



City Council Agenda Item Report

FROM: Ryan Cummins, City Manager

MEETING DATE: February 19, 2025

SUBJECT: Funding Plan for Maple Street Project

DESCRIPTION:

Maple Street and the underground water main are in need of replacement. City Council listed roads, asset management, and lead service line replacement as essential infrastructure priorities for the fiscal year. This work is also on the City's capital improvement plan.

In June, Council approved an engineering proposal to plan for the Maple Street improvements. Since that time, the City's engineers and staff have conducted an open house to gather public feedback, topographic surveys, meetings with Township officials, and developed estimates for various options, which include:

- Road resurfacing or reconstruction
- Water main replacement (including replacement of services, some to inside the home/building)
- Drainage and stormwater management improvements
- Non-motorized improvements (widened shoulders, sidewalk, or similar)

The City Engineer presented the options and costs at the January 22 work. Attached are the documents from that meeting. Council requested a plan to fund the project items below.

Fund Balances and Revenues

The City currently has healthy fund balances and additional anticipated revenues in its various funds:

Current Fund Balances (Savings)	
General Fund	6,258,658
Major Streets	780,669
Local Streets	2,249,674

Water-Sewer	579,449
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Road Revenue Per Year		Notes
Local Road Millage	388,000	Local millage that can be used for "repair, maintenance, renovation, and improvement of public roads".
County Road Millage	190,000	County millage dollars to the City that can be used for "preservation and preparation" along with resurfacing.
Act 51	190,000	State dollars used for maintenance and winter needs as well as road rehabilitation. Portion also has to be used for non-motorized.
Total	768,000	

Water Fund Revenue Per Year	
Water Infrastructure Fee	300,000

Other Funding Sources

The Township is agreeable to a 50/50 cost share on water main and sanitary sewer work, as well as rehabilitation of one lane of road above the water main.

The City secured a \$250,000 state grant to crush and reshape the road.

Proposed Funding Plan

The project is scheduled to occur at the end of FY 25/26 and beginning of FY 26/27. Based on current fund balances, anticipated water infrastructure revenue, and road revenues (Act 51, local road millage, and county road millage), staff recommends funding the following project elements as follows:

Maple Street Project Items	
Water Main Replacement - City	\$835,000
Water Main Replacement - Township	\$835,000
Sanitary Sewer Repairs - City	\$60,000
Sanitary Sewer Repairs - Township	\$60,000
Crush and Shape Road Rehabilitation - City	\$1,005,000
Crush and Shape Road Rehabilitation - Township	\$405,000
5-Foot Concrete Sidewalk	\$1,070,000
Underground Stormwater Detention	\$120,000
Culvert Repairs	\$30,000

DPW Parking Lot Paving	\$170,000
Estimated Project Cost	\$4,590,000

Proposed Funding	
Township Half/Share of Water Main Replacement, Sanitary Repairs, and Rehabilitation of Road Over Watermain	\$1,300,000
MDOT Category B Grant - Road Rehabilitation	\$250,000
Water-Sewer Fund	\$900,000
Local Streets Fund	\$1,220,000
General Fund	\$920,000

Additional Options

- HMA Path Instead of Sidewalk
 - If Council desires an HMA path instead of the sidewalk, an additional \$90,000 would come from the general fund.
- Full Road Replacement
 - If Council desires full road reconstruction on the eastern lane instead of crush and shape, this will be an additional \$415,000 from the local streets fund.
- Additional Grants
 - The Township and City have reached out to staff for State Senator Nesbit and State Representative Andrews to request a \$3,080,000 Michigan Enhancement Grant (one time appropriation/earmark) to fund the watermain and lead service line replacements, sanitary sewer work, and road rehabilitation.
- Phased Project
 - The project could be phased and spread out over more years, but will end up in a more costly project with mobilization and inflationary increases in construction costs.
- Special Assessment
 - The City could choose to do a special assessment to the Maple Street property owners for a portion of the project costs.
- Bonds or Loans
 - The City could choose to use debt service to fund the project. This would add interest costs to the project but spread the payments out over several years.

If Council is comfortable with the current funding plan, the City Engineer will prepare an engineering proposal to proceed with design of the elements.

LEGAL REVIEW:

The City Attorney will be at your meeting to answer any questions you may have.

SAMPLE MOTION:

N/A. Workshop item at this time.

January 18, 2024

Via Email: rcummins@saugatuckcity.com

Ryan Cummins, City Manager
City of Saugatuck
102 Butler Street
PO Box 86
Saugatuck, MI 49453

RE: Maple Street Improvements Planning (DRAFT for City Review/Feedback)

Ryan,

In coordination with the City of Saugatuck, Saugatuck Township, corridor residents and other stakeholders, Fleis & VandenBrink (F&V) has completed planning activities for various improvements on Maple Street between Blue Star Highway and the work completed in 2023 near North Street, approximately 1 mile in length. The purpose of this planning phase was to identify and evaluate options to help City Council to determine the scope of improvements to be made on Maple Street, looking toward design in 2025 and construction in 2026.

Background and Existing Conditions

Maple Street serves as the part of the eastern border of the City, along with being a de facto detour whenever Blue Star Highway is closed for construction, accidents or other reasons. The Maple Street corridor includes significant public utility infrastructure that serves a wider area than the corridor itself – two wastewater lift stations with associated force mains, the City's two municipal wells, regional stormwater infrastructure and others. A generational improvement project should consider all of these aspects.

Water System Infrastructure

The existing water main is a combination of 4-inch and 6-inch diameter cast iron pipe. Construction records are not available for much of the corridor, and its age is largely unknown. The water main has experienced several breaks in recent years, which result in costly emergency repairs, boil water advisories and traffic impacts. In recent years, a private water service was discovered to be connected to the system through the private water main that serves the Olde Mill Apartments, which has caused operational issues. As customers are reconnected to the new water main, it is anticipated that situation will be resolved with a direct connection to the public system. Fire hydrant locations and spacing will be coordinated with Kalamazoo Lake Sewer and Water Authority (KLSWA) from an operations and maintenance standpoint (hydrant flushing and other activities) and the Saugatuck Township Fire District (STFD).

The City's two wells are located west of Maple Street. A looped water main connects the wells to the distribution system at Maple Street to the east and along the east side of the high school to the west (the water main loop around the high school was replaced in recent years). This water main was identified as a priority for replacement in recent years, as it is expected to be similar age and construction as on Maple Street. The water main connection to Maple Street is through an easement on private property, while the access road to the wells uses the frontage of the City's property.

In 2024, the City received a Technical, Managerial, and Financial (TMF) Grant from the Michigan Department of Environment, Great Lakes and Energy (EGLE) to investigate the materials of its customers' existing water services for which the material was unknown. The TMF project is ongoing and will not confirm 100% of the service materials, however, those results that are available have been incorporated here. Of the 18 City water services on Maple Street that have been physically exposed ("potholed") as part of the TMF project, eight were found to be galvanized, four copper, and six plastic. EGLE's current Lead and Copper Rule requires galvanized services to be replaced from the main to the home/business, as they are more likely to contain leaded "gooseneck" connections at the water main (or may have at some point in the past). The Township recently undertook a similar process and has reported similar results for their services in the corridor.

Wastewater System Infrastructure

Wastewater system infrastructure in the corridor includes sanitary sewer collection system piping, primarily 8-inch diameter, a lift station on the west side of Maple Street north of Mason Street (with forcemain running south in Maple Street and west in Mason Street), a lift station on the east side of Maple Street south of North Street (with forcemain running north in Maple Street and west in North Street) and a pair of 16-inch forcemains that cross through the Maple Street corridor around 610 N Maple Street. Most of the corridor is served with sanitary sewer, with the exception of approximately 3 City parcels near North Street (Ridgewood Apartments are served through the lift station near North Street), which are assumed to be served by private septic systems.

The existing wastewater infrastructure was evaluated in 2016 as a part of the KLSWA Stormwater, Asset Management and Wastewater (SAW) project. The sanitary sewer was televised, and the condition of the manholes was evaluated. The sewer was generally found to be in fair to good condition. Recommended repairs included lining one section of sanitary sewer and repairs to most of the manholes.

Drainage System Infrastructure

A series of cross culverts run underneath Maple Street, carrying stormwater runoff from the east side of the road to the west, following the topography of the area. They include a 12-inch crossing at Blue Star Highway, a 36-inch plus 12/15-inch crossing north of Mason Street (which is the end point of the Allegan County Drain Commissioner's ongoing Blue Star Highway Drain project), a 15-inch crossing south of Ridgeview Lane, a 36-inch crossing near 730 N Maple Street, and a 15-inch crossing just south of North Street (which was evaluated in 2022-2023 as part of that project). Visual evaluation was completed as part of this planning process and additional investigation is being considered, however, visual evaluation has found the observable portions of the culverts to be in an acceptable condition.

The City has storm sewer infrastructure at many of the intersections within the corridor and sections along the west side of the road between Blue Star Highway and Mason Street with an outfall in the northwest quadrant of the Mason Street intersection, serving portions of Pleasant Street, Allegan Street, Mason Street and Maple Street itself. Between Mason Street and North Street, storm sewer infrastructure is limited to the area between Maple Woods Drive and north of Singapore Drive, which primarily serves the corridor itself. Notably, the City's outfall at the northwest quadrant of Mason Street outfalls to an open channel (small stream) that runs through private properties to the northwest. F&V completed a drainage study in 2022 (letter report dated November 22, 2022) that reviewed bank erosion concerns in the open channel and presented a range of mitigation options, which have been further evaluated and incorporated in this planning process.

The south approach of Maple Street at Blue Star Highway has experienced seasonal seepage through the pavement for a number of years, which is a maintenance concern and tends to prematurely deteriorate the road. A similar condition existed on Campbell Road near Park/Ferry Street and was resolved with additional underdrain.

The current roadway is not curbed, either with asphalt or concrete. Water sheds off the road into the adjacent green areas and in some cases shallow swales or ditches before entering the storm sewer system, where it exists.

Roadway Infrastructure

The asphalt pavement received a Paser Rating of 2 ("very poor") in the 2022 Paser Rating study and has deteriorated further since that time. The Department of Public Works (DPW) regularly patches potholes, but the additional traffic during closure of Blue Star Highway in 2024 for roundabout construction highlighted the

deteriorated condition of the roadway on Maple Street. The asphalt is beyond its useful life and needs to be replaced, along with improvement of the base material.

Non-Motorized Infrastructure

Finally, the Maple Street corridor currently has no non-motorized infrastructure, and the pavement is narrow, making walking or other non-motorized travel problematic. The City and Township have sidewalk on the north side of Allegan Street and are working toward constructing the Blue Star Trail, which is anticipated to cross Maple Street along the north side of Blue Star Highway. No other cross streets in the corridor currently have non-motorized facilities.

Other Infrastructure

The Maple Street corridor serves as secondary/rear access for the City's DPW facilities at 3338 Blue Star Highway and the STFD facility at 3342 Blue Star Highway. Configuration and construction of the drive approaches for both facilities will be coordinated with the appropriate personnel. The asphalt pavement at the DPW facility is in poor condition and has been considered as part of planning activities.

Evaluation of Options

F&V considered all of the above concerns during this planning process and identified improvement options for the City's consideration.

Water System Infrastructure

The existing 4-inch and 6-inch water main should be replaced with an 8-inch water main. While 6-inch is the minimum allowable diameter allowed by EGLE for public water main, 8-inch is the recommended minimum size, as it provides significantly greater capacity for fire flows with just a nominal increase in cost.

An updated water agreement amongst the community members of KLSWA is in process. In the meantime, F&V met with representatives from the City and the Township to discuss a 50-50 cost sharing for the water main and related infrastructure (fittings, valves and hydrants) in the portion of the corridor that has City parcels on the west side and Township parcels on the east side (near North Street, the City Limits cover both sides of Maple Street). A similar cost sharing for one lane of road restoration was also discussed, as that work is required for water main replacement. The details will need to be finalized, but based on the discussion, cost estimates have been broken down using those assumptions, as well as each community being responsible for water service replacements for customers within its own jurisdiction. This breakdown is in alignment with the City's recent project on Cambell Road with Douglas, in terms of precedent.

Another item in the ongoing water system agreement discussions is the development of standard specifications amongst the KLSWA member communities. The Maple Street project could be an opportunity for determining/using those standards.

An estimate has provided for replacing the water main loop for the well field between Maple Street and the high school loop. In light of the ongoing discussions related to ownership of this infrastructure, we would recommend constructing a simple stub for future relocation of the connection at Maple Street (relocating it from the easement to follow the access road) and addressing replacement of the loop itself with a future project.

Wastewater System Infrastructure

In accordance with the recommendations from the KLSWA SAW project, cost estimates have been prepared for a section of sewer lining and manhole repairs. Similar to the water main, it is assumed that sanitary sewer and manhole repairs would be shared costs, as they all occur in the portion of the corridor with City parcels on the west side and Township on the east.

A separate estimate has been prepared for extending 8-inch sanitary sewer to serve 721, 730, and 1042 N Maple Street, all of which are located in the City (1039 is Ridgewood Apartments, which is already served and the parcel north of 1042 is City-owned property, primarily Goshorn Creek floodplain area not suitable for development). With only three parcels, the cost per parcel may make gravity sewer extension cost prohibitive. Instead, the City could consider extending smaller diameter (~2-inch) and shallower pipe for future grinder/ejector pump connections (how 713 N Maple is connected to the system), which would be a much more cost-effective solution.

Drainage System Infrastructure

Visual evaluation of the culvert crossings was completed as part of the planning process, to the extent they are observable from the ends of the pipe. Additional evaluation with sewer televising or other technology is currently being discussed with the DPW. Based on the visual evaluation, the cross culverts appear to be in serviceable condition. It is anticipated that the cross culverts could be lined or other repairs made short of full replacement, if conditions warrant at some point. We have prepared cost estimates for replacement for reference.

Storm sewer in the corridor is relatively new. Adjustment of structures and other nominal modifications are anticipated as part of road improvements and are included in those estimates.

To help mitigate peak flows at the Mason Street storm sewer outfall (and lower the erosive forces downstream), we have prepared a cost estimate for constructing underground detention at the intersection of Maple Street and Mason Street. Property acquisition required for a traditional detention pond proved to be cost-prohibitive and redirecting the flow is anticipated to have environmental and maintenance challenges, along with potentially causing or exacerbating similar erosion issues elsewhere.

A cost estimate has been prepared to address the seepage issues on the south side of Blue Star Highway. Because it is not directly contiguous with the rest of the project, the City could consider addressing the seepage as part of a future or standalone project without affecting the other work in the corridor.

In conjunction with road improvements, the City could curb the road, either with concrete curb and gutter or asphalt valley gutter. To realize the full benefit of curbing the roadway, a series of catch basins (or leach basins) and storm sewer would be required (the alternative would be a series of spillways to improved swales/ditches). A public open house was held on September 17, 2024. A few drainage concerns were raised, but they were not generally ones that curbing would directly address. Furthermore, curbing the road improves the efficiency of transporting stormwater. Similar improvements on other streets in the area are understood to have contributed to the current concerns at the Mason Street outfall. Cost estimates for curbing, either with concrete or asphalt, have been provided, but based on cost and other factors are likely not warranted.

Roadway Infrastructure

Replacement of the water main will require reconstructing the west lane of the road, which involves installing new sand subbase (typically 12 inches) and gravel aggregate base (typically 8 inches) prior to asphalt paving. The east lane could be reconstructed to match the west, or a crush and shape strategy could be used. Crush and shape involves grinding up the existing pavement to supplement the existing base materials and placing new asphalt on the improved base. Crush and shape will raise the road elevation a few inches. With less earthwork required, crush and shape is less costly than full reconstruction, while still improving the base strength. This was the strategy used on the recent Campbell Road project. Allegan Street between Lake Street and Elizabeth Street is a recent example of a full reconstruction. Cost estimates have been provided for both options and we consider them to be “good” and “better”.

A 3-inch asphalt thickness is common of residential streets. Cost estimates include 4 inches for Maple Street, due to DPW and STFD and other non-residential properties along the corridor. The assumed cross section for either option is a 10-foot travel lane, with 1-foot asphalt shoulders and 2-foot gravel shoulders. Striping the shoulder helps to make the road feel narrower to drivers, a traffic calming strategy for controlling speeds that tend to increase on new, smooth asphalt.

The City received \$250,000 in funding from the Michigan Department of Transportation’s Category B (Villages and Small Cities) program, which will offset some of the roadway costs. The application for that funding assumed a crush and shape strategy would be used for the east side of the road, but we anticipate MDOT would be open to the reconstruction option as well.

Non-Motorized Infrastructure

The addition of non-motorized infrastructure has been a focus of the planning process and was the most common topic of conversation at the open house. Cost estimates have been developed for three options (a combination could be used also).

A widened shoulder could be a 3-foot asphalt shoulder on the west side of Maple Street (the width selected for Campbell Road), which is what the cost estimate reflects. It could also be widened shoulder on the east side or

both sides. A widened shoulder has the advantage of being the lowest cost option, both in terms of the initial capital cost and the long-term maintenance cost (the asphalt can be plowed, resurfaced, etc. along with the rest of the road). One disadvantage is that it places non-motorized corridor users directly adjacent to the vehicle lane, though it would still be an improvement. Another disadvantage is the wider pavement potentially producing increased speeds.

A standard 5-foot concrete sidewalk could be constructed on the west side of Maple Street. Sidewalks tend to be constructed in straight segments but can also be strategically curved around trees and other obstructions to limit the impact, which is one of the concerns commonly raised at the open house.

An asphalt path could also be constructed. The practical minimum pavement width (based on readily available asphalt paving equipment) is approximately 6 feet, which is what has been used in the cost estimate. The slightly wider section has proportionally greater impact, but asphalt tends to be more conducive to curved alignments around obstructions. The additional width also more conducive to bicycle traffic (some communities restrict bicycle riding on sidewalks).

Removals, grading, retaining walls and fencing are anticipated for either a sidewalk or path, depending on the northern limits of construction. For the purposes of the estimates, the northern end point has assumed to be the Ridgewood Apartments entrance area.

All these options were discussed at the open house. From the responses received during and following the open house, approximately 7% of respondents wanted no pedestrian facility, 10% wanted a widened shoulder, 34% wanted a sidewalk, and 7% wanted an HMA shared use path. 21% wanted some version of a pedestrian facility but had no opinion on which of the options occurred. 21% of respondents had no opinion on the matter. All but one of the 29 responses received were from year-round residents.

Other Infrastructure

As part of road improvements, some portion of all drive approaches will need to be rebuilt, including the STFD approach. Sight distance for that approach is impacted by a large tree (approximately 5-foot diameter) directly adjacent to the road. Its proximity to the vehicle lane makes the tree a hazard to the road itself. Removal of that tree is recommended.

Repaving the parking lot and access roads at the DPW facility has been on the DPW's "wish list" for some time. With the DPW property being adjacent to the work occurring on Maple Street, it would be economically efficient to including crushing, shaping and resurfacing those areas as a part of this project. A cost estimate has been provided for Council's consideration.

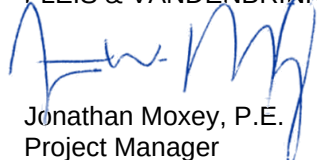
Conclusion

Cost estimates for the various options presented are attached. The cost estimates are presented in a "menu" format to allow the City to pick which options they want to move forward with vs. which options they want to forgo. We will prepare a proposal for design phase engineering services when the project scope has been determined.

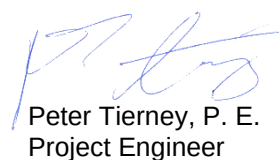
We appreciate the opportunity to assist you with this study and look forward to discussing it with City Council and other stakeholders. In the meantime, please feel free to contact us with any questions.

Sincerely,

FLEIS & VANDENBRINK



Jonathan Moxey, P.E.
Project Manager



Peter Tierney, P. E.
Project Engineer

Cc: Scott Herbert, City of Saugatuck, Public Works Superintendent (scott@saugatuckcity.com)

City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost Maple Street Improvements- Blue Star Highway to S of North Street Summary of Estimates



Project: 859771

Date: 12/16/2024

By: PMT

Description: Summary of Estimates

Water Main Estimates	
Option	Project Estimate
Water Main Loop Replacement	\$ 430,000
Water Main Replacement (City)	\$ 835,000
Water Main Replacement (Township)	\$ 835,000

Pedestrian Facilities Estimates	
Option	Project Estimate
Widened HMA Shoulder	\$ 120,000
5-foot Concrete Sidewalk	\$ 1,070,000
6-foot HMA Path	\$ 1,160,000

Sanitary Sewer Estimate	
Option	Project Estimate
Sanitary Sewer Repairs (City)	\$ 60,000
Sanitary Sewer Repairs (Township)	\$ 60,000
Sanitary Sewer Extension	\$ 130,000

Road Rehabilitation Estimates	
Option	Project Estimate
Crush and Shape (City)	\$ 1,005,000
Crush and Shape (Township)	\$ 405,000
Full Road Reconstruction (City)	\$ 1,420,000
Full Road Reconstruction (Township)	\$ 410,000

Storm Water Estimates	
Option	Project Estimate
Seepage Repair	\$ 40,000
Underground Detention	\$ 120,000
Cross Culvert Replacement	\$ 170,000
HMA Valley Gutter	\$ 860,000
Concrete Curb and Gutter	\$ 1,080,000

DPW Paving Estimate	
Option	Project Estimate
DPW Paving	\$ 170,000

City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost** Maple Street Improvements- Blue Star Highway to S of North Street Water Main Replacement



Project: 859771
Date: 12/16/2024
By: PMT

Description: Water Main Replacement along Maple Street, including water services along the road.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	1	\$ 60,475.00	\$ 60,475.00
2	Remove Hydrant	Each	7	\$ 1,500.00	\$ 10,500.00
3	8" Watermain	Ft	4,450	\$ 120.00	\$ 534,000.00
4	6" Water Main	Ft	100	\$ 110.00	\$ 11,000.00
5	8" Valve & Box	Each	33	\$ 2,750.00	\$ 90,750.00
6	6" Valve & Box	Each	17	\$ 2,100.00	\$ 35,700.00
7	8"x8"x8" Tee	Each	6	\$ 1,250.00	\$ 7,500.00
8	8"x8"x6" Tee	Each	12	\$ 1,200.00	\$ 14,400.00
9	45 Deg Bend, 8 inch	Each	20	\$ 700.00	\$ 14,000.00
10	Fire Hydrant	Each	12	\$ 6,000.00	\$ 72,000.00
11	Connect to Existing Watermain	Each	8	\$ 3,000.00	\$ 24,000.00
12	Cut & Plug Existing Watermain	Each	8	\$ 1,600.00	\$ 12,800.00
13	1" Corporation, Curb Stop and Box (City side)	Each	31	\$ 1,400.00	\$ 43,400.00
14	1" Water Service (City side)	Ft	2,015	\$ 55.00	\$ 110,825.00
15	Water Service, Building Connection (City side)	Each	31	\$ 1,200.00	\$ 37,200.00
16	1" Corporation, Curb Stop and Box (Township side)	Each	31	\$ 1,400.00	\$ 43,400.00
17	1" Water Service (Township side)	Ft	2,015	\$ 55.00	\$ 110,825.00
18	Water Service, Building Connection (Township side)	Each	31	\$ 1,200.00	\$ 37,200.00

Subtotal Construction (Rounded): \$ 1,270,000
Undeveloped Details & Contingencies (15%): \$ 200,000
Engineering, Permitting, and Administration (15%): \$ 200,000
Total Estimated Project Budget (Rounded): \$ 1,670,000

Total Estimated Project Budget (City - 50%) \$ 835,000
Total Estimated Project Budget (Township - 50%) \$ 835,000

***The Design Professional has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing. Bid prices may vary significantly based on these factors and market conditions at time of bid.*

City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost** Maple Street Improvements- Blue Star Highway to S of North Street Water Main Loop Replacement



Project: 859771
Date: 10/31/2024
By: PMT

Description: Replacing water main loop behind the Saugatuck High School.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	1	\$ 15,500.00	\$ 15,500.00
2	Clearing	Acre	1	\$ 35,000.00	\$ 35,000.00
3	12" Watermain, Directional Drill	Ft	900	\$ 225.00	\$ 202,500.00
4	12" Watermain	Ft	300	\$ 135.00	\$ 40,500.00
5	12" Valve & Box	Each	8	\$ 3,250.00	\$ 26,000.00
6	Connect to Existing Watermain	Each	3	\$ 2,000.00	\$ 6,000.00

Subtotal Construction (Rounded): \$ 330,000
Undeveloped Details & Contingencies (15%): \$ 50,000
Engineering, Permitting, and Administration (15%): \$ 50,000
Total Estimated Project Budget (Rounded): \$ 430,000

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City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost** Maple Street Improvements- Blue Star Highway to S of North Street Sanitary Sewer Repairs



Project: 859771
Date: 12/16/2024
By: PMT

Description: Sanitary Sewer Repairs along Maple Street.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	1	\$ 3,600.00	\$ 3,600.00
2	Sanitary Sewer Lining	Ft	300	\$ 60.00	\$ 18,000.00
3	Sanitary Frame & Cover Replacement & Adjustment	Each	14	\$ 2,500.00	\$ 35,000.00
4	Sanitary Chimney Repair	Each	6	\$ 2,000.00	\$ 12,000.00
5	Grout Sanitary Structure Joints	Each	7	\$ 1,000.00	\$ 7,000.00

Subtotal Construction (Rounded): \$ 80,000
Undeveloped Details & Contingencies (15%): \$ 20,000
Engineering, Permitting, and Administration (15%): \$ 20,000
Total Estimated Project Budget (Rounded): \$ 120,000

Total Estimated Project Budget (City - 50%) \$ 60,000
Total Estimated Project Budget (Township - 50%) \$ 60,000

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City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost** Maple Street Improvements- Blue Star Highway to S of North Street Sanitary Sewer Extension



Project: 859771
Date: 12/16/2024
By: PMT

Description: Extend existing sanitary sewer to service #713, #721, #730, and #1042.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	1	\$ 4,122.50	\$ 4,122.50
2	Sanitary Sewer, 8 inch	Ft	800	\$ 80.00	\$ 64,000.00
3	Sanitary Manhole, 48 inch	Ea	2	\$ 4,500.00	\$ 9,000.00
4	Sanitary Manhole Cover	Ea	2	\$ 1,000.00	\$ 2,000.00
5	8"x6" Wye	Ea	4	\$ 300.00	\$ 1,200.00
6	Sanitary Lateral, 6 inch	Ft	150	\$ 35.00	\$ 5,250.00
7	Sanitary Manhole Tap, 8 inch	Ea	1	\$ 1,000.00	\$ 1,000.00

Subtotal Construction (Rounded): \$ 90,000
Undeveloped Details & Contingencies (15%): \$ 20,000
Engineering, Permitting, and Administration (15%): \$ 20,000
Total Estimated Project Budget (Rounded): \$ 130,000

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City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost** Maple Street Improvements- Blue Star Highway to S of North Street Cross Culvert Replacement



Project: 859771
Date: 10/31/2024
By: PMT

Description: Replace 3 cross culvert across Maple Street.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	1	\$ 5,935.00	\$ 5,935.00
2	Culvert, 72-inch	Ft	190	\$ 400.00	\$ 76,000.00
3	Culvert End Section, 72 inch	Ea	4	\$ 7,500.00	\$ 30,000.00
4	Culvert, 30-inch	Ft	50	\$ 170.00	\$ 8,500.00
5	Culvert End Section, 30 inch	Ea	2	\$ 2,100.00	\$ 4,200.00

Subtotal Construction (Rounded): \$ 130,000
Undeveloped Details & Contingencies (15%): \$ 20,000
Engineering, Permitting, and Administration (15%): \$ 20,000
Total Estimated Project Budget (Rounded): \$ 170,000

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City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost** Maple Street Improvements- Blue Star Highway to S of North Street Underground Detention



Project: 859771
Date: 10/31/2024
By: PMT

Description: Installation of approximately 3,000 cft of storm water detention at Maple Street & Mason Street.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	1	\$ 3,750.00	\$ 3,750.00
2	ADS Storm Water Detention	Cft	3,000	\$ 25.00	\$ 75,000.00

Subtotal Construction (Rounded): \$ 80,000
Undeveloped Details & Contingencies (15%): \$ 20,000
Engineering, Permitting, and Administration (15%): \$ 20,000
Total Estimated Project Budget (Rounded): \$ 120,000

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City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost** Maple Street Improvements- Blue Star Highway to S of North Street Blue Star Hwy Seepage Repair



Project: 859771
Date: 10/31/2024
By: PMT

Description: Repair seepage issue at Maple Street and Blue Star Highway.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	1	\$ 511.25	\$ 511.25
2	HMA Surface, Rem	Syd	75	\$ 10.00	\$ 750.00
3	Underdrain, 6 inch	Ft	85	\$ 15.00	\$ 1,275.00
4	Underdrain, End Section	Ea	2	\$ 200.00	\$ 400.00
5	Subbase	Cyd	25	\$ 18.00	\$ 450.00
6	8" Aggregate Base	Syd	75	\$ 18.00	\$ 1,350.00
7	Hand Patching	Ton	30	\$ 200.00	\$ 6,000.00

Subtotal Construction (Rounded): \$ 20,000
Undeveloped Details & Contingencies (15%): \$ 10,000
Engineering, Permitting, and Administration (15%): \$ 10,000
Total Estimated Project Budget (Rounded): \$ 40,000

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City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost** Maple Street Improvements- Blue Star Highway to S of North Street HMA Valley Gutter



Project: 859771
Date: 10/31/2024
By: PMT

Description: Installing HMA Valley Gutter along Maple Street, including storm sewer and all related work.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	1	\$ 31,230.00	\$ 31,230.00
2	Surface Restoration - Filling in existing ditching	Sta	50	\$ 300.00	\$ 15,000.00
3	Storm Sewer	Ft	3,750	\$ 100.00	\$ 375,000.00
4	Dr Structures	Ea	30	\$ 4,500.00	\$ 135,000.00
3	Subbase	Cyd	950	\$ 18.00	\$ 17,100.00
4	HMA, 13A	Ton	270	\$ 110.00	\$ 29,700.00
5	HMA Valley Gutter	Ft	8,800	\$ 6.00	\$ 52,800.00

Subtotal Construction (Rounded): \$ 660,000
Undeveloped Details & Contingencies (15%): \$ 100,000
Engineering, Permitting, and Administration (15%): \$ 100,000
Total Estimated Project Budget (Rounded): \$ 860,000

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City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost** Maple Street Improvements- Blue Star Highway to S of North Street Concrete Curb & Gutter



Project: 859771
Date: 10/31/2024
By: PMT

Description: Installing concrete curb and gutter along Maple Street, including storm sewer and all related work.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	1	\$ 38,980.00	\$ 38,980.00
2	Surface Restoration - Filling in existing ditching	Sta	50	\$ 300.00	\$ 15,000.00
3	Storm Sewer	Ft	3,750	\$ 100.00	\$ 375,000.00
4	Dr Structures	Ea	30	\$ 4,500.00	\$ 135,000.00
5	Subbase	Cyd	950	\$ 18.00	\$ 17,100.00
6	Curb and Gutter	Ft	9,500	\$ 25.00	\$ 237,500.00

Subtotal Construction (Rounded): \$ 820,000
Undeveloped Details & Contingencies (15%): \$ 130,000
Engineering, Permitting, and Administration (15%): \$ 130,000
Total Estimated Project Budget (Rounded): \$ 1,080,000

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City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost**

Maple Street Improvements- Blue Star Highway to S of North Street

Crush and Shape



Project: 859771
 Date: 12/16/2024
 By: PMT

Description: West lane road reconstruct and east lane crush and shape, with 10' HMA lanes, 1' HMA shoulder, 4" of Asphalt and 2' gravel shoulders.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY (CITY ONLY NORTH OF 721 MAPLE)	QUANTITY (CITY ONLY - EAST LANE SOUTH OF 721 MAPLE)	QUANTITY (CITY/TOWNSHIP - WEST LANE SOUTH OF 721 MAPLE)	TOTAL QUANTITIES	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT (CITY ONLY)	ESTIMATED AMOUNT (CITY/TOWNSHIP)
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	0.14	0.43	0.43	1.00	\$ 50,522.00	\$ 28,797.54	\$ 21,724.46
2	Pre-Construction Video Survey	LSum	0.14	0.43	0.43	1.00	\$ 3,000.00	\$ 1,710.00	\$ 1,290.00
3	Traffic Control	LSum	0.14	0.43	0.43	1.00	\$ 35,000.00	\$ 19,950.00	\$ 15,050.00
4	Tree Removal 37"+	Each	0	1	1	2	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00
5	HMA Base Crushing and Shaping	Syd	850	5,600	0	6,450	\$ 4.00	\$ 25,800.00	\$ -
6	Remove HMA Pavement	Syd	850	0	5,800	6,650	\$ 10.00	\$ 8,500.00	\$ 58,000.00
7	Remove HMA Driveway	Syd	275	425	325	1,025	\$ 10.00	\$ 7,000.00	\$ 3,250.00
8	HMA Approach	Ton	50	80	60	190	\$ 175.00	\$ 22,750.00	\$ 10,500.00
9	Approach, CI I, 6 inch	Syd	275	425	325	1,025	\$ 13.00	\$ 9,100.00	\$ 4,225.00
10	Approach, CI II, 6 inch	Syd	0	740	340	1,080	\$ 13.00	\$ 9,620.00	\$ 4,420.00
11	Remove Concrete Driveway	Syd	0	200	225	425	\$ 15.00	\$ 3,000.00	\$ 3,375.00
12	Roadway Grading	Sta	0.65	0.00	21.00	21.65	\$ 4,500.00	\$ 2,925.00	\$ 94,500.00
13	Shld Gravel, 4 inch	Syd	300	1,870	1,870	4,040	\$ 8.00	\$ 17,360.00	\$ 14,960.00
14	Curb and Gutter	Ft	0	120	175	295	\$ 35.00	\$ 4,200.00	\$ 6,125.00
15	HMA Valley Gutter	Ft	85	580	450	1,115	\$ 6.00	\$ 3,990.00	\$ 2,700.00
16	Subbase	Cyd	280	0	2,000	2,280	\$ 18.00	\$ 5,040.00	\$ 36,000.00
17	8" Aggregate Base	Syd	850	0	5,800	6,650	\$ 18.00	\$ 15,300.00	\$ 104,400.00
18	HMA, 13A	Ton	390	1,400	1,500	3,290	\$ 110.00	\$ 196,900.00	\$ 165,000.00
19	6" Nonreinforced Concrete Driveway	Syd	0	200	225	425	\$ 60.00	\$ 12,000.00	\$ 13,500.00
20	Turf Establishment	Syd	700	2,150	2,150	5,000	\$ 20.00	\$ 57,000.00	\$ 43,000.00

	CITY ONLY	CITY & TOWNSHIP 50%-50%
Subtotal Construction (Rounded):	\$ 460,000	\$ 610,000
Undeveloped Details & Contingencies (15%):	\$ 70,000	\$ 100,000
Engineering, Permitting, and Administration (15%):	\$ 70,000	\$ 100,000
Total Estimated Project Budget (Rounded):	\$ 600,000	\$ 810,000

Total Estimated Project Budget (CITY - Rounded): \$ 1,005,000
Total Estimated Project Budget (TOWNSHIP - Rounded): \$ 405,000

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City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost**

Maple Street Improvements- Blue Star Highway to S of North Street

Full Road Reconstruction



Project: 859771
Date: 12/16/2024
By: PMT

Description: Full road reconstruction, with 10' HMA lanes, 1' HMA shoulder, 4" of Asphalt and 2' gravel shoulders.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY (CITY ONLY NORTH OF 721 MAPLE)	QUANTITY (CITY ONLY - EAST LANE SOUTH OF 721 MAPLE)	QUANTITY (CITY/TOWNSHIP - WEST LANE SOUTH OF 721 MAPLE)	TOTAL QUANTITIES	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT (CITY ONLY)	ESTIMATED AMOUNT (CITY/TOWNSHIP)
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	0.14	0.43	0.43	1.00	\$ 65,498.00	\$ 37,333.86	\$ 28,164.14
2	Pre-Construction Video Survey	LSum	0.14	0.43	0.43	1.00	\$ 3,000.00	\$ 1,710.00	\$ 1,290.00
3	Traffic Control	LSum	0.14	0.43	0.43	1.00	\$ 35,000.00	\$ 19,950.00	\$ 15,050.00
4	Tree Removal 37"+	Each	0	1	1	2	\$ 4,000.00	\$ 4,000.00	\$ 4,000.00
5	Remove HMA Pavement	Syd	1,700	5,600	5,800	13,100	\$ 10.00	\$ 73,000.00	\$ 58,000.00
6	Remove HMA Driveway	Syd	275	425	325	1,025	\$ 10.00	\$ 7,000.00	\$ 3,250.00
7	HMA Approach	Ton	50	80	60	190	\$ 175.00	\$ 22,750.00	\$ 10,500.00
8	Approach, CI I, 6 inch	Syd	275	425	325	1,025	\$ 13.00	\$ 9,100.00	\$ 4,225.00
9	Approach, CI II, 6 inch	Syd	0	740	340	1,080	\$ 13.00	\$ 9,620.00	\$ 4,420.00
10	Remove Concrete Driveway	Syd	0	200	225	425	\$ 15.00	\$ 3,000.00	\$ 3,375.00
11	Roadway Grading	Sta	0.65	21.00	21.00	42.65	\$ 4,500.00	\$ 97,425.00	\$ 94,500.00
12	Shld Gravel, 4 inch	Syd	300	1,870	1,870	4,040	\$ 8.00	\$ 17,360.00	\$ 14,960.00
13	Curb and Gutter	Ft	0	120	175	295	\$ 35.00	\$ 4,200.00	\$ 6,125.00
14	HMA Valley Gutter	Ft	85	580	450	1,115	\$ 6.00	\$ 3,990.00	\$ 2,700.00
15	Subbase	Cyd	570	2,000	2,000	4,570	\$ 18.00	\$ 46,260.00	\$ 36,000.00
16	8" Aggregate Base	Syd	1,800	6,000	5,800	13,600	\$ 18.00	\$ 140,400.00	\$ 104,400.00
17	HMA, 13A	Ton	390	1,400	1,500	3,290	\$ 110.00	\$ 196,900.00	\$ 165,000.00
18	6" Nonreinforced Concrete Driveway	Syd	0	200	225	425	\$ 60.00	\$ 12,000.00	\$ 13,500.00
19	Turf Establishment	Syd	700	2,150	2,150	5,000	\$ 20.00	\$ 57,000.00	\$ 43,000.00

	CITY ONLY	CITY & TOWNSHIP 50%-50%
Subtotal Construction (Rounded):	\$ 770,000	\$ 620,000
Undeveloped Details & Contingencies (15%):	\$ 120,000	\$ 100,000
Engineering, Permitting, and Administration (15%):	\$ 120,000	\$ 100,000
Total Estimated Project Budget (Rounded):	\$ 1,010,000	\$ 820,000

Total Estimated Project Budget (CITY - Rounded): \$ 1,420,000
Total Estimated Project Budget (TOWNSHIP - Rounded): \$ 410,000

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City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost** Maple Street Improvements- Blue Star Highway to S of North Street Widened Shoulder



Project: 859771
Date: 10/31/2024
By: PMT

Description: Place additional 2' of HMA shoulder for a total of a 3' HMA shoulder. This will only be on the west side of Maple Street.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	1	\$ 3,337.50	\$ 3,337.50
2	HMA Aggregate Base	Syd	1,400	\$ 18.00	\$ 25,200.00
3	Subbase	Cyd	475	\$ 18.00	\$ 8,550.00
4	HMA, 13A	Ton	300	\$ 110.00	\$ 33,000.00

Subtotal Construction (Rounded): \$ 80,000
Undeveloped Details & Contingencies (15%): \$ 20,000
Engineering, Permitting, and Administration (15%): \$ 20,000
Total Estimated Project Budget (Rounded): \$ 120,000

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City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost** Maple Street Improvements- Blue Star Highway to S of North Street 5-Foot Concrete Sidewalk



Project: 859771
Date: 10/31/2024
By: PMT

Description: Installation of a 5-foot concrete sidewalk along the west side of Maple Street, including tree and landscaping removal and driveway culvert replacements

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	1	\$ 38,357.50	\$ 38,357.50
2	Landscape Removal/Repair	LSum	1	\$ 30,000.00	\$ 30,000.00
3	Clearing	LSum	1	\$ 25,000.00	\$ 25,000.00
4	Tree Removal 6" to 18"	Each	23	\$ 1,000.00	\$ 23,000.00
5	Tree Removal 19" to 36"	Each	26	\$ 2,000.00	\$ 52,000.00
6	Tree Removal 37"+	Each	6	\$ 4,000.00	\$ 24,000.00
7	Ditching	Sta	4.50	\$ 600.00	\$ 2,700.00
8	4" Concrete Sidewalk	Sft	21,000	\$ 7.00	\$ 147,000.00
9	6" Concrete Sidewalk Ramp, ADA	Sft	1,500	\$ 13.00	\$ 19,500.00
10	Detectable Warning Surface	Ft	80	\$ 80.00	\$ 6,400.00
11	Subbase	Cyd	500	\$ 18.00	\$ 9,000.00
12	Retaining Wall	Sft	3,500	\$ 100.00	\$ 350,000.00
13	Fencing	Ft	700	\$ 40.00	\$ 28,000.00
14	Driveway Culvert Replacement	Ft	630	\$ 65.00	\$ 40,950.00
15	Culvert End Section	Each	16	\$ 600.00	\$ 9,600.00

Subtotal Construction (Rounded): \$ 810,000
Undeveloped Details & Contingencies (15%): \$ 130,000
Engineering, Permitting, and Administration (15%): \$ 130,000
Total Estimated Project Budget (Rounded): \$ 1,070,000

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City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost** Maple Street Improvements- Blue Star Highway to S of North Street 6-Foot HMA Path



Project: 859771
Date: 10/31/2024
By: PMT

Description: Installation of a 6-foot HMA Path along the west side of Maple Street, including tree and landscaping removal and driveway culvert replacements

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	1	\$ 41,723.75	\$ 41,723.75
2	Landscape Removal/Repair	LSum	1	\$ 30,000.00	\$ 30,000.00
3	Clearing	LSum	1	\$ 25,000.00	\$ 25,000.00
4	Tree Removal 6" to 18"	Each	23	\$ 1,000.00	\$ 23,000.00
5	Tree Removal 19" to 36"	Each	26	\$ 2,000.00	\$ 52,000.00
6	Tree Removal 37"+	Each	6	\$ 4,000.00	\$ 24,000.00
7	Ditching	Sta	4.50	\$ 600.00	\$ 2,700.00
8	Shared-Use Path, Grading	Ft	5,000	\$ 20.00	\$ 100,000.00
9	HMA shared use Path (3")	Ton	425	\$ 125.00	\$ 53,125.00
10	Aggregate Base	Syd	3,300	\$ 18.00	\$ 59,400.00
11	Subbase	Cyd	600	\$ 18.00	\$ 10,800.00
12	Detectable Warning Surface	Ft	80	\$ 80.00	\$ 6,400.00
13	6" Concrete Sidewalk Ramp, ADA	Sft	1,500	\$ 13.00	\$ 19,500.00
14	Retaining Wall	Sft	3,500	\$ 100.00	\$ 350,000.00
15	Fencing	Ft	700	\$ 40.00	\$ 28,000.00
16	Driveway Culvert Replacement	Ft	630	\$ 65.00	\$ 40,950.00
17	Culvert End Section	Each	16	\$ 600.00	\$ 9,600.00

Subtotal Construction (Rounded): \$ 880,000
Undeveloped Details & Contingencies (15%): \$ 140,000
Engineering, Permitting, and Administration (15%): \$ 140,000
Total Estimated Project Budget (Rounded): \$ 1,160,000

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City of Saugatuck

Engineer's Pre-Design Estimate of Project Cost** Maple Street Improvements- Blue Star Highway to S of North Street Resurfacing DPW Parking Lot



Project: 859771
Date: 10/31/2024
By: PMT

Description: Crushing and shaping and resurfacing the DPW parking lot. Assume 4" Asphalt.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	ESTIMATE UNIT PRICE	ESTIMATED AMOUNT
1	General Conditions, Bonds, and Insurances, Max. 5%	LSum	1	\$ 5,970.00	\$ 5,970.00
2	HMA Base Crushing and Shaping	Syd	3,600	\$ 4.00	\$ 14,400.00
4	HMA, 13A	Ton	900	\$ 110.00	\$ 99,000.00
5	Turf Establishment	Syd	300	\$ 20.00	\$ 6,000.00

Subtotal Construction (Rounded): \$ 130,000
Undeveloped Details & Contingencies (15%): \$ 20,000
Engineering, Permitting, and Administration (15%): \$ 20,000
Total Estimated Project Budget (Rounded): \$ 170,000

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MAPLE STREET IMPROVEMENTS PROJECT PLANNING

Jon Moxey and Peter Tierney: January 22, 2025

Agenda

Project Components to Consider

- Water System Infrastructure
- Wastewater System Infrastructure
- Drainage System Infrastructure
- Roadway Infrastructure
- Non-Motorized Infrastructure
- Other Infrastructure

Summary of Anticipated Costs

Anticipated Project Schedule / Next Steps

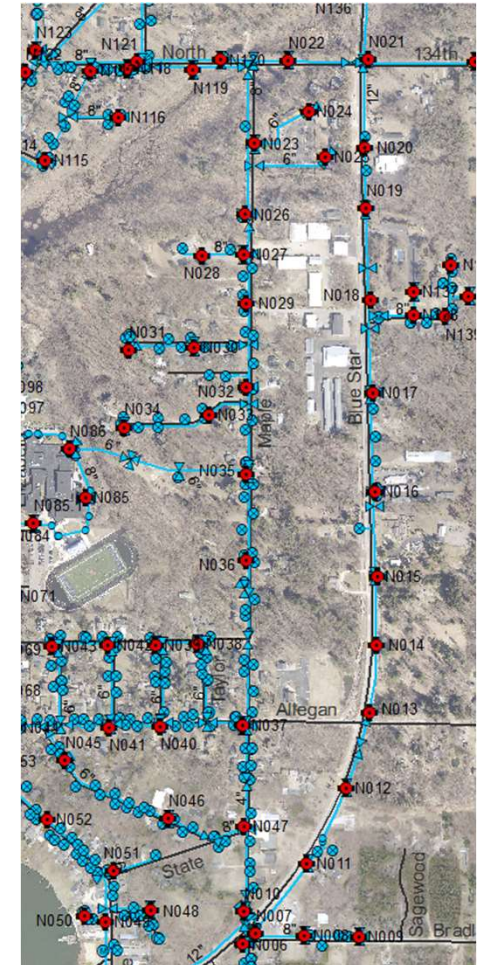
Construction Considerations

Additional Questions and Discussion

Water System Infrastructure

Water Distribution Main

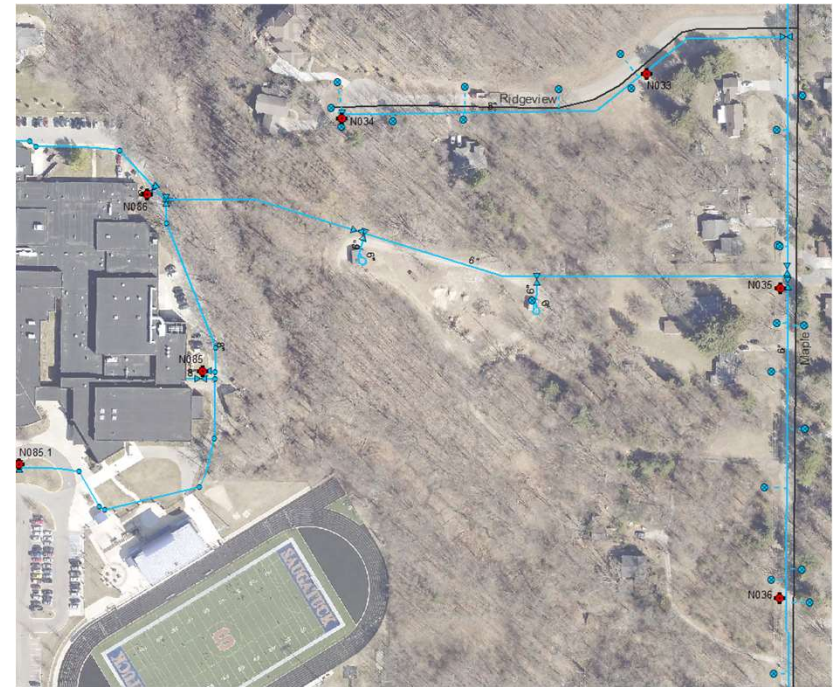
- Combination of 4-inch and 6-inch cast iron vs. 8-inch ductile iron recommended and unknown construction date.
- Several recent breaks (repair costs, boil water advisories, traffic impacts).
- Several water services in the corridor meet the requirements for replacement to the home/building under EGLE's Lead and Copper Rules.
- Replacement is the only practical option.
- Estimated project cost is \$1,670,000 (\$835,000 City cost, assuming a 50/50 cost share with Saugatuck Township).



Water System Infrastructure

Well Field Looping

- City's two municipal wells are located on the west side of Maple Street.
- Water main is 6" and assumed to be similar age and construction as Maple Street.
- Looping connects the wells to the system at Maple Street and at the high school loop, which was recently replaced.
- Pipe traverses the ravine area behind the high school.
- Estimated project cost is \$430,000. Estimate includes upsizing to 12".
- This portion of the project lends itself to a future phase by including a new stub from Maple Street near the access road.



Wastewater System Infrastructure

Existing Infrastructure

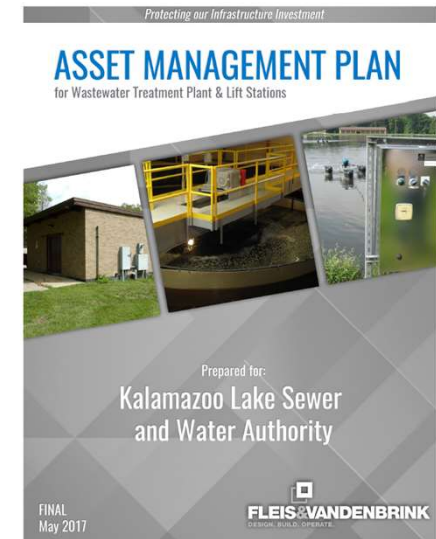
- Two municipal lift stations are located in the corridor (west side north of Mason Street and east side south of North Street) with associated forcemains.
- There is a dual 16" forcemain crossing in the corridor.
- 8" gravity sewer serves most of the corridor currently.
- KLSWA completed a Stormwater, Asset Management and Wastewater (SAW) project in 2016-2018, that evaluated the gravity sewer, manholes and lift stations.



Wastewater System Infrastructure

Lift Stations and Forcemains

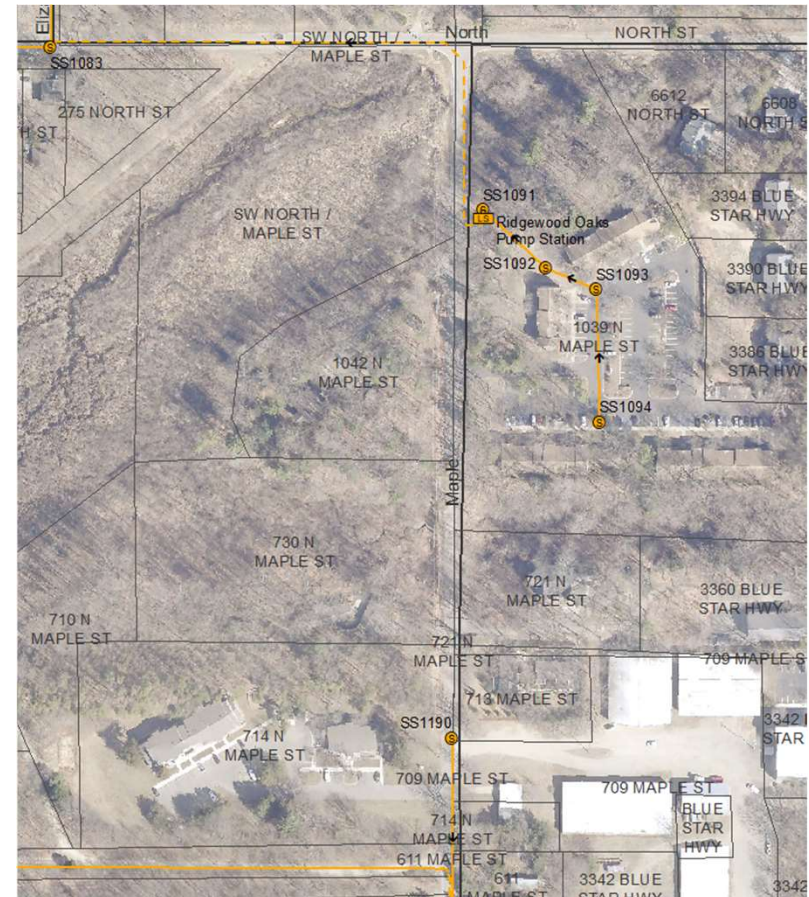
- Neither lift station was identified as having urgent needs, and lift station work would be more conducive to a standalone project than included with the work in Maple Street.
- The various forcemains have been illustrated in the survey that will be used for design to help avoid conflict with proposed improvements. Notes will be provided for the contractor to use due care to avoid damaging them during construction. No improvements are anticipated to be necessary as part of the Maple Street project.



Wastewater System Infrastructure

Gravity Sewer

- Based on the findings from SAW, 300 feet of sewer lining and repair of manholes has been included, with an estimated project cost of \$120,000. Similar to the water main, this cost is anticipated to be shared 50/50 with the Township.
- Three parcels near North Street (all located within the City) are currently unserved by sanitary sewer (it is assumed the existing homes are on private septic systems). A fourth parcel is currently served via an ejector pump with 2" private force main. The estimated cost to extend traditional 8-inch gravity sewer is \$130,000. Alternatively, individual 2" stubs could be provided for future ejector pump connections for a fraction of that cost.



Drainage System Infrastructure

Cross Culverts

- The corridor includes a series of cross culverts from 12-inch to 36-inch diameter, which were visually evaluated from the ends.
- Concrete culverts are in fair to good condition. Corrugated metal culverts are generally in fair condition with several poor or failing sections. Additional investigation is being considered.
- The estimated cost for replacement is \$170,000. A portion of that, on the order of \$30,000 is recommended to budget for spot repairs as part of the Maple Street project. If additional repairs are found to be warranted, they can be made using contingency funds or trenchless technology (e.g. lining) in the future.



Drainage System Infrastructure

Storm Sewer

- The City has storm sewer at State Street, Allegan to Mason, and near Singapore Drive.
- Most storm sewer is newer construction and anticipated to be in fair to good condition.
- Cost estimates for roadway improvements include adjustment of structures but no significant storm sewer replacement is anticipated to be necessary.



Drainage System Infrastructure

Stormwater Management

- Previous improvement projects on Pleasant, Allegan and Mason Streets with curbing and storm sewer have increased downstream impacts.
- A 2022 study by F&V presented background and a range of alternatives for mitigation.
- Mitigation work began with the installation of leach basins on Takken and Taylor Streets in 2023 and asphalt spillways by the DPW.
- The recommended next step is underground detention at the Mason Street intersection as part of the Maple Street project.
- The estimated cost to utilize the practical space available is \$120,000, which is less than originally presented in 2022 due to combination with the road project.
- Periodic maintenance will be required.



Drainage System Infrastructure

Seepage Repair

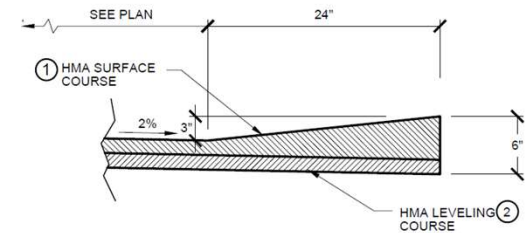
- The south approach of Maple Street at Blue Star Highway has had historic seasonal seepage through the pavement.
- Seepage is a nuisance and causes premature deterioration of the pavement.
- The estimated cost for repair with underdrain to the ditch line is \$40,000.
- This work is not contiguous to the rest of the work on Maple Street and could be addressed as a standalone or part of a future project.



Drainage System Infrastructure

Curbing and Storm Sewer Extension

- The road is currently uncurbed, except at several intersections. Road runoff is directed to grassy lawn, shallow swale or ditch areas.
- Curbing the road, either with asphalt valley gutter or concrete curb and gutter would require extension of the storm sewer system or a series of spillways.
- The estimated cost is \$860,000 for asphalt valley gutter or \$1,080,000 for concrete curb and gutter (both including associated storm sewer extension).
- Additional budget should be allocated to leach basins and/or detention, if either option is selected.



Roadway Infrastructure

Road Restoration and Improvement

- The road is currently a PASER rating of 2 (or worse), which warrants complete replacement.
- The west lane is anticipated to be reconstructed with new sand and gravel base, due to water main trenching.
- The east lane could be full reconstruction like the west lane, or crush, shape and resurface, which was the strategy recently used on Campbell Road.
- The estimate for part reconstruct and part crush and shape is \$1,005,000 City and \$405,000 Township (assuming the Township participates 50-50 in the cost of the west lane). The estimate for full reconstruct of both lanes is \$1,420,000 City and \$410,000 Township (difference being due to rounding).
- The City received \$250,000 in funding through the MDOT Category B program to help offset a portion of the road costs on the project.

Quality	Rating	Treatment (Asphalt)
Excellent	9,10	No maintenance required
Good	7,8	Crack sealing and minor patching
Fair	5,6	Preservative treatments (non-structural)
Poor	3,4	Structural renewal (overlay)
Failed	1,2	Reconstruction

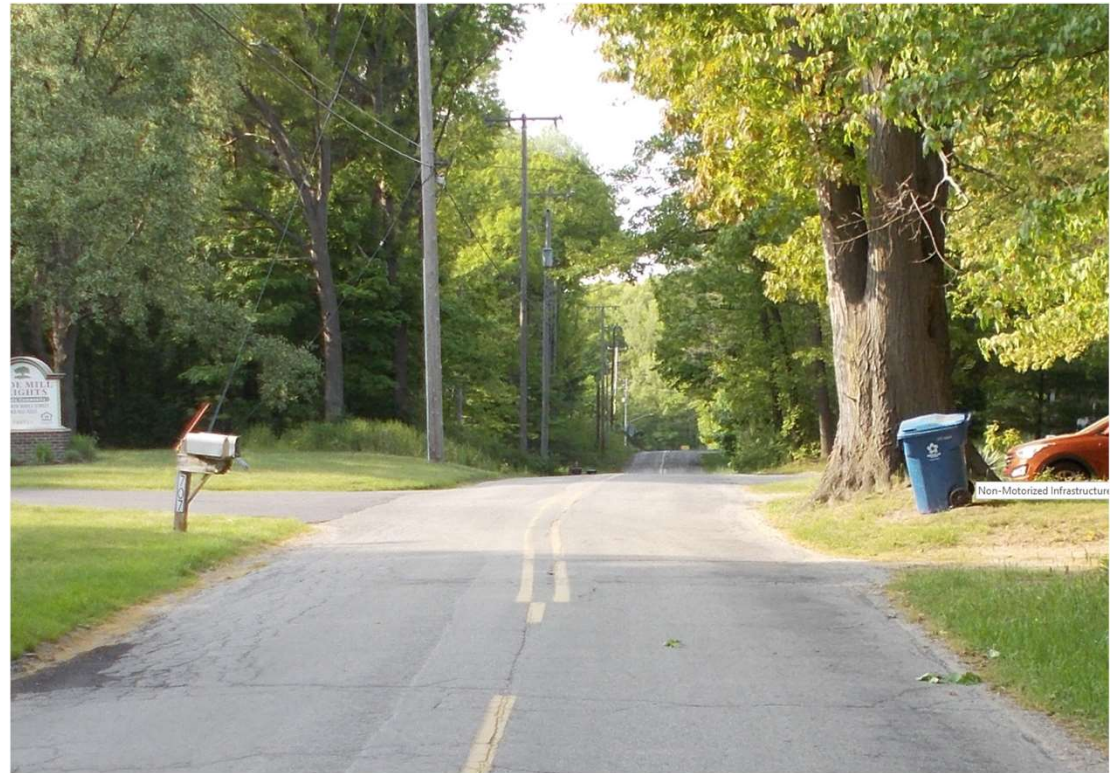
Non-Motorized Infrastructure

Alternatives Considered

- Do nothing. The existing road is narrow and currently has no non-motorized facilities. Walkers would continue use the road, which a higher traffic volume than most other residential streets.
- Widening one or both shoulders (similar to what was recently done on Campbell Road) provides additional space, but directly adjacent to traffic. The estimated cost for one shoulder is \$120,000.
- Constructing a traditional 5-foot concrete sidewalk has an estimated cost of \$1,070,000 between Blue Star Highway and the Ridgewood Oak Apartments entrance, including associated retaining walls and fencing where grade warrants. Sidewalk would generally be straight but curved around more significant obstacles.
- Constructing a 6-foot asphalt path has an estimated cost of \$1,160,000, using a more curved alignment around obstacles, still with associated retaining walls and fencing, where grade warrants.
- Responses received during and following the open house were in favor of including non-motorized facilities (7% none, 10% widened shoulder, 34% sidewalk, 7% asphalt path, 21% any of the options and 21% no opinion provided).

Other Infrastructure

- Saugatuck Township Fire District will be engaged on hydrant layout, as well as its drive approach access, which will need to be rebuilt to some degree regardless of the specific road option selected.
- The large tree (~5-foot diameter) on the east side of the road south of the STFD access is proposed to be removed for sight distance and related reasons.
- The asphalt pavement at the Department of Public Works facility is in poor condition. The estimated cost for crushing, shaping and resurfacing is \$170,000. That could be a standalone project but does have some economy of scale advantages for doing it as part of a larger project.



Summary of Estimated Costs

Water Main Estimates	
Option	Project Estimate
Water Main Loop Replacement	\$ 430,000
Water Main Replacement (City)	\$ 835,000
Water Main Replacement (Township)	\$ 835,000

Sanitary Sewer Estimate	
Option	Project Estimate
Sanitary Sewer Repairs (City)	\$ 60,000
Sanitary Sewer Repairs (Township)	\$ 60,000
Sanitary Sewer Extension	\$ 130,000

Storm Water Estimates	
Option	Project Estimate
Seepage Repair	\$ 40,000
Underground Detention	\$ 120,000
Cross Culvert Replacement	\$ 170,000
HMA Valley Gutter	\$ 860,000
Concrete Curb and Gutter	\$ 1,080,000

Pedestrian Facilities Estimates	
Option	Project Estimate
Widened HMA Shoulder	\$ 120,000
5-foot Concrete Sidewalk	\$ 1,070,000
6-foot HMA Path	\$ 1,160,000

Road Rehabilitation Estimates	
Option	Project Estimate
Crush and Shape (City)	\$ 1,005,000
Crush and Shape (Township)	\$ 405,000
Full Road Reconstruction (City)	\$ 1,420,000
Full Road Reconstruction (Township)	\$ 410,000

DPW Paving Estimate	
Option	Project Estimate
DPW Paving	\$ 170,000

* Recommended minimum of \$30,000 for repairs.

Anticipated Project Schedule / Next Steps

Finalize Project Scope – ideally January 2025

Authorize Design Phase Engineering – February 2025

Finalize Cost Sharing Details – Spring/Summer 2025

Design Engineering and Permitting – 2025

Bidding – late 2025 or early 2026

Construction – 2026 (April to November anticipated)

Construction Considerations

- Phasing the project provides easier access and may be easier from a budgeting standpoint (extending it over more budget years) but will increase the overall project cost.
- During construction, a minimum of one lane will be open for local traffic and emergency vehicles. There will be times when access is only available from one direction or the other, often with a short wait for construction traffic to clear. Access will be on gravel or crushed asphalt during most of the project.
- Contract provisions are included to restrict work hours (typically 7am – 7pm, M-F unless authorized otherwise), as well as control noise, dust and other construction nuisances.
- Deliveries, trash collection and mail service (if applicable) will be maintained throughout construction using the same access as residents and emergency services.
- A formal detour route may not be warranted, due to the nature of Maple Street. BSH is the primary north-south detour.



Additional Questions and Discussion