



**CITY OF PLYMOUTH
COMMITTEE OF THE WHOLE MEETING AGENDA
MONDAY, MAY 20, 2019 - 5:30-7:00 P.M.
PLYMOUTH CITY HALL COMMISSION CHAMBERS**

City of Plymouth
201 S. Main
Plymouth, Michigan 48170-1637

www.plymouthmi.gov
Phone 734-453-1234
Fax 734-455-1892

- 1) **Committee of the Whole – Call to Order**
- 2) **Roads and Infrastructure Plan for the Future**
- 3) **Adjournment**

City of Plymouth Strategic Plan 2017-2022

GOAL I - QUALITY OF LIFE

OBJECTIVES

1. Support the neighborhoods with high-quality customer service
2. Engage in collaboration with private entities and surrounding municipalities to implement the [Joint Recreation Master Plan](#)
3. Improve communication with the public across multiple platforms
4. Maintain a high level of cleanliness throughout the City
5. Support and host a diverse variety of events that foster community and placemaking

ONE YEAR TASKS 2019-2020

- Restore operations for recreation programs after Hines Park bridge repairs are completed
- Explore funding and partnership opportunities to increase and enhance pedestrian crossings
- Finalize [City website](#) update
- Develop and adopt a Master Plan for Kellogg Park, including the fountain
- Develop and implement strategy to market sponsorship opportunities to improve publicly owned assets
- Draft and approve amendments to [Tree Ordinance](#) to clarify implementation, enforcement, and scope

GOAL II - FINANCIAL STABILITY

OBJECTIVES

1. Approve balanced budgets that maintain fiscal responsibility
2. Advocate for increased revenue sharing with the State of Michigan
3. Encourage and engage in partnerships, both public and private, to share costs of services and equipment
4. Address the issue of legacy costs
5. Seek out and implement efficient and effective inter-departmental collaboration
6. Market our successes to attract new economic and investment opportunities

ONE YEAR TASKS 2019-2020

- Continue to support [Michigan Municipal League \(MML\)](#) efforts to [coordinate state initiatives](#) related to revenue sharing with municipalities
- Increase awareness of and support the [MML Save MI City campaign](#)
- Target revenue enhancements that support large capital projects, including grants and millages
- Explore internal and external potential for supplemental funding of legacy costs
- Develop a plan for capital improvement funding projects and purchases
- Explore enhanced investment opportunities

GOAL III - ECONOMIC VITALITY

OBJECTIVES

1. Continue to support and improve active, vibrant downtown branding
2. Support community and economic development projects and initiatives
3. Support a mix of industrial, commercial and residential development
4. Reference the [Master Plan](#) in economic decision-making

ONE YEAR TASKS 2019-2020

- Complete and approve the [DDA Master Plan](#)
- Address and implement recommendations in the [Redevelopment Ready Communities baseline report](#)
- Develop and approve city-wide economic development strategies (Saxton's property, parking system, connections between Old Village and the DDA, Bathey property remediation and development, 240 N. Main, Lumber Mart site)
- Identify other properties of significance to the economic development strategy
- Complete a community survey
- Increase collaborations with partners in the community
- Administer the City's [Master Plan](#) using implementation matrix ([Appendix Table 5](#))

GOAL IV - SERVICE AND INFRASTRUCTURE

OBJECTIVES

1. Support administration and staff by providing professional development opportunities, supplying resources, and maintaining a commitment to recruitment, retention and succession planning
2. Support and deliver safe and responsive emergency services
3. Maintain a sophisticated and responsive technology to communicate and manage data
4. Continually record, maintain, update, and improve City infrastructure

ONE YEAR TASKS 2019-2020

- Begin implementation of parking recommendations for City parking system
- Develop and utilize consistent message and branding across all platforms
- Develop and approve of plan for future delivery of emergency services
- Implement infrastructure asset management plan
- Approve agreement on sanitary sewer with [Western Township Utilities Authority \(WTUA\)](#)

ADMINISTRATIVE UPDATE

To: Mayor & City Commission
CC: *S:\Manager\Sincock Files\Memorandum - COW Street Paving and Infrastructure 05-20-19.doc*
From: Paul J. Sincock -City Manager
Date: 5/16/2019
Re: Roads & Infrastructure Plan for the Future

The City Commission will be holding a Committee of the Whole (COW) meeting on Monday, May 20, 2019 starting at 5:30. The purpose of the meeting is to review the future of not only the City's Road Paving Programs, but also to review our infrastructure, including storm and sanitary sewer systems, water mains, fire hydrants, system valves and more.

We will provide the City Commission with some history on our programs as well as a plan for the future. We will show how we attempt to have data driven decisions driving our projects. In addition, we will show the need for additional maintenance projects in order to sustain our assets.

We have attached a report which will give you some basic information in advance of our meeting on Monday night. This will be the basis for our Infrastructure Capital Improvement Plan for 2020 through 2024.

City Engineer Shawn Keough will be on hand on Monday night and will be leading the presentation on the conditions of our assets and future plans.

Should you have any questions in advance of the meeting please feel free to contact me.

City of Plymouth

Infrastructure Capital Improvement Plan (5/20/2019)

Fiscal YE 2020 to 2024

Background and Current City Goals

As part of the City of Plymouth's 2017 – 2022 Strategic Plan, the City identified 4 Goals with Key Objectives. Goal #IV is focused on Service Infrastructure and includes the Key Objective of **“Continuous Infrastructure Improvement”**, with an action item of **developing a plan for capital improvement issues**. Improving the City's infrastructure has been a focus of the City for over 20 years. In 1996, residents of the City approved the first of two millages dedicated toward the repair and replacement of City streets. The second millage was approved in 2008. The City's Annual Infrastructure Improvement Programs have averaged approximately \$1,000,000 per year since the mid 1990's. The annual programs used funds from the voter approved street millage combined with revenue generated through water and sewer rates to complete comprehensive infrastructure programs, that allowed for the replacement of older, damaged water and sewer mains and highly deteriorated streets. These programs were focused on improving the public health, safety and welfare within the City's public right-of-ways (ROW) by:

1. Providing a safe and reliable drinking water distribution system for residents, businesses, and visitors to have access to and use of clean water.
2. Providing a separate wastewater collection system that operates free of backups and protects the environment.
3. Providing a safe road network that promotes user access and supports the City of Plymouth's goal of being a destination.
4. Providing a storm water collection system that minimizes flooding.

As the City looks to continue to improve its infrastructure over the next 20 years, the focus of these programs will continue to include the 4 basic objectives above, but it will also evolve. The City realizes that there needs to be an increased focus on maintenance programs in order to maximize the useful life of each of its infrastructure assets. Asset Management addresses this need through infrastructure management and daily thought process.

Introduction to Asset Management

In December of 2013, the City of Plymouth applied for a \$400,000 Stormwater, Asset Management & Wastewater (SAW) Grant from the State of Michigan. The City's SAW Grant application outlined a program that would use the funding to develop an asset management program for the City's wastewater and storm water collection systems. The City of Plymouth was one of the first communities selected to receive the grant funding. From May 2014 to May 2017, the City of Plymouth administered and implemented their SAW Grant program. A Geographic Information System (GIS) was created to inventory and organize each known asset (i.e. pipes, manholes, valves, hydrants, etc.) on the City's

wastewater collection system, storm water collection system and water distribution system. Each asset has a unique identification number and the GIS system stores all known data about these assets. Record drawings and old system maps were used to create the modern digital GIS mapping and databases.

Concurrently, in 2017, the City of Plymouth evaluated the condition of each segment of the City’s roadway network using the Pavement Surface Evaluation Rating (PASER) system. The PASER system rates the condition of the roadway from 1 to 10 based on the condition of the surface of each roadway segment. In the PASER system, a rating of 10 reflects a new roadway segment and a rating of 1 reflects a severely deteriorated roadway segment. The system uses defined and recognizable surface defects typically found on concrete and asphalt roads to help categorize the condition of the pavement. The location, frequency, and severity of surface defects such as cracking, rutting, missing pavement (potholes), etc. are examples of criteria used to rate each segment of road. The PASER system is used throughout the State of Michigan and road rating is recommended every two years.

A summary of the City’s overall road condition based on the 2017 PASER data collected for Asphalt and Concrete roads is presented in the tables below:

Asphalt Pavement Condition Summary				
2017 PASER Rating	2017 Miles of Roadway	2019 PASER Rating	2019 Miles of Roadway	% Change
9	3.481			
8	3.524			
7	4.146			
6	7.749			
5	4.039			
4	1.571			
3	1.543			
2	0.567			
1	0.000			
Totals	26.62			

Concrete Pavement Condition Summary				
2017 PASER Rating	2017 Miles of Roadway	2019 PASER Rating	2019 Miles of Roadway	% Change
9	0.483			
8	1.253			
7	3.813			
6	2.964			
5	1.966			
4	0.842			
3	0.064			
2	0.165			
1	0.000			
Totals	11.55			

The City's Average Surface Quality Index for 2017 was 6.28, which is a very solid number and reflects the investment and attention to streets that the City has made over the past 20 years. The City should plan to rate the roads again in 2019, and regularly every two years to maintain awareness of the overall pavement condition.

During the SAW Grant program, some condition data was collected on the City's sanitary sewer and storm sewer system. The National Association of Sewer Service Companies (NASSCO) has established an industry standards for the assessment, maintenance and rehabilitation of underground infrastructure. Sewer defects are rated on a scale of 1 to 5 with 5 being the most severe defect (i.e. a broken pipe or a hole in the pipe). Currently, the majority of the City's sanitary sewer system and storm sewer system do not have a condition rating. The City needs to establish a program to routinely collect data that will assist in assessing the condition of the City's sewer system. A condition rating could be assigned based on age; to serve as a benchmark, though this method has not proven to be an accurate way of assessing the real condition of sewer segments.

The goal of collecting this type of information and creating the GIS database about the condition of each asset is so the City can use the data to make data driven decisions on how to spend future dollars to continuously improve its infrastructure.

Data Collection and Organization

The City's GIS system has been created using ESRI's ArcGIS and the geodatabases that contain the data have been organized in a manner consistent with the recommendations for managing local government infrastructure (i.e. using ESRI's Local Government Model). The City's Department of Municipal Services staff are familiar with GIS and have received some training from Wade Trim staff on the use of ArcGIS.

Remaining Useful Life of Assets

Estimating the remaining useful life of various infrastructure assets can only be done properly if data is collected regularly. The remaining useful life of an asset can be prolonged with routine inspection and maintenance. Understanding the current condition of an asset provides a municipality the opportunity to apply the "right fix at the right time".

Most remaining useful life estimates are based on a couple of factors. The first factor is the install date, that is when the sewer pipe, water main, or roadway was installed and placed into use. A second factor to be considered is the materials used, recognizing that different materials last different lengths of time. Well maintained assets typically last longer than those that are not maintained.

The remaining useful life is a helpful indicator of when an asset may need to be replaced. Regular inspection of assets provides data that can be compared over time to help anticipate when an asset is past its prime and should be planned for replacement. Regular inspection also reminds the asset owner to perform routine maintenance.

Capital Improvement Program Recommendations

Using the condition data and financial data (provided by the City) that is currently available, 7 different programs have been recommended in the form of a comprehensive Capital Improvement Plan for the City to proactively focus on their objective of “Continuous Infrastructure Improvement”.

Each program is listed below with a brief explanation and description of the goals of each program:

1. Maintain Annual Infrastructure Improvement Program

- This program is a continuation of the City’s ongoing Annual Infrastructure Improvement Program and involves the annual investment to replace older infrastructure or resurface/reconstruct roadway segments.
- Historically, this program has been implemented in areas where the City has had a history of high water main breaks and the roadway surface is in poor condition.
- This program typically includes comprehensive street reconstruction (or resurfacing) within the public right-of-way on one to three street segments each year, depending on available Local or Major Street Funding. For most improvement projects, street reconstruction and resurfacing programs should typically be considered for local and major roadway segments with PASER ratings of 4 and below, where there is an indication of a structural deficiency in the roadway. Roads with higher PASER ratings should still be programmed with preventative maintenance techniques and preservation treatments to prolong the pavements life. The table below provides some typical treatments for both asphalt and concrete roadways based on the pavements PASER rating:

Quality	PASER Rating	Treatment (Asphalt)	Treatment (Concrete)
Excellent	9 – 10	Typically, minimal to no maintenance required	Typically, minimal to no maintenance required
Good	7 – 8	Crack Sealing and minor patching	Crack Sealing and Joint Maintenance
Fair	5 – 6	Preservation treatments (i.e. cape seals/microsurfacing)	Surface Repairs & Partial Depth Patching
Poor	3 – 4	Structural Renews (Overlays & Mill/Resurfacing)	Extensive Slab or Joint Rehabilitation
Failed	1 - 2	Reconstruction	Reconstruction

- The cost for reconstruction of an asphalt roadway based on the April 18, 2019 bids received by the City is approximately \$580/linear foot as measured along the centerline

of any roadway segment. This estimate is based on a typical 31 foot road width with new aggregate base, new curb and gutter, new driveways and related work.

- Asphalt pricing in the recent April 18, 2019 bid averaged \$150 per ton. If the City choose to do larger quantities of resurfacing work, we believe that prices would be somewhat lower in the \$120 per ton range.
- Sewer system improvements are generally proposed as part of the program based on recent condition assessment (via video inspections) of the sanitary sewer and storm sewer systems. Each year the City televises the local storm sewer and sanitary sewer mains within a project area during the planning for the project. Typically, the correction of any noted structural deficiencies is the most common program element. Capacity issues have not typically been identified as a problem. Budgeting in advance for these improvements is challenging because the City does not have very much condition assessment data on its sanitary sewer or storm sewer systems.
- Water system improvements are incorporated into the program based on the age, size and main break history of the water system in the area of the pavement improvements. For programming in the CIP, budget level cost estimates for water main improvements were developed using the current 2019 bid pricing received by the City on April 18, 2019. The cost for recent water main improvements has been approximately \$255 per linear foot (i.e. includes water main, water services/curb stops, new hydrants, new gate valves and connections).
- Budget estimates for pipe bursting projects have been estimated at \$300 per linear foot (The City paid approximately \$266 per linear foot for the total project on Mill Street in 2015).
- Historically, the City's Annual Infrastructure Program has included water and sewer improvements ranging from \$500,000 to \$700,000. Through discussions with City staff, it is recommended that the City continue to plan for annual water and sewer investments of \$500,000 to \$700,000.

2. Implement/Maintain Annual Water System Maintenance Program

- The water system maintenance program involves annual flushing of each hydrant within the City and regular valve turning programs (Need to work with the City to determine the desired or practical frequency for valve turning, as this will affect the cost).
- This program will also include any annual water quality testing required by either GLWA, DWSD or the Michigan Department of Environmental Quality.
- This program would be funded in Fund 592 – Water/Sewer O&M Fund under the Hydrant Maintenance line item.
- A calculation of employee hours with the appropriate salary and equipment costs necessary to complete this maintenance needs to be calculated and programmed in the City's annual budget.

3. Implement Annual Sanitary Sewer and Storm Sewer Condition Assessment Program
 - From 1995 through 2019, the City of Plymouth typically performed a video inspection to assess the condition of the sanitary sewer and storm sewer within the areas identified for the Annual Infrastructure Programs.
 - There are many miles of sanitary sewer and storm sewer that have not had a video inspection and therefore their condition is unknown.
 - In order to make data driven decisions, the City should establish an annual program that collects condition data on 5 to 10 percent of its sanitary sewer and storm sewer systems. Regular condition assessments will help prevent emergency repairs and allow the proper programming of infrastructure repairs prior to major backups or collapses.
 - The regular condition assessments should be coordinated first in areas where road improvements are anticipated to occur soon based on a roadways PASER rating and second in other areas of the City until all sewer lines have been televised.
 - We understand that sanitary sewer video inspection, and condition assessment would be covered in Fund 592 – Water/Sewer O&M Fund under Trunk and Lateral.
 - We understand that storm sewer video inspection, and condition assessment would likely be covered in the City’s Solid Waste Management Fund, however this can be confirmed by the City’s Finance Director.
4. Implement Asphalt Pavement Maintenance Programs
 - The City should implement regular pavement maintenance programs to prolong the life of the newly constructed asphalt roadways. Preventative maintenance should be performed on roadway segments where the PASER ratings range from 5 to 9.
 - Typical preventative maintenance techniques should include a combination of crack sealing, and seal coating techniques such as cape sealing and micro-surfacing.
 - Asphalt patching should be used for smaller pavement areas where deterioration is noticeably more evident, but not reflective of the entire segment of roadway.
 - The City’s Fund 202 (Major Streets) and Fund 203 (Local Streets both have line items for Routine Maintenance. (We need to understand how these line items are currently used and whether there are additional unused funds in this line item that could be directed toward the preventative maintenance treatments (or additional dollars need to be redirected to this area of the City’s budget).
5. Implement/Continue Concrete Pavement Maintenance Programs
 - The City currently implements an annual (or bi-annual) concrete repair program. This is often completed as part of the City’s sidewalk and cement repair program.
 - We need to define where in the City’s budget these repairs are programmed and include it in this document.
6. Evaluate Opportunities for incorporating Green Infrastructure into City Infrastructure Plans
 - Most of the City of Plymouth public right of ways discharge their storm water to a storm sewer system that is tributary to the Tonquish Creek & Byron Creek.
 - The Tonquish Creek is subject to flash flooding during high rain events, especially in the early spring and wet season.

- The City should look for ways to reduce the direct runoff into the Tonquish Creek, including reducing pavement widths whenever practical, expanding greenbelt areas and allowing for infiltration of storm water in areas where the soil is appropriate.
 - Cost estimates for this program have not been determined and should be handled on a case by case basis for now.
 - It appears that the City budgets minimally for stormwater maintenance related items in Funds 202 and 203.
7. Evaluate Future ROW Uses for Multi-modal Transportation Options (Complete Streets)
- The City of Plymouth currently supports a complete streets approach whenever pavement or ROW improvements are proposed. The City's ROW's currently provide transportation for motorized and non-motorized users; however, the City does not have a formal non-motorized transportation plan.
 - The City should consider the potential need for creating a non-motorized plan to appropriately predict future uses. Bike lanes and upgrades to City infrastructure that has the potential to improve pedestrian safety within the public right of ways should be evaluated and planned.
 - We recommend that the City coordinate this activity with the Plymouth Downtown Development Authority.

8. Other

A summary of the City's Capital Improvement Plan for Roads, Water System, Sanitary Sewer System and Storm Sewer improvements will be presented on Monday, May 20, 2019 as part of the City Commission workshop.