

2023 CWSRF PROJECT PLAN

Prepared for
The City of Eastpointe



AEW Project No. 0145-0694

Prepared by:



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Executive Summary

The City of Eastpointe hired Anderson Eckstein, and Westrick, Inc. (AEW), the City's consulting engineer, to develop a Project Plan in order to apply for a Clean Water State Revolving Fund (CWSRF) loan through the Michigan Department of Environment, Great Lakes and Energy (EGLE). This Project Plan was prepared for in accordance with CWSRF Project Planning Document Preparation Guidance (January 2023).

The intent of the CWSRF Project is to repair or rehabilitate deficiencies within the combined sewer system identified through recent sewer cleaning and television investigation. The goal of the CWSRF Project is to improve the efficiency and reliability of the existing combined sewer system. Based on the analysis summarized in this project plan, the following project was selected.

1. Sewer Rehabilitation by Open Cut Repairs and Cured-in-Place Pipe (CIPP) Lining

Eastpointe owns and operates a combined sewer system that serves the entire city. They are one (1) of three (3) member cities that comprise the Southeast Macomb Sanitary District (SEMSD). The other member cities include St Clair Shores and Roseville.

Beginning in 2021, the City of Eastpointe began to conduct thorough sewer cleaning and video investigation program of the entire City's sewer system to evaluate the current conditions of the sewer system and develop a plan to address any structural deficiencies. The City was divided into five (5) maintenance districts and is currently completing the fourth district with the entire City to be completely evaluated by the end of 2023. In 2022, the City addressed critical and high priority defects in Maintenance District No. 1 at a cost of approximately \$1.5 million dollars.

As part of the cleaning and video inspection efforts, AEW conducted a detailed review of all televised sewers. This review determined the condition of each sewer segment and identified structural deficiencies and locations of other potential obstructions to flow. The review also includes a determination of the most cost-effective rehabilitation method based on each individual defect. A summary of all identified defects within the combined sewer system is included in the Appendix.

The proposed sewer rehabilitation project includes repairing all locations with National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) scores of 4 or higher within Maintenance Districts 2 and 3. A preliminary cost estimate for the sewer rehabilitation project is included in the Appendix. A map of all locations in this project is included in the Appendix. The cost of this project is estimated to be approximately \$4,875,000.

Background

Study and Service Area

The City of Eastpointe is a built-out community located in southern Macomb County. Eastpointe borders the City of St. Clair Shores to the east, the City of Warren to the west, the City of Roseville to the north and the cities of Harper Woods and Detroit to the south.

The project study area encompasses the combined sewer system within Maintenance Districts 2 and 3 owned by the City of Eastpointe. The Study Area Map is presented in the Appendix. The study area map identifies the existing sewer system and the location of the proposed improvements.

Existing land use data, by category, was provided by Southeast Michigan Council of Governments (SEMCOG) for the study area and is included in the Appendix (SEMCOG Community Profile).

Single-family residential homes occupy the largest share of the study area's total acreage consisting of 1,199.7 acres, or 57.4 percent, of land are being used for this purpose. Existing single-family development is concentrated in platted subdivisions within the city.

Multiple-family residential occupies 11.3 acres of land. This accounts for 0.6 percent of the study area. Most multiple-family development in the study area is primarily located in the vicinity of the major roads.

Commercial and Office developments occupy 50.7 acres of land, or 2.4 percent of the study area. Office development is located principally along all the principal and minor arterials and the major collector streets located in the city. Most of the commercial developments are located in a linear fashion along Gratiot Avenue, 9 Mile Road and sections of 10 Mile Road and Kelly Road.

Industrial developments occupy 0.4 acres of the study area's land, or 0.0 percent of the study area.

Institutional developments occupy 137 acres of the study area land, or 6.6 percent of the study area. Institutional development is generally scattered throughout the study area.

A table summarizing the acreage and percentage of each category in the study area (that being the entire city) as well as the land use changes from 2015 to 2020 can be found in the SEMCOG Community Profile in the Appendix.

Population

The residential population for Eastpointe is 34,051 people, based on 2020 Census data. Seasonal fluctuations due to resorts or tourism are negligible. According to SEMCOG, the population projections for the city in 2045 are expected to drop to 30,843 people.

Existing Environment Evaluation

Cultural and Historic Resources

The projects discussed in this project plan are confined to previously constructed wastewater infrastructure located in publicly owned property or public Right of Way which has already been developed. Consequently, the proposed projects are not expected to impact cultural or historic resources.

Air Quality

There are no known air quality issues in Eastpointe. Emissions from heavy equipment, and dust from digging operations can be expected during construction. The contractor will be required to control dust as much as possible via sweepers and water trucks during the proposed work.

Wetlands

No wetland areas have been identified within Eastpointe. Consequently, the proposed projects are not expected to impact wetlands.

Great lakes Shorelands, Coastal Zones, and Coastal Management Areas

Eastpointe is a landlocked community surrounded by neighboring communities along the entirety of their border. Consequently, the proposed projects are not expected to impact Great Lakes Shorelands, Coastal Zones, and Coastal Management Areas.

Floodplains

There are no special flood hazards within Eastpointe. Consequently, the proposed projects are not expected to impact floodplains.

Natural or Wild and Scenic Rivers

There are no Natural or Wild and Scenic Rivers within Eastpointe. Consequently, the proposed projects are not expected to impact floodplains.

Major Surface Waters

There are no major surface waters within Eastpointe. Consequently, the proposed projects are not expected to impact major surface waters.

Topography

According to the United States Geographical Survey (USGS) map as shown in Appendix C, Eastpointe is relatively flat. Elevations range from approximately 625 ft at the western most portion of the city to 595 ft along the eastern border of the city. The elevation of the eastern shoreline of Lake St. Clair is approximately 571 ft. This indicates a difference in elevation in range of 39 feet from the lowest point in the city to Lake St. Clair to 54 feet from the highest point. In general, the average elevation throughout the city is 610 feet.

Geology

There are no geological structures or formations in the vicinity of the proposed projects.

Soil Types

Soil conditions throughout the city are classified generally as being silty sandy clay loam. Much of the city has soil stratum that consists of varying depths of fine sand, medium stiff moist gray silty clay, soft moist gray silt clay and bed rock. A map of the existing soils in Eastpointe is included in Appendix D.

Existing System

Eastpointe is a fully developed community served by a mostly combined sewer system. A map of the sewer system is included in Appendix A. The outlet of the combined sewer system is the Nine Mile Drain, which runs under 9 Mile Road and is owned and operated by the SEMSD. This flows eastwardly through St. Clair Shores to the Chapaton Retention Treatment Basin and Pump Station, located at 9 Mile Road and Jefferson. This facility is owned and operated by the

Macomb County Public Works Office (MCPWO). The facility pumps the sewage to the Great Lakes Water Authority (GLWA) for treatment or during extreme wet weather events, it discharges to Lake St Clair. Eastpointe does not individually own or operate any wastewater treatment facilities.

Throughout the system, a network of larger diameter sewers collect sanitary sewage and surface drainage from the local sewers via lateral connections. The Nine Mile Drain bisects the city from west to east, collecting combined sewer flow from the north and south. Sewers generally increase in diameter as they flow northerly or southerly toward the drain

Eastpointe's development mostly took place from the late 1920's through the 1950's. The oldest sewers in operation are nearing 100 years in age. A hydrologic and hydraulic study has not been conducted for the combined sewer system. Additionally, due to the incremental nature of development over an extended period of time, the system does not have a known design capacity.

Due to the lack of industrial presence in the city, there are no major industrial discharges.

Eastpointe does not experience sanitary sewer overflows (SSO) or combined sewer overflows (CSO).

Due to the combined nature of the sewer system, it is vulnerable to increased basement flooding risk as a result of increased intensity storm events.

Need for the Project

The combined sewer system is a gravity system that discharges into the Nine Mile Drain, owned and operated by the SEMSD and from there discharged to the GLWA system where it is transported and treated by GLWA. Consequently, NPDES compliance, discharge permits and the Discharge Data Form are not applicable to Eastpointe.

There are no court orders, federal or state enforcement orders, or administrative consent orders involving the City of Eastpointe.

Eastpointe is an established community with an existing sanitary sewer system throughout the City and as such there are no known septic systems.

Based on population projection information provided by SEMCOG, the city is predicted to decline in population over the next 20 years.

The goal of the CWSRF project plan is to improve the efficiency of the existing combined sewer system and to restore the structural integrity of sections of the system where issues have been identified.

As Part of the CWSRF Project Plan, the following is being proposed to improve the reliability of the existing system.

Sewer Rehabilitation by Open Cut Repairs and Cured-in-Place Pipe (CIPP) Lining

Beginning in 2021, the City of Eastpointe began to conduct thorough sewer cleaning and video investigation program of the entire City's sewer system to evaluate the current conditions of the

sewer system and develop a plan to address any structural deficiencies. The City was divided into five (5) maintenance districts and is currently completing the fourth district with the entire City to be completely evaluated by the end of 2023. In 2022, the City addressed critical and high priority defects in Maintenance District No. 1 at a cost of approximately \$1.5 million dollars. A list of repairs and rehabilitation required has been created for its sewers, ranked by severity. A summary of this evaluation can be found in Appendix G.

As the City's sewer system ages, the risk of deterioration, blockages and collapses become a major concern. An unexpected collapse of a sewer line can result in a number of problems, a few of which include:

- Health exposures from bacteria and other hazardous microorganisms
- Risk of electrocution
- Destruction of valuables
- Damage to structures and other personal property
- Failures to roads and other infrastructure
- Expensive and unbudgeted repair costs

The CWSRF loan will provide Eastpointe a funding mechanism to address projects identified as high priority or critical. These locations have a remaining life expectancy of 5 years or less before failure. The combined sewer system may not be able to provide full capacity due to mineral deposit buildup, heavy roots, cracked pipe, broken or missing pipe, the buildup of debris and solid waste, and many other obstructions. The repair and rehabilitation conducted as a part of this project will extend the life of the sewer system and restore the integrity of the combined sewer system by eliminating collapsed or collapsing pipe and in other instances decreasing the potential for structural deficiencies, infiltration and possible collapse.

Projected Future Needs

Due to the fact that Eastpointe is both fully developed and is also predicted to experience population decline, residential wastewater is not expected to increase over a period of 20 years and was not considered in this project plan.

Additionally, this project plan does not include construction of new wastewater facilities. The sewer rehabilitation projects are intended to address previously identified structural issues, and are therefore not intended to increase system capacity, but return it to originally designed flow capacities.

Analysis of Alternatives

To apply for a CWSRF loan a cleaning and televising program consisting of several projects were conducted and analyzed to determine the condition of the existing combined sewer system. The goal of the CWSRF project plan is to eliminate or reduce the number and severity of structural deficiencies present in the combined sewer system.

No Action

The No Action alternative represents the decision to do nothing beyond the cleaning of the sewers that has already taken place as part of the cleaning and televising program. Abandoning efforts to correct the structural deficiencies will provide inadequate capacity and further deterioration of the sewer system, most likely causing future collapsed sections of pipe.

Collapsing pipes can result in losses of service for significant portions of the service area. Such failures would result in large capital expenditures that are not typically anticipated by the city, including but not limited to, collapsed sections of pipe, sewer backups, and service laterals potentially backing up and possibly causing basement sewer backups.

Optimum Performance of Existing System

This project is intended to address structural issues identified within the combined sewer system. Cleaning of the system has removed debris, roots and blockages, thus optimizing performance of the system to its current capacity. This cannot resolve existing structural issues which will only worsen. Therefore, the Optimum Performance of Existing System alternative was not considered an applicable option.

Regionalization

The issues identified within the combined sewer system are limited to the local service areas in the City. The city is an entity within the regional system of the SEMSD and further regionalization is not practical. Consequently, the regionalization alternative is not considered viable for the deficiencies evaluated in this project plan.

Sewer Separation

The sewer system within the city is a combined system collecting both sanitary sewage from homes and businesses as well as storm runoff from rain events. An evaluation by the SEMSD determined that a majority of storm flow is from footing drains connected to the sewer by residential sewer leads. These are not able to be disconnected from the sanitary system. A separation would also not address the existing structural defects within the system.

Monetary Evaluation

The most cost-effective repair method was determined as part of the previously completed sewer inspection review efforts, based on the type of defect identified using the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) system. Therefore, separate alternatives were not evaluated for every individual defect location. Preliminary construction cost estimates have been prepared for the Sewer Rehabilitation Project by Open Cut Repairs and CIPP Lining as well as the TRPS Improvement project. The preliminary construction cost estimates are included in Appendix E.

Sunk Costs

Per the project planning document guidance, sunk costs were not included as a part of the monetary analysis as they are costs incurred regardless of what alternatives are selected. Sunk costs include the cost to operate and maintain the existing sewer system and pump stations and the associated lands, all outstanding debts and the cost incurred to prepare this project plan.

Present Worth

A present worth analysis, covering the 20-year planning period, was conducted. The discount rate used to calculate the present worth is 7% according to the Federal Office of Management and Budget (OMB). The present worth analysis calculations are included in Appendix F. The present worth was calculated using the following steps:

- Determine the capital cost. The construction costs from the estimates are for current value and are assumed to be present worth.
- Determine the salvage value at 20 years for each alternative using straight-line depreciation.
- Given the future salvage value, the present worth of the salvage value can be calculated as the salvage value at 20 years, multiplied by the single payment present worth factor of 0.4146 to determine present worth from a future amount in 20 years.
- Interest during construction has been calculated as 7.0 percent multiplied by the construction period in years and the total capital cost. The total is then multiplied by 0.5. This is per the guidance document for construction periods less than four (4) years.
- The total present worth is calculated by deducting the present worth of the salvage value at 20 years and the present worth of revenue generated from the sum of the present worth of the capital costs and the interest during construction.
- The equivalent annual cost is calculated by multiplying the total present worth by the capital recovery factor of 0.09439, to determine the annual cost for 20 years based on the total present worth.

Salvage Value

In accordance with the Project Planning Document Preparation Guidance the salvage value at the end of the 20-year planning period was calculated using straight line depreciation with a useful life of 50 years.

Escalation

The proposed projects are not expected to result in the purchase of more land or increases in energy use. Consequently, escalation costs were not considered in the monetary analysis.

Interest During Construction

The construction period is expected to be less than four years. As a result, interest was calculated as one half of the product of the construction period (in years), the total capital expenditures (in dollars), and the real discount rate.

User Costs

The combined sewer system is made up of 16,696 residential equivalency units (REU's). Based on the present worth analysis, the equivalent annual cost of the CWSRF projects is \$295,950. Therefore, the estimated annual costs per REU is \$17.75.

Project Delivery Method

The traditional Design-Bid-Build delivery method will be utilized for the CWSRF projects. Therefore, the project delivery method was not considered in the monetary evaluation.

Environmental Evaluation

All improvements proposed within this project plan will be made to existing wastewater infrastructure. Additionally, the construction methods themselves are expected to have minimal environmental impact. Soil erosion and sedimentation control measures are included in the capital cost of the project and enforced during construction.

Selected Alternative

Design Parameters

Sewer Rehabilitation by Open Cut Repairs and CIPP Lining

Eastpointe has proactively performed cleaning and video inspection of the combined sewer system, to identify structural deficiencies. The city has identified numerous locations within the combined sewer system which have become significantly deteriorated and need rehabilitation or repair. These sewers along with their varied locations serve a large portion of Eastpointe.

The most cost-effective repair method was determined as part of the previously completed sewer inspection review efforts, based on the type of defect identified using the PACP system. This project plan is intended to repair all locations in the combined sewer system with structural PACP scores of 4 or 5. A table summarizing the results of the sewer video inspection is included in Appendix G. The goal of the selected project components is to provide for system reliability by correction of structural deficiencies in existing sewers. The recommended project will include open cut sewer repairs, sewer rehabilitation by full length cured-in-place pipe (FCIPP), and sewer rehabilitation by sectional cured-in-place pipe (SCIPP).

Open Cut Repairs

At select locations within the combined sewer system there are pipes that have structurally failed and collapsed to the point where the only option for rehabilitation is by excavating and replacing either a section of a line section known as a point repair or complete sewer replacement.

FCIPP Rehabilitation

Rehabilitation by FCIPP is best utilized where several deficiencies were identified for correction within a length of existing sewer. The use of trenchless technologies such as cured-in-place pipe has several advantages over traditional removal and replacement of sewers. FCIPP rehabilitation limits adverse impact to the environment since excavation is not required to complete the work. Secondly, this method of construction will lessen the impact of construction noise, pollution and traffic congestion. The Contractor can accomplish the construction faster and with less equipment comparing it to open excavation replacement. Additionally, FCIPP proved to be the most cost-effective method of sewer rehabilitation for the sewer segments selected.

SCIPP Rehabilitation

Rehabilitation by SCIPP utilizes the same trenchless technology as FCIPP and therefore represents the same benefits and cost savings when compared to Open Cut Pipe Repair. The difference with SCIPP is that only a portion of a line segment requires rehabilitation due to a structural deficiency. Whereas FCIPP rehabilitates a complete line segment from manhole to manhole, SCIPP is a location specific rehabilitation method for particular section within a line segment which requires a localized repair. Since there are a number of areas that require a sectional repair/rehabilitation, SCIPP proves to be a greater costs savings versus an open excavation type of repair.

The locations of all proposed repairs included in the CWSRF project plan are shown on the map in Appendix A.

Useful Life

Open cut sewer repairs, sewer rehabilitation by FCIPP, and sewer rehabilitation by SCIPP all have useful life expectancy exceeding 50 years. Lining efforts conducted over 30 years ago within the city of Eastpointe are still in service today.

Project Maps

See Appendix A for a map identifying all work areas associated with the proposed CWSRF Projects.

Water and Energy Efficiency

All improvements proposed within this project plan will be made to previously constructed wastewater infrastructure to address previously identified structural issues. Consequently, the water and energy efficiency alternatives are not considered as part of this project.

Schedule for Design and Construction

A preliminary schedule for design and construction of the selected alternatives is presented below:

Publish public hearing notice	4/10/23
Conduct formal public meeting	4/25/23
Public comment period ends	4/25/23
City Council approves resolution to proceed with project plan	4/25/23
Project plan submittal to MDEQ	5/1/23
Submit engineering plans for required permits	12/15/23
Part I application due (financial documentation and assurances)	2/1/24
Part II application due (submit approved UCS and project plans)	2/1/24
Publish advertisement for bids	2/15/24
Part III application due (bid tabulation with tentative award)	11/1/24
Order of Approval issued	5/1/24
Loan close	5/31/24
Conduct preconstruction meeting and issue notices to proceed	6/15/24
Start construction	7/1/24
Project completion	3/31/25

Cost Summary

The total cost of the CWSRF Project is estimated to be \$4,875,000. The CWSRF loan is anticipated to be financed for a 20-year term at 1.875 to 2 percent interest. Debt service must be financed by a sewer system user charge system (UCS) that is consistent with the Environmental Protection Agency (EPA) and EGLE guidelines.

Implementability

The City of Eastpointe is a municipal unit organized under the State of Michigan Constitution and statutes and is legally able to own and operate public utilities. The city owns and operates its public water system and combined sewer system. All improvements proposed as a part of this

project will be completed within city owned utility infrastructure. All city-owned sewers are located within a city owned utility easement or public rights-of-way.

The selected alternatives will not pose any issues related to the implementability of the project. Eastpointe has the legal authority, managerial capability, and financial means to build, operate, and maintain the system. Eastpointe passed a resolution to adopt this Project Plan at the April 25, 2023 City Council meeting.

Environmental and Public Health Impacts

Direct Impacts

Cultural and Historic Resources

The projects discussed in this project plan are confined to previously constructed wastewater infrastructure located in publicly owned property or public Right of Way which has already been developed. Additionally, the National Register of Historical Places does not include any locations within Eastpointe. Consequently, the proposed projects are not expected to impact cultural or historic resources.

Air Quality

Emissions from heavy equipment can be expected during construction. Dust and debris from digging operations are also expected. The contractor will be required to implement measures such as street sweeping or a water truck to mitigate these issues. However, it is expected that these items will have a negligible long-term impact on air quality in Eastpointe.

Wetlands

No wetland areas have been identified within Eastpointe. Consequently, the proposed projects are not expected to impact wetlands.

Great lakes Shorelands, Coastal Zones, and Coastal Management Areas

Eastpointe is a landlocked community surrounded by neighboring communities along the entirety of their border. Consequently, the proposed projects are not expected to impact Great Lakes Shorelands, Coastal Zones, and Coastal Management Areas.

Floodplains

There are no special flood hazards within Eastpointe. Consequently, the proposed projects are not expected to impact floodplains.

Natural or Wild and Scenic Rivers

There are no Natural or Wild and Scenic Rivers within Eastpointe. Consequently, the proposed projects are not expected to impact floodplains.

Major Surface Waters

There are no major surface waters within Eastpointe. Consequently, the proposed projects are not expected to impact major surface waters.

Agricultural Resources

There is no agricultural land within the Eastpointe. Consequently, the proposed projects are not expected to impact agricultural resources.

Fauna and Flora

The projects discussed in this project plan are confined to previously constructed wastewater infrastructure located in publicly owned property or public Right of Way which has already been developed. Consequently, the proposed projects are not expected to impact any natural habitats. However, the MSU Extensions will be contacted to ascertain whether any species of fauna or flora listed or proposed to be listed in the MNFI as endangered or threatened, or the critical habitat of such species, is found in the vicinity of the proposed projects.

Construction Impacts

The proposed work for the project is generally limited to the public right-of-way where streets may be impacted depending on the location of the existing sewers. Construction methods are selected to minimize disruptions. Standard traffic and safety control devices meeting MDOT construction standards such as barricades and lighted barrels will be in place to warn and protect residents during construction activities.

Where sewer main replacement work is taking place within or near road right-of-ways, roads may have to be partially or completely closed to vehicular and/or pedestrian traffic. In addition, construction equipment and vehicles will have to be parked within the road right-of-way for a specified period of time.

The contractor will be required to make accommodations for public services such as garbage pick-up, mail delivery, parcel delivery and other deliveries to residences and businesses. Access for emergency vehicles and access for handicapped or disabled persons will also require attention.

Consideration must be taken to establish haul routes that minimize impact to residents and businesses. Construction truck traffic will be confined to the construction project itself and accessing the sites from major roads only. No truck traffic will be allowed to be on adjacent residential streets.

During the course of construction, the noise level will be increased as a result of construction equipment and truck traffic.

Where open cut excavations will take place, special attention will be required when stockpiling excavated materials in addition to other material stockpiles and their locations to not interfere with existing drainage patterns and transfer particulates into the drainage system. Soil erosion and sedimentation control measures such as, but not limited to silt sacks, filter fabrics and straw bales will be installed at storm water facilities as part of the construction activities to prevent soil erosion and sedimentation concerns.

The vegetation to be disturbed for this project are grass areas maintained by each property owner. Any disturbed area will be restored. Tree removals may be necessary. Any miscellaneous tree removal will be replaced with a tree of compatible species native to the area.

Any contamination encountered during construction will be remediated by the contractor.

Operational Impacts

The proposed projects will not result in any changes to the current system, operational or otherwise.

Social Impacts

Minor increases in rates may be a social impact of the project if the city chooses to increase rates to finance the loan debt. Additionally, traffic impacts discussed in the Construction Impacts section of the report can be considered a social impact. Long-term impacts related to relocation of business or residents due to these projects are not expected due to the nature of the proposed projects.

Indirect Impacts

Due to the fact that the service area is fully developed, the proposed projects are confined to previously constructed wastewater infrastructure, and the service area is predicted to experience population decline, there are no anticipated indirect impacts to the following aspects:

- Changes in rate, density, or development type
- Changes in land use
- Changes in air or water quality
- Changes to the natural setting or sensitive features
- Impacts on cultural, human, social and economic resources
- Impacts on area aesthetics
- Resource consumption over the useful life of the project

Cumulative Impacts

Due to the fact that the service area is fully developed, the proposed projects are confined to previously constructed wastewater infrastructure, and the service area is predicted to experience population decline, there are no anticipated indirect impacts as a result of the proposed projects to the following aspects:

Mitigation

Mitigation of Short-Term Construction Related Impacts

General Construction

Many mitigation techniques used to minimize short term construction impacts are standard procedures included in construction contracts. For example, traffic control measures will be included in the construction contract to safely maintain traffic during construction activities.

Allowable work hours are controlled by local ordinances in order to mitigate impacts related to increased noise levels during construction.

Soil Erosion and Sedimentation Control

Soil Erosion and Sedimentation Control (SESC) plans and permit requirements are included in the construction contract as well. SESC measures include the use of inlet filters for catch basins within the project influence area to prevent soils or other construction materials from entering the combined sewer system. Silt fences may also be used to prevent runoff from carrying soils from the construction site and potentially entering waterways.

Where feasible, trenchless technologies will be used to perform rehabilitation and limit required excavation. However, where trenchless rehabilitation methods cannot accomplish the necessary rehabilitation, open cut excavation will be required. For all excavated areas, it will be

necessary for the contractor to stockpile excavated and backfill materials. During open cut operations, effort will be made to minimize the amount of open trench by backfilling as soon as possible after work is complete. This practice will minimize the amount of material stockpiled on the site, thereby minimizing the potential for sedimentation runoff and airborne particulate/dust problems. All excess soils will be removed from the project site as the work progresses.

The contractor will be required to maintain a safe and clean work site. This includes performing street sweeping as necessary during construction.

Existing Landscape

Any surface features impacted by the construction such as paved surfaces, lawns, or vegetation will be repaired or replaced as part of the construction contract.

Existing Underground Utilities

It is common to encounter existing utilities during excavation. Existing underground utilities that may be encountered include, but are not limited to, electric, gas, communications, water mains, and sewers. Every effort will be made to obtain information regarding underground utilities from all utility owners for inclusion on the construction plans. The contractor will be required to have all construction sites staked by MISS DIG for the location of all underground utilities. It will be the contractor's responsibility to protect all underground utilities during construction.

Culturally and Historically Significant Sites

Per the direction of the State Historical Preservation Office (SHPO), any culturally or historically significant artifacts that are uncovered during excavation require all work to be stopped and the area where the artifact(s) were encountered will be immediately surveyed by SHPO or any of the Tribal Historical Preservation Officers (THPO) who may have stated, by written correspondence, that their tribe has had past influence in the City. If encountered, every effort will be made to accommodate and not disturb any cultural or historically significant artifacts. If necessary, the project will be redesigned to maintain historically significant properties. The proposed excavation is in areas of previously constructed wastewater infrastructure where the ground has been previously disturbed during original construction. Therefore, we anticipate that culturally or historically significant artifacts will not be encountered.

Natural Water Features

Construction is not expected to occur near wetlands, floodplains, surface waters or natural streams and rivers. Therefore, mitigation related to these features is not considered in this project plan.

Mitigation of Long-Term Impacts

Siting Decisions

The only feature that will be constructed above the ground surface will be the generator and related appurtenances on the TRPS lot. This equipment will be mostly set back from public view towards the rear of the lot. There is currently landscaping along the TPRS lot lines to provide privacy and concealment for the residential lots adjacent to TRPS.

Operational Impacts

The sewer rehabilitation project will not result in any operational impact whatsoever as these locations are confined to gravity sewers that do not require operational activities.

In an effort to mitigate the noise from the proposed generator at TRPS, a level 2 noise attenuating enclosure will be specified. Additionally, aside from routine weekly test startups for preventative maintenance purposes, the generator will only run in emergency situations.

Mitigation of Indirect Impacts

The proposed projects do not involve the expansion of the sewer system or implementation of a wastewater treatment facility. The proposed work will not have an effect on the rate of development, population density, zoning or land use. Therefore, no indirect impacts are foreseen as a part of this project.

Staging of Construction

Due to the varied locations of the proposed projects, staging of the construction will not provide any additional mitigation benefits.

Public Participation

Public Meeting

A public meeting was held at Eastpointe City Hall on Tuesday, April 25, 2023. The following items were discussed.

1. A description of the water quality problems to be addressed by the project and the principal alternatives that were considered.
2. A description of the recommended alternative, including its capital costs and a cost breakdown by project components (e.g., treatment plant, sewer system).
3. A discussion of project financing and costs to users, including the proposed method of project financing and estimated monthly debt retirement; the proposed annual, quarterly, or monthly charge to the typical residential customer; and any special fees that will be assessed.
4. A description of the anticipated social and environmental impacts associated with the recommended alternative and the measures that will be taken to mitigate adverse impacts.

Public Meeting Advertisement

In accordance with the Project Planning Document Preparation Guidance, the advertisement was published on the city's website on Monday, April 10, 2023. The public meeting advertisement is included in Appendix H.

Public Meeting Summary

The following elements from the public meeting are included in Appendix H:

- Summary of the meeting held and what was covered during the meeting.
- List of attendees.
- Concerns raised during the meeting and the responses.
- Written comments received during the public notice period and the responses.
- Changes made to the project because of public comment

Adoption of the Project Planning Document

The resolution to adopt this Project Plan passed at the April 25, 2023 city council meeting is included in Appendix I.

Technical Considerations

The projects included in this project plan are intended to address previously identified structural issues. Therefore, infiltration and inflow (I&I) removal was not considered as part of this analysis. Similarly, a sewer system evaluation survey (SSES) was not conducted as part of this analysis.

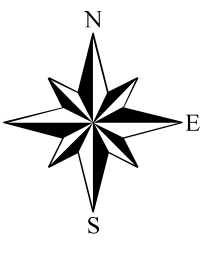
Structural Integrity

A table summarizing the results of the NASSCO PACP sewer video inspection is included in Appendix G. A map of the proposed sewer projects with areas of Grade 4 or 5 defects is included in Appendix A.

DRAFT

Appendix A

Map of Service Area with Proposed Projects Locations



CITY OF WARREN

CITY OF ST. CLAIR SHORES

CITY OF DETROIT

**DISTRICT 5
2023 WORK**

**DISTRICT 4
2022 WORK**

**DISTRICT 3
2022 WORK**

**DISTRICT 2
2021 WORK**

**DISTRICT 1
2021 WORK**


CITY of EASTPOINTE

MACOMB COUNTY, MICHIGAN

2020-2023 SANITARY SEWER CLEANING AND CCTV INVESTIGATION DISTRICTS 1, 2, 3, 4 AND 5

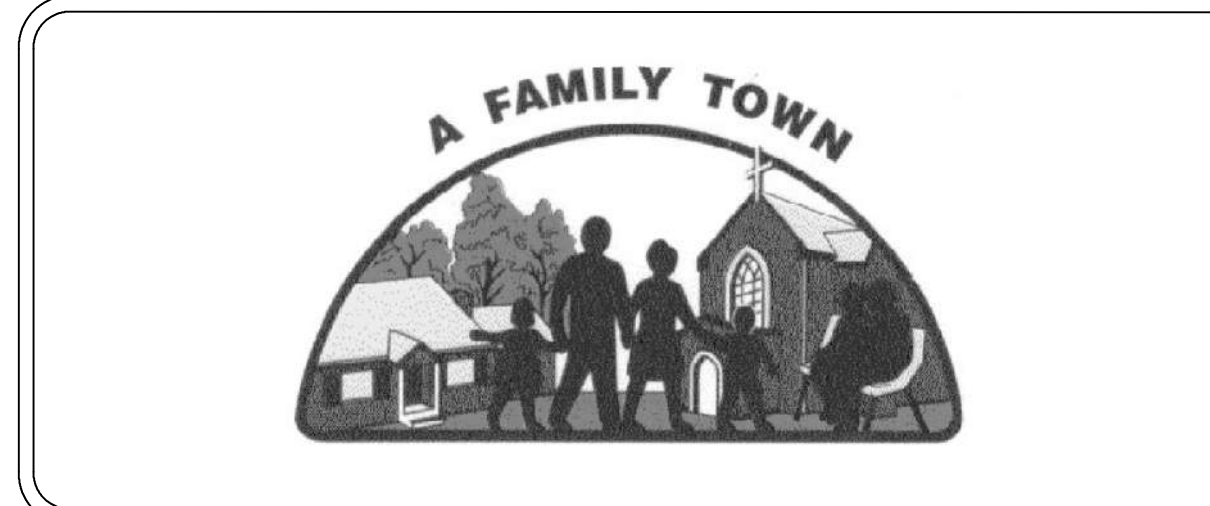
AEW JOB NUMBER 0145-0604

REVISIONS / UPDATES	DATE	REMARKS



ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Rd. Phone: 586.726.1234
Stuyvesant Township, Michigan 48315 Fax: 586.726.8760
www.aewinc.com

PLOT DATE:	11/11/2020	DRAWING DATE:	11/11/2020
PLOT SCALE:	NTS	DRAWING SCALE:	NTS
PLOT CONFIG:	24 x 36	PROJECT NO.:	0145-0604
SCRIPT FILE:	NONE	FILE NAME:	Index Page.mxd
ATTACH XREF:		DRAWN BY:	CHK'D BY:
		GIS Dept.	JMM



City of Eastpointe

2020-2023 SANITARY SEWER CLEANING AND
CCTV INVESTIGATION DISTRICTS 1, 2, 3, 4 AND 5

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CAUTION

THIS MAP IS INTENDED FOR REFERENCE PURPOSES ONLY. ANDERSON, ECKSTEIN AND WESTRICK, INC. AND THE CITY OF EASTPOINTE DO NOT GUARANTEE THE ACCURACY OF THIS INFORMATION AND DISCLAIM ALL LIABILITY FROM ALL CLAIMS, SUITS, DEMANDS AND JUDGEMENTS ARISING FROM THE USE OF THIS INFORMATION.

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Appendix B

SEMCOG Community Profile

[SEMCOG | Southeast Michigan
Council of Governments](#)

Community Profiles

YOU ARE VIEWING DATA FOR:

City of Eastpointe

23200 Gratiot Ave
Eastpointe, MI 48021-1683
<https://www.cityofeastpointe.net/>



Census 2020 Population: 34,318
Area: 5 square miles

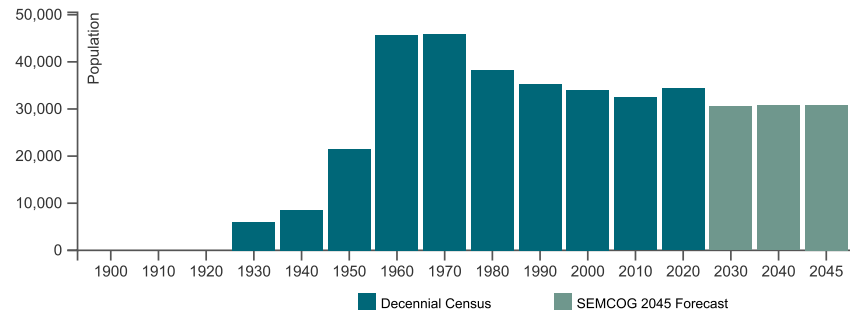
[VIEW COMMUNITY EXPLORER MAP](#)

[VIEW 2020 CENSUS MAP](#)

Population and Households

Link to American Community Survey (ACS) Profiles: **Select a Year** **Social | Demographic
Population and Household Estimates for Southeast Michigan, 2022**

Population Forecast



Note for City of Eastpointe : Name changed in 1992 from City of East Detroit. East Detroit incorporated as a city in 1929 from Village of Halfway. Village of Halfway incorporate in 1924 from part of Erin Township. Population numbers not available prior to 1924 as area was part of Erin Township.

Population and Households

Population and Households	Census 2020	Census 2010	Change 2010-2020	Pct Change 2010-2020	SEMCOG Jul 2022	SEMCOG 2045
Total Population	34,318	32,442	1,876	5.8%	34,051	30,843
Group Quarters Population	22	21	1	4.8%	16	24
Household Population	34,296	32,421	1,875	5.8%	34,035	30,819
Housing Units	13,798	13,796	2	0.0%	13,850	-
Households (Occupied Units)	13,126	12,557	569	4.5%	12,991	13,005
Residential Vacancy Rate	4.9%	9.0%	-4.1%	-	6.2%	-
Average Household Size	2.61	2.58	0.03	-	2.62	2.37

Source: U.S. Census Bureau and SEMCOG 2045 Regional Development Forecast

Components of Population Change

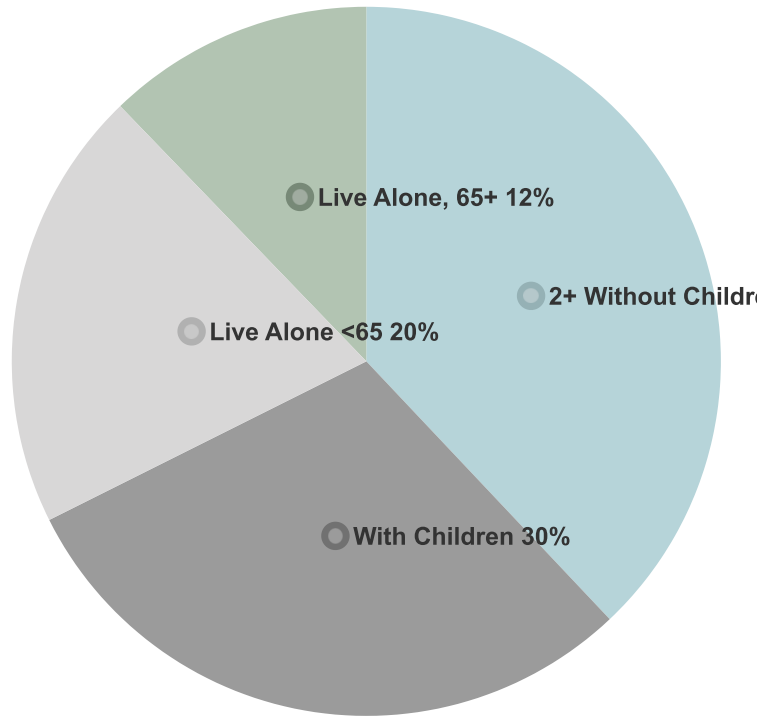
Components of Population Change	2000-2005 Avg.	2006-2010 Avg.	2011-2018 Avg.
Natural Increase (Births - Deaths)	56	60	65
Births	504	405	423

Source: Michigan Department of Community Health Vital Statistics, U.S. Census Bureau, and SEMCOG

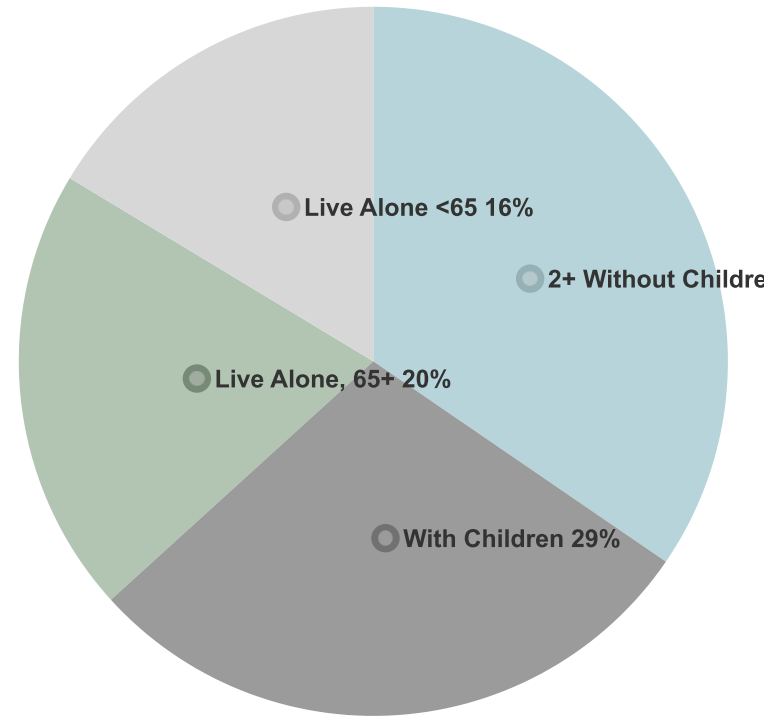
Components of Population Change	2000-2005 Avg.	2006-2010 Avg.	2011-2018 Avg.
Deaths	448	345	358
Net Migration (Movement In - Movement Out)	-174	-269	-105
Population Change (Natural Increase + Net Migration)	-118	-209	-40

Household Types

ACS
2020



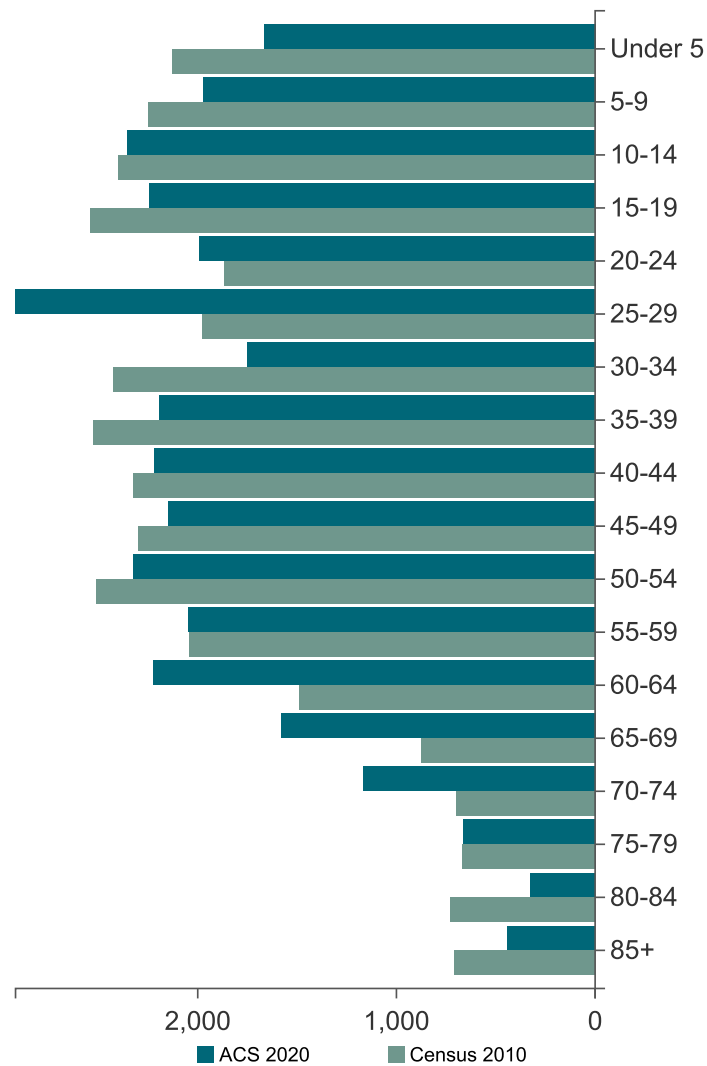
SEMCOG
2045



Household Types	Census 2010	ACS 2020	Change 2010-2020	Pct Change 2010-2020	SEMCOG 2045
With Seniors 65+	2,963	3,415	452	15.3%	5,559
Without Seniors	9,594	9,441	-153	-1.6%	7,446
Live Alone, 65+	1,345	1,570	225	16.7%	2,651
Live Alone, <65	2,263	2,593	330	14.6%	2,127
2+ Persons, With children	4,382	3,813	-569	-13%	3,733
2+ Persons, Without children	4,567	4,880	313	6.9%	4,494
Total Households	12,557	12,856	299	2.4%	13,005

Source: U.S. Census Bureau, Decennial Census, 2016-2020 American Community Survey 5-Year Estimates, and SEMCOG 2045 Regional Development Forecast

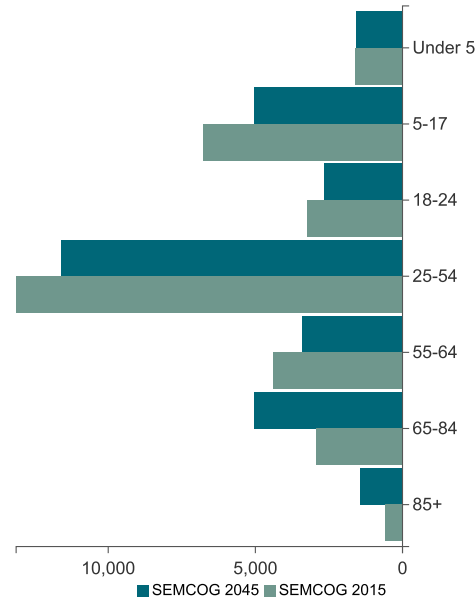
Population Change by Age, 2010-2020



Age Group	Census 2010	Change 2000-2010	ACS 2020	Change 2010-2020
Under 5	2,126	-46	1,667	-459
5-9	2,248	-126	1,973	-275
10-14	2,397	-18	2,355	-42
15-19	2,540	402	2,241	-299
20-24	1,868	46	1,990	122
25-29	1,976	-472	2,917	941
30-34	2,425	-304	1,752	-673
35-39	2,524	-283	2,192	-332
40-44	2,323	-689	2,219	-104
45-49	2,300	-183	2,146	-154
50-54	2,510	696	2,324	-186
55-59	2,040	849	2,047	7
60-64	1,488	423	2,222	734
65-69	874	-271	1,581	707
70-74	697	-774	1,164	467
75-79	670	-728	663	-7
80-84	727	-262	327	-400
85+	709	105	441	-268
Total	32,442	-1,635	32,221	-221
Median Age	36.3	-0.3	38.1	1.8

Source: U.S. Census Bureau, Decennial Census, and 2016-2020 American Community Survey 5-Year Estimates

Forecasted Population Change 2015-2045



Age Group	2015	2020	2025	2030	2035	2040	2045	Change 2015 - 2045	Pct Change 2015 - 2045
Under 5	1,608	1,841	1,872	1,774	1,683	1,631	1,595	-13	-0.8%
5-17	6,787	5,877	5,294	5,051	5,166	5,147	5,057	-1,730	-25.5%
18-24	3,248	3,240	3,016	2,712	2,645	2,685	2,670	-578	-17.8%
25-54	13,129	12,844	12,157	11,802	11,782	11,775	11,594	-1,535	-11.7%
55-64	4,400	4,444	4,029	3,677	3,403	3,192	3,431	-969	-22%
65-84	2,956	3,968	4,311	4,728	4,866	5,126	5,037	2,081	70.4%
85+	578	630	699	811	954	1,173	1,459	881	152.4%
Total	32,706	32,844	31,378	30,555	30,499	30,729	30,843	-1,863	-5.7%

Source: SEMCOG 2045 Regional Development Forecast

Older Adults and Youth Populations

Older Adults and Youth Population	Census 2010	ACS 2020	Change 2010-2020	Pct Change 2010-2020	SEMCOG 2045
60 and over	5,165	6,398	1,233	23.9%	8,117
65 and over	3,677	4,176	499	13.6%	6,496
65 to 84	2,968	3,735	767	25.8%	5,037
85 and Over	709	441	-268	-37.8%	1,459
Under 18	8,339	7,335	-1,004	-12%	6,652
5 to 17	6,213	5,668	-545	-8.8%	5,057
Under 5	2,126	1,667	-459	-21.6%	1,595

Note: Population by age changes over time because of the aging of people into older age groups, the movement of people, and the occurrence of births and deaths.

Source: U.S. Census Bureau, Decennial Census, 2016-2020 American Community Survey 5-Year Estimates, and SEMCOG 2045 Regional Development Forecast

Race and Hispanic Origin

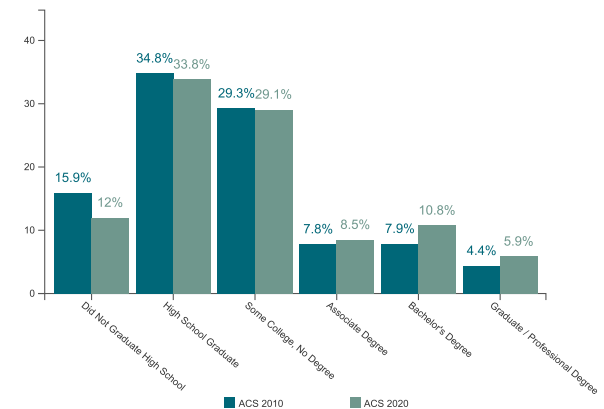
Race and Hispanic Origin	Census 2010	Percent of Population 2010	Census 2020	Percent of Population 2020	Percentage Point Change 2010-2020
Non-Hispanic	31,765	97.9%	33,500	97.6%	-0.3%
White	20,898	64.4%	13,286	38.7%	-25.7%
Black	9,503	29.3%	17,956	52.3%	23%
Asian	346	1.1%	361	1.1%	0%
Multi-Racial	838	2.6%	1,616	4.7%	2.1%
Other	180	0.6%	281	0.8%	0.3%
Hispanic	677	2.1%	818	2.4%	0.3%
Total	32,442	100%	34,318	100%	0%

Source: U.S. Census Bureau Decennial Census

Highest Level of Education

Highest Level of Education*	ACS 2010	ACS 2020	Percentage Point Chg 2010-2020
Did Not Graduate High School	15.9%	12%	-3.9%
High School Graduate	34.8%	33.8%	-1%
Some College, No Degree	29.3%	29.1%	-0.2%
Associate Degree	7.8%	8.5%	0.7%
Bachelor's Degree	7.9%	10.8%	2.9%
Graduate / Professional Degree	4.4%	5.9%	1.5%

* Population age 25 and over

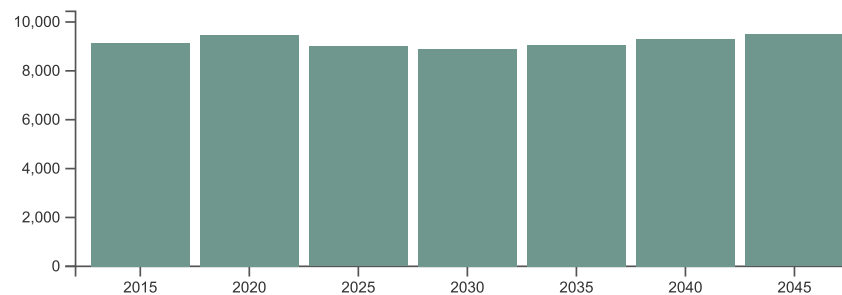


Source: U.S. Census Bureau, 2006-2010 and 2016-2020 American Community Survey 5-Year Estimates

Economy & Jobs

Link to American Community Survey (ACS) Profiles: **Select a Year** **Economic**

Forecasted Jobs



Source: SEMCOG 2045 Regional Development Forecast

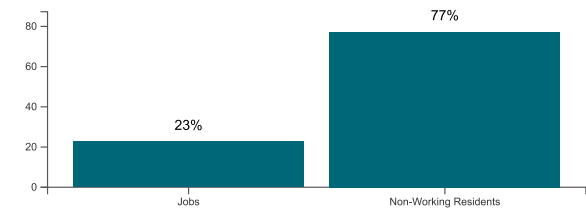
Forecasted Jobs by Industry Sector

Forecasted Jobs By Industry Sector	2015	2020	2025	2030	2035	2040	2045	Change 2015-2045	Pct Change 2015-2045
Natural Resources, Mining, & Construction	531	571	534	519	507	494	495	-36	-6.8%
Manufacturing	171	154	164	170	170	165	159	-12	-7%
Wholesale Trade	239	238	199	170	151	136	130	-109	-45.6%
Retail Trade	1,301	1,323	1,024	935	916	937	934	-367	-28.2%
Transportation, Warehousing, & Utilities	266	255	258	249	243	246	244	-22	-8.3%
Information & Financial Activities	1,076	1,040	1,009	1,006	969	1,017	1,011	-65	-6%
Professional and Technical Services & Corporate HQ	703	717	663	654	685	730	774	71	10.1%
Administrative, Support, & Waste Services	945	1,098	1,170	1,222	1,302	1,397	1,447	502	53.1%
Education Services	736	765	765	758	765	772	773	37	5%
Healthcare Services	1,136	1,283	1,289	1,304	1,379	1,435	1,525	389	34.2%
Leisure & Hospitality	988	971	923	920	972	996	998	10	1%
Other Services	838	830	794	782	781	781	787	-51	-6.1%
Public Administration	210	211	211	211	211	211	210	0	0%
Total Employment Numbers	9,140	9,456	9,003	8,900	9,051	9,317	9,487	347	3.8%

Source: **SEMCOG 2045 Regional Development Forecast**

Daytime Population

Daytime Population	ACS 2016
Jobs	5,365
Non-Working Residents	18,268
Age 15 and under	7,146
Not in labor force	9,239
Unemployed	1,883
Daytime Population	23,633



Source: **2012-2016 American Community Survey 5-Year Estimates** and **2012-2016 Census Transportation Planning Products Program (CTPP)**. For additional information, visit SEMCOG's **Interactive Commuting Patterns Map**

Note: The number of residents attending school outside Southeast Michigan is not available. Likewise, the number of students commuting into Southeast Michigan to attend school is also not known.

Where Workers Commute From 2016

Rank	Where Workers Commute From *	Workers	Percent
1	Eastpointe	982	18.3%
2	Detroit	771	14.4%
3	Warren	611	11.4%
4	St. Clair Shores	351	6.5%
5	Roseville	297	5.5%
6	Clinton Twp	238	4.4%
7	Macomb Twp	212	4%
8	Sterling Heights	204	3.8%
9	Harrison Twp	165	3.1%
10	Chesterfield Twp	142	2.6%
-	Elsewhere	1,392	25.9%
* Workers, age 16 and over employed in Eastpointe		5,365	100%

Source: **U.S. Census Bureau** - 2012-2016 CTPP/ACS Commuting Data and **Commuting Patterns in Southeast Michigan**

Where Residents Work 2016

Rank	Where Residents Work *	Workers	Percent
1	Detroit	2,806	22.5%
2	Warren	1,623	13%
3	Eastpointe	982	7.9%
4	Clinton Twp	745	6%
5	Roseville	650	5.2%
6	Troy	570	4.6%
7	Sterling Heights	559	4.5%
8	St. Clair Shores	513	4.1%
9	Royal Oak	256	2.1%
10	Southfield	247	2%
-	Elsewhere	3,503	28.1%
* Workers, age 16 and over residing in Eastpointe		12,454	100%

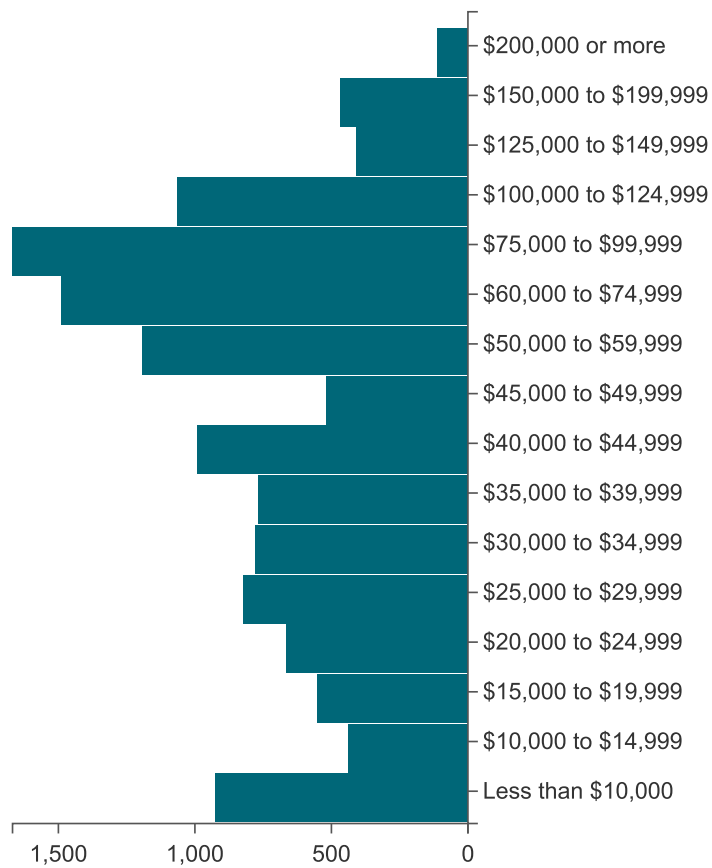
Source: **U.S. Census Bureau** - 2012-2016 CTPP/ACS Commuting Data and **Commuting Patterns in Southeast Michigan**

Household Income

Income (in 2020 dollars)	ACS 2010	ACS 2020	Change 2010-2020	Percent Change 2010-2020
Median Household Income	\$53,597	\$49,800	\$-3,797	-7.1%
Per Capita Income	\$25,027	\$24,010	\$-1,017	-4.1%

Source: **U.S. Census Bureau**, 2006-2010 and 2016-2020 American Community Survey 5-Year Estimates

Annual Household Income



Annual Household Income	ACS 2020
\$200,000 or more	112
\$150,000 to \$199,999	468
\$125,000 to \$149,999	410
\$100,000 to \$124,999	1,065
\$75,000 to \$99,999	1,668
\$60,000 to \$74,999	1,489
\$50,000 to \$59,999	1,191
\$45,000 to \$49,999	518
\$40,000 to \$44,999	989
\$35,000 to \$39,999	768
\$30,000 to \$34,999	778
\$25,000 to \$29,999	823
\$20,000 to \$24,999	664
\$15,000 to \$19,999	551
\$10,000 to \$14,999	437
Less than \$10,000	925
Total	12,856

Source: U.S. Census Bureau, 2016-2020 American Community Survey 5-Year Estimates

Poverty

Poverty	ACS 2010	% of Total (2010)	ACS 2020	% of Total (2020)	% Point Chg 2010-2020
Persons in Poverty	4,242	12.9%	5,175	16.1%	3.2%
Households in Poverty	1,414	11.3%	1,891	14.7%	3.4%

Source: U.S. Census Bureau, 2006-2010 and 2016-2020 American Community Survey 5-Year Estimates

Housing

Link to American Community Survey (ACS) Profiles: **Select a Year** **Housing**

Building Permits 2000 - 2022

Year	Single Family	Two Family	Attach Condo	Multi Family	Total Units	Total Demos	Net Total
2000	4	0	0	0	4	0	4
2001	8	0	0	0	8	3	5
2002	16	0	0	0	16	6	10
2003	10	0	0	0	10	1	9
2004	12	0	0	0	12	1	11
2005	8	0	0	0	8	2	6
2006	6	0	0	0	6	3	3
2007	4	0	0	0	4	2	2
2008	0	0	0	0	0	5	-5
2009	2	0	0	0	2	7	-5
2010	0	0	0	0	0	8	-8
2011	0	0	0	0	0	4	-4
2012	0	0	0	0	0	11	-11
2013	1	0	0	0	1	2	-1
2014	1	0	0	0	1	3	-2
2015	0	0	0	0	0	0	0
2016	0	0	0	0	0	5	-5
2017	0	0	0	0	0	7	-7
2018	0	0	0	0	0	1	-1
2019	0	0	0	0	0	1	-1
2020	0	0	0	52	52	0	52
2021	0	0	0	0	0	0	0
2022	2	0	0	0	2	1	1
2000 to 2022 totals	74	0	0	52	126	73	53

Source: **SEMCOG Development**

Note: Permit data for most recent years may be incomplete and is updated monthly.

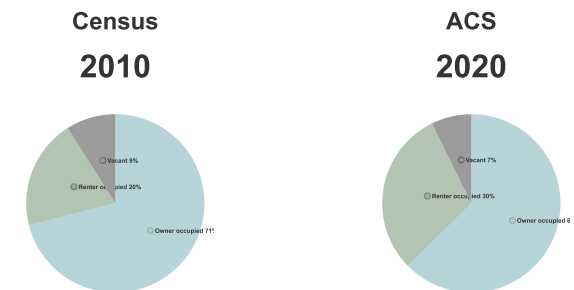
Housing Types

Housing Type	ACS 2010	ACS 2020	Change 2010-2020	New Units Permitted Since 2019
Single Unit	12,509	12,310	-199	2
Multi-Unit	1,271	1,510	239	52
Mobile Homes or Other	73	51	-22	0
Total	13,853	13,871	18	54
Units Demolished				-2
Net (Total Permitted Units - Units Demolished)				52

Source: **U.S. Census Bureau, 2006-2010 and 2016-2020 American Community Survey 5-Year Estimates, SEMCOG Development**

Housing Tenure

Housing Tenure	Census 2010	ACS 2020	Change 2010-2020
Owner occupied	9,802	8,679	-1,123
Renter occupied	2,755	4,177	1,422
Vacant	1,239	1,015	-224
Seasonal/migrant	22	46	24
Other vacant units	1,217	969	-248
Total Housing Units	13,796	13,871	75



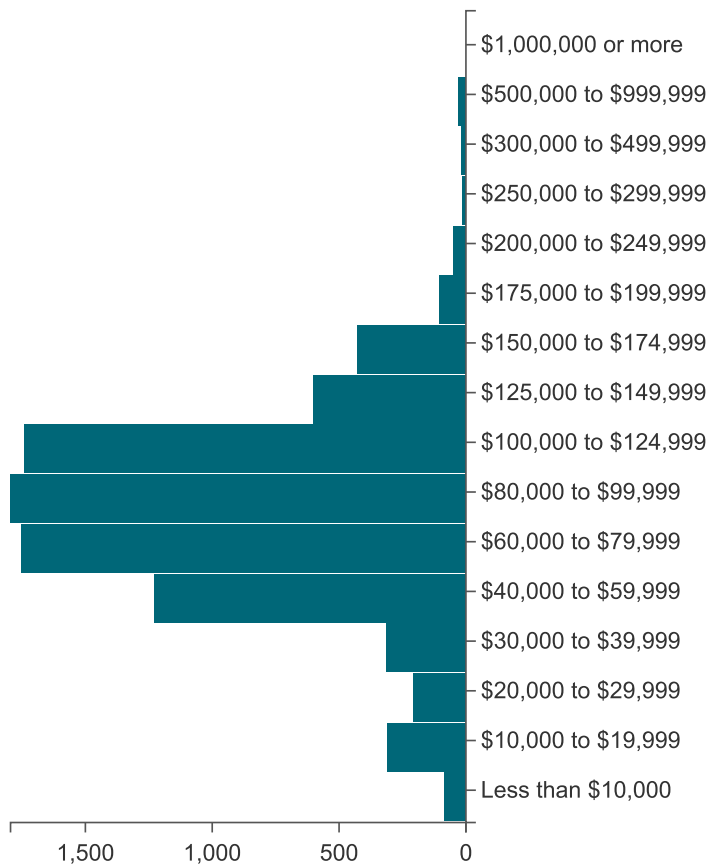
Source: **U.S. Census Bureau, 2006-2010 and 2016-2020 American Community Survey 5-Year Estimates**

Housing Value and Rent

Housing Value (in 2020 dollars)	ACS 2010	ACS 2020	Change 2010-2020	Percent Change 2010-2020
Median housing value	\$136,354	\$83,800	\$-52,554	-38.5%
Median gross rent	\$1,159	\$1,086	\$-73	-6.3%

Source: U.S. Census Bureau, 2006-2010 and 2016-2020 American Community Survey 5-Year Estimates

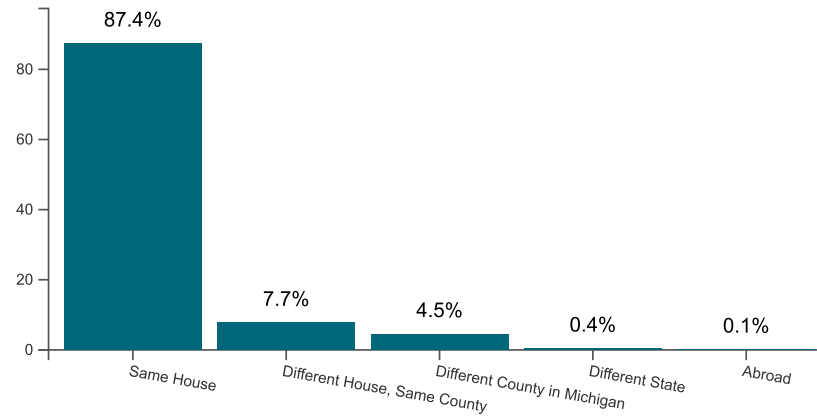
Housing Value



Housing Value	ACS 2020
\$1,000,000 or more	0
\$500,000 to \$999,999	30
\$300,000 to \$499,999	18
\$250,000 to \$299,999	13
\$200,000 to \$249,999	51
\$175,000 to \$199,999	105
\$150,000 to \$174,999	429
\$125,000 to \$149,999	602
\$100,000 to \$124,999	1,741
\$80,000 to \$99,999	1,795
\$60,000 to \$79,999	1,754
\$40,000 to \$59,999	1,226
\$30,000 to \$39,999	315
\$20,000 to \$29,999	205
\$10,000 to \$19,999	309
Less than \$10,000	86
Owner-Occupied Units	8,679

Source: U.S. Census Bureau, 2016-2020 American Community Survey 5-Year Estimates

Residence One Year Ago *



* This table represents persons, age 1 and over, living in City of Eastpointe from 2016-2020. The table does not represent person who moved out of City of Eastpointe from 2016-2020.

Source: **U.S. Census Bureau, 2016-2020 American Community Survey 5-Year Estimates**

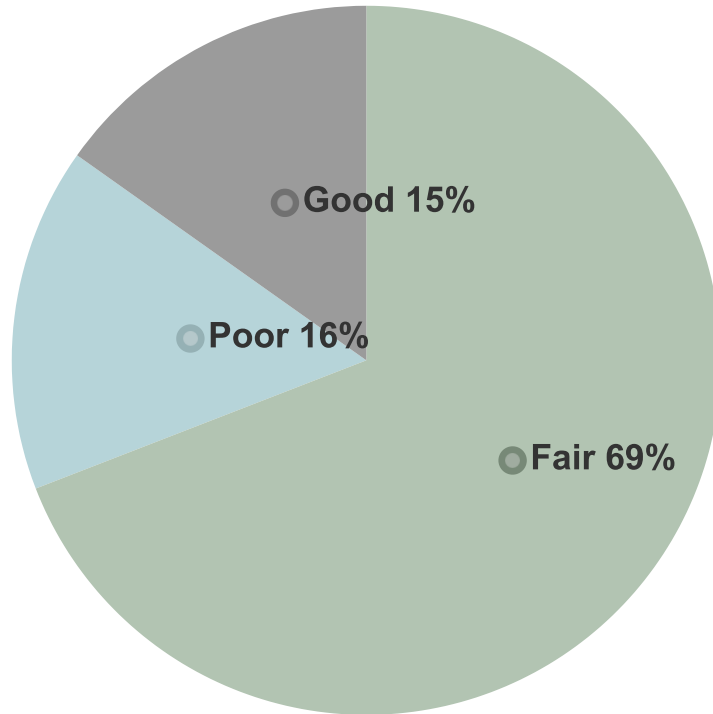
Transportation

Miles of public road (including boundary roads): 113

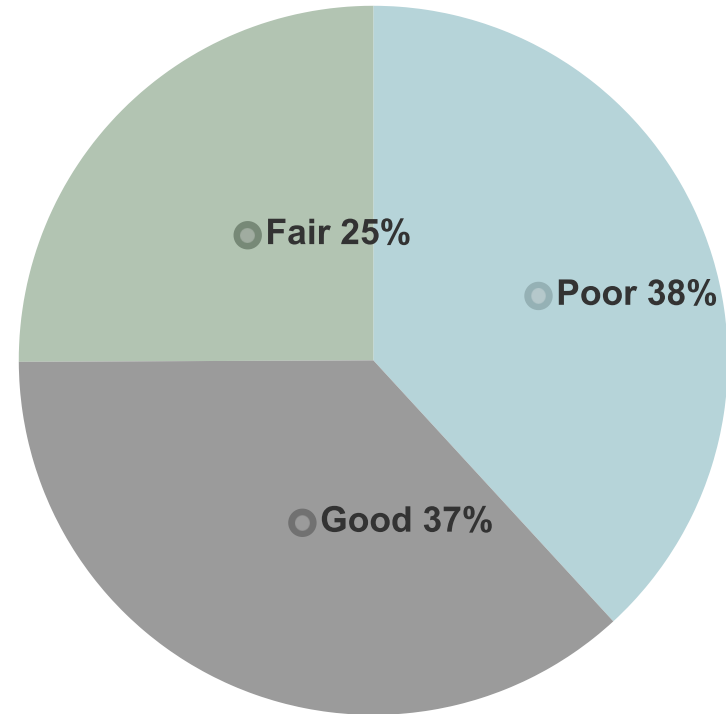
Source: **Michigan Geographic Framework**

Pavement Condition (in Lane Miles)

Past Pavement Conditions
2007



Current Pavement Conditions
2020 - 2021



Note: Poor pavements are generally in need of rehabilitation or full reconstruction to return to good condition. Fair pavements are in need of capital preventive maintenance to avoid deteriorating to the poor classification. Good pavements generally receive only routine maintenance, such as street sweeping and snow removal, until they deteriorate to the fair condition.

Source: **SEMCOG**

Bridge Status

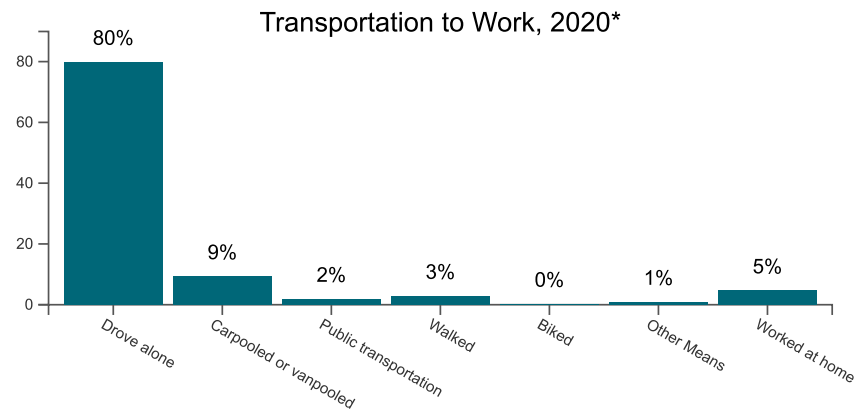
Bridge Status	Percent Point Chg 2008-2010
Open	-
Open with Restrictions	-
Closed*	-
Total Bridges	0.0%
Deficient Bridges	-

* Bridges may be closed because of new construction or failed condition.

Note: A bridge is considered deficient if it is structurally deficient (in poor shape and unable to carry the load for which it was designed) or functionally obsolete (in good physical condition but unable to support current or future demands, for example, being too narrow to accommodate truck traffic).

Source: Michigan Structure Inventory and Appraisal Database

Detailed Intersection & Road Data



* Resident workers age 16 and over

Transportation to Work

Transportation to Work	ACS 2010	% of Total (ACS 2010)	ACS 2020	% of Total (ACS 2020)	% Point Chg 2010-2020
Drove alone	12,139	85.3%	11,503	79.9%	-5.4%
Carpooled or vanpooled	1,292	9.1%	1,347	9.4%	0.3%
Public transportation	114	0.8%	276	1.9%	1.1%
Walked	217	1.5%	417	2.9%	1.4%
Biked	0	0%	43	0.3%	0.3%
Other Means	238	1.7%	133	0.9%	-0.8%
Worked at home	232	1.6%	675	4.7%	3.1%
Resident workers age 16 and over	14,232	100.0%	14,394	100.0%	0.0%

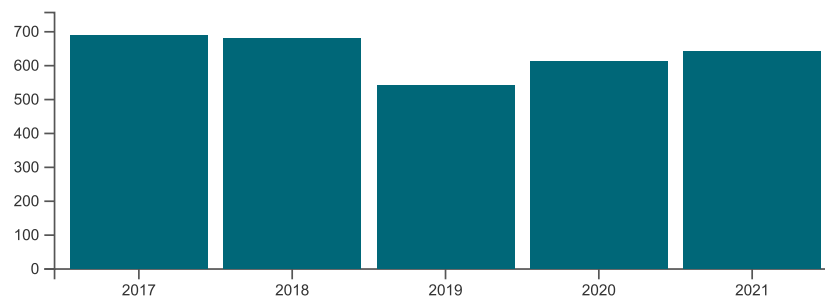
Source: U.S. Census Bureau, 2006-2010 and 2016-2020 American Community Survey 5-Year Estimates

Mean Travel Time to Work

Mean Travel Time To Work	ACS 2010	ACS 2020	Change 2010-2020
For residents age 16 and over who worked outside the home	24.2 minutes	24.3 minutes	0.1 minutes

Source: U.S. Census Bureau, 2006-2010 and 2016-2020 American Community Survey 5-Year Estimates

Crashes, 2017-2021



Source: Michigan Department of State Police with the Criminal Justice Information Center and SEMCOG

Note: Crash data shown is for the entire city.

Crash Severity

Crash Severity	2017	2018	2019	2020	2021	Percent of Crashes 2017 - 2021
<u>Fatal</u>	2	1	1	3	2	0.3%
<u>Serious Injury</u>	10	14	4	11	16	1.7%
<u>Other Injury</u>	159	147	98	120	114	20.2%
<u>Property Damage Only</u>	517	518	439	479	511	77.8%
<u>Total Crashes</u>	688	680	542	613	643	100%

Crashes by Type

Crashes by Type	2017	2018	2019	2020	2021	Percent of Crashes 2017 - 2021
<u>Head-on</u>	12	10	14	15	22	2.3%
<u>Angle or Head-on/Left-turn</u>	177	191	140	182	197	28%
<u>Rear-End</u>	175	204	129	144	144	25.1%
<u>Sideswipe</u>	144	129	116	138	122	20.5%
<u>Single Vehicle</u>	63	45	63	65	69	9.6%
<u>Backing</u>	33	36	33	32	32	5.2%
<u>Other or Unknown</u>	84	65	47	37	57	9.2%

Crashes by Involvement

Crashes by Involvement	2017	2018	2019	2020	2021	Percent of Crashes 2017 - 2021
<u>Red-light Running</u>	14	13	10	16	19	2.3%
<u>Lane Departure</u>	108	77	123	129	150	18.5%
<u>Alcohol</u>	36	34	33	53	48	6.4%
<u>Drugs</u>	19	6	11	12	13	1.9%
<u>Deer</u>	0	1	0	0	0	0%
<u>Train</u>	0	0	0	0	0	0%
<u>Commercial Truck/Bus</u>	20	22	21	18	32	3.6%
<u>School Bus</u>	5	2	4	3	5	0.6%
<u>Emergency Vehicle</u>	5	3	2	8	4	0.7%
<u>Motorcycle</u>	11	8	5	7	10	1.3%
<u>Intersection</u>	277	212	148	203	181	32.2%
<u>Work Zone</u>	17	8	11	14	5	1.7%
<u>Pedestrian</u>	16	8	9	11	11	1.7%
<u>Bicyclist</u>	15	11	10	9	6	1.6%
<u>Distracted Driver</u>	30	24	29	34	12	4.1%
<u>Older Driver (65 and older)</u>	109	125	73	119	95	16.5%
<u>Young Driver (16 to 24)</u>	203	213	132	152	180	27.8%
<u>Secondary</u>	4	1	1	2	3	0.3%

High Frequency Intersection Crash Rankings

Local Rank	County Rank	Region Rank	Intersection	Jurisdiction	Annual Avg 2017-2021
1	87	321	<u>8 Mile Rd @ Gratiot Ave</u>	State	21.2
2	183	774	<u>Gratiot Ave @ 10 Mile Rd</u>	State/County	14
3	232	986	<u>Gratiot Ave @ 9 Mile Rd E</u>	State/City	12.4
4	271	1,150	<u>Gratiot Ave @ 9 Mile Rd E</u>	State/City	11.4
5	302	1,295	<u>Gratiot Ave @ 10 Mile Rd</u>	State/County	10.6
6	338	1,508	<u>10 Mile Rd @ Hayes Ave</u>	County/City	9.6
7	495	2,484	<u>9 Mile Rd E @ Kelly Rd</u>	City	6.8
8	504	2,573	<u>10 Mile Rd @ Cole St</u>	County	6.6
9	545	2,801	<u>10 Mile Rd @ Kelly Rd</u>	County/City	6.2
10	545	2,801	<u>Gratiot Ave @ Stephens Dr</u>	State/City	6.2

Note: Intersections are ranked by the number of reported crashes, which does not take into account traffic volume. Crashes reported occurred within 150 feet of the intersection.

Source: **Michigan Department of State Police with the Criminal Justice Information Center** and **SEMCOG**

High Frequency Road Segment Crash Rankings

Local Rank	County Rank	Region Rank	Segment	From Road - To Road	Jurisdiction	Annual Avg 2017-2021
1	25	58	<u>9 Mile Rd E</u>	Gratiot Ave - Kelly Rd	City	58.2
2	80	217	<u>10 Mile Rd</u>	Hayes Ave - Gratiot Ave	County	39.8
3	93	266	<u>10 Mile Rd</u>	Gratiot Ave - Kelly Rd	County	37
4	194	616	<u>Gratiot Ave</u>	10 Mile Rd - Frazho Rd	State	25.8
5	220	748	<u>8 Mile Rd</u>	Gratiot Ave - Kelly Rd	State	23.6
6	238	844	<u>9 Mile Rd</u>	Schoenherr Rd - Hayes Ave	City	22.4
7	297	1,124	<u>10 Mile Rd</u>	Groesbeck Hwy - Hayes Ave	County	19.6
8	297	1,124	<u>Gratiot Ave</u>	8 Mile Rd - Toepfer Dr	State	19.6
9	302	1,139	<u>9 Mile Rd E</u>	Kelly Rd - Beaconsville Rd	City	19.4
10	311	1,196	<u>10 Mile Rd</u>	Kelly Rd - 10 Mile/W I 94 Ramp	County	19

Note: Segments are ranked by the number of reported crashes, which does not take into account traffic volume.

Environment

SEMCOG 2020 Land Use

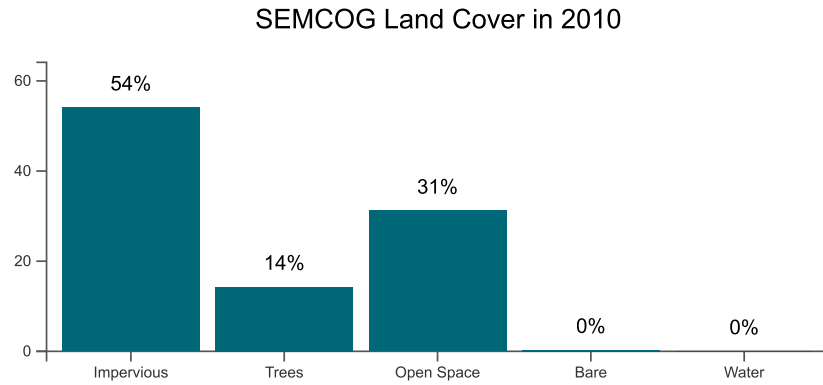
Parcel Land Use	Acres 2015	Acres 2020	Change 2015-2020	Pct Change 2015-2020
Single-Family Residential	1,884.1	1,885.3	1.3	0.1%
Attached Condo Housing	13.6	13.6	0	0%
Multi-Family Housing	39.2	45.4	6.2	15.7%
Mobile Home	0	0	0	0%
Agricultural/Rural Residential	3.7	3.7	0	0%
Mixed Use	0.3	4.2	3.8	1,220.9%
Retail	135.5	132.4	-3.1	-2.3%
Office	26.5	27.7	1.2	4.5%
Hospitality	18.2	18.5	0.3	1.5%
Medical	11.3	11.8	0.5	4.3%
Institutional	170.7	149.4	-21.3	-12.5%
Industrial	16.2	18.5	2.3	14.1%
Recreational/Open Space	61.7	63.7	1.9	3.2%
Cemetery	0	0	0	0%
Golf Course	0	0	0	0%
Parking	21.6	21.6	0	0%
Extractive	0	0	0	0%
TCU	7.6	7.6	0	0%
Vacant	47.6	54.6	7	14.8%
Water	5.2	5.2	0	0%
Not Parceled	826.9	826.9	0	0%
Total	3,290.1	3,290.1	0	0%

1. **Agricultural / Rural Res** includes any residential parcel containing 1 or more homes where the parcel is 3 acres or larger.
2. **Mixed Use** includes those parcels containing buildings with Hospitality, Retail, or Office square footage and housing units.
3. **Not Parceled** includes all areas within a community that are not covered by a parcel legal description.

4. Parcels that do not have a structure assigned to the parcel are considered vacant unless otherwise indicated, even if the parcel is part of a larger development such as a factory, school, or other developed series of lots.

Note: Land Cover was derived from SEMCOG's 2010 Leaf off Imagery.

Source: **SEMCOG**



Source Data
SEMCOG - Detailed Data

Type	Description	Acres	Percent
Impervious	buildings, roads, driveways, parking lots	1,771	54.1%
Trees	woody vegetation, trees	468.6	14.3%
Open Space	agricultural fields, grasslands, turfgrass	1,021.4	31.2%
Bare	soil, aggregate piles, unplanted fields	10.2	0.3%
Water	rivers, lakes, drains, ponds	0.9	0%
Total Acres		3,272.1	

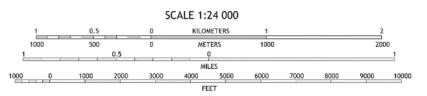
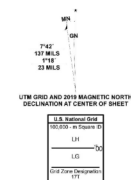
Appendix C

USGS Topographic Map

DRAFT



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84)
Projection and 1:60,000 scale Universal Transverse Mercator Zone 17T
This map is not a legal document. Boundaries may be generated for this map scale. Private lands with government reservations may not be shown. Obtain permission before entering private lands.



CONTOUR INTERVAL: 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.8.13

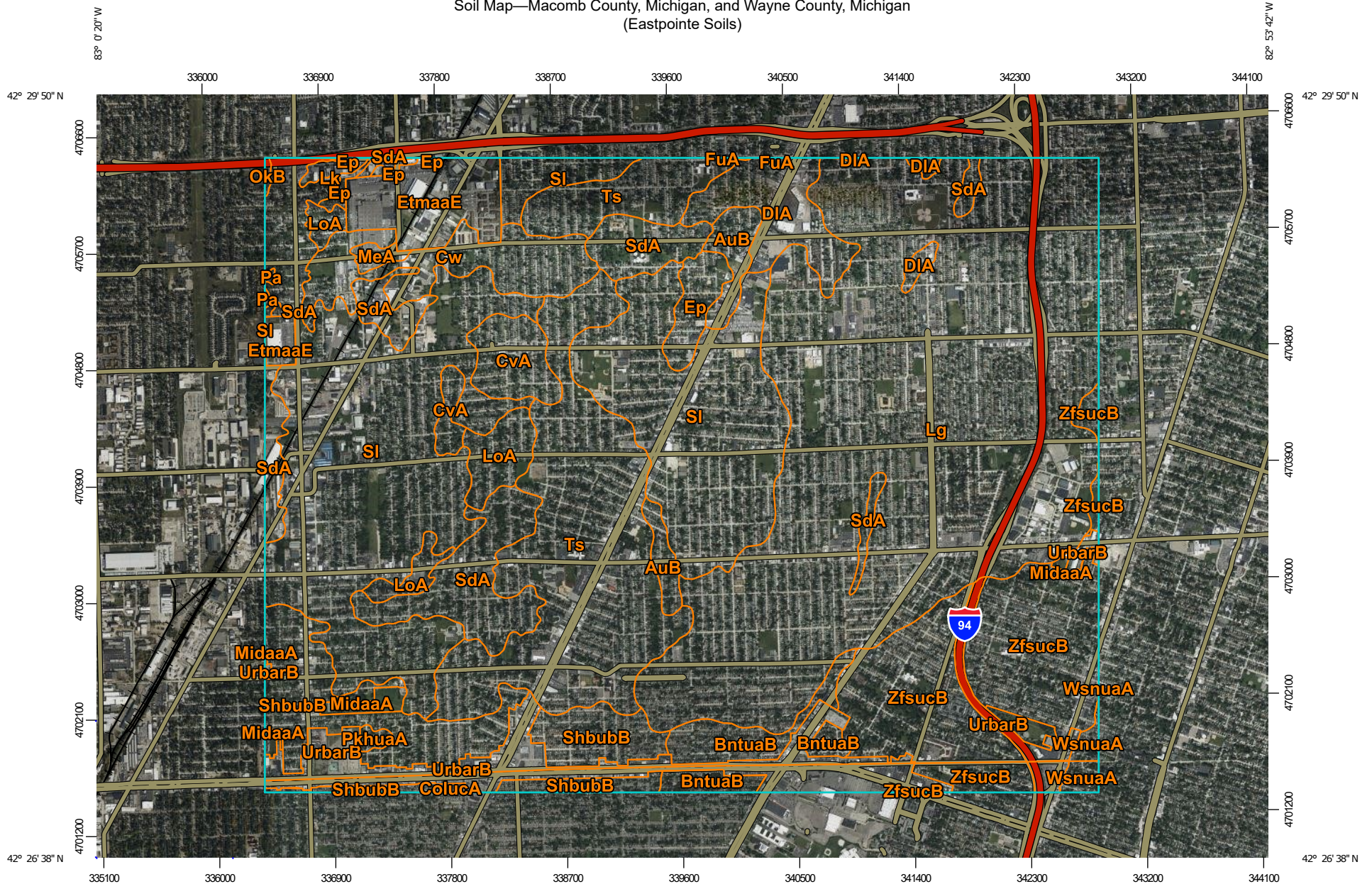


Table with 3 columns and 7 rows listing adjacent quadrangles: 1 Warren, 2 Mount Clemens West, 3 Mount Clemens East, 4 Highland Park, 5 Grosse Pointe QC E, 6 Detroit, 7 Belle Isle.

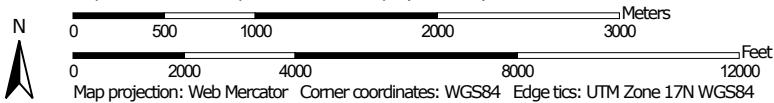
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Appendix D
NRCS Soils Map

Soil Map—Macomb County, Michigan, and Wayne County, Michigan
(Eastpointe Soils)




Map Scale: 1:41,500 if printed on A landscape (11" x 8.5") sheet.



Soil Map—Macomb County, Michigan, and Wayne County, Michigan
(Eastpointe Soils)


MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features



-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:12,000 to 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Macomb County, Michigan
Survey Area Data: Version 19, Aug 29, 2022

Soil Survey Area: Wayne County, Michigan
Survey Area Data: Version 8, Aug 29, 2022

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 31, 2014—Oct 21, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AuB	Pipestone sand, loamy substratum, 0 to 6 percent slopes	84.8	1.1%
BntuaB	Blount-Urban land complex, 0 to 4 percent slopes	96.6	1.2%
CvA	Conover loam, 0 to 2 percent slopes	118.3	1.5%
Cw	Corunna sandy loam	211.1	2.7%
DIA	Del Rey loam, 0 to 2 percent slopes	178.4	2.3%
Ep	Ensley-Parkhill complex	77.7	1.0%
EtmaaE	Udorthents and Udipsamments, nearly level to hilly	189.6	2.4%
FuA	Fulton loam, 0 to 2 percent slopes	2.3	0.0%
Lg	Lenawee silty clay loam, 0 to 1 percent slopes	2,322.6	29.5%
Lk	Lenawee-Selfridge complex, 0 to 3 percent slopes	13.2	0.2%
LoA	Locke sandy loam, 0 to 2 percent slopes	116.0	1.5%
MeA	Metamora fine sandy loam, 0 to 2 percent slopes	15.5	0.2%
MidaaA	Midtown gravelly-artifactual sandy loam, 0 to 2 percent slopes	46.0	0.6%
OkB	Oakville fine sand, loamy substratum, 0 to 6 percent slopes	2.9	0.0%
Pa	Parkhill loam, 0 to 1 percent slopes	3.2	0.0%
PkhuaA	Parkhill-Urban land complex, 0 to 2 percent slopes	9.4	0.1%
SdA	Selfridge loamy sand, 0 to 3 percent slopes	392.5	5.0%
ShbubB	Shebeon-Urban land-Avoca complex, 0 to 4 percent slopes	337.8	4.3%
SI	Sims clay loam	1,681.4	21.4%
Ts	Toledo silty clay loam	873.0	11.1%
UrbarB	Urban land-Riverfront complex, dense substratum, 0 to 4 percent slopes	214.3	2.7%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
WsnuaA	Wauseon-Urban land complex, 0 to 2 percent slopes	12.7	0.2%
ZfsucB	Ziegenfuss-Urban land-Blount complex, 0 to 4 percent slopes	572.7	7.3%
Subtotals for Soil Survey Area		7,571.7	96.2%
Totals for Area of Interest		7,870.3	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BntuaB	Blount-Urban land complex, 0 to 4 percent slopes	30.2	0.4%
ColucA	Colwood-Urban land complex, dense substratum, 0 to 2 percent slopes	5.9	0.1%
ShbubB	Shebeon-Urban land-Avoca complex, 0 to 4 percent slopes	48.2	0.6%
UrbarB	Urban land-Riverfront complex, dense substratum, 0 to 4 percent slopes	151.7	1.9%
WsnuaA	Wauseon-Urban land complex, 0 to 2 percent slopes	15.9	0.2%
ZfsucB	Ziegenfuss-Urban land-Blount complex, 0 to 4 percent slopes	46.0	0.6%
Subtotals for Soil Survey Area		297.8	3.8%
Totals for Area of Interest		7,870.3	100.0%

Appendix E
Preliminary Construction Cost Estimates



ANDERSON, ECKSTEIN & WESTRICK, INC.
 51301 Schoenherr Road
 Shelby Township, MI 48315
 Phone: 586-726-1234
 Fax No: 586-726-8780

PRELIMINARY ESTIMATE

Sewer Rehab. By Open Cut Repairs and CIPP Lining
 AEW PROJECT NO. 0145-0694

Page 1 of 3

PROJECT: CWSRF - Sewer Rehabilitation by Full Length CIPP Lining

OWNER: City of Eastpointe

PREPARED BY: Jake Miller
DATE: 4/9/2023

CHECKED BY:
DATE:

WORK ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
_Audio Visual Record of Construction Influence Area	1	LS	\$10,000.00	10,000.00
_Sewer, Pre-Construction, Clean and CCTV, 10 inch	1,215	FT	\$2.80	3,402.00
_Sewer, Pre-Construction, Clean and CCTV, 12 inch	11,715	FT	\$2.80	32,802.00
_Sewer, Pre-Construction, Clean and CCTV, 15 inch	4,100	FT	\$4.20	17,220.00
_Sewer, Pre-Construction, Clean and CCTV, 18 inch	5,500	FT	\$4.20	23,100.00
_Sewer, Pre-Construction, Clean and CCTV, 21 inch	2,200	FT	\$4.20	9,240.00
_Sewer, Pre-Construction, Clean and CCTV, 24 inch	1,000	FT	\$5.60	5,600.00
_Sewer, CIPP, 10 inch, Full Length	1,215	FT	\$80.00	97,200.00
_Sewer, CIPP, 12 inch, Full Length	11,715	FT	\$88.00	1,030,920.00
_Sewer, CIPP, 15 inch, Full Length	4,100	FT	\$94.00	385,400.00
_Sewer, CIPP, 18 inch, Full Length	5,500	FT	\$115.00	632,500.00
_Sewer, CIPP, 21 inch, Full Length	2,200	FT	\$136.00	299,200.00
_Sewer, CIPP, 24 inch, Full Length	1,000	FT	\$175.00	175,000.00
_Sewer, Post-Construction, CCTV, 10 inch	1,215	FT	\$1.40	1,701.00
_Sewer, Post-Construction, CCTV, 12 inch	11,715	FT	\$1.40	16,401.00
_Sewer, Post-Construction, CCTV, 15 inch	4,100	FT	\$2.10	8,610.00
_Sewer, Post-Construction, CCTV, 18 inch	5,500	FT	\$2.10	11,550.00
_Sewer, Post-Construction, CCTV, 21 inch	2,200	FT	\$2.10	4,620.00
_Sewer, Post-Construction, CCTV, 24 inch	1,000	FT	\$2.80	2,800.00
_Lateral, Preparation	50	EA	\$280.00	14,000.00
_Lateral, Reinstale	885	EA	\$175.00	154,875.00
_Cutting Service Lead Protrusions	25	EA	\$175.00	4,375.00
_Mineral Deposit, Rem	1,000	EA	\$175.00	175,000.00
_Traffic Maintenance and Control	1	LS	\$50,000.00	50,000.00
_Deliverables	1	LS	\$5,000.00	5,000.00
			SUBTOTAL CONSTRUCTION COST (FCIPP)	\$3,170,516.00



ANDERSON, ECKSTEIN & WESTRICK, INC.
 51301 Schoenherr Road
 Shelby Township, MI 48315
 Phone: 586-726-1234
 Fax No: 586-726-8780

PRELIMINARY ESTIMATE

Sewer Rehab. By Open Cut Repairs and CIPP Lining

AEW PROJECT NO. 0145-0694

PROJECT: CWSRF - Sewer Rehabilitation by Sectional CIPP Lining

OWNER: City of Eastpointe

PREPARED BY: Jake Miller

DATE: 4/9/2023

CHECKED BY:

DATE:

WORK ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Audio Visual Record of Construction Influence Area	1	LS	\$2,100.00	2,100.00
Sewer, Pre-Construction, Clean and CCTV, 12 inch	410	Ft	\$2.80	1,148.00
Sewer, Pre-Construction, Clean and CCTV, 15 inch	265	Ft	\$2.80	742.00
Sewer, Pre-Construction, Clean and CCTV, 42 inch	170	Ft	\$5.80	986.00
Sewer, Pre-Construction, Clean and CCTV, 48 inch	225	Ft	\$6.00	1,350.00
Sewer, CIPP, 12 inch, Sectional 6 feet	1	Ea	\$4,380.00	4,380.00
Sewer, CIPP, 12 inch, Sectional 10 feet	1	Ea	\$4,480.00	4,480.00
Sewer, CIPP, 12 inch, Sectional 25 feet	1	Ea	\$8,000.00	8,000.00
Sewer, CIPP, 15 inch, Sectional 6 feet	1	Ea	\$4,550.00	4,550.00
Sewer, CIPP, 15 inch, Sectional 10 feet	1	Ea	\$5,040.00	5,040.00
Sewer, CIPP, 42 inch, Sectional 3 feet	1	Ea	\$25,000.00	25,000.00
Sewer, CIPP, 48 inch, Sectional 3 feet	1	Ea	\$40,000.00	40,000.00
Sewer, Post-Construction, CCTV, 12 inch	410	Ft	\$1.40	574.00
Sewer, Post-Construction, CCTV, 15 inch	265	Ft	\$1.40	371.00
Sewer, Post-Construction, CCTV, 42 inch	170	Ft	\$1.40	238.00
Sewer, Post-Construction, CCTV, 48 inch	225	Ft	\$1.40	315.00
Lateral, Preparation	5	Ea	\$420.00	2,100.00
Lateral, Reinstatement	5	Ea	\$350.00	1,750.00
Cut Protruding Taps	5	Ea	\$210.00	1,050.00
Mineral Deposit, Rem	50	Ea	\$210.00	10,500.00
Traffic Control and Maintenance	1	LS	\$7,000.00	7,000.00
Deliverables	1	LS	\$1,500.00	1,500.00
			SUBTOTAL CONSTRUCTION COST (SCIPP)	\$123,174.00

**ANDERSON, ECKSTEIN & WESTRICK, INC.**

51301 Schoenherr Road
 Shelby Township, MI 48315
 Phone: 586-726-1234
 Fax No: 586-726-8780

PRELIMINARY ESTIMATE**Sewer Rehab. By Open Cut Repairs and CIPP Lining**

AEW PROJECT NO. 0145-0694

PROJECT: CWSRF - Sewer Rehabilitation by Open Cut Repairs**OWNER:** City of Eastpointe**PREPARED BY:** Jake Miller**DATE:** 4/9/2023**CHECKED BY:****DATE:**

WORK ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
_Audio Visual Record of all Construction Influence Areas	1	LS	5,000.00	5,000.00
Sidewalk, Rem	265	Syd	16.80	4,452.00
_Driveway, Conc, Rem	80	Syd	30.80	2,464.00
Curb and Gutter, Rem	60	Ft	25.20	1,512.00
_Erosion Control, Inlet Protection, Drop-In Filter	18	Ea	210.00	3,780.00
_Maintenance Aggregate, 21AA	50	Cyd	70.00	3,500.00
_Sanitary Sewer, Post-Construction, CCTV, 06 inch - 12 inch	5,300	Ft	5.00	26,500.00
_Sanitary Sewer, Post-Construction, CCTV, 15 inch - 21 inch	1,800	Ft	5.00	9,000.00
_Sanitary Sewer, Pre-Construction, Clean and CCTV, 06 in - 12 in	5,300	Ft	7.00	37,100.00
_Sanitary Sewer, Pre-Construction, Clean and CCTV, 15 in - 21 in	1,800	Ft	7.00	12,600.00
_External Structure Wrap, 18 inch	1	Ea	770.00	770.00
Dr Structure Cover, Adj, Case 1, Modified	1	Ea	490.00	490.00
Dr Structure, Adj, Add Depth	2	Ft	420.00	840.00
_Dr Structure Frame and Cover, Sanitary Manhole	1	Ea	980.00	980.00
Pavt Repr, Nonreinf Conc, 8 inch	150	Syd	140.00	21,000.00
Pavt Repr, Rem	150	Syd	35.00	5,250.00
Curb and Gutter, Match Existing	60	Ft	91.00	5,460.00
Driveway, Nonreinf Conc, 6 inch	80	Syd	98.00	7,840.00
Sidewalk, Conc, 4 inch	2,100	Sft	18.20	38,220.00
Sidewalk, Conc, 6 inch	200	Sft	19.60	3,920.00
_ADA-Detectable Warning Surface	10	Ft	105.00	1,050.00
_Sidewalk Ramp, Conc, 8 inch	50	Sft	28.00	1,400.00
_Surface Restoration, Sodding	100	Syd	28.00	2,800.00
_Sanitary Sewer Repr, Remove and Replace 06-12 dia, 0'-12' Depth	200	Ft	1,500.00	300,000.00
_Sanitary Sewer Repr, Remove and Replace 15-21 dia, 0'-12' Depth	150	Ft	2,500.00	375,000.00
_Sanitary Lateral, Open Cut Repair Investigation	15	Ea	560.00	8,400.00
_Sanitary Lateral, Reconnect	60	Ea	5,000.00	300,000.00
_Traffic Maintenance and Control	1	LS	50,000.00	50,000.00
Project Cleanup	1	LS	21,000.00	21,000.00
_Deliverables	1	LS	5,000.00	5,000.00
			SUBTOTAL CONSTRUCTION COST (OCR)	\$1,255,328.00
			SUBTOTAL CONSTRUCTION COST (FCIPP)	\$3,170,516.00
			SUBTOTAL CONSTRUCTION COST (SCIPP)	\$123,174.00
			TOTAL REHAB. CONSTRUCTION COSTS	\$4,549,018.00
Contingency (6%)				75,320.00
Engineering Fees (20%)				251,065.60
			GRAND TOTAL REHAB. CONSTRUCTION COSTS	4,875,403.60

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Appendix F

Present Worth Analysis of Selected Alternatives

PRESENT WORTH ANALYSIS		
No.	Item	Sewer Rehab. Project
		Open Cut & CIPP Lining
1	Capital Cost	\$ 4,875,000.00
2	Salvage Value at 20 years	\$ 2,925,000.00
3	Present Worth of Salvage	\$ 1,968,437.25
4	Interest During Construction	\$ 48,750.00
5	Annual O&M Costs	\$ -
6	Present Worth of O&M	\$ -
7	Total Present Worth	\$ 2,955,312.75
8	Equivalent Annual Cost	\$ 180,746.93

Notes:

(1) From The Preliminary Cost Estimate.

(2) Salvage Value at the end of the 20 year planning period is computed on the basis of straight line depreciation.

(3) Present Worth of Salvage Value = 0.67297 x SalvageValue at the end of 20 years
(P/F, Discount Rate=2.0%, 20 years) = 0.67297

(4) Interest During Construction = $0.5 \times P \times I \times C$
P = Construction Period in Years = 1 year
I = Discount Rate = 2.0%
C = Total Capital Cost

(5) Total Present Worth = Total Capital Cost + Present Worth of O&M + Interest During Construction - Present Worth of Salvage

(6) Equivalent Annual Cost = 0.06116 x Total Present Worth
(A/P, Discount Rate = 2.0%, 20 years) = 0.06116

Appendix G
CCTV Investigation Summary

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Appendix H

Public Meeting Advertisement and Summary

NOTICE OF PUBLIC MEETING
Clean Water State Revolving Fund (CWSRF) Loan Program
Sanitary Sewer System Improvements

The City of Eastpointe will hold a public meeting on the proposed Clean Water State Revolving Fund (CWSRF) Sanitary Sewer System Improvements Program for the purpose of receiving comments from interested persons.

The meeting has been scheduled for Tuesday, April 25, 2023, at 6:00pm, in the City Council chambers, located at Eastpointe City Hall, 23200 Gratiot Avenue, Eastpointe, Michigan 48021.

The purpose of the proposed project is to rehabilitate certain locations within the sanitary sewer system that were identified to be in poor structural condition based upon a recent sewer cleaning and television investigation program. Structural defects identified include cracked or broken pipe, offset pipe joints and interior surface deterioration. Rehabilitation will include sectional removal and replacement of defective sewers and installation of cured-in-place pipe liners. The estimated cost to users for the proposed project is expected to be no greater than \$17.2 million dollars utilizing a low-interest loan over a 20-year period.

Copies of the plan detailing the proposed project will be available for inspection at the City Manager's Office, in the Eastpointe City Hall, 23200 Gratiot Avenue, Eastpointe, Michigan 48021. The plan will be available beginning on Monday, April 10, 2023.

Written comments received before the public meeting concludes on Tuesday April 25, 2023, will receive a written response in the final project plan. Written comments should be sent to the city's consulting engineer preparing the final project plan. Direct written comments to Anderson, Eckstein and Westrick, ATTN: R. Ryan Kern, Project Manager, 51301 Schoenherr Road, Shelby Township, Michigan 48315 or by e-mail at rkern@awinc.com.

Appendix I
**City Council Resolution to Adopt Project
Planning Document**

RESOLUTION

Clean Water State Revolving Fund (CWSRF) Loan Project

WHEREAS, the City of Eastpointe recognizes the need to make improvements to its existing waste water collection system, and

WHEREAS, the City of Eastpointe authorized Anderson, Eckstein, and Westrick, Inc. to prepare a Project Planning Document, which recommends the construction of the Twin Jefferson Interceptor Sewer.

WHEREAS, said Project Planning Document was presented at a Public Hearing held on Tuesday April 25, 2023 at 6:00pm, and all public comments have been considered and addressed.

NOW THEREFOR IT BE RESOLVED, that the City of Eastpointe formally adopts said Project Planning Document and agrees to implement the selected alternative, rehabilitation of sewers via replacement, CIPP lining and FCIPP lining.

BE IT FURTHER RESOLVED that the City Manager, a position currently held by Mariah Walton, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Planning Document as the first step in applying to the State of Michigan for Clean Water State Revolving Fund Loan to assist in the implementation of the selected alternative.

YEAS (Names of Members Voting Yes):

NAYS (Names of Members Voting No):

I certify that the above Resolution was adopted by the City of Eastpointe on
Tuesday April 25, 2023

BY: _____
Name

Title

Signature

Date