



MEMORANDUM

TO: JEFFREY HERCZEG, DIRECTOR OF PUBLIC WORKS
FROM: REBECCA RUNKEL, PROJECT ENGINEER
SUBJECT: 2023 ENGINEERING DIVISION ANNUAL REPORT
DATE: MARCH 21, 2024

Mayor and Council –

Please review all the great work from the City's fantastic Engineering Division. Lots accomplished last year!

- Victor

Novi's Engineering Division is responsible for the design and construction of public infrastructure improvements and the review and oversight of private development projects. Engineering staff work closely with residents, consultants, contractors, developers, and City staff to guide projects from conception to completion.

Engineering Division Duties

In 2023, the Engineering Division consisted of five full-time professionals and one part-time technician. The Engineering team reviews private development site plans, public infrastructure plans, and oversees private and public infrastructure construction.

Below are the 2023 team members and their primary responsibilities:

- **Ben Croy**, PE; City Engineer – responsible for overseeing the Engineering Division and serves as the City's Traffic Engineer.
- **Aaron Staup**; Construction Engineer – responsible for the construction phase of public infrastructure projects.
- **Rebecca Runkel**; Project Engineer – responsible for the design phase of public infrastructure projects.
- **Humna Anjum**; Project Engineer – responsible for engineering plan review and the construction phase of private development projects.
- **Adam Yako**; Project Engineer - responsible for engineering plan review and the construction phase of private development projects.
- **Olga MacDonald**; Engineering Technician – responsible for right-of-way permitting and inspections, and various engineering tasks as assigned.

Annual Overview

The main responsibilities of the Engineering Division are detailed in this section. The following table provides a summary of the Engineering Division's activities during 2023:

Activity	2022	2023
Grant Funding Obtained	\$2,299,411	\$287,777
Private Site Plan Reviews	129	124
Final Site Plan Approvals	37	32
Right-of-Way Permits Processed	222	208
Soil Erosion Permit Reviews Completed	44	45
Private Development Pre-Construction Meetings Held	7	13
Private Development Utilities Accepted	9 affidavits	2 affidavits
Private Development Streets Accepted	10 segments	7 segments
New Street Light Installations	1	0
Average PASER Rating	5.8	5.8
Number of Capital Construction Projects Substantially Completed	7	12
Dollar Value of Capital Construction Projects Substantially Completed	\$10,304,274	\$22,701,484

- Grant Funding**

In 2023, the City received notice that it was awarded \$160,320 in Federal funding for a Novi Safety Action Plan through the 2023 Safe Streets and Roads for All grant program. The City also received \$127,457 in funding through Oakland County's 2023 Local Road Improvement Program that went towards the Industrial Road Rehabilitation project (see page 7).

- Private Development Site Plan Review**

Plan reviews for private development are completed by in-house City Engineering Staff, saving upwards of \$80,000 per year in engineering consulting fees. In 2023, the Engineering Division reviewed 124 private site plans; of which, 32 final site plans were approved. Site plan submittals come in the form of pre-applications, preliminary site plans, and final site plans.

- Private Development Construction**

The Engineering Division hosted 13 pre-construction meetings for private developments. Staff managed the site inspections, legal document reviews, and responded to community inquiries. The City accepted 2 affidavits for water and/or sanitary sewer systems from developments for the year. The City accepted 7 public street segments from private developments in 2023.

- Soil Erosion and Sedimentation Control Permit Review**

All full-time City engineering staff are certified for Soil Erosion and Sedimentation Control (SESC) reviews. Bringing reviews in-house saves the City anywhere from

\$300 to \$800 in consultant review fees per site. Engineering staff is responsible for the review and approval of all soil erosion and sedimentation control (SESC) permits associated with site developments and public projects. There were 39 SESC permit applications reviewed for private development projects and 6 SESC permits issued for the City's public infrastructure projects.

- **Right-of-Way Permitting**

Staff reviewed 208 right-of-way applications for franchise utility installation (electric, gas, fiber), private development projects, residential driveway replacements, and other miscellaneous work in the right-of-way. The right-of-way permitting process minimizes impact to public water mains, sanitary sewer, storm sewer, ditches, roads, sidewalks and verifies that restoration within the public right-of-way is completed per City standards.

- **Capital Improvements Program (CIP)**

Engineering staff develops and manages multiple projects relating to roads, intersections, pathways, storm water, sanitary sewer, and water distribution sections as outlined in the City's Capital Improvement Program. Preparation for each project includes detailing the project scope, justification, public benefits, and cost estimates that include any necessary right-of-way acquisition, design, geotechnical services, etc. Please refer to the list of capital projects presented beginning on Page 4.

- **Street Lighting**

Each year, engineering staff works with homeowner's associations (HOAs) and developers to facilitate the installation of street lighting by DTE Energy. The Street Lighting Policy states that the City will pay for the installation and ongoing annual costs of a single standard street light at each subdivision entrance on a major street. No new streetlights were added in 2023.

- **Transportation Asset Management**

The Pavement Surface Evaluation and Rating System (PASER) is one component of the City's asset management approach. PASER ratings are on a scale from 1 to 10, with 10 being the best (road does not require any maintenance) and 1 being the worst (road has failed and requires reconstruction).

The average PASER rating is an indicator of the overall condition of the road pavements within the City network. City roads are rated every two years. The last rating occurred in November 2022. Roads that are under the jurisdiction of the governing county/road agency were excluded from the evaluation. The table below shows PASER ratings from the last 10 years. City roads will be rated again in fall 2024.

Evaluation Year	2012	2013	2014	2015	2017	2018	2019	2020	2022
Average PASER Rating	6.0	5.9	5.6	5.6	5.5	5.5	5.5	5.8	5.8

2023 Public Projects

Neighborhood Roads Program

The Neighborhood Roads Program (NRP) consists of asphalt and concrete rehabilitation and reconstruction of local roads. Spalding DeDecker assisted the Engineering Division with preparing a list of streets for the 2022 and 2023 Neighborhood Roads Program (NRP). The program is divided into two contracts: one focusing on concrete roads, and the other focusing on asphalt roads. The program was advertised as a two-year contract to lower the overall cost of bidding and design, and to lock in unit prices. The two-year contract also allows the City flexibility in scheduling the different project areas.

2023 NRP – Concrete Streets

The construction contract was awarded to Mattioli Cement Company. Several streets in this year's program developed pitting and scaling on the surface of the concrete in some panels. This issue has been brought to the contractor's attention and will most likely require removal and replacement. This concrete scaling phenomenon has also developed in a couple programs proceeding this one. Additional research and investigation are warranted to determine the full scope of the deterioration. The project included reconstruction of the streets listed below, which were completed in 2023.

Street Segment	From	To	Treatment
Anthony Dr	Williams Dr	Wright Way	Full Reconstruction
Williams Dr	Sullivan Ln	Anthony Dr	Full Reconstruction
Wright Way	Anthony Dr	Buckminster Dr	Full Reconstruction
Moorgate St	Havergale St	White Pines Dr	Full Reconstruction
Irvine Dr	Moorgate St	End	Full Reconstruction
Violet Ln	Irvine Dr	Bertram Dr	Full Reconstruction
Bertram Dr	White Pines Dr	Dunbarton Dr	Full Reconstruction
Highlands Dr	Cherry Hill Rd	Park Ridge Rd	Full Reconstruction

Engineering Consultant: Spalding DeDecker
Construction Contractor: Mattioli Cement Company

Original Contract Price: \$ 1,178,962
Current Contract Price: \$ 1,528,017

Project Start Date: June 1, 2023
Project Completion Date: October 14, 2023

2023 NRP – Concrete Streets, continued

Irvine Dr - Before



Irvine Dr - After



2023 NRP – Asphalt Streets

The construction contract was awarded to Asphalt Specialists, Inc. The project included reconstruction of the streets listed below, which were completed in 2023.

Street Segment	From	To	Subdivision
Glenwood Dr	Wixom Rd	Island Lake Dr	Island Lake
Woodham Rd	10 Mile Rd	Rochester Dr	Mockingbird
Rochester Dr	Woodham Rd	Natucket Dr	Mockingbird/Greenwood Oaks
Mockingbird Ct	Woodham Rd	End	Mockingbird
Red Pine Ct	Woodham Rd	End	Mockingbird
Sandpiper Ct	Rochester Dr	End	Mockingbird
Stone Rd	Buckminster Dr	End	Cedarspring Estates
Clark St	Stassen Ave	Grand River Ave	Novi Heights
Lannys Rd	11 Mile Rd	Grand River Ave	Mary's Orchard

Engineering Consultant: Spalding DeDecker
Construction Contractor: Asphalt Specialists, Inc.

Original Contract Price: \$ 909,324
Current Contract Price: \$ 1,005,028

Project Start Date: April 24, 2023
Project Completion Date: November 1, 2023

2023 NRP – Asphalt Streets, continued

Lannys Rd - Before



Lannys Rd – After



Industrial Roads Rehabilitation and Drakes Bay Drive Entrance

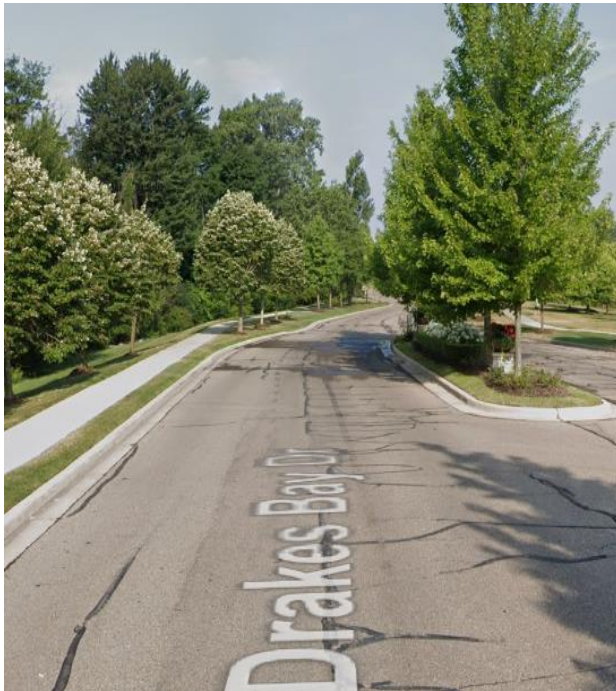
Several public roads in two industrial parks were identified as needing rehabilitation: Hudson Drive, DeSoto Ct, Ryan Ct, Peary Ct, Magellan Dr, and Humboldt Dr. The rehabilitation method used was a discrete profile mill of the existing concrete, followed by a thin layer of asphalt, an interlayer fabric, and a top layer of two inches of asphalt. Reconstruction of the eastern 500-feet of Drakes Bay Drive was added to the contract via a change order. The City is also looking to collaborate with Cadillac Asphalt to rehabilitate 13 Mile Road, between Meadowbrook Road and M-5 (part of the GLWA 54-inch transmission water main project). This will be added to this contract as a change order.

Engineering Consultant: AECOM
Construction Contractor: Cadillac Asphalt, LLC

Original Contract Price: \$ 2,223,749
Current Contract Price: \$ 1,981,662

Project Start Date: July 5, 2023
Project Completion Date: October 15, 2023

Drakes Bay Dr - Before



Drakes Bay Dr - After



2023 Capital Preventative Maintenance

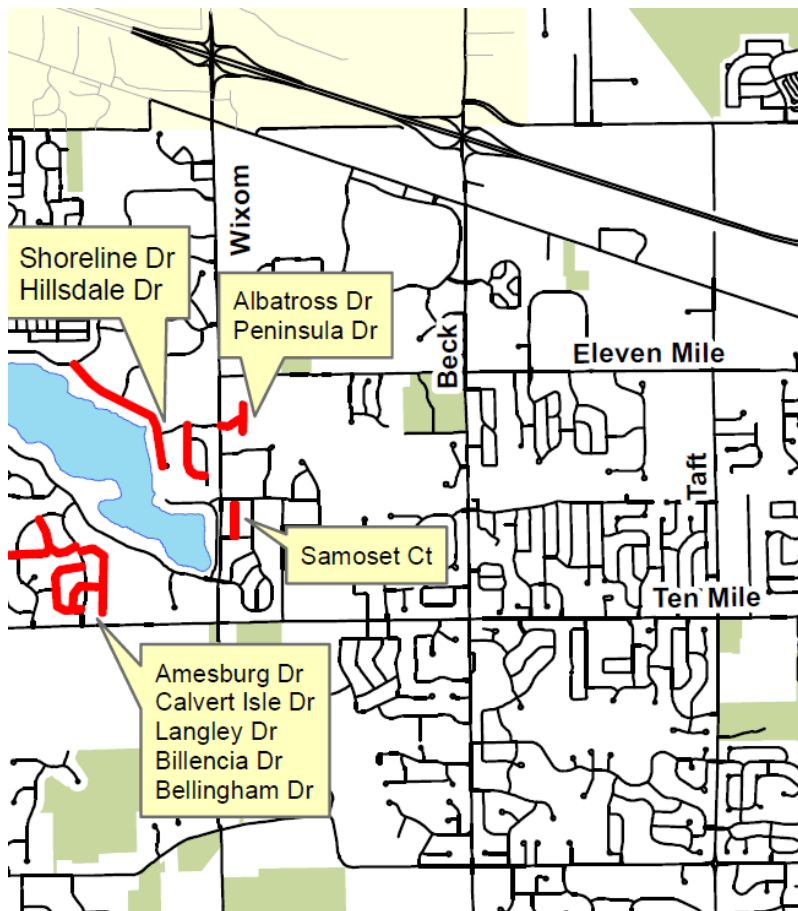
The City worked with AECOM to develop a list of local asphalt roads that would benefit from a capital preventative maintenance (CPM) program. CPM consists of surface treatments to roads rated in the fair condition on the PASER rating system, 5 or 6. CPM is a cost-effective way to extend the life of roads with surface deterioration that are still structurally sound.

Engineering Consultant: AECOM
Construction Contractor: Ajax Paving

Original Contract Price: \$ 866,079
Current Contract Price: \$ 866,051

Project Start Date: September 5, 2023
Project Completion Date: November 1, 2023

2023 CPM Roads



Taft Road Rehabilitation, South City Limits to 10 Mile Road

The City was awarded federal funds for Taft Road rehabilitation and roundabout construction at 9 Mile Rd and Taft Rd. Construction of the roundabout was completed in 2022, and the rehabilitation portion of the project was completed in 2023, under the same contract. Hot mix asphalt (HMA) base crushing, shaping, and paving was completed from the south City limits to 10 Mile Rd. Also included were aggregate shoulders, passing flares, storm sewer, bike lanes, and curb and gutter improvements. In 2024, after school lets out, the contractor will be back to construct a by-pass lane at Addington Lane which will involve a slight widening and ditch enclosure. This work will address a safety issue (addition of a dedicated left turn lane to reduce rear-end crashes) that was identified after the project was released for construction.

Engineering Consultant: OHM Advisors
Construction Contractor: Cadillac Asphalt, LLC

Original Contract Price: \$ 3,589,407
Current Contract Price: \$ 3,816,232

Project Start Date: June 12, 2023
Project Completion Date: September 30, 2023

Taft Rd - Before



Taft Rd - After



Bond Street Phase 2

The City's long-planned 'ring road' around the Novi Road and Grand River Avenue intersection was fully completed in 2023 with the 2nd phase of the Bond Street construction. Phase 1 of Bond St involved the realignment and reconstruction of an existing gravel road (fka Flint St). Phase 2 consisted of constructing a new connection out to Grand River Ave to line up with the recently completed Crescent Boulevard extension.

Engineering Consultant: AECOM
Construction Contractor: Toebe Construction, Inc.

Original Contract Price: \$ 1,159,186
Current Contract Price: \$ 1,171,516

Project Start Date: January 23, 2023
Project Completion Date: June 30, 2023

Bond St - Before



Bond St - After



Lakeshore Park Tunnel Replacement

The pedestrian tunnel, which crosses under South Lake Drive to the beach at Lakeshore Park, was replaced with a new precast concrete culvert with headwalls and wingwalls. The project required the reconstruction of South Lake Drive over the tunnel and replacement of the existing fence, retaining wall, guardrail, and sidewalk.

Engineering Consultant: AECOM
Construction Contractor: Fonson Company, Inc.

Original Contract Price: \$ 601,961
Current Contract Price: \$ 613,389

Project Start Date: February 27, 2023
Project Completion Date: May 25, 2023

Before



After



Northwest Park Clearing & Trails

The Parks, Recreation and Cultural Services department received a grant from Oakland County for development of the City's new Northwest Park on 12 Mile Rd, east of the Andelina Ridge subdivision. A gravel parking lot was constructed at the park in conjunction with the paving of 12 Mile Road in 2022. A change order was issued to the contractor of the paving project to clear and grade both gravel and natural walking trails and space for a playground in 2023.

Engineering Consultant: Spalding DeDecker
Construction Contractor: Springline Excavating, LLC

Original Contract Price: \$ 51,292
Current Contract Price: \$ 285,647

Project Start Date: September 12, 2023
Project Completion Date: October 13, 2023

Gravel Trail



Natural Trail



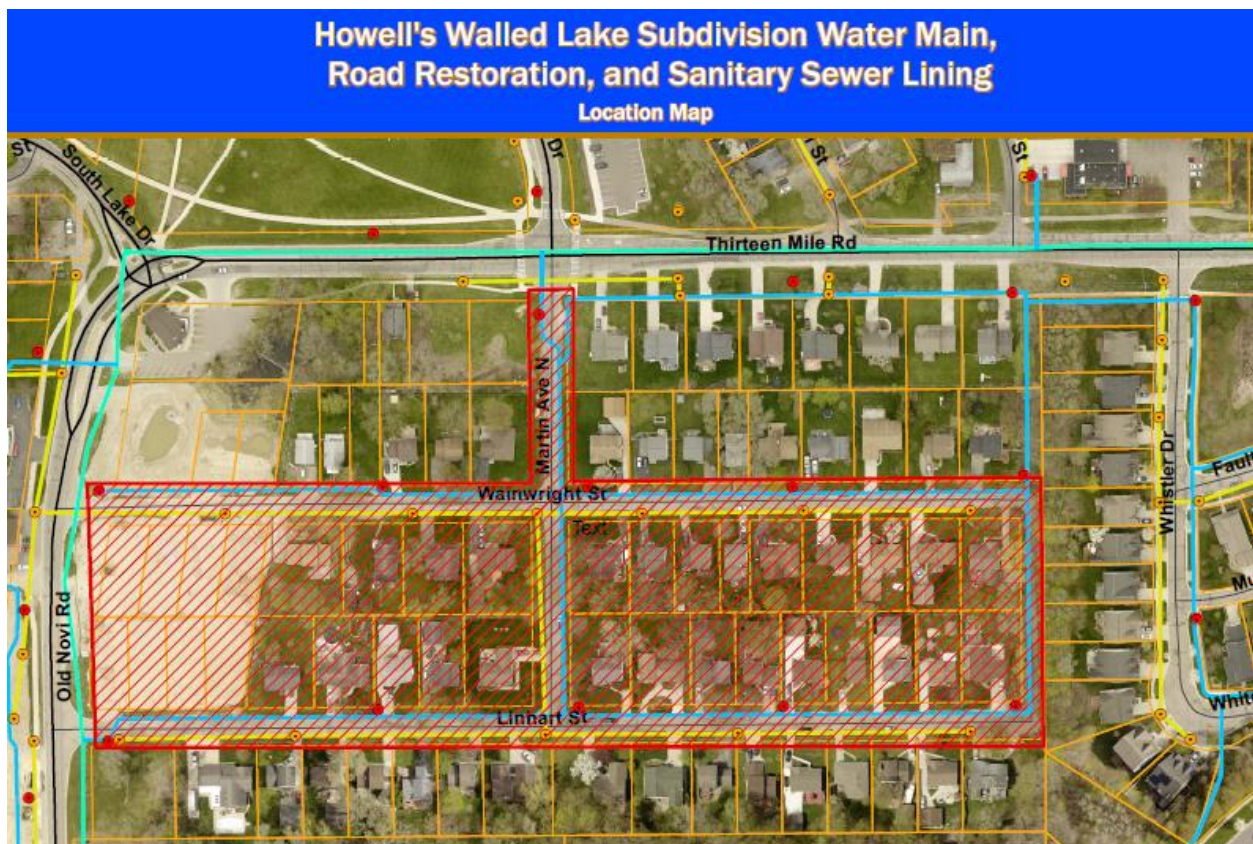
Howell's Walled Lake Subdivision Improvements

In 2022, the City replaced and upsized storm sewer along Martin Avenue. In 2023, the City returned to the neighborhood to replace approximately 3,000 feet of 8-inch water main and to repair portions of the sanitary sewer. Roads were restored following the utility work.

Engineering Consultant: OHM Advisors
Construction Contractor: DiPonio Contracting, LLC

Original Contract Price: \$ 2,071,892
Current Contract Price: \$ 2,176,311

Project Start Date: March 13, 2023
Project Completion Date: September 30, 2023



Westminster Subdivision Water Main Lining

Due to multiple water main breaks in the subdivision over the last decade, approximately 3,200 feet of 8-inch ductile iron water main was lined with a cured-in-place pipe (CIPP) lining. This trenchless method of rehabilitating the water main avoided disrupting residents with the more traditional open-cut method of replacement.

Engineering Consultant: OHM Advisors
Construction Contractor: Fer-Pal Construction USA, LLC

Original Contract Price: \$ 952,481
Current Contract Price: \$ 862,598

Project Start Date: June 20, 2023
Project Completion Date: September 18, 2023



2022 – 2023 Water Main Replacement

The 2017 Water Asset Management Plan and 2021 Water System Master Plan recommended replacement of asbestos-cement water main throughout the City, along with other specific segments of ductile iron pipe, including Roethel Drive. Construction was split into four divisions, with Roethel Drive added as a change order:

- Division 1 – Center Street
- Division 2 – Meadowbrook Lake Subdivision
- Division 3 – Meadowbrook Manor Subdivision
- Division 4 – Roethel Drive

Engineering Consultant: Spalding DeDecker

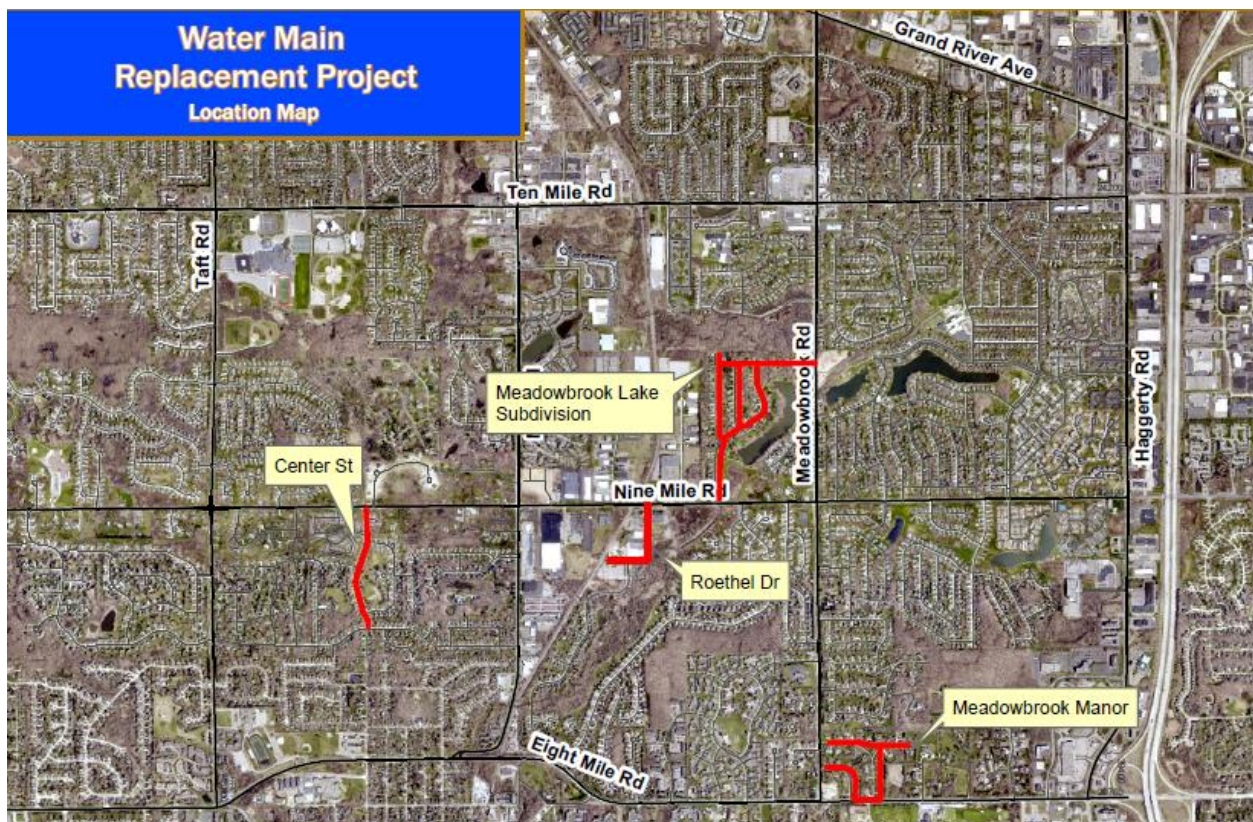
Construction Contractor: Pamar Enterprises

Original Contract Price: \$ 6,532,828.15

Current Contract Price: \$ 7,476,974.38

Project Start Date: September 12, 2022

Project Completion Date: November 30, 2023



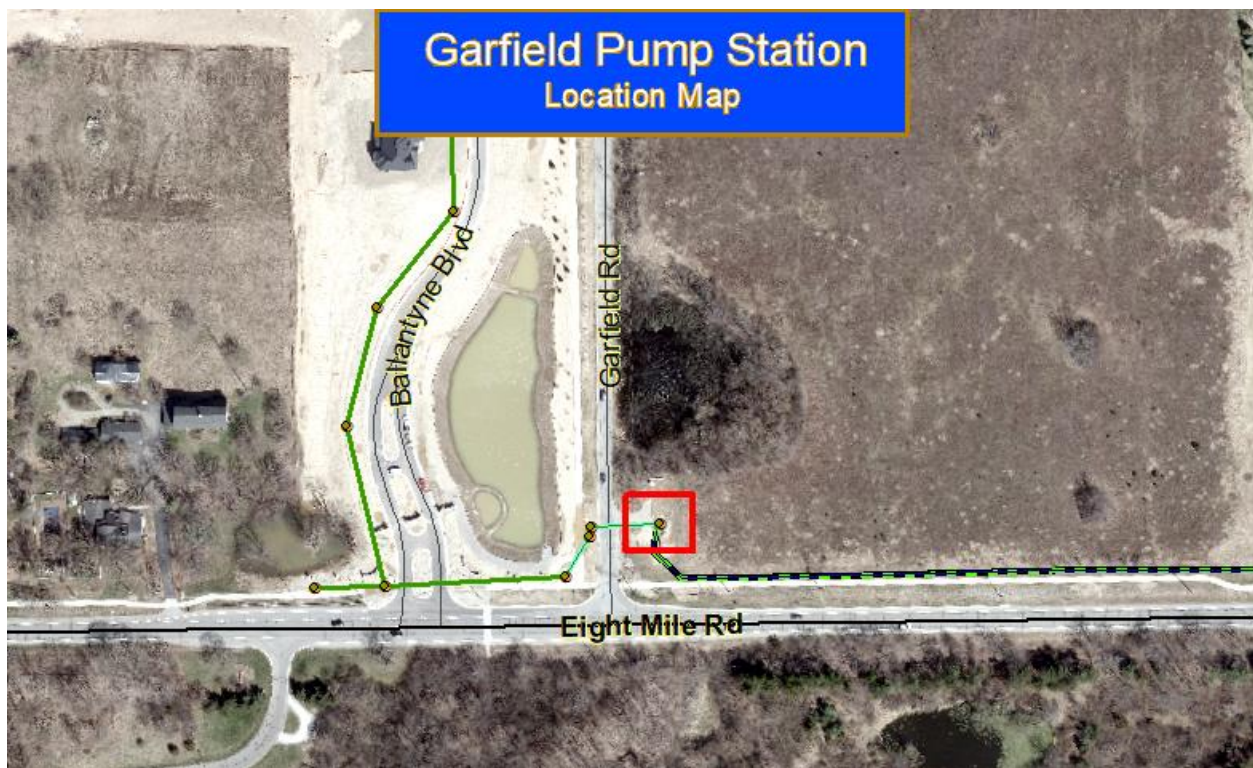
Garfield Sanitary Pump Station

Construction of the Garfield Sanitary Pump Station, located at the northeast corner of 8 Mile and Garfield Roads, began in 2008 as a multi-phase project intended to serve the southern half of Section 31 as development progressed. With the approval of the Ballantyne subdivision, the remainder of the pump station needed to be installed. In 2023, construction of the pump station was completed and involved installation of the pumps, control panel, valves, electrical equipment, generator, paving and miscellaneous improvements.

Engineering Consultant: OHM Advisors
Construction Contractor: CSM Mechanical

Original Contract Price: \$ 341,600
Current Contract Price: \$ 397,283

Project Start Date: November 28, 2022
Project Completion Date: May 30, 2023



Road Commission of Oakland County (RCOC) Projects

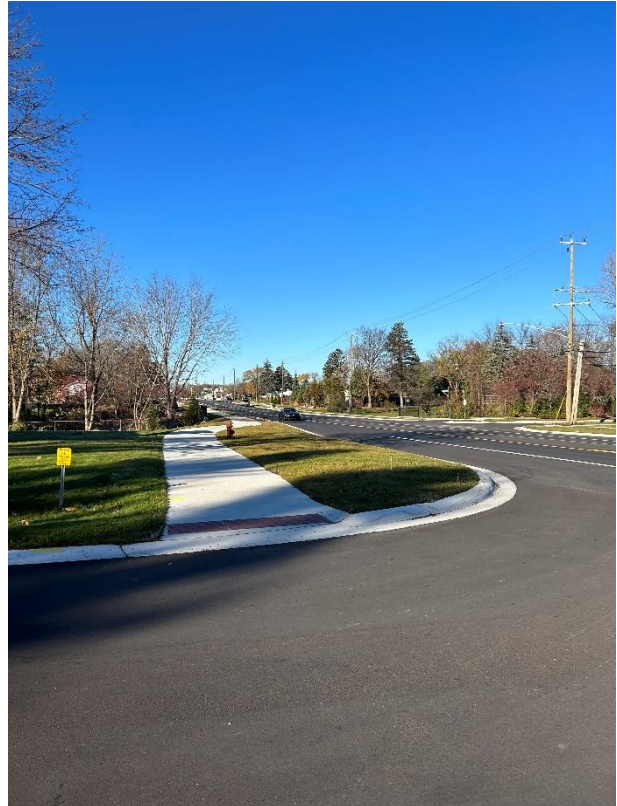
10 Mile Road Widening and Rehabilitation, Meadowbrook Road to Haggerty Road

The RCOC, in cooperation with the City, completed a widening and rehabilitation project on 10 Mile Road, between Meadowbrook Road and Haggerty Road in 2023. The project began in 2022 with the replacement of two culverts (over Bishop Creek and Ingersol Creek), existing sections of water main, and pavement at the Haggerty Rd/10 Mile Rd intersection. The project included a continuous center left turn lane, pavement rehabilitation, traffic signal upgrades at 10 Mile Rd/Meadowbrook Rd and 10 Mile Rd/Cranbrooke Dr., along with sidewalk gaps filled in on both sides of the road. The project began in September 2022 and wrapped up in November 2023. Novi's share of design and construction costs totaled approximately \$2.5 million.

10 Mile Rd @ Ripple Creek - Before



10 Mile Rd @ Ripple Creek - After



Novi Road Rehabilitation, 9 Mile Road to 10 Mile Road

The RCOC, in cooperation with the City, completed a pavement rehabilitation project on Novi Rd, between 9 Mile Rd and 10 Mile Rd in 2023. The project included replacement of three culverts, pavement repair and replacement at the Novi Rd/10 Mile Rd intersection, traffic signal upgrades, and sidewalk improvements. Construction occurred March – November 2023. Minor punch list items and restoration will be addressed this spring (2024). Novi's cost share responsibility through the tri-party program was \$98,593.

Novi Rd/9 Mile Rd Intersection - Before



Novi Rd/9 Mile Rd Intersection - After



Other Notable Projects in Novi

The City of Novi shares the responsibility of maintaining the roads inside the city limits with its neighbors, the Road Commission for Oakland County (RCOC), and Wayne County. The City is also a crossroads for state highways under the jurisdiction of the Michigan Department of Transportation (MDOT). A summary of state and/or county road projects that occurred in 2023 is as follows:

- **I-275 Repair and Rehabilitation Improvements (MDOT)**

MDOT began repairing and rebuilding 24 miles of I-275 between Will Carlton Rd and 6 Mile Rd in 2021. Improvements to interchanges and bridges is also included in the project. Work is expected to be complete in November 2024.

- **I-96 Flex Route (MDOT)**

In 2022, MDOT began construction on a flex lane and ramp metering on I-96 between Kent Lake Road and the I-275/I-696/M-5 interchange. The flex lane will allow for median shoulders to be used as an additional lane during peak travel times, special events, maintenance activities, and incidents/crashes. The project is expected to be complete in November 2024.

- **Rebuilding Michigan I-696 Project, I-275 to Lahser Road (MDOT)**

Reconstruction project started in late 2022 and will continue through 2025.

- **Great Lakes Water Authority (GLWA) 54-Inch Water Transmission Main Loop**

GLWA started work in 2022 on construction of a 54-inch transmission water main to interconnect two existing transmission mains at 14 Mile Rd and 8 Mile Rd. The project is expected to continue into 2024.

- **Pavement Preservation Overlay Program (RCOC)**

Preservation overlays, or simple asphalt resurfacing, was completed at the following locations:

- Novi Rd, south of 12 Mile Rd to north of Grand River Ave
- 8 Mile Rd, Napier Rd to Taft Rd
- 14 Mile Rd, East Lake Dr to Haggerty Rd
- Napier Rd, 8 Mile Rd to 9 Mile Rd

2024 Construction Projects in the City of Novi

The following projects are expected to start or continue construction during 2024:

- **2024 NRP Concrete Streets** – Construction spring/summer 2024
- **2024 NRP Asphalt Streets** – Construction spring/summer 2024
- **2024 CPM** – Construction spring/summer 2024
- **Neighborhood Sidewalk Repair Program** – Construction spring/summer 2024
- **Wixom Road and Drakes Bay Pump Station Rehabilitation** – Construction continuing into spring/summer 2024
- **Grand River Avenue Widening and Reconstruction, Napier Rd to Wixom Rd (RCOC)** – Construction spring/summer 2024
- **Middle Rouge Streambank Stabilization (south of Chattman Rd) and Meadowbrook Lake Sediment Dredging** – Construction fall 2023/winter 2024
- **Nine Mile Road Rehabilitation, Meadowbrook Rd to Haggerty Rd** – Construction late 2024 or 2025
- **Meadowbrook Road Rehabilitation, 10 Mile Rd to 11 Mile Rd** – Construction late 2024 or 2025
- **Novi Road Bridge Preventative Maintenance, over CSX Railroad** – TBD 2024
- **Wixom Road Rehabilitation, south City limits to south of Grand River Ave** – Construction spring/summer 2024
- **Base Line Road (8 Mile Road)** – Wayne County has a repair plan and will be making improvements from Haggerty Road to the CSX Railroad Bridge, in three separate segments:
 - Base Line Road (8 Mile Road) from Haggerty Road west to Meadowbrook Road – The County approved a \$4.5 million contract on 12/7/23. This project is nearing the completion of the procurement process. The project is expected to begin Spring 2024. We expect the project to be completed by late 2024 or early 2025.
 - Base Line Road (8 Mile Road) from Meadowbrook to the CSX Railroad Bridge – This segment of Base Line Road (8 Mile Road) will be resurfaced. The start date is yet to be determined but will occur in the summer or fall of 2024. The project is expected to take 2-3 weeks to complete.
 - Base Line Road (8 Mile Road) CSX Railroad Bridge – Wayne County is finalizing the design of the bridge. We expect all utility lines to be relocated by July 2024. Upon completion of the utility relocation MDOT will proceed with the letting process. The construction is expected to start at the end of 2024 or early 2025. The Bridge project will include deck replacement, steel beam painting, bearing replacement, and substructure patching. (Commissioner Terry Marecki)"