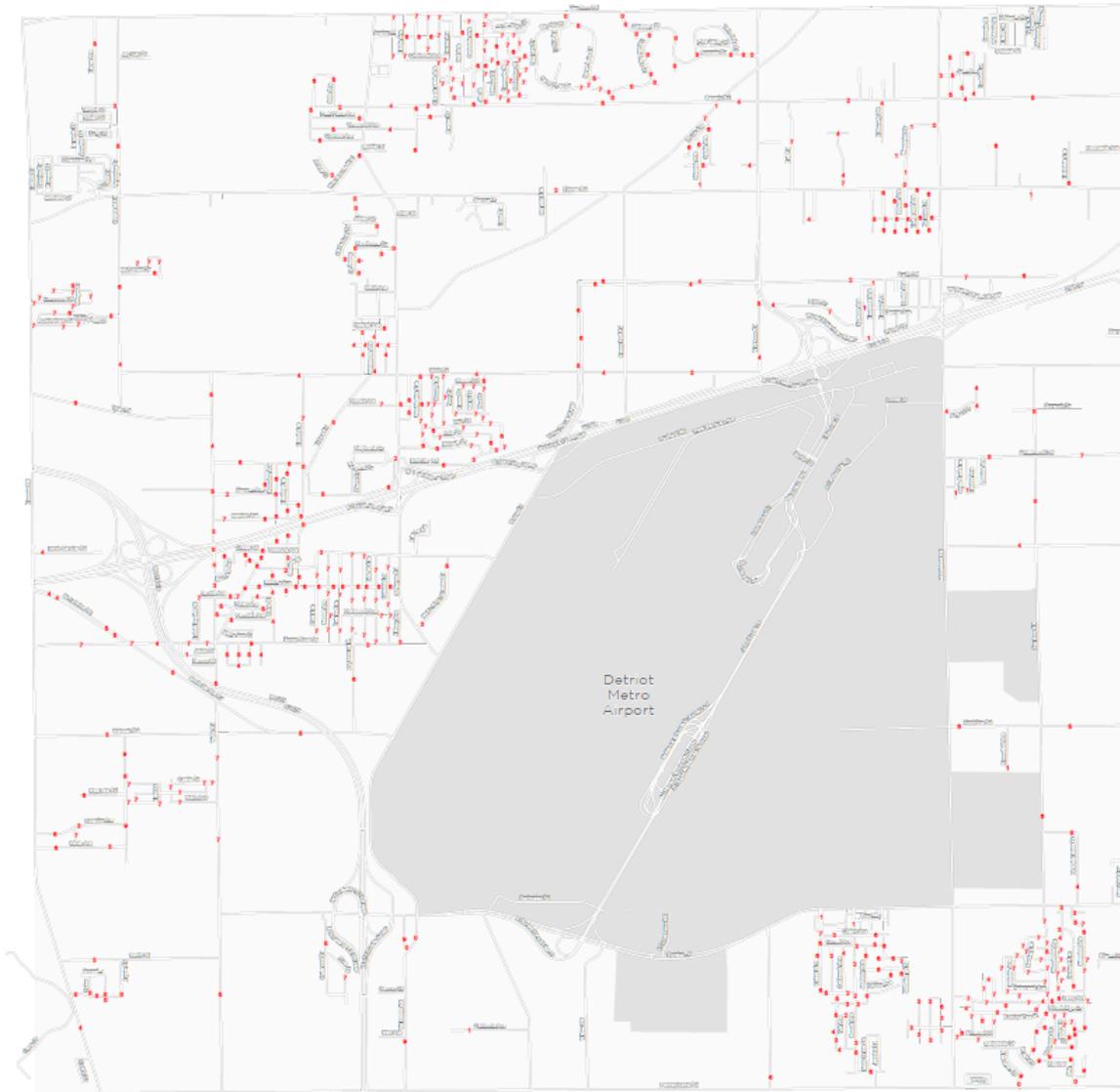
- POOR
- FAIR
- GOOD

### Recent Road Improvements

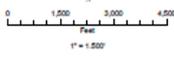
- Overlay
- Joint Seal
- ▨▨▨▨ Mill and Overlay
- ▨▨▨▨ Pulverize
- Slab Repair - 50%
- Reconstruction

### West Side Sewer Improvements

- PHASE 1
- PHASE 2
- PHASE 3



2015 PASER Rating  
City of Romulus



- Road
- Airport
- City

Notice: Data provided by Wayne County and the City of Romulus. CH2M Hillman does not warrant the accuracy of the data used for this map. The information is intended to provide the approximate spatial location of the reported features within the Community and all use is at the user's own risk.

Coordinate System: NAD 1983 HARN StatePlane Michigan North FIPS 2111 Feet US

Map Published: April 6, 2015

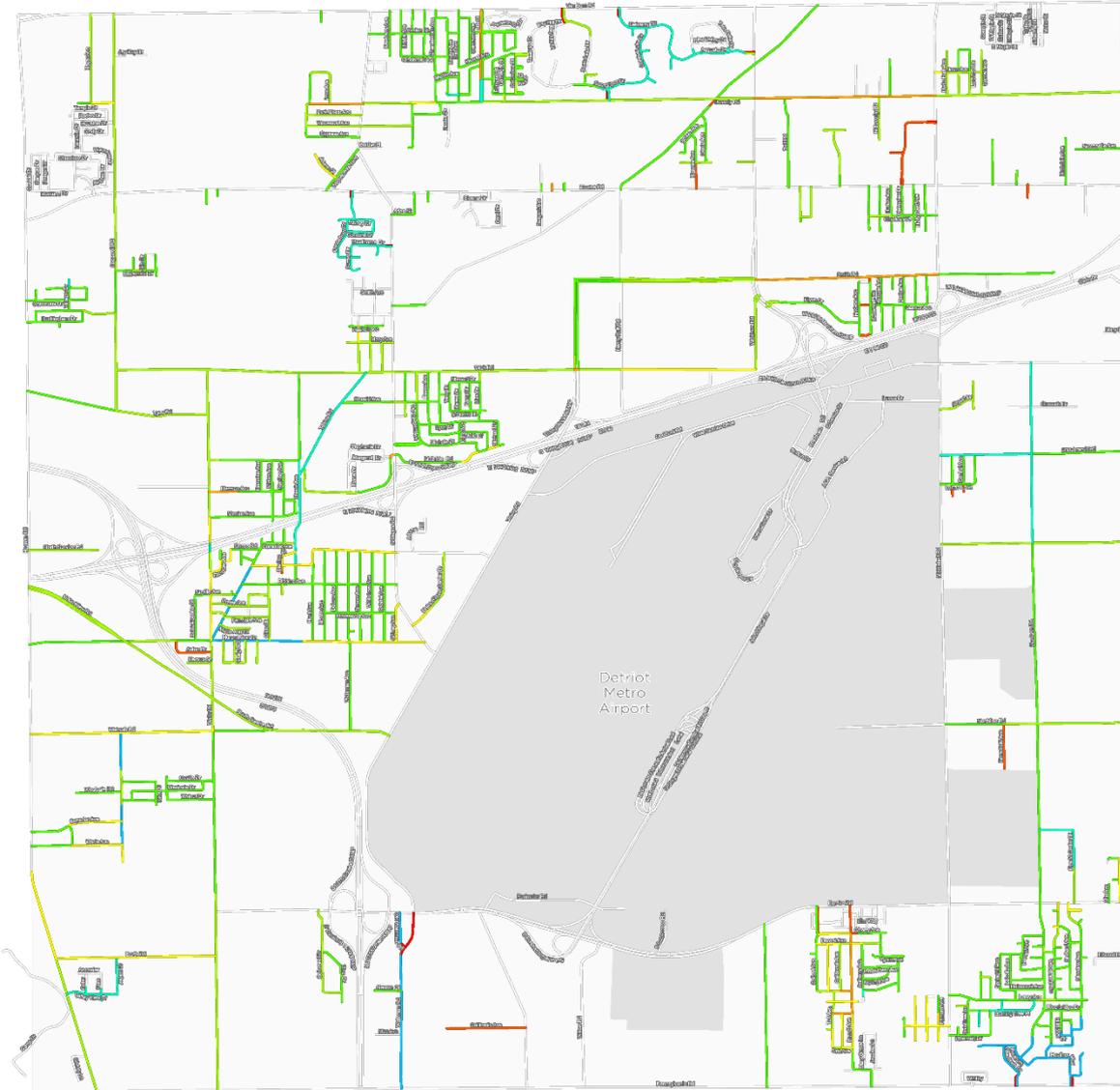
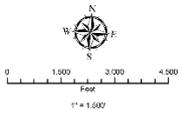


888.822.4711 | 313.467.6016





# 2015 PASER Rating City of Romulus

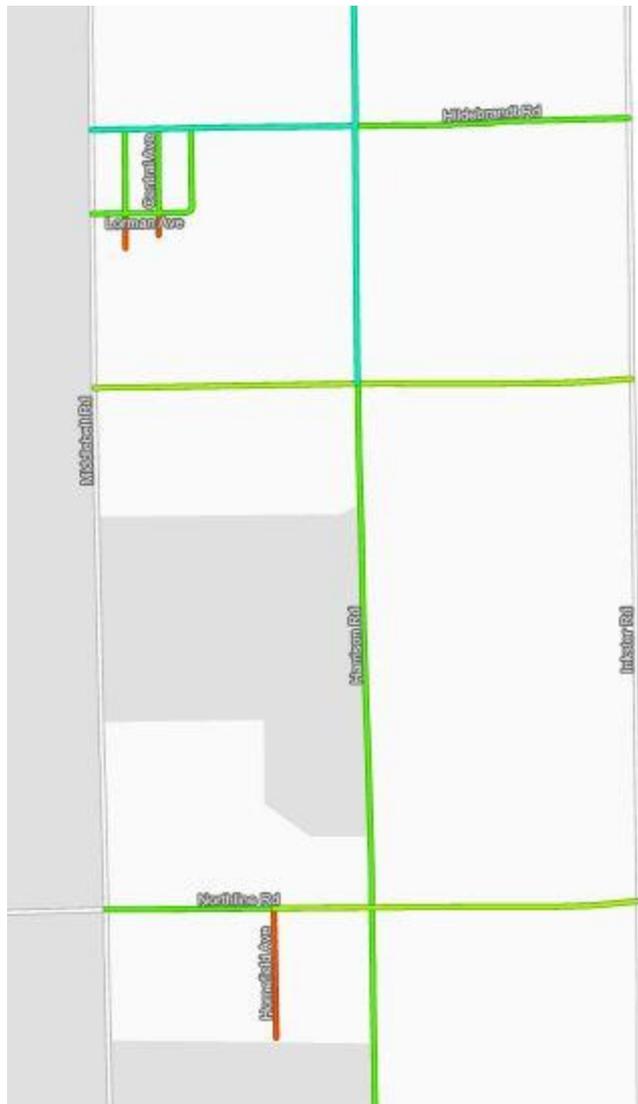


### PASER Last Rating

- Not Rated
- Failed
- Poor
- Fair
- Good
- Very Good
- Excellent
- Non City Roads
- Airport
- City

Source: Data provided by Michigan Geology and Earth System Science Center (MGCESC) and City of Romulus, OHM. All rights reserved. This map is for informational purposes only. It is not intended to be used for any other purpose. The City of Romulus and OHM are not responsible for any errors or omissions on this map. The City of Romulus and OHM are not responsible for any damages or liabilities arising from the use of this map.

Coordinate System: NAD 83 (NAD83) Transverse Mercator (North) Zone 16  
 Map Publisher: 04/12/2015



### PASER Last Rating

- Not Rated
- Failed
- Very Poor
- Poor
- Fair
- Good
- Very Good
- Excellent
- Non-City Roads
- Airport
- City

The background of the slide features a light blue globe with a grid of latitude and longitude lines. The globe is centered and slightly faded, creating a subtle pattern across the entire page. The text is centered within a white rectangular box that has a thin blue border.

# **Open Discussion**

# Suggestions

- Management Tool for External layers
  - Create views for other users
  - Help to keep them in sync
- Links between Roadsoft & other GIS
  - Is there a way to connect them for updates?