Welcome

Roads Committee

Meeting 2 -Roads Report 2020-2024

01/29/2020

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Pavement Costs (cont'd from Roads 101)

Pavement Type	Treatment	Cost per Lane Mile
Asphalt	Crack Sealing/Minor Patching	$1000 - $7500
Asphalt	Preservation Treatment (non-structural)	$150,000 - $350,000
Asphalt	Structural Improvement (Overlay)	$350,000 - $500,000
Asphalt	Reconstruction	$800,000 - $1,250,000
Concrete	Joint & Crack Sealing	$1000 - $5000
Concrete	Surface Repairs, Minor Patching	$175,000 - $250,000
Concrete	Major Slab or Joint Replacement	$350,000 - $500,000
Concrete	Reconstruction	$1,000,000 - $1,500,000

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Asset Management Program for Roads
Mix of Fixes – Asphalt Pavement Preventative Maintenance (PM) – PASER 7-9, and Rehabilitation (RH) for PASER 5-6)

- Spray Patch Joint Repair

Asset Management Program for Roads
Mix of Fixes – Asphalt Pavement (PM – PASER 7-9)

- **Overband Crack Seal**

- **Route and Fill Cracks**

Asset Management Program for Roads
Mix of Fixes – Asphalt Pavement (PM – PASER 5-6)

▪ **Slurry Seal**

▪ **Cape Seal**

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Asset Management Program for Roads
Mix of Fixes – Asphalt Pavement (RH – PASER 3-4)

■ **Ultra-thin Overlay**

■ **Mill & Overlay**

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Asset Management Program for Roads
Mix of Fixes – Asphalt Pavement – Full Reconstruction

- Recon

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Asset Management Program for Roads
Mix of Fixes – Concrete Pavement (PM – PASER 7-9)

- Crack/Joint Sealing

Asset Management Program for Roads
Mix of Fixes – Concrete Pavement (PM –PASER 4-5-6)

- **Techrete Joint Repair**

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Asset Management Program for Roads
Mix of Fixes – Concrete Pavement (RH – PASER 3-4)

- **Joint Replacement**

Asset Management Program for Roads
Mix of Fixes – Concrete Pavement (RH – PASER 3-4)

- ■ **Discrete Full Panel Replacement**

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Asset Management Program for Roads
Mix of Fixes – Concrete Pavement Full Reconstruction

- Recon

Road Report 2020-2024 - Process

- **Survey of the roads (primarily PASER)**
- **Update completed projects to ensure good data**
- **Update project costs**
- **Budget/forecasting data**
  - Comparing different fixes and funding levels to find an optimum mix
- **Build 5-year plan based on need and value**

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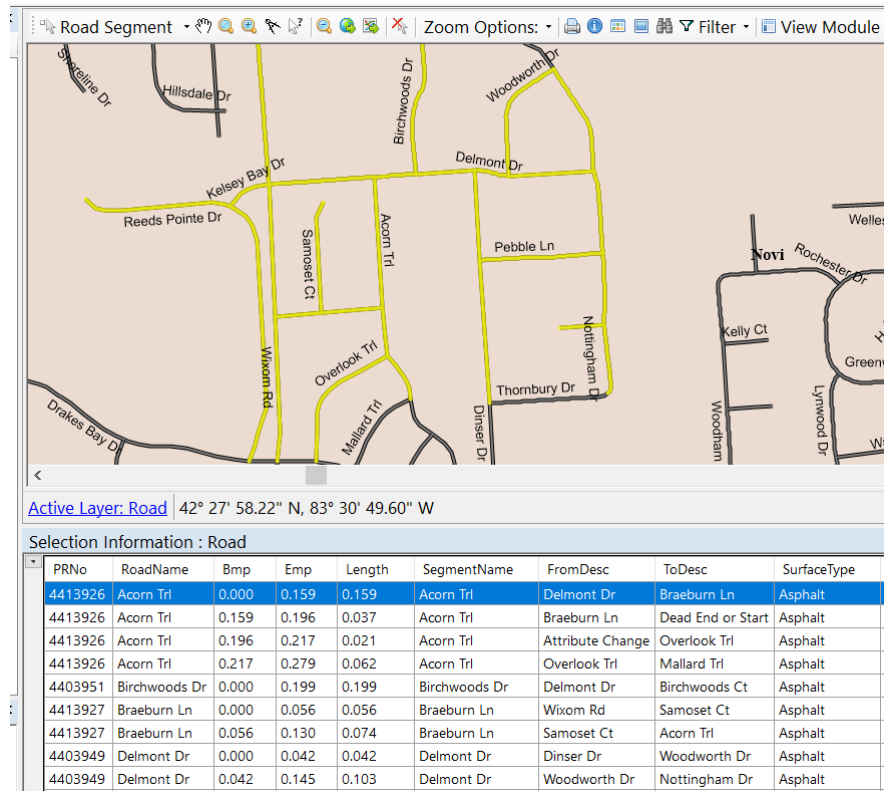
Road Assets Overview

- Roads are a continuously deteriorating asset that require a proactive strategy to maintain them in the most cost effective way possible.

- Using PASER ratings as a guide, roads rated 5 and above are significantly cheaper to maintain and rehabilitate than roads that have fallen to a 4 or below (structural defects present at 4).

- Expanding upon the City's current Capital Preventative Maintenance (CPM) is the best way to slow the decline of the road assets, and depending on funding level approved, improve the overall condition of the roads for the City of Novi.
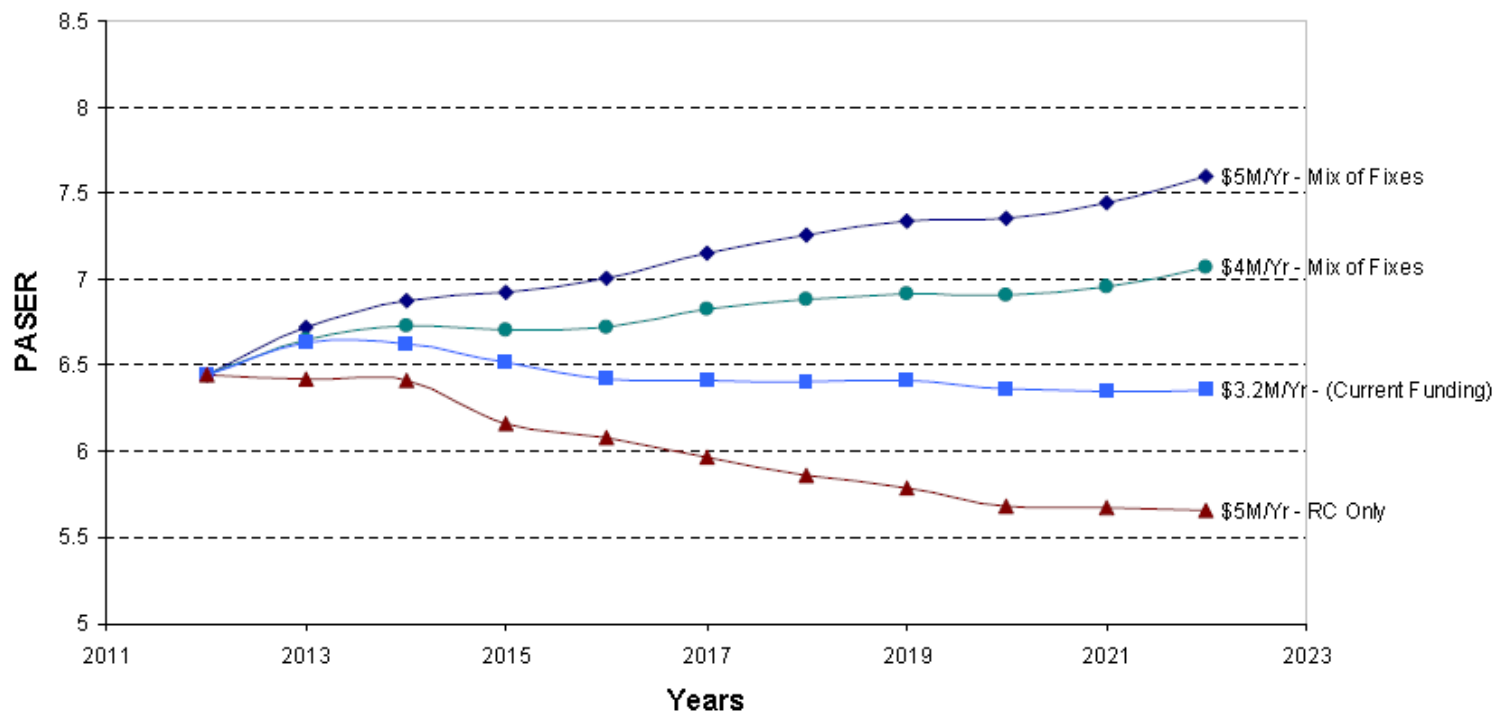

Pavement Deterioration Curve

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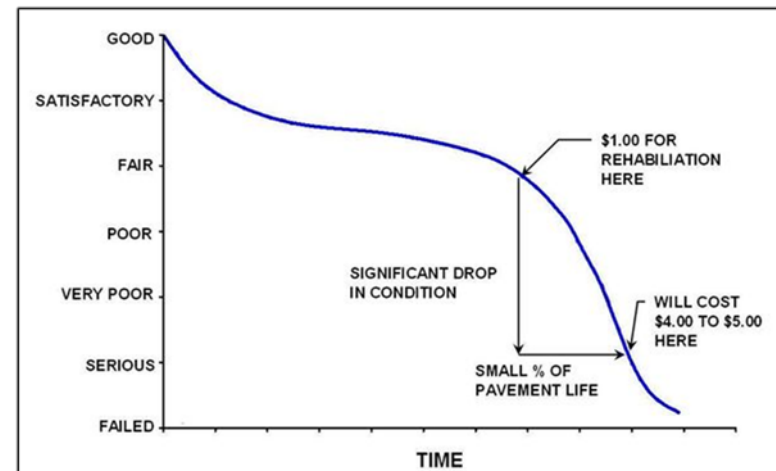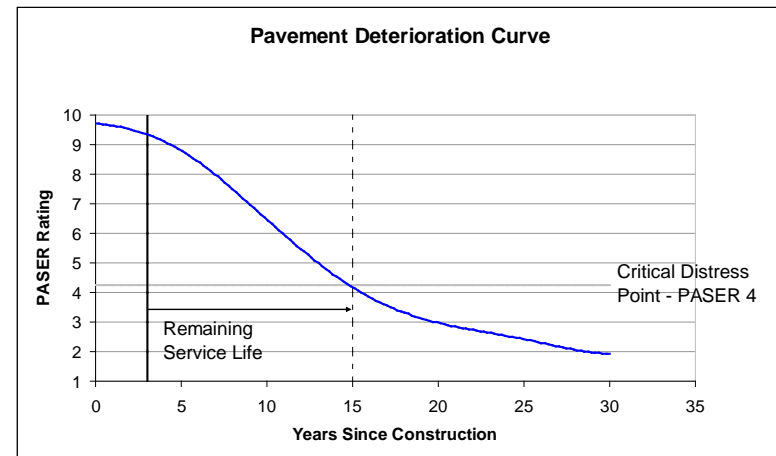
OHM Study 2012

Figure 1: Projected Paser Rating At Various Funding Levels

Historical Data

Average PASER Rating					
2012	2013	2014	2015	2017	2018
6.0	5.9	5.6	5.6	5.5	5.4

Current Data

2018 Rating by Road Type						
Category (NFC)		10 & 9	8	7 & 6	5 & 4	1-3	Total CL miles
Major	Arterial	4.01	.65	1.65	13.73	1.36	21.4
	Collector	1.35	.98	2.59	5.23	1.55	11.69
Local		7.47	11.95	46.65	70.08	18.44	154.60
Total Mileage		12.8	13.6	50.9	89.0	21.3	187.7
% of Network		7%	7%	27%	47%	11%	100%

16

City Road Network Status
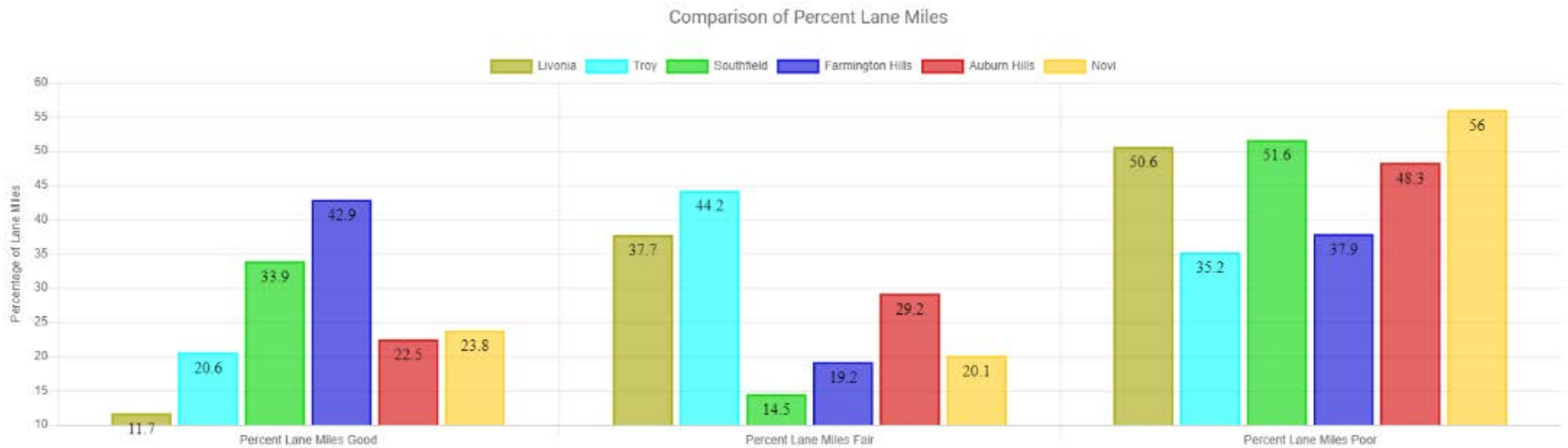
Approximately 188 centerline miles (390 lane miles) of City-owned roads

- 123 Miles of Asphalt
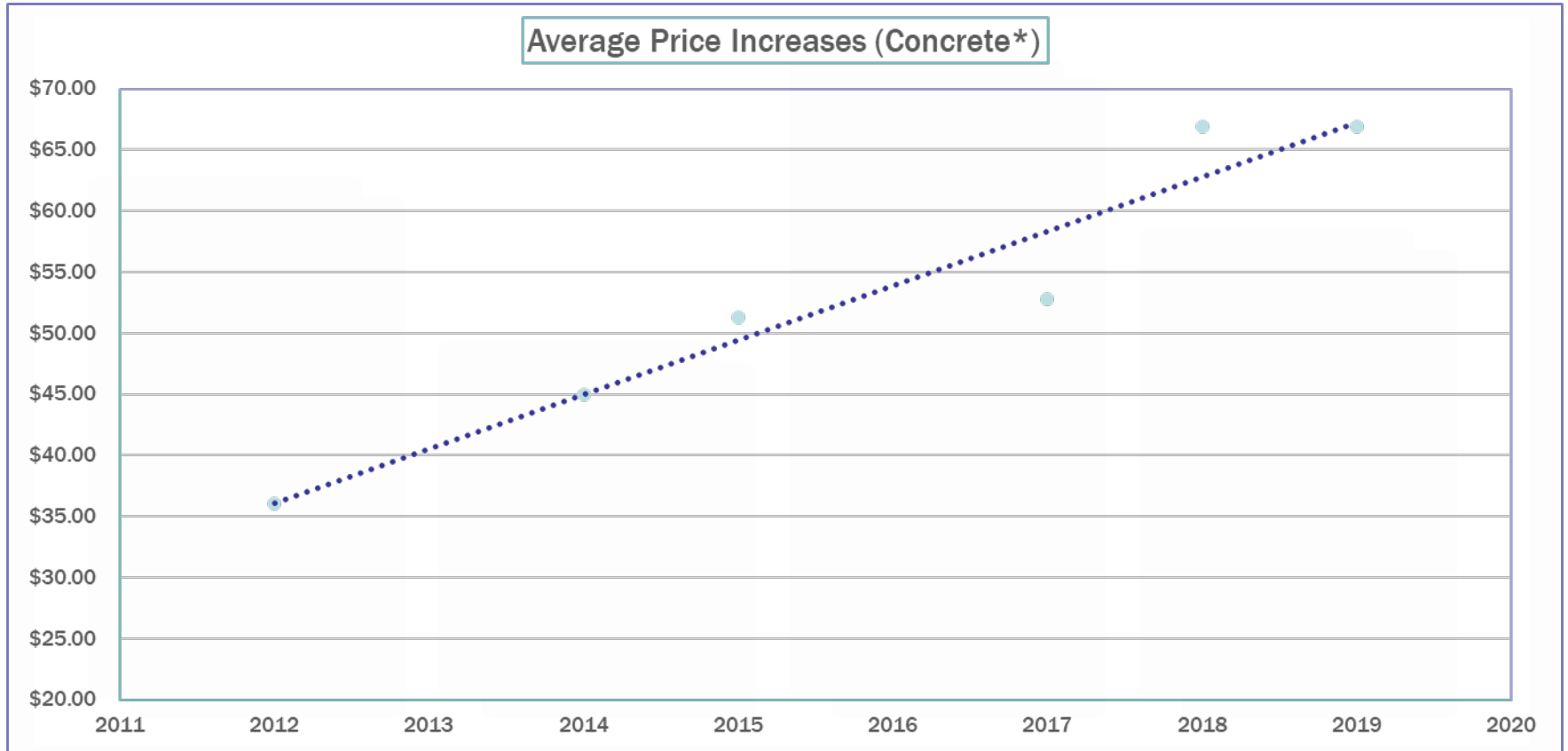- 62 Miles of Concrete
- 3 Miles of Gravel

Condition

- 21 Miles Poor (PASER 1-3)
  - Reconstruction Candidates
- 89 Miles Fair (PASER 4-5)
  - Heavy CPM & Rehabilitation Candidates (deterioration dependent)
- 51 miles Good (6-7)
  - Heavy CPM Candidates
- 26 Miles Excellent (8-10)
  - Little to no Maintenance Activities

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Community Comparison 2018 (from TAMC)

Comparison of Percent Lane Miles

Livonia | Troy | Southfield | Farmington Hills | Auburn Hills | Novi

Percent Lane Miles Good
- 11.7
- 20.6
- 33.9
- 42.9
- 22.5
- 23.8

Percent Lane Miles Fair
- 37.7
- 44.2
- 14.5
- 19.2
- 29.2
- 20.1

Percent Lane Miles Poor
- 50.6
- 35.2
- 51.6
- 37.9
- 48.3
- 56

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Increasing Costs (2012-2019)

Average Price Increases (Concrete*)

*Increase in Concrete costs are shown, but aggregate and asphalt have seen parallel increases

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Growing Cost of Construction, Continued

- **Seeing in the range of a 30% increase (in addition to inflation) in the major items (asphalt, concrete and aggregate)**

- **Inflation adds about 15% over the last 8 to 9 years.**

- **4 main factors in why the rating dropped and costs went up**
  - Significant increase in the cost of construction
  - An additional 10% added to the City's road network
  - Lower starting point (a lower PASER rating means more reconstructs are needed which significantly increase the cost to raise the rating)
  - Several record harsh winters – not in temperature, but in the number of freeze thaw cycles causing multiple years of deterioration in one season.

# Construction Costs for Transportation Projects
## Construction Contractor Costs Only

Legend: ■ Roads ■ Sidewalks/ Pathways ■ Signals/ Intersections
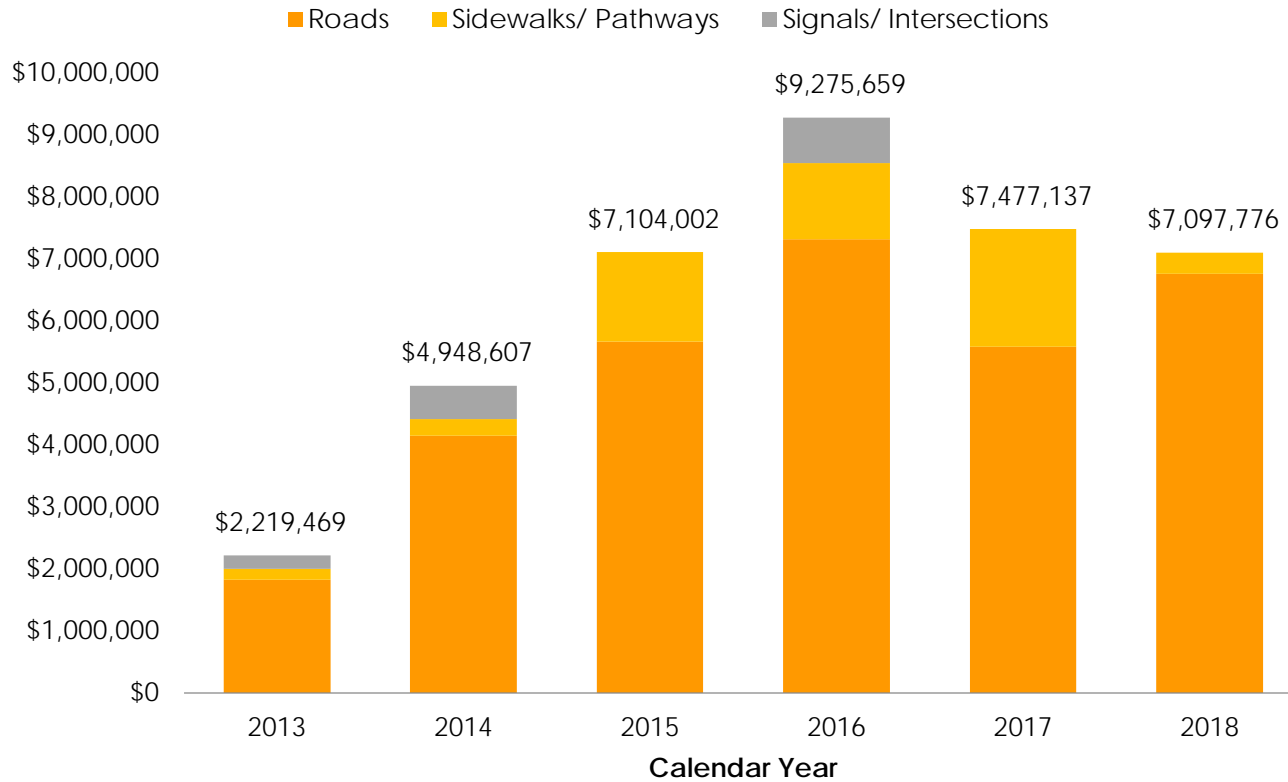
	2013	2014	2015	2016	2017	2018
Roads	$1,842,424	$4,148,808	$5,665,894	$7,312,013	$5,577,647	$6,759,804
Sidewalks/ Pathways	$177,478	$263,924	$1,438,108	$1,231,076	$1,899,490	$337,972
Signals/ Intersections	$217,567	$535,875	-	$732,570	-	-

Road Construction Projects 2014-2019
City of Novi, Michigan
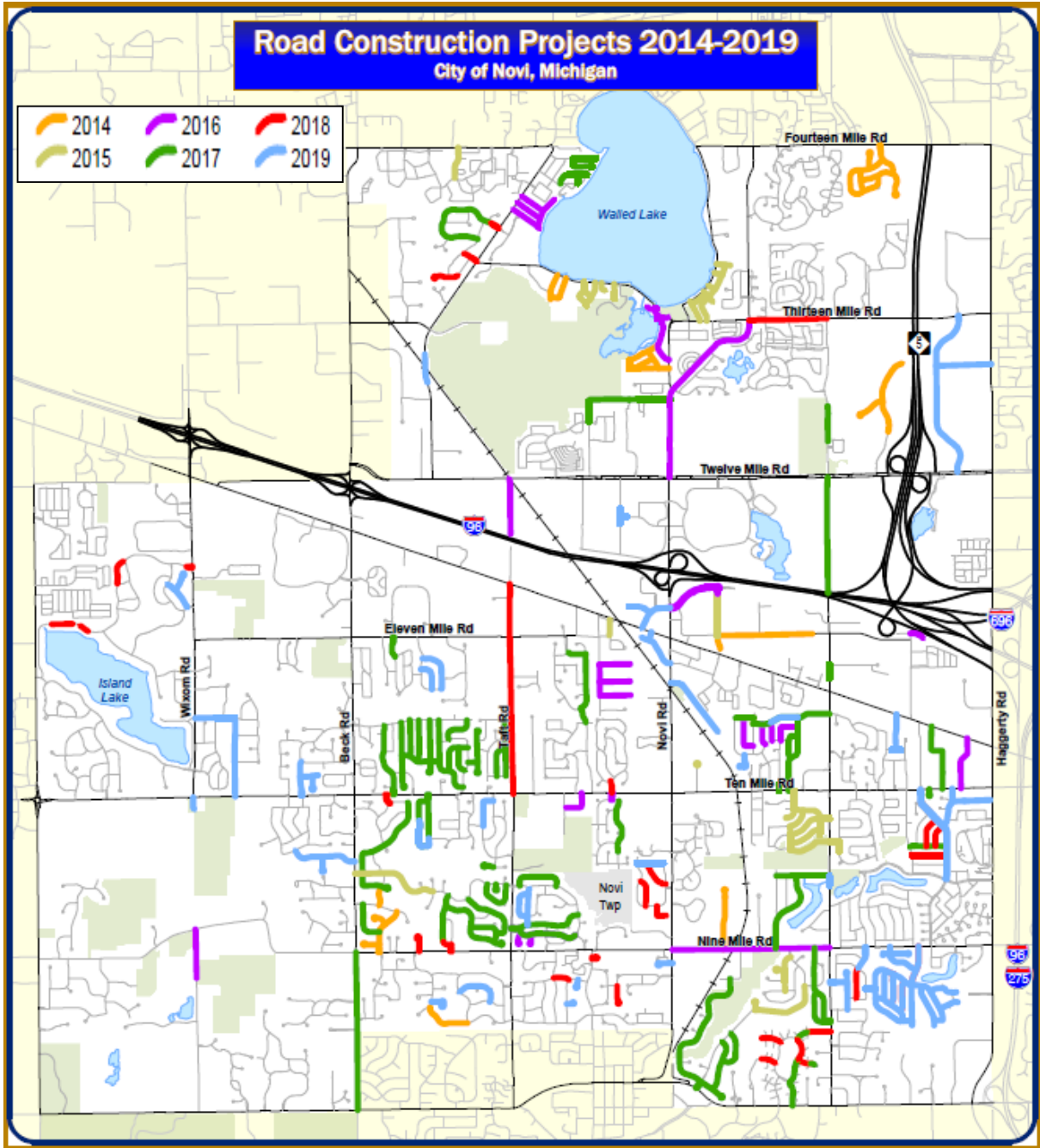
2014-19 Neighborhood Roads Programs
2017-19 Concrete Panel Replacement Program
Location Map
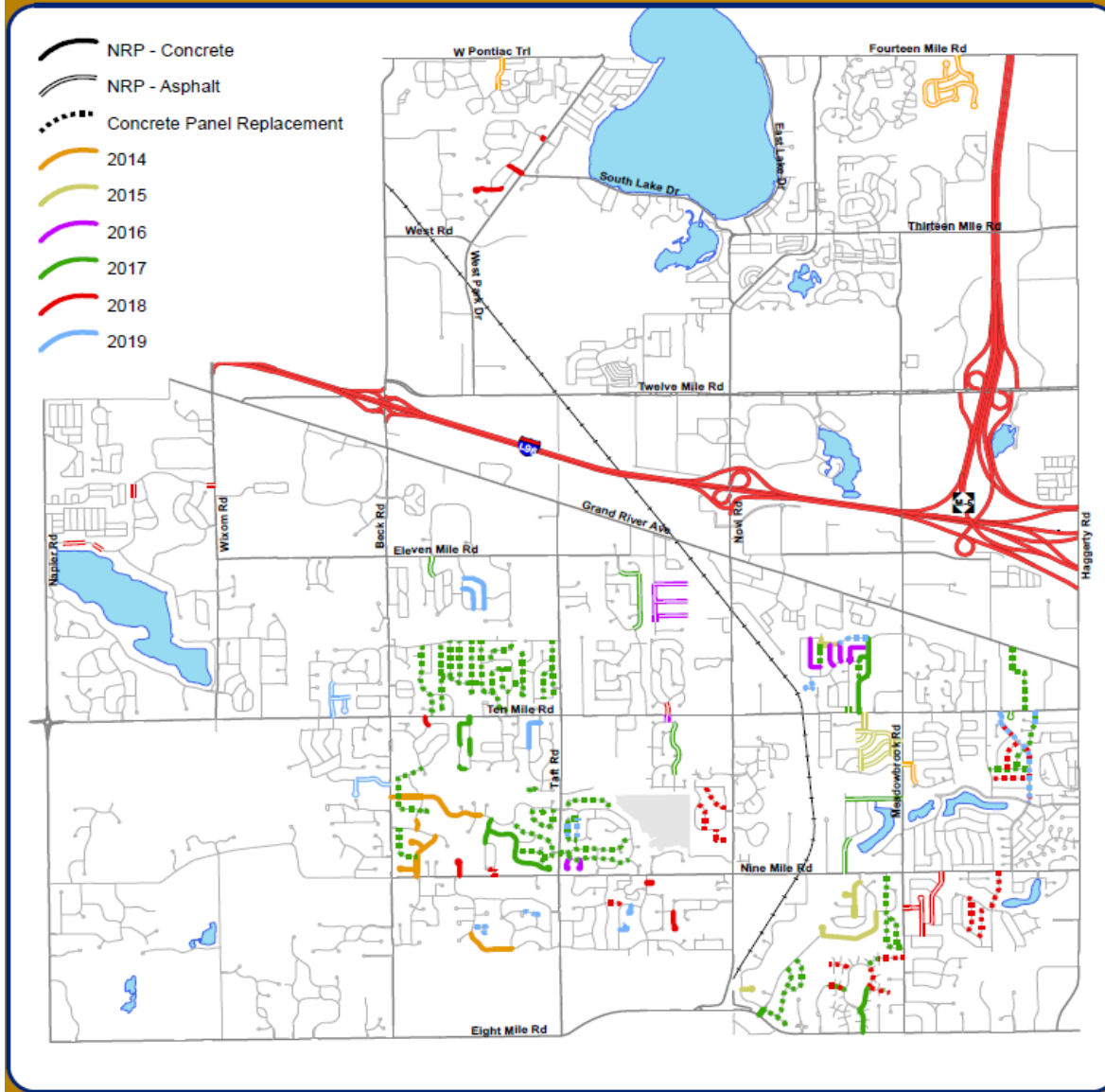
Road Report 2020-2024 – Planned Projects (2020)

Local Road Recon/Rehab

Row Labels	LastRating	Estimated Project Cost		Scheduled Activity
Aberdeen Dr	3	$	311,631.47	Rehabillitation
Bedford Dr	3	$	841,373.87	Reconstruct - 7" Conc on 8" Agg
Glenwood Dr	4	$	282,010.67	Mill and Overlay - 3"
Greenwich Dr	3	$	337,186.67	Rehabillitation
Holyoke Ct	4	$	23,877.33	Mill and Overlay - 3"
Holyoke Ln	3	$	158,300.27	Rehabillitation
Jo Dr	2	$	212,185.60	Reconstruct - 7" Conc on 8" Agg
Nantucket Dr	3	$	289,625.60	Rehabillitation
Purlingbrook Rd	3	$	60,016.00	Reconstruct
Salem Ct	4	$	61,048.53	Rehabillitation
Shilo Ct	4	$	24,135.47	Rehabillitation
Willow Ln	4	$	62,597.33	Crush and Shape w/3" Overlay
Total Cost:		**$**	**2,663,988.80**	Locals 2020
HMA NRP:		$	1,610,429.33	
Concrete NRP:		$	1,053,559.47	
Major Roads:		$	3,483,447.00	
Local Roads:		$	2,663,988.80	

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OHM Study 2012

Figure 1: Projected Paser Rating At Various Funding Levels

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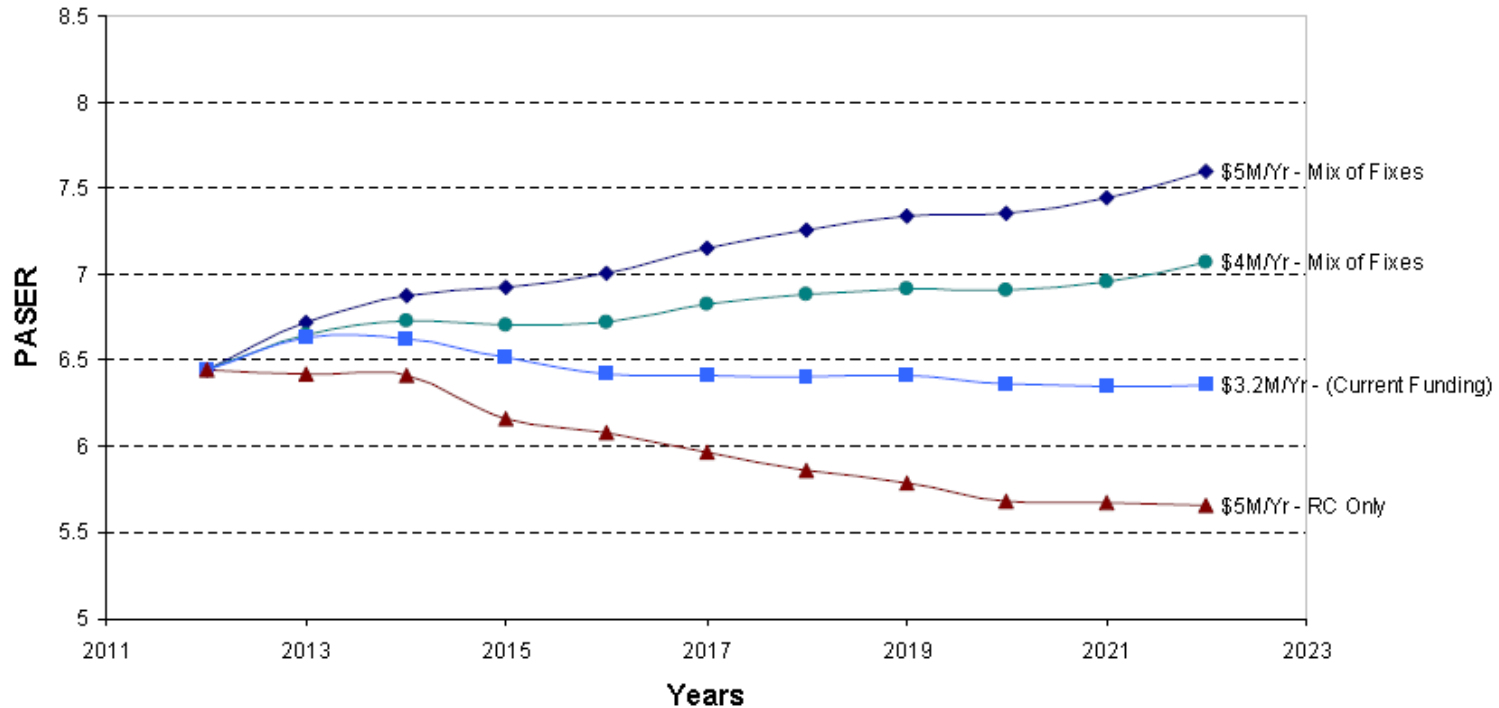
Road Report 2020-2024 - Forecasting

Projected Paser (5 year)

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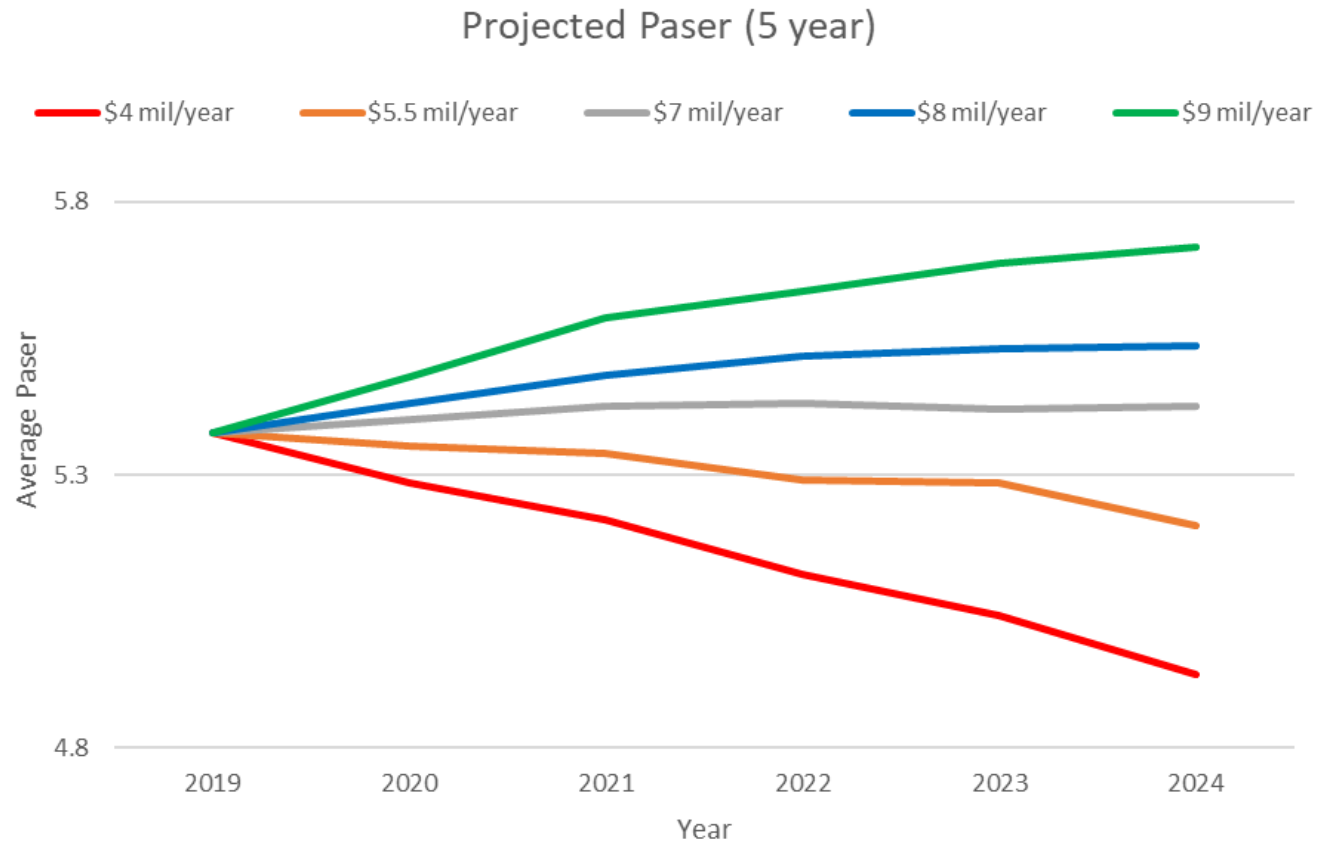
5 Year Road Program

RH/Recon   **CPM**

Year   **Year**

- 1
- 2
- 3
- 4
- 5

Roads

— Other Principal Arterial; Interstate or Other Freeway

— Minor Arterial; Major Collector

— Minor Surface Road

N

| 0 | 4,500 | 9,000 |

Feet

1" = 4,500 '
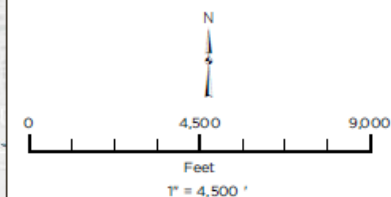
Source: Data provided by State of Michigan, SEMCOG and Roadsoft. OHM Advisors does not warrant the accuracy of the data and/or the map. This document is intended to depict the approximate spatial location of the mapped features within the Community and all use is strictly at the user's own risk.

Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 IntlFeet

Map Published: January 8, 2020

13 Mile Rd
12 Mile Rd
Grand River Ave
11 Mile Rd
10 Mile Rd
9 Mile Rd
Novi Rd

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Questions?

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