MARION TOWNSHIP
BOARD OF TRUSTEES
REGULAR MEETING
Thursday, August 26, 2021
7:30 p.m.

THIS MEETING WILL BE HELD IN PERSON WITH ONLINE PARTICIPATION OPTIONS

Call to Order
Pledge of Allegiance
Members Present/Members Absent
Call to the Public

1) Approval of Agenda
2) Consent Agenda
    a. Approval of August 12, 2021 Regular Meeting Minutes
    b. August 18, 2021 HAFDA Agenda/Minutes
    c. August 18, 2021 MHOG Agenda/Minutes
    d. July 2021 Livingston County Sheriff Report
3) Pfeffer, Hanniford & Palka, P.C. Engagement Letter
4) Fred Brown Park Soccer Use Request
5) Township Parking Lot
6) Tamarack Place PUD Agreement
7) Crystal Wood Trees
8) FY 2021-2022 Budget Amendments
9) Asset Management/Improvement Plan Report/New Sewer Rates
10) Livingston County Planning, Master Plan Review

Correspondence and Updates

Livingston County August Update

Call to the Public
Adjournment

Reminder: Next Board Packet will be ready after 3pm on Thursday, September 2, 2021
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DRAFT

MARION TOWNSHIP
BOARD OF TRUSTEES
REGULAR MEETING
AUGUST 12, 2021

MEMBERS PRESENT: **Scott Lloyd, Bob Hanvey, Tammy Beal, Les Andersen, Greg Durbin, Dan Lowe, and Sandy Donovan**

MEMBERS ABSENT: **None**

OTHERS PRESENT: **John Gormley, Phil Westmoreland, Dave Hamann**

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CALL TO ORDER

Bob Hanvey called the meeting to order at 7:30 pm. The meeting was also available to attend online.

PLEDGE OF ALLEGIANCE

BOARD MEMBERS PRESENT

The board members introduced themselves.

CALL TO THE PUBLIC

No response.

APPROVAL OF AGENDA

Item #9—Non-conforming lots and home occupations was added to the agenda. Les Andersen motioned to approve the agenda as amended. Tammy Beal seconded. **Motion carried**.

CONSENT AGENDA

Les Andersen motioned to approve the consent agenda. Greg Durbin seconded. **Motion carried.**

BALDWIN UPDATE

Anthony Baldwin and his fiancé, Elizabeth, were present to update the board on progress made on cleaning up their property. Bob Hanvey and Dave Hamann visited the site last week. Mr. Hanvey said he feels this is a home occupation, not a home-based business. Dan Lowe said he drove by the site and doesn't feel that much has changed. The board members discussed home occupation vs. home-based business and read through the criteria A-M in Section 6.14 of the zoning ordinance.

Tammy Beal motioned to give the property owner 60 days to become compliant with a review in 30 days, and a commitment to get a permit to build an accessory structure to be completed within six months as one way to satisfy the requirement. Les Andersen seconded.

Discussion: Lisa Kirk, 2935 High Meadows, suggested that the property owner could store their equipment elsewhere as an alternate solution.

Roll call vote: Lowe, Lloyd, Beal, Hanvey, Durbin, Andersen, Donovan—all yes. **Motion carried 7-0**.

TRAC

DENIM & DIAMONDS

Alyssa Wierzbicki and Gerie Greenspan from LACASA were present to answer any questions regarding the Denim & Diamonds Special Event Permit scheduled for September 18, 2021. They are still waiting for approval from the Livingston County Health Department and the approval to provide liquor. Tammy Beal motioned to approve the Special Event Permit for Denim & Diamonds on September 18, 2021, provided all approvals are received. Sandy Donovan seconded. **Motion carried**.

CIRAB REPORT/NEW SEWER RATES

Bob Hanvey provided the board members with a letter from the City of Howell regarding the rate they charge the township for wastewater treatment; effective July 1, 2021, the rate is $3.91 per thousand gallons. He also provided a comparison of sewer billing to water billing from 2014 through June 30, 2021, and an approximation of the township's current financial situation for FY ending June 30, 2021. No action is required at this time, and he would like to review the Asset Management Plan. Scott Lloyd said that the next expansion will be the township's responsibility. Sandy Donovan said the township should at a minimum pass on the increase to the users; Phil Westmoreland agreed. John Gormley recommended a rate study. The Asset Management plan will be in the next board packet

TOWNSHIP PARKING LOT

Phil Westmoreland and Adam Jacqmain from Spicer were present to discuss this project. Les Andersen motioned to have Phil Westmoreland prepare bid specs for this project to be completed this year. Greg Durbin seconded. **Motion carried**.

GRAVEL/PAVED PARKING LOTS

Dan Lowe said the township should not allow gravel parking lots unless there is some type of retention. He also said something needs to be done about Howell Auto because they didn't get any permits and they have no retention. Dave Hamann said he gave approval per the ordinance because he felt what they did was a minor change to the site plan. What constitutes a major vs. minor change will be discussed at a future meeting.

TAMARACK PLACE PUD AGREEMENT

John Gormley said his review will be completed soon, and he will provide the wording for the changes.

CRYSTAL WOOD TREES

No new information on this item.

LAND ACQUISITION FUND

The board members agreed to keep the contribution at $25,000 per year; Bob Hanvey will present the amended budget at the next meeting.

NON-CONFORMING LOTS/HOME OCCUPATIONS

Les Andersen said he would like the Planning Commission to work on the language in the ordinance regarding non-conforming lots and home occupations.

CORRESPONDENCE & UPDATES

Tammy Beal said that after the heavy rains, the building had three leaks in the roof. Scott Lloyd said the wood needs to be nailed down.

An email was received today regarding the wedding barn. A motion of summary disposition in favor of the plaintiff is scheduled for October 21, 2021, the pre-trial conference is scheduled for January 14, 2022, and the trial on January 18, 2022 at 8:00 am.

CALL TO THE PUBLIC

No response.

ADJOURNMENT

Greg Durbin motioned to adjourn at 9:36 pm. Sandy Donovan seconded. **Motion carried**.

Submitted by: S. Longstreet

Tammy L. Beal, Township Clerk Date

Robert W. Hanvey, Township Supervisor Date

HOWELL AREA FIRE AUTHORITY AGENDA

Date: August 18, 2021
Time: 6:00 PM

Board members

Bill Bamber, Oceola Twp, Chairman
Mike Coddington, Howell Twp., Vice Chairman
Mark Fosdick, Cohoctah Twp., Secretary
Robert Hanvey, Marion Twp., Member
Nick Proctor, City of Howell, Treasurer
Ron Hicks, Fire Chief
Laura Walker, Asst. Sec/Treasurer

WELCOME!

Visitors are invited to attend all meetings of the Howell Area Fire Authority Board. If you wish to address the Board, you will be recognized by the Chairman.

Agenda Items
Meeting called to order at 6:00pm
Pledge of Allegiance
Approve the minutes of the regular meeting of July 21, 2021
Call to public (Items not on the agenda)
Discussion/Approval Annual Livingston County Form L-4029 Tax Rate Request
Discussion/Approval Comments from Personnel Committee on Salary Increase for Fire Chief
Chief's Comments • Open House • Service Awards 8/25/21
Approve Payment of Bills and Payroll in the amount of $165,460.35
New Business
Old Business
Closed Session
Adjournment

HOWELL AREA FIRE AUTHORITY

July 21, 2021 – 6:00 pm

Oceola Township Hall – 1577 N. Latson Rd. Howell, MI 48843

Present:

Chairman Bill Bamber, Vice Chairman Mike Coddington, Treasurer Nick Proctor, Secretary Mark Fosdick, Member Bob Hanvey, Attorney Kevin Gentry, Fire Chief Ron Hicks, Asst. Sec/Treas. Laura Walker

Chairman Bill Bamber called the meeting to order at 6:00 pm

Approve the minutes of the regular meeting of July 16, 2021: MOTION by Mr. Proctor, SUPPORT by Mr. Coddington to approve the minutes of the regular meeting of July 16, 2021. MOTION CARRIED UNANIMOUSLY.

Call to Public: No Response

Discussion/Approval Annual Election of HAFA Board Officer Positions: MOTION by Mr. Hanvey, SUPPORT by Mr. Proctor to maintain current positions. MOTION CARRIED UNANIMOUSLY.

Approve payment of June Bills and Payroll: MOTION by Mr. Coddington, SUPPORT by Mr. Fosdick to authorize payment of Bills and Payroll in the amount of $156,756.53. MOTION CARRIED UNANIMOUSLY.

Approve the minutes of the closed session meeting of July 16, 2021: MOTION by Mr. Proctor, SUPPORT by Mr. Hanvey to approve the minutes of the closed session meeting of July 16, 2021. MOTION CARRIED UNANIMOUSLY.

Adjourn: MOTION by Mr. Proctor, SUPPORT by Mr. Fosdick to adjourn the meeting at 6:14pm. MOTION CARRIED UNANIMOUSLY.

Respectfully Submitted: _____

Laura Walker, Asst. Secretary/Treasurer

Approved By: _____

Mark Fosdick, Secretary

MONTHLY UPDATE TO THE BOARD

TO: HOWELL AREA FIRE AUTHORITY BOARD OF DIRECTORS

FROM: RON HICKS, FIRE CHIEF

SUBJECT: MONTHLY HAFD REPORT FOR JULY 2021

DATE: AUGUST 18, 2021

During the month of July, the HAFD responded to a total of 164 calls for service. There were 159 calls in July of 2020. The total year-to-date runs for 2021 is 1052. Last year's total at the end of July was 1011.

Some of the more significant events for the month included:

On July 5th, Howell Firefighters were dispatched to a 2nd alarm fire in Putnam Township for a structure fire in the 10000 block of Curtis Dr. E23 reported to the scene and assisted with fire ground attack while E20 reported to station #5 for coverage.

On July 13th Howell Firefighters were dispatched to a reported structure fire in the 600 block of Fleming St. in the City of Howell. Upon arrival crews were met by a male subject who advised his son may still be in the home, a search was conducted by firefighters that confirmed no other occupants were inside. The fire was contained and extinguished by firefighters. A female occupant was rescued from a second story window by a couple of citizens.

On July 25th Howell Firefighters were dispatched to an unknown medical problem in the 800 block of Mason Rd. in the City of Howell. Upon arrival units were advised by Police that (2) male subjects had overdosed and CPR was in progress. One subject was pronounced deceased at the scene and the other one was transported to SJL.

On July 31st Howell Firefighters were dispatched to a 3rd alarm fire in Hamburg township for a commercial building fire in the 5300 block of E. M36 in Hamburg Township. Upon arrival units assisted with fire ground attack and water supply. The show room and warehouse of the business were destroyed in the fire.

Training for the month of July consisted of apparatus driving course, ground ladders and aerial ladder review.

The next meeting of the Howell Area Fire Authority Board is scheduled for Wednesday August 18th, 2021, at 6:00 pm.

Howell Area Fire Department
Fire Marshal Division
1211 W Grand River Ave, Howell, MI 48843
office: 517-546-0560 fax: 517-546-6011
firemarshal@howellfire.net

DATE: August 10, 2021
TO: Chief Ron Hicks
Fire Authority Board
FROM: Jamil Czubenko, Deputy Chief/Fire Marshal
REF: July 2021 Month End

The month of July 2021 was busy in the Fire Marshal Division (FMD).

The FMD participated in emergency responses and department training throughout the month.

The 2021 Fire Department Open House is scheduled for October 10, from 1pm to 4pm at our Main Fire Station. We have invited participants from the years past to come again. This year's NFPA campaign, "Learn the Sounds of Fire Safety!" works to educate everyone about the different sounds the smoke and carbon monoxide alarms make. Knowing what to do when an alarm sounds will keep you and your family safe. When an alarm makes noises – a beeping sound or a chirping sound – you must take action.

Planning and meetings have continued for the 2021 Howell Melonfest and the 2021 Fantasy of Lights Parade. The Howell Melonfest will be August 14. The HAFD will be active throughout the event for many of the activities going on.

Several Food Truck/Trailer events continue to be planned throughout our jurisdiction, where the FMD will be performing fire safety inspections. Mobile Food Vendors (MFV) apply to the HAFD and then be inspected for compliance.

The FMD has been involved with buyers and sellers of property for vacant property and existing buildings throughout our jurisdiction. A few proposals for projects have been submitted for review and comment. New and renovation construction, along with change of occupancy inspections have continued where we can continue to utilize safe practices for us and our customers.

Our Smoke Detector Program visited 4 homes, where we either evaluated or installed new equipment. Captain Appleyard had done 4 Child Safety Seat inspections for the month as well.

August brings us more planning for future projects and various fire prevention events.

INCIDENT NUMBER	INCIDENT TYPE	DATE	LOCATION	APPARATUS
2021-1046	551 - Assist police or other governmental agency	07/29/2021	1601 LAYTON RD	BR20,STA20
2021-1054	111 - Building fire	07/30/2021	1385 N BURKHART RD	C-202,EN20,EN22,FM2,STA20,STA22,STA23,STA24
2021-1061	611 - Dispatched & cancelled en route	07/31/2021	3303 CRANDALL RD	STA20
2021-1062	611 - Dispatched & cancelled en route	07/31/2021	5474 SPRING CREEK DR	BR20,STA20

Total # Incidents for HOWELL TWP: 38

ZONE: MARION - MARION Twp				
2021-0916	143 - Grass fire	07/04/2021	1294 MORNING MIST DR	BR20,STA20
2021-0919	444 - Power line down	07/05/2021	1795 COUNTY FARM RD	BR23,CPT23,STA23
2021-0923	424 - Carbon monoxide incident	07/06/2021	1279 MASON RD	C-202,EN20,STA20
2021-0926	131 - Passenger vehicle fire	07/06/2021	1369 W I96	C-202,EN20,EN22,FM2,STA20,STA22
2021-0952	151 - Outside rubbish, trash or waste fire	07/09/2021	PEAVY RD	BR20,FM2,STA20
2021-0958	631 - Authorized controlled burning	07/10/2021	217 CRYSTAL CT	BR20,CH20,STA20
2021-0977	352 - Extrication of victim(s) from vehicle	07/14/2021	3038 COUNTY FARM RD	C-202,EN23,R20,STA20
2021-0981	445 - Arcing, shorted electrical equipment	07/15/2021	1367 E I96	BR20,C-202,CH20,STA20
2021-0984	311 - Medical assist, assist EMS crew	07/16/2021	1936 TRIANGLE LAKE RD	BR23,CPT23
2021-0987	445 - Arcing, shorted electrical equipment	07/16/2021	1700 E COON LAKE RD	BR23,CPT23
2021-0992	445 - Arcing, shorted electrical equipment	07/17/2021	1119 ROCKY KNOLL LN	BR23,CH23
2021-0999	551 - Assist police or other governmental agency	07/19/2021	196 NEWBERRY LN	BR20,FM2,STA20
2021-1012	324 - Motor vehicle accident with no injuries.	07/22/2021	1367 E I96	C-202,EN20,FM2,R20,STA20
2021-1018	551 - Assist police or other governmental agency	07/24/2021	3289 PINCKNEY RD	CH23,EN23
2021-1024	311 - Medical assist, assist EMS crew	07/25/2021	865 MASON RD	BR20,C-202,FM2,STA20
2021-1026	251 - Excessive heat, scorch burns with no ignition	07/25/2021	1367 E I96	C-2,EN20,STA20
2021-1033	311 - Medical assist, assist EMS crew	07/26/2021	3069 COMBINE CT	BR23,C-2,CH23,CPT23
2021-1037	311 - Medical assist, assist EMS crew	07/27/2021	987 PEAVY RD	BR20,STA20
2021-1039	311 - Medical assist, assist EMS crew	07/28/2021	4300 PINGREE RD	C-2,C-202,EN23
2021-1053	551 - Assist police or other governmental agency	07/30/2021	2889 RUBBINS RD	BR23
2021-1055	311 - Medical assist, assist EMS crew	07/30/2021	5389 BENTLEY LAKE RD	BR20,CH23,STA23

Total # Incidents for MARION: 21

ZONE: OCEOLA - OCEOLA Twp				
2021-0906	611 - Dispatched & cancelled en route	07/02/2021	3247 ALEXANDER DR	CH24,EN22,EN24
2021-0914	551 - Assist police or other governmental agency	07/04/2021	430 CHICAGO DR	BR20,STA20
2021-0917	600 - Good intent call, other	07/05/2021	3076 BOGUES VIEW DR	BR21,EN22,STA22

Only REVIEWED incidents included. Archived Zones cannot be unarchived.

INCIDENT NUMBER	INCIDENT TYPE	DATE	LOCATION	APPARATUS
ZONE: OUTSIDE - OUTSIDE OF SERVICE AREA				
2021-1060	611 - Dispatched & cancelled en route	07/31/2021	3666 E M36	C-202

Total # Incidents for OUTSIDE: 1

ZONE: PINCKNEY - VILLAGE OF PINCKNEY				
2021-0920	111 - Building fire	07/05/2021	10130 CURTIS DR	CH20,CPT23,EN23
2021-0921	571 - Cover assignment, standby, moveup	07/05/2021	3250 W M36	EN20,STA20

Total # Incidents for PINCKNEY: 2

TOTAL # INCIDENTS: 164

Only REVIEWED incidents included. Archived Zones cannot be unarchived.

MHOG Water Authority Meeting
August 18, 2021 at 5:00 PM

THIS MEETING WILL BE HELD IN PERSON!

AGENDA

1. **Approval of the Minutes of July 21, 2021**
2. **Call to Public**
3. **Reports**
    - **Staff Reports: (Greg Tatara)**
    - **Treasurer (Robin Hunt)**
    - **Engineer (Gary Markstrom)**
    - **CPA (Ken Palka)**
4. **New Business**
    - **Correspondence**
5. **Old Business**
6. **Adjournment**

Marion Howell Oceola Genoa

WATER AUTHORITY

MHOG Water Authority Meeting
MINUTES

The Marion, Howell, Oceola, Genoa Water Authority met on July 21, 2021 at 5:00 PM. Members present were Bamber, Coddington, Rogers, Hanvey, Hunt, Lowe, Counts and Henshaw.

The meeting was called to order by Chairman Hanvey.

A motion was made by Rogers to approve the minutes as amneded of the June 16, 2021 meeting. The motion was seconded by Hunt and carried.

A call to the public was held.

A motion was made by Hunt to pave Heather Glens at a cost not to exceed $16,000.00. The motion was seconded by Coddington and carried.

A motion was made by Hunt to spend, not to exceed $150,000.00 from Capital Replacement Reserves to have Asphalt Specialists pave at the plant. The motion was seconded by Counts and carried.

A motion was made by Bamber to approve expenditures of $232,058.33 from the MHOG Operating Fund, represented by check numbers 8837-8871 and PR 665 to 672. The motion was seconded by Henshaw and carried.

A motion was made by Counts to approve expenditures of $216,040.00 from the Capital Reserve Replacement Funds, represented by check numbers 1003 and 1004. The motion was seconded by Coddington and carried.

A motion was made by Henshaw to adjourn. The motion was seconded by Counts and carried.

William J. Bamber, Secretary

MHOG Utility Department

2911 Dorr Road
Brighton, MI 48116
810-227-5225
www.mhog.org

August 17, 2021

Marion, Howell, Oceola, and Genoa Sewer and Water Authority
1577 North Latson Road
Howell, MI 48843

Subject: **M.H.O.G. – August 2021 Board Report**

Dear Board Members;

The MHOG System operated well over the past month. Rain in July has reduced demand in the system from the previous years, resulting in the second lowest July production since 2004. The front cover photograph is of Water Tap installing an emergency insert-a-valve into the 12-inch watermain on Burkhart Road, north of Burkhart Ridge. This was necessary as we had a large leak at the dead end of the pipe, and we were concerned that a plug could be moving. Once this was installed, TLS dug up the end of the main and found a rusted out 2-inch piece of pipe in the plug. We will come back later, once joint restraints come in, remove the long stub piece, and create a proper terminal hydrant ending to the main so that a long dead end is not present.

- The bond refinancing is officially closed, the old bonds are paid off, and we are now on the new payment schedule. In summary, we saved $281,000 by refinancing the bonds and we can lower the bond reserve fund to $255,000.

- New development has been very busy. Following is a summary of the activities:
    1. Construction on S. Latson Road continues. All railroad crossings are complete, the open cut sections are in, and boring under the highway is ongoing. The project should wrap up in early September.
    2. Construction began on Harte Storage.
    3. Marion Oaks has assured us that our punch list items are complete. We have a scheduled walk through on August 23rd to verify.
    4. We are assisting the LCRC with construction of a new fire suppression lead.
    5. We would like to discuss with the Board a potential Padnos request for water supply.
    6. We would also like to discuss with the Board, in follow up to last month, the Chestnut Crossing discharge of water across MHOG property, and receiving no formal request or permission.
    7. Lastly, we would like to discuss Tamarack Place development on Peavy Road, and potentially installing the cross county main through there prior to the development being completed.

- We are pleased to report that the Hometown Lawsuit has been dismissed from Federal Court. There is a chance they could re-file in State Court, but for now, the case is fully dismissed.

- Although no attachments are presented in the report, supply issues are a concern for us. As reported last month, we are unable to obtain meters. We are looking at another commercial meter supplier that would be compatible with our Sensus reading equipment. Recently, we were informed that there is a CO2 shortage, which we use for re-carbonation. Fortunately, even though our delivery was delayed, it still arrived prior to having to make significant operation changes. For vehicles, we are planning on replacing five fleet vehicles next year, some as old as 2011. Currently, it is 30 weeks from order to a vehicle. We are hopeful to have them in April, due to ordering early. We were told by the dealership that they could order on August 16th, when the portal was scheduled to open up.

- The Deputy report highlights the July production data as well other maintenance activities performed over the past month.

- In Section 4, presented is the FY2021 budget to actual report, following an audit of all expenses. We are pleased once again to finish under budget and contribute funds back to the Authority. A summary of the refunds over time, is presented as well.

- In addition, we want to review with the Board the 9-month Budget to Actual Report, the proposed Amended FY-2021 Budget, and the Proposed FY-2022 Budget. In addition, we wish to discuss rate increases for FY-2022, as not only have we been impacted by supply issues, but cost increases for chemicals, repairs, labor, fuel are all going up significantly and we do not want to have to play catch up in the future. As a result, we are looking at a 3% rate increase, which is keeping, or just below, the current inflation rate of 5.3%.

- Finally, we want to discuss ARP funding opportunities, as the Authority is not eligible to apply for or receive funding directly.

We look forward to discussing the contents of the report in detail with the Board at the regular meeting on August 18, 2021.

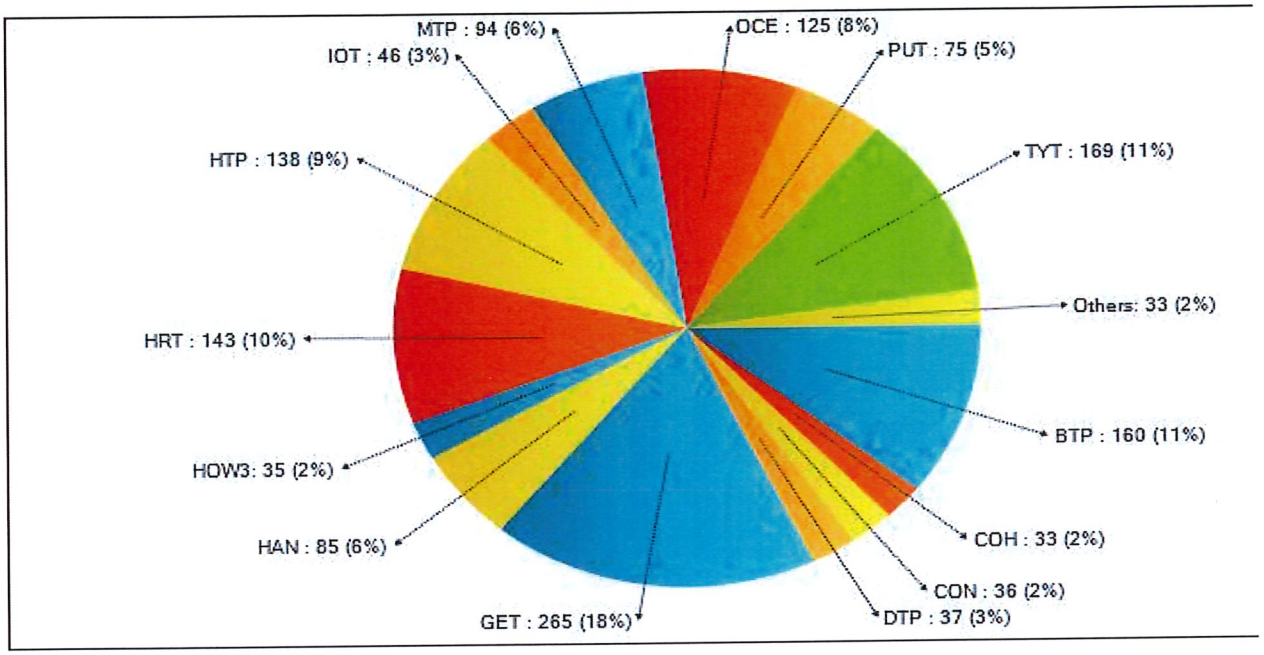
Sincerely,

Greg Tatara
Utility Director

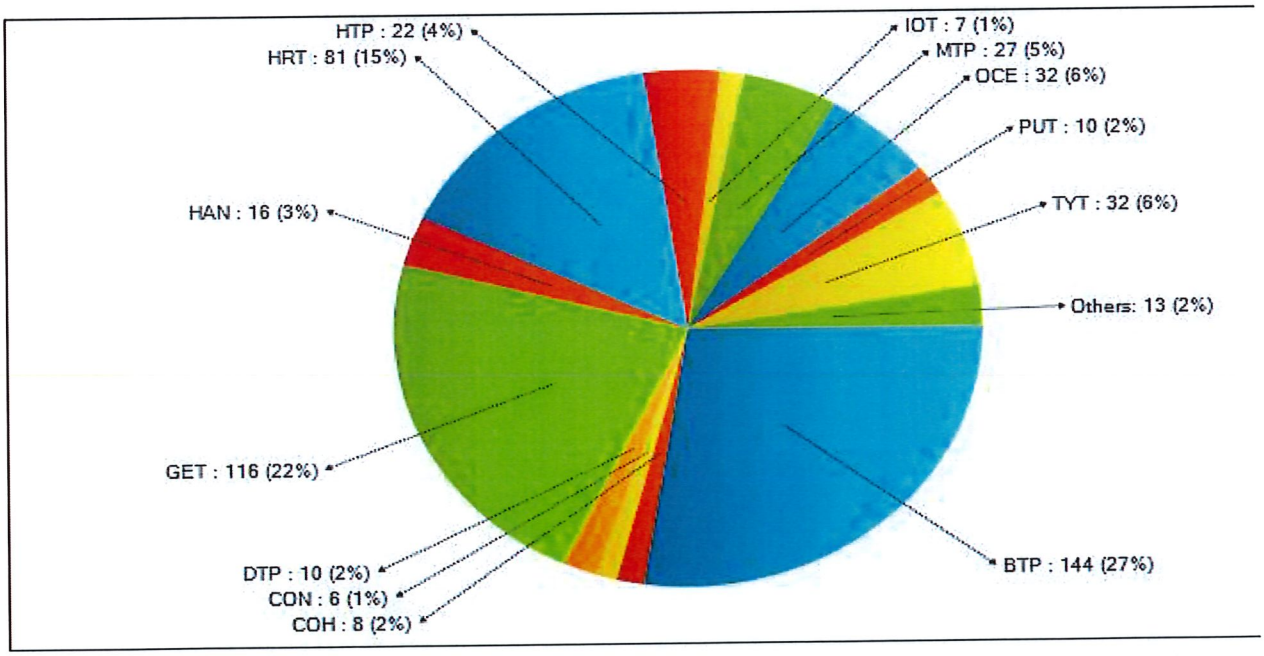
LIVINGSTON COUNTY SHERIFF'S OFFICE
MARION TOWNSHIP JULY 2021

Nature	# Events
911 HANG UP	4
ALARM	6
ANIMAL COMPLAINT	7
ASSAULT REPORT ONLY	1
ASSIST OTHER AGENCY	3
CARDIAC/RESPIRATORY ARREST	1
CITIZEN ASSIST	3
COMMUNITY POLICING	1
CRIMINAL SEXUAL CONDUCT REPORT	1
DISTURBANCE/TROUBLE	4
DOMESTIC VERBAL	3
DRUGS/VCSA	2
FIREWORKS	1
FRAUD	3
HAZARD	2
INTIMIDATION THREATS HARASSMEN	1
LOST/FOUND ANIMAL INFORMATION	2
LOST/FOUND PROPERTY	2
MDOP	1
MENTAL/CMH/PSYCH	1
MOTORIST ASSIST	1
NOISE COMPLAINTS	2
PARKING COMPLAINTS	1
PDA	9
PERSONAL INJURY ACCIDENT	1
ROAD RUNOFF	1
SHOTS FIRED	1
SUSPICIOUS SITUATION	2
SUSPICIOUS VEHICLE	2
TRAFFIC STOP	2
TRAFFIC VIO/ARREST	1
TRESSPASSING, LOITERING	1
UNATTENDED DEATH PRI 3/INVEST	1
UNKNOWN ACCIDENT	2
VEHICLE FIRE	2
VIN INSPECTION	1
WAR ATT/SEARCH	1
WELFARE CHECK	11
TOTAL:	91

LIVINGSTON COUNTY SHERIFF'S OFFICE
JULY 2021 CALLS FOR SERVICE



MICHIGAN STATE POLICE
JULY 2021 CALLS FOR SERVICE



TOWNSHIP	NUMBER OF CALLS 3:00PM - 11:00PM	RESPONSE TIME CONTRACT TIME 3:00PM - 11:00PM	NUMBER OF CALLS 11:00PM - 3:00PM	RESPONSE TIME NON CONTRACT TIME 11:00PM - 3:00PM	TOTAL
BRIGHTON	71	28:30	89	22:16	160
COHOCTAH	7	20:03	26	24:16	33
CONWAY	17	36:53	19	24:56	36
DEERFIELD	11	55:22	26	21:29	37
GENOA	97	26:09	168	18:33	265
HANDY	41	25:24	44	33:38	85
HARTLAND	58	30:31	85	23:12	143
HOWELL	54	23:44	84	21:53	138
IOSCO	22	51:58	24	31:05	46
MARION	37	27:21	57	26:35	94
OCEOLA	58	20:46	67	24:00	125
PUTNAM	47	22:58	28	28:53	75
TYRONE	108	17:36	61	35:05	169

MARION TOWNSHIP

MONTH	CALLS FOR SERVICE	TICKETS WRITTEN	ARRESTS
JANUARY	71	10	1
FEBRUARY	72	9	6
MARCH	78	18	2
APRIL	57	7	1
MAY	75	16	1
JUNE	110	12	3
JULY	91	13	2
AUGUST			
SEPTEMBER			
OCTOBER			
NOVEMBER			
DECEMBER			
YTD TOTALS:	554	85	16

PHP

PFEFFER ▪ HANNIFORD ▪ PALKA
Certified Public Accountants

John M. Pfeffer, C.P.A.
Patrick M. Hanniford, C.P.A.
Kenneth J. Palka, C.P.A.
Members:
AICPA Private Practice Companies Section
MACPA

225 E. Grand River - Suite 104
Brighton, Michigan 48116-1575
(810) 229-5550
FAX (810) 229-5578

July 31, 2021

To the Township Board
Marion Township
2877 West Coon Lake Road
Howell, MI 48843

We are pleased to confirm our understanding of the services we are to provide Marion Township for the year ended June 30, 2021.

Audit Scope and Objectives

We will audit the financial statements of the governmental activities, the business-type activities, each major fund, the aggregate remaining fund information, and the disclosures, which collectively comprise the basic financial statements of Marion Township as of and for the year ended June 30, 2021. Accounting standards generally accepted in the United States of America (GAAS) provide for certain required supplementary information (RSI), such as management's discussion and analysis (MD&A), to supplement Marion Township's basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. As part of our engagement, we will apply certain limited procedures to Marion Township's RSI in accordance with GAAS. These limited procedures will consist of inquiries of management regarding the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We will not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance. The following RSI is required by U.S. generally accepted accounting principles (GAAP) and will be subjected to certain limited procedures, but will not be audited:

1. Management's Discussion and Analysis
2. Pension Funding Schedule (if applicable)
3. Budget to Actual Reports for Major Funds

We have also been engaged to report on supplementary information other than RSI that accompanies Marion Township's financial statements. We will subject the following supplementary information to the auditing procedures applied in our audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with GAAS, and we will provide an opinion on it in relation to the financial statements as a whole:

1. Combining Statements
2. Individual Fund Statements

The objectives of our audit are to obtain reasonable assurance as to whether the financial statements as a whole are free from material misstatement, whether due to fraud or error; issue an auditor's report that includes our opinion about whether your financial statements are fairly presented, in all material respects, in conformity with GAAP; and report on the fairness of the supplementary information referred to in the second paragraph when considered in relation to the financial statements as a whole. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. Misstatements, including omissions, can arise from fraud or error and are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment of a reasonable user made based on the financial statements.

Auditor's Responsibilities for the Audit of the Financial Statements

We will conduct our audit in accordance with GAAS and will include tests of your accounting records and other procedures we consider necessary to enable us to express such opinions. As part of an audit in accordance with GAAS, we exercise professional judgment and maintain professional skepticism throughout the audit.

We will evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management. We will also evaluate the overall presentation of the financial statements, including the disclosures, and determine whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation. We will plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether from (1) errors, (2) fraudulent financial reporting, (3) misappropriation of assets, or (4) violations of laws or governmental regulations that are attributable to the government or to acts by management or employees acting on behalf of the government.

Because of the inherent limitations of an audit, combined with the inherent limitations of internal control, and because we will not perform a detailed examination of all transactions, there is an unavoidable risk that some material misstatements may not be detected by us, even though the audit is properly planned and performed in accordance with GAAS. In addition, an audit is not designed to detect immaterial misstatements or violations of laws or governmental regulations that do not have a direct and material effect on the financial statements. However, we will inform the appropriate level of management of any material errors, fraudulent financial reporting, or misappropriation of assets that comes to our attention. We will also inform the appropriate level of management of any violations of laws or governmental regulations that come to our attention, unless clearly inconsequential. Our responsibility as auditors is limited to the period covered by our audit and does not extend to any later periods for which we are not engaged as auditors.

We will also conclude, based on the audit evidence obtained, whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the government's ability to continue as a going concern for a reasonable period of time.

Our procedures will include tests of documentary evidence supporting the transactions recorded in the accounts, tests of the physical existence of inventories, and direct confirmation of receivables and certain assets and liabilities by correspondence with selected customers, creditors, and financial institutions. We will also request written representations from your attorneys as part of the engagement.

We may, from time to time and depending on the circumstances, use third-party service providers in serving your account. We may share confidential information about you with these service providers but remain committed to maintaining the confidentiality and security of your information. Accordingly, we maintain internal policies, procedures, and safeguards to protect the confidentiality of your personal information. In addition, we will secure confidentiality agreements with all service providers to maintain the confidentiality of your information and we will take reasonable precautions to determine that they have appropriate procedures in place to prevent the unauthorized release of your confidential information to others. In the event that we are unable to secure an appropriate confidentiality agreement, you will be asked to provide your consent prior to the sharing of your confidential information with the third-party service provider. Furthermore, we will remain responsible for the work provided by any such third-party service providers.

Audit Procedures - Internal Control

We will obtain an understanding of the government and its environment, including internal control relevant to the audit, sufficient to identify and assess the risks of material misstatement of the financial statements, whether due to error or fraud, and to design and perform audit procedures responsive to those risks and obtain evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentation, or the override of internal control. An audit is not designed to provide assurance on internal control or to identify deficiencies in internal control. Accordingly, we will express no such opinion. However, during the audit, we will communicate to management and those charged with governance internal control related matters that are required to be communicated under AICPA professional standards.

Audit Procedures - Compliance

As part of obtaining reasonable assurance about whether the financial statements are free of material misstatement, we will perform tests of Marion Township's compliance with the provisions of applicable laws, regulations, contracts, and agreements. However, the objective of our audit will not be to provide an opinion on overall compliance and we will not express such an opinion.

Other Services

We will also assist in preparing the financial statements of Marion Township in conformity with U.S. generally accepted accounting principles generally accepted in the United States of America based on information provided by you.

We will perform the services in accordance with applicable professional standards. The other services are limited to the financial statement services previously defined. We, in our sole professional judgment, reserve the right to refuse to perform any procedure or take any action that could be construed as assuming management responsibilities.

Responsibilities of Management for the Financial Statements

Our audit will be conducted on the basis that you acknowledge and understand your responsibility for designing, implementing, and maintaining internal controls relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error, including monitoring ongoing activities; for the selection and application of accounting principles; and for the preparation and fair presentation of the financial statements in conformity with accounting principles generally accepted in the United States of America.

Management is responsible for making drafts of financial statements, all financial records, and related information available to us and for the accuracy and completeness of that information (including information from outside of the general and subsidiary ledgers). You are also responsible for providing us with (1) access to all information of which you are aware that is relevant to the preparation and fair presentation of the financial statements, such as records, documentation, identification of all related parties and all related-party relationships and transactions, and other matters; (2) additional information that we may request for the purpose of the audit; and (3) unrestricted access to persons within the government from whom we determine it necessary to obtain audit evidence. At the conclusion of our audit, we will require certain written representations from you about the financial statements and related matters.

Your responsibilities include adjusting the financial statements to correct material misstatements and confirming to us in the management representation letter that the effects of any uncorrected misstatements aggregated by us during the current engagement and pertaining to the latest period presented are immaterial, both individually and in the aggregate, to the financial statements of each opinion unit taken as a whole.

You are responsible for the design and implementation of programs and controls to prevent and detect fraud, and for informing us about all known or suspected fraud affecting the government involving (1) management, (2) employees who have significant roles in internal control, and (3) others where the fraud could have a material effect on the financial statements. Your responsibilities include informing us of your knowledge of any allegations of fraud or suspected fraud affecting the government received in communications from employees, former employees, grantors, regulators, or others. In addition, you are responsible for identifying and ensuring that the government complies with applicable laws and regulations.

You are responsible for the preparation of the supplementary information in conformity with U.S. generally accepted accounting principles. You agree to include our report on the supplementary information in any document that contains, and indicates that we have reported on, the supplementary information. You also agree to include the audited financial statements with any presentation of the supplementary information that includes our report thereon. Your responsibilities include acknowledging to us in the representation letter that (1) you are responsible for presentation of the supplementary information in accordance with GAAP; (2) you believe the supplementary information, including its form and content, is fairly presented in accordance with GAAP; (3) the methods of measurement or presentation have not changed from those used in the prior period (or, if they have changed, the reasons for such changes); and (4) you have disclosed to us any significant assumptions or interpretations underlying the measurement or presentation of the supplementary information.

You agree to assume all management responsibilities for financial statement preparation services and any other nonattest services we provide; oversee the services by designating an individual, preferably from senior management, with suitable skill, knowledge, or experience; evaluate the adequacy and results of the services; and accept responsibility for them.

Engagement Administration, Fees, and Other

We understand that your employees will prepare all cash, accounts receivable (if applicable), or other confirmations we request and will locate any documents selected by us for testing.

Kenneth J. Palka is the engagement partner and is responsible for supervising the engagement and signing the report or authorizing another individual to sign it. We expect to begin our audit within three weeks of notification.

Our fee for these services will be $17,900. This fee is based on anticipated cooperation from your personnel and the assumption that unexpected circumstances will not be encountered during the audit. If significant additional time is necessary, we will discuss it with you and arrive at a new fee estimate before we incur the additional costs.

Reporting

We will issue a written report upon completion of our audit of Marion Township's financial statements. Our report will be addressed to management and those charged with governance of Marion Township. Circumstances may arise in which our report may differ from its expected form and content based on the results of our audit. Depending on the nature of these circumstances, it may be necessary for us to modify our opinions or add an emphasis-of-matter or other-matter paragraph to our auditor's report, or if necessary, withdraw from this engagement. If our opinions are other than unmodified, we will discuss the reasons with you in advance. If, for any reason, we are unable to complete the audit or are unable to form or have not formed opinions, we may decline to express opinions or withdraw from this engagement.

We appreciate the opportunity to be of service to Marion Township and believe this letter accurately summarizes the significant terms of our engagement. If you have any questions, please let us know. If you agree with the terms of our engagement as described in this letter, please sign the enclosed copy and return it to us.

Very truly yours,

Pfeffer, Hanniford & Palka, P.C.

PFEFFER, HANNIFORD & PALKA
Certified Public Accountants

RESPONSE:
This letter correctly sets forth the understanding of Marion Township.

_____

Township Official

Bob Hanvey

From: Arnold Kromberg <akcj.kromberg@gmail.com>
Sent: Wednesday, August 18, 2021 9:13 AM
To: Bob Hanvey
Subject: Community Youth Soccer - Field Use - Fall 2021

Good morning Bob,

Hope all has been well, safe, and healthy.

Our community youth soccer group is again interested in utilizing space at Fred Brown (Sept 2021 -Oct 2021) similar to that of this past spring. Just wanted to make sure that would be OK.

Things have been very successful the last two seasons and the facility has been extremely well received by our youth members and families.

Please let me know if there are any issues or concerns and thank you for the continued support.

Kind regards,

Arnold Kromberg
Michigan Alliance FC - President
810-923-7850

MEMO

To: Marion Township Board

From: Bob Hanvey

Subject: Suggested budget amendments for FYE June 2022

Date: August 26, 2021

General Fund Budget

The transfer to the Land Acquisition Fund was omitted from the approved budget so the following amendment is required:

Account 6904-0450 Transfers Out $25,000.00

The windows and front of the building were power washed at a cost of $990.00 and the budget for the year is $1,000 so we should increase the hall repairs budget to about $2,500.00

Account 6265-775 Hall Repairs $2,500.00

#593 Sewer Fund

The cost of cleaning and the video of the sewer lines at Marion Creek was $3,160.00 that exceeded the budgeted amount of $1,000.00 so we should increase that account to about $5,000.00

Account 630 R & M $5,000.00

ASSET MANAGEMENT PLAN

Prepared for:

MARION TOWNSHIP
SANITARY SEWER SYSTEM

2877 WEST COON LAKE
HOWELL MI, 48843

Prepared By:

Spicer Group, Inc.
125 Helle Blvd., Suite 2
Dundee, MI 48131

December 2019

Project I.D. Number 124240SG2016

Marion Township

SAW Grant Project No. 1306-01

EXECUTIVE SUMMARY

Prepared By: **Spicer Group, Inc.**
125 Helle Blvd. Suite 2
Dundee, MI 48131
Ph: (734) 823-3308
Project No. 124240SG2016

Owner: **Marion Township**
2877 West Coon Lake Road
Howell, MI 48843
Ph: (517) 546-1588

Marion Township has entered into an agreement with the Michigan Department of Environmental Quality and the Michigan Finance Authority for grant funds issued under Public Act No. 511 of 2012 for the *Stormwater, Asset Management, and Wastewater (SAW)* program. Marion Township received the following grant:

Wastewater Asset Management Plan (WWAMP) – 100% Grant	***$93,800***
LESS Local Match (10%)	$9,380
Total Grant Amount	$84,420

The Asset Management Plan (AMP) was required to be completed within three years of the date of the agreement; September 2016.
Each AMP has the following key components:

1. Asset Inventory and Condition Assessment
2. Level of Service Determination
3. Critical Assets / Risk Management
4. Capital Improvement Plan
5. Revenue Structure
6. Operation & Maintenance Strategies
7. GIS & Mapping System

WASTEWATER ASSET INVENTORY AND CONDITION ASSESSMENT

The Marion Township wastewater system infrastructure includes manholes, sewer pipes, pump stations and force mains. A list of system assets is as follows:

Sewer Manholes	467 each
Sewer Pipe	17.3 miles
Pump Stations	9 each

The system assets have a total replacement value of approximately $150 million.

All the manholes were inventoried and assessed by Spicer inspectors trained in the NASSCO Manhole/Pipeline Assessment Certification Programs (MACP/PACP).

Manholes by Quick Rating

Highest Rating	Structural Category		O&M Category		Combined	
	Number	Percent	Number	Percent	Number	Percent
5	3	1%	2	0%	5	1%
4	5	1%	13	3%	18	4%
3	83	18%	18	4%	84	18%
2	0	0%	414	89%	340	73%
1	358	77%	2	0%	2	0%
0	18	4%	18	4%	18	4%

Since the system is less than twenty years old, the vast majority of the manholes are in good condition. In fact, about three-quarters of the system manholes have scores only as high as 2 (1 being good condition, 5 being very poor condition), which is generally indicative of defects that have negligible impact on the overall function of the structure. The average Marion Township manhole has 58 years of life remaining, with the range being from 56 to 65 years. Minor maintenance is anticipated in the near future.

The Township system includes approximately 17.3 miles of sewer pipe of various sizes. Overall the system is still relatively new and in good condition. The average Marion Township PVC pipe has 83 years of life remaining, with the range being from 81 to 90 years. The Township does not currently have a program in place for televising and cleaning sewers on an annual basis. The recommendation is to begin televising and cleaning approximately 1 mile of the system every other year beginning in 2020. As the system continues to age and inflow/infiltration becomes more prevalent, the amount televised and cleaned should increase. Any necessary repairs that are identified during the televising should be completed the following year.

The final component of the Township's wastewater system is pump stations. Marion Township's system includes nine pump stations. The table below summarizes the relative ages of each component the pump stations and the remaining life expectancy for individual components:

Estimated Remaining Service Life for Pump Station Components

Station	Year Installed	Motor (yrs)		Pump Age (yrs)		Motor Control Center Age (yrs)		Valves & Piping Age (yrs)		Generator Age (yrs)	
		Age	Life	Age	Life	Age	Life	Age	Life	Age	Life
Norton	2000	18	-8	18	7	18	2	18	2	n/a	-
Peavy	2000	18	-8	18	7	18	2	18	2	2	18
Tracilee	2000	18	-8	18	7	18	2	18	2	n/a	-
MHOG	2000	18	-8	18	7	18	2	18	2	n/a	-
Francis	2000	18	-8	18	7	18	2	18	2	n/a	-
Burkhart	2000	18	-8	18	7	18	2	18	2	n/a	-
Allstot	2000	18	-8	18	7	18	2	18	2	n/a	-
Maple Farms	2000	18	-8	18	7	18	2	18	2	n/a	-
Parker	2005	13	-3	13	12	13	7	13	7	n/a	-

Of the nine pump stations in the Marion Township sanitary sewer system, eight are nearing 20 years in age and the Parker station is approaching 15 years in age. Overall the average pump station is in fair condition and has 8 years of life remaining. All of the stations have exceeded the life expectancy for the pump motors. The motor control center and internal valves and piping are nearing their life expectancy for all of the stations except Parker. The pump bodies still have significant life remaining for all of the stations. Very few, if any, major components have been replaced in any of these stations. Replacement of all the major components of each pump station is recommended in phases over the next 10 years.

LEVEL OF SERVICE

For the Level of Service (LOS), the Township prioritized projects in their Capital Improvement Plan (CIP) and rate structure based on the level of service they feel is affordable. The levels of service have been ranked as low, medium, and high. Medium LOS would be including work that is not critical to conform to regulations, but that makes sense for a long term sustainable result. For instance, instead of performing spot repairs on cracked sanitary sewer pipes (Low LOS), the repair is to line the entire length manhole to manhole (Med. LOS). For pump stations, an example of medium LOS is installing an onsite permanent generator instead of using a portable generator and personnel. Medium LOS would generally include replacing equipment before it is at the end of its useful service life and/or already failed.

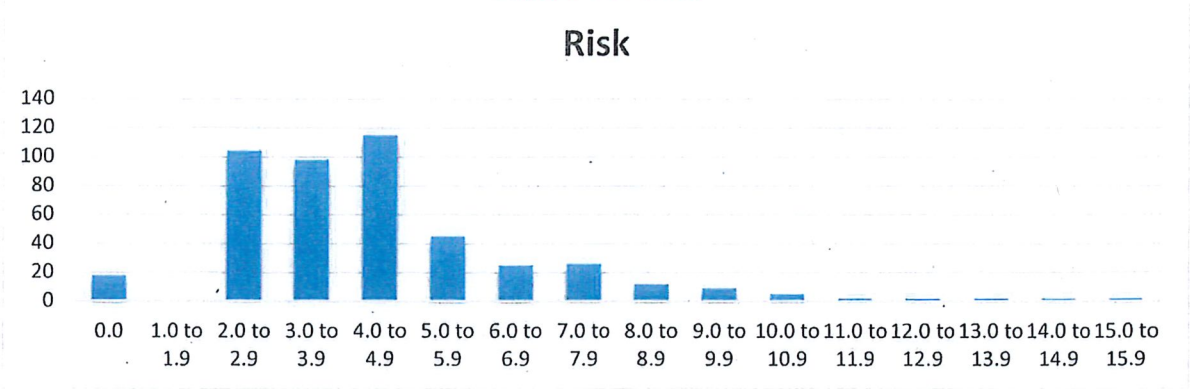
Marion Township has selected a Medium Level of Service as their target. This level of service was the basis for determining the extent of repairs and replacements to be included in the Capital Improvement Plan.

CRITICAL ASSETS / RISK MANAGEMENT

For each asset in the Township's wastewater system, a criticality/risk assessment was performed to determine and prioritize the Township's key components. Based on the condition assessments and the field inspections, the Likelihood of Failure (LoF) was calculated for every asset including all manholes and pump station components. Next, the Consequence of Failure (CoF) was calculated and scored for each asset based on economic, social, and environmental consequences. Finally, the Risk assessment was calculated. Risk is represented on a scale from 0 to 25. 67% of

the Township's manholes have a risk rating less than 5.0 on a scale from 0.0 to 36.0, inclusive. The highest risk rating in the system is 15.0 out of 36.0.

Figure 4.3: Risk



Risk for each pump station was also calculated on a scale of 0 to 20. Pump station risk in Marion Township ranged from 1 to 15, with one pump station, Peavy, having a risk of 15.

Table 4 - 1 Pump Station Risk Analysis

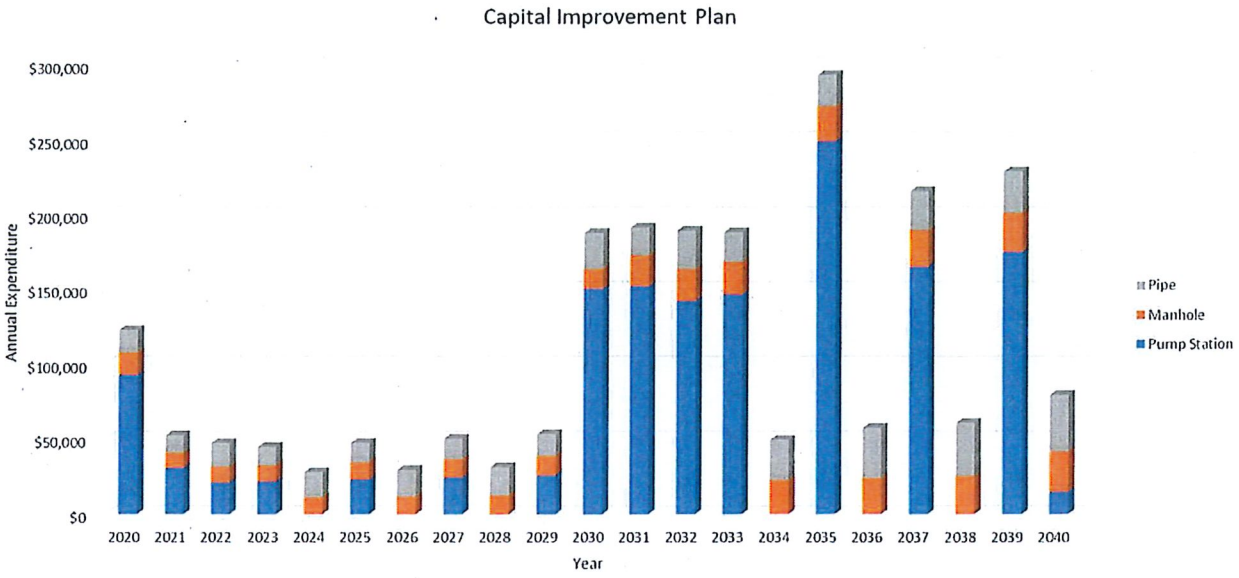
Station	Age	Pumps	LoF	Proximity to Open Water	Service Area Size	Number of Pumps	CoF	Risk
Norton	2	0	2	1	1	1	3	6
Peavy	2	1	3	1	2	2	5	15
Tracilee	2	0	2	0	0	1	1	2
MHOG	2	0	2	1	0	1	2	4
Francis	2	0	2	0	1	1	2	4
Burkhart	2	0	2	0	0	1	1	2
Allstot	2	0	2	0	0	1	1	2
Maple Farms	2	0	2	0	0	1	1	2
Parker	**1**	**0**	**1**	**0**	**0**	**1**	**1**	**1**

CAPITAL IMPROVEMENT PLAN

The Capital Improvement Plan (CIP) is a preliminary outline of recommended projects to be completed based on the desired Level of Service. The projects are prioritized and spread out over time in such a way that balances risk reduction against cost. A 20-year CIP was developed that includes various collection system improvements. 48 out of the 467 manholes in the system are planned for rehabilitation, spread out over ten years. By spreading the rehabilitations over several years, the costs per year can be kept down to an average of $10,000 per year. The Marion Township system includes approximately 17.3 miles of sewer pipe of various sizes. The Township does not currently have a program in place for televising and cleaning sewers on an annual basis. The recommendation is to begin televising and cleaning approximately 1 mile of the system every other year beginning in 2020. In addition to the manhole repairs, each of the pump stations have planned rehabilitations. Several pump station replacements and improvements are scheduled through the year 2040, which should update all pump station components to be within their expected service

lives. At this point, the CIP includes a more routine improvement schedule that should reduce failures and spread out costs of future improvements over time.

Figure 5 – 2 Expenditures by Type and Year



Revenue Structure / Long Term Funding

The Township's sewer rate structure includes a usage charge per volume of flow and a ready to serve fee. These charges are billed quarterly to the system customers. To pay for the identified capital projects and ongoing O&M costs, the Township will need to implement a series of annual rate increases of roughly 5.5% over the life of the CIP. It should be noted at a significant development is planned at the Marion Oaks site that will increase the users by over 400, an approximate 40% increase in the total number of users. This increase has not been factored into the analysis at this time, due to the uncertainty of the project schedule. As significant numbers of these users are added to the system, the rate structure should be re-analyzed. An inflationary increase of 3% was added annually to the sewage treatment rate from the City of Howell. The same annual 3% increase was added to the other system operating costs.

GIS & Mapping System

While performing MACP inspections, field staff used GPS to locate assets in the Marion Township sanitary sewer system. These GPS locations were used to create features in a Geographic Information System (GIS) using ESRI ArcGIS. After a map of the Township's sewer was created in ArcGIS, inspection notes, condition assessments, and risk management data was imported, along with as-built records and pump station O&M manuals.

Conclusion

The condition of Marion Township's wastewater system is typical of a system of its age. The system is nearing 20 years of age at the time of this publication. The manholes are, for the most part, in good condition. The pump stations, on the other hand, have experienced more frequent failures in recent years and it is expected that more failures are soon to come. Because of the high cost of pump station replacements and rehabilitations, the Capital Improvement Plan developed

under this Asset Management Plan calls for the Township to replace a pump station every five years and spread out the manhole repairs over ten years. This should adequately balance the need for improvements with the associated costs to the Township.

In accordance with the SAW Grant requirements, the Township's Wastewater Asset Management Plan (WWAMP) shall be kept available for citizen review for 15 years. The WWAMP should be reviewed annually and the components updated and included in the Township's annual budget process.

LIST OF TABLES AND FIGURES

TABLES

FIGURES

SECTION 1 – INTRODUCTION / BACKGROUND

Marion Township is located south of the City of Howell, in Livingston County, Michigan. The township consists of approximately 36 square miles near the center of the county and has population of 9,996 as of the 2010 Census. Land use in the Township varies from urban near the City of Howell to rural and agriculture farther south.

The Township's sanitary sewer system was initially constructed around the year 2000, and has since expanded with the construction of new housing developments. Marion Township does not have a wastewater treatment plant (WWTP), but rather sends wastewater to the City of Howell WWTP. Marion Township also contracts with the City of Howell for operations and maintenance of their system.

The population of Marion Township has been increasing for about the past century. The table below shows historical census data since 1970 with percent increases over each 10-year period. The greatest increase in population occurred between 1970 and 1980, with a 78.2% increase. Over the past three census cycles, there have been significant increases in the Township's population.

Table 1 - 1 Population

Historical Population Profile		
Census Year	Population	10 Year Change
1970	2668	53.3%
1980	4754	78.2%
1990	4918	3.5%
2000	6757	37.4%
2010	9996	47.9%
Sources: Marion Township 2010 Master Plan, U.S. Census Bureau		

Table 1 - 2 Population Projections

Population Projections		
Year	Population	10 Year change
2015	9461	-
2020	10083	0.9%
2025	10453	-
2030	11359	12.7%
2035	11921	-
2040	12339	8.6%
Source: SEMCOG 2040 Forecast		

Southeast Michigan Council of Governments, in their 2040 Forecast, estimate that Marion Township's population will continue to grow, but not as rapidly as it has over the past few decades. With a continued increase in population comes an increase in sewer demand. The U.S. Census Bureau estimates a population of 10,780 as of July 1, 2006, representing a population increase of approximately 60% that has occurred since the construction of the Township's sanitary sewer system.

The purpose of this Wastewater Asset Management Plan (AMP) is to provide the Township with a useful tool for managing assets, planning for capital improvements, and ensuring continued high-quality wastewater service throughout the community. The main goals of the AMP are the following:

1.) Asset Inventory and Condition Assessment
- Research existing information
- Create an asset inventory
- Create a base map of the existing system
- Subcontract cleaning and televising of pipes and manholes in the system designated with excessive flows
- Perform smoke testing existing sanitary sewer facilities designated with excessive flows
- Develop a condition rating system
- Rate major components of the system
- Perform an evaluation of the major components
- Meet with Township for review and discussion

2.) Level of Service Documentation
- Determine the sustainable level of service
- Prepare 5- and 20-year wastewater flow projections
- Determine areas that need improvement to meet the level of service
- Prepare a "Level of Service Agreement"
- Attend a public meeting to present the capacity study and communicate the "Level of Service Agreement"

3.) Critical Assets
- Develop a risk assessment method
- Estimate the probability of failure
- Analyze future risk and consequences
- Predict the life span of critical components
- Create a priority list of the most critical assets in the system

4.) Operation and Maintenance (O&M) Strategies/Revenue Structure
- Review current Operations & Maintenance (O&M) program
- Determine costs of rehabilitation, repair and replacement for the critical assets
- Determine costs of a failure
- Develop a specific response plan

5.) Capital Improvement Plan
- Develop a 20-year Capital Improvement Plan
- Review and analyze current rate structure
- Present the rate structure to the Township

6.) Geographical Information System (GIS)
- Integrate gathered, surveyed and mapped data into geodatabase format
- Prepare GIS map files
- Develop and deliver training material, files and example

SECTION 2 – ASSET INVENTORY & CONDITION ASSESSMENT

INTRODUCTION

The Marion Township wastewater system infrastructure includes manholes, sewer pipes, pump stations and force mains. The main skeleton of Marion Township's sanitary sewer system was constructed between 1997 and 2000 with the Norton Road contract and the two phases of the 1999 Sanitary Sewer System Improvement projects (Contract No. 1 and Contract No. 2). The Norton Road contract consisted of a sanitary sewer main running along the centerline of Norton Road from Burkhart to County Farm. The 1999 Sanitary Sewer System Improvement Contracts No. 1 & 2 essentially split the service area into two projects, Contract 1 being the west half, and Contract 2 being the east half, with the division falling approximately where Norton Road meets Mason Road. These three projects make up the vast majority of the Township's sanitary sewer system, picking up collection systems in a number of subdivisions. The overall sewer system includes nine pump stations. Ultimately, all wastewater flows to Pump Station #2, on Peavy Road, and is then pumped directly to the Howell WWTP.

An Asset Inventory was created to provide a better understanding of the system. Marion Township had a simple GIS basemap of their system that consisted on two shapefiles: Sewer Nodes and Sewer Pipes. There were several gaps in the system where manholes or pipes were missing, it was difficult to distinguish whether the nodes were manholes, pump stations, or otherwise. With the Asset Inventory, a new GIS basemap was created by collecting locations of assets with GPS during manhole inspections and comparing to as-constructed record drawings. A general map of the collection system can be found in Appendix A.

The Asset Inventory and Condition Assessment was the basis of the entire Asset Management Plan. It was used to determine a current need for repair, the priority of repairs, and a future Operations & Maintenance Plan.

INVENTORY AND CONDITION ASSESSMENT

Manholes in the Marion Township sewer system were inspected and assessed using NASSCO Manhole Assessment Certification Program (MACP) Standards to identify and code any defects. The defects found were broken down into either Structural or Operations & Maintenance categories:

- Structural – Includes defects that impact the structural properties of a manhole such as cracks, fractures, breaks, holes, surface damage, or weld failure.
- Operations & Maintenance – Includes the defects that are maintenance related such as deposits, roots, infiltration, obstacles & obstructions, vermin, or grouting issues.

Using the data collected from the inspections and historical system information, spreadsheets were used to document and perform condition assessment calculations. NAASCO offers several rating systems to assess the conditions associated with each manhole inspection performed. For this work, the MACP Quick Rating System was used. The Quick Rating System is preferred by NAASCO as it represents the assets' highest (most deficient) defects encountered and guards

against a skewed overall defect scoring system where multiple lower defect ratings are encountered. For manholes and pipes, each defect has an associated numerical condition grade, 1 through 5. Grades are assigned based on the significance of the defect, with 1 being the lowest severity and 5 being the highest.

Structural Numerical Condition Grades

Grade 5: Any broken assets, large voids, and frames not attached to chimneys (manholes). Large structural deficiencies that could cause failure.
Grades 3 and 4: Fractures, frames that are offset from chimney (manholes), exposed rebar/concrete deterioration, erosion issues, and multiple smaller structural deficiencies. These structural issues are not considered critical but will be in the future if not addressed.
Grades 1 and 2: Small cracks, frames that have deteriorating seals, smaller frame offsets, concrete starting to spall, and frames corroding.

O&M Numerical Condition Grades

Grade 5: Large obstruction or deposits, infiltration gushers, large number of roots.
Grades 3 and 4: Deposits, roots, and infiltration runners, drippers, and weepers when located in the chimney or frame seal. These are issues that, if not addressed, will lead to larger issues in the future.
Grades 1 and 2: Smaller amounts of deposits, roots and infiltration weepers in the wall or joints. There are issues that do not pose immediate risk but will need to be addressed to improve reliability of system.

Manhole Inventory and Condition Assessment

The Marion Township sewer system consists of 467 manholes. These assets were cataloged and inventoried using plans conforming to construction records and field investigation. The manholes were inspected according to NASSCO MACP standards to obtain a condition assessment. The Marion Township sanitary sewer system is relatively new, with the main skeleton of the system having been constructed around 2000.

The manholes are almost all four feet inside diameter and all have cast iron frames and covers. Many of the covers have four bolt holes, but not all covers were bolted down. This appears in the MACP score as a defect, ("Bolts Missing") but not all covers were intended to have bolts. There were no metal adjustment rings used in the Township's sewer system, but many manhole lids were adjusted with concrete or brick and mortar chimneys. The walls of the manholes are precast concrete and have steps installed for access. Manhole inspections were surface level only, and the reliability of the steps were not verified. As a general rule, it is advisable not to rely on the installed manhole steps.

Nearly sixty percent of manholes in the Marion Township sanitary sewer system are found off-road. Table 2 -1 shows a breakdown of the types of surfaces where manholes are located.

Table 2 - 1 Location of Manholes

Surface type	
Asphalt	147
Concrete	25
Grass/Dirt	274
Gravel	21
Total	467

The defects observed from the field investigations are listed in the Manhole Defects Summary in Appendix F. NASSCO assigns a score of 1 to some conditions that are not necessarily defective, but are the observation of a component that has potential for defect. Examples of such conditions include:

- Cover/Frame Fit - "Good"
- Cover Condition - "Sound"
- Cover Insert Condition - "Sound"
- Adjustment Ring Condition - "Sound"
- Frame Condition - "Sound"
- Seal Condition – "Sound"*
- Frame Offset Distance – "d<=1in."
- Frame Seal Inflow – "None"
- Chimney I/I – "None", and
- Pipe Condition – "Sound"

*Seal Condition – "Sound" gets counted as both a structural and O&M score of 1.

As a result of the inclusion of these scores, the minimum scores that will be found in the Marion Township sewer system are 1400 Structural Quick Rating, 1500 O&M Quick Rating, and 1900 Combined Quick Rating. Some of the aforementioned conditions will not apply, such as Cover Insert Condition (there are no manholes in the system with inserts, and they are not necessary), and some conditions will always apply, such as "Cover Condition" (every manhole should have a cover). This is an important distinction when considering manholes for repair or maintenance under the Capital Improvement Plan – it is unnecessary to schedule a manhole with a Structural Quick Rating of 1400 for repair, as there is no actual defect.

Table 2 - 2 below summarizes manholes by Quick Rating. For simplicity, Quick Ratings in the table are combined by the first digit, which represents the highest rating found per manhole. From it, one can see that only 20% of manholes in the system have a structural defect higher than 1, yet nearly all manholes have an O&M defect higher than 1. When considering Combined Quick Ratings, only 5% of manholes have defects as high as 4 or 5. Because every manhole inspected is bound to have some conditions with a score of 1, manholes that were not inspected were given a score of 0 for Structural, O&M, and Combined Quick Ratings. There were 19 known manholes that were not inspected due to inaccessibility. There are various reasons for manholes being inaccessible, the most common being that the manhole was buried.

Table 2 - 2 Manhole by Quick Rating

Highest Rating	Structural Category		O&M Category		Combined	
	Number	Percent	Number	Percent	Number	Percent
5	3	1%	2	0%	5	1%
4	5	1%	13	3%	18	4%
3	83	18%	18	4%	84	18%
2	0	0%	414	89%	340	73%
1	358	77%	2	0%	2	0%
0	18	4%	18	4%	18	4%

It is not surprising that so few manholes are in poor condition, considering the system is less than twenty years old. In fact, about three-quarters of the system only have scores as high as 2, which is generally indicative of defects that have negligible impact on the overall function of the manholes.

Pump Station Inventory and Condition Assessment

Marion Township's sanitary sewer system utilizes nine pump stations throughout the system. These pump stations are operated and maintained by the City of Howell staff. The pump stations were inspected in 2013 by Spicer Group.

Norton

The Norton Road pump station is located on the north side of Norton Road approximately 1200 feet east of County Farm Road. It receives all wastewater collected west of its location, and about 3000 feet of sewer to the east along Norton Road. Its force main outfall is located at the corner of Mason Road and Foxfire Drive, where it is carried by gravity south along Foxfire, through an off-road collector along the Marion-Genoa Drain, and to the Peavy Road pump station.

This Gorman-Rupp pump station utilizes a Toshiba 25-HP, 460 VAC, 3-Phase Non-submersible Duplex pump in an uninsulated fiberglass dome enclosure. It has an SMS controller with Verbatim auto-dialer and a bubbler level system.

Peavy

The Peavy Road pump station is the most critical point in Marion Township's sanitary sewer system. All wastewater collected in Marion Township is pumped from this station directly to a manhole located at the Howell WWTP. It is critical that this pump station and it's force main be well-maintained and operable at all times.

This Gorman-Rupp pump station utilizes a 21HP, 460 VAC, 3-Phase Submersible Triplex pump in an uninsulated fiberglass shed. It has a pumping capacity of 0.921 MGD and is equipped with a Sparling Tiger MAG Model FM627 flow meter. It has an SMS controller with Verbatim auto-dialer and a bubbler level system. The station is equipped with an emergency on-site generator.

Tracilee

The Tracilee pump station is located at the west end of Tracilee Drive, west of Peavy Road. It is intended to serve 28 of 34 homes on Tracilee Dr. It's outfall is in front of 1070 Tracilee Dr,

where gravity sewer takes wastewater out to Peavy Road, then north to the Peavy Road pump station. Being that it serves such a small population, this pump station sees minimal use, typically only running once per day.

This Gorman-Rupp pump station utilizes a Submersible Duplex pump in a fiberglass dome enclosure insulated with spray-on foam. It has an SMS controller with a Verbatim auto-dialer and a bubbler level system.

MHOG

The MHOG pump station is located on the southeast side of Norton Road about 120' northeast of the entrance to the MHOG plant. It collects wastewater from about 4400' of gravity sewer along Norton Road, which in turn collects the outfall from the Burkhart Road pump station, as well as 1800' of gravity sewer from Timbermill Lane. The MHOG force main outfalls to a manhole on Norton Road about 240' west of Hardman Drive, where wastewater is carried east to the Norton Road pump station.

This Gorman-Rupp pump station utilizes a submersible duplex pump in a fiberglass dome enclosure insulated with spray-on foam. It has an SMS controller with a Verbatim auto-dialer and bubbler level system.

Francis

The Francis Road pump station is located on Francis Road about 3800' east of D-19 (Pinckney Road). It collects wastewater on Francis Road from 2000' east of D-19 to the Marion-Genoa Township line, plus the wastewater collected from the two subdivisions on the north and south sides of Francis Road. The Francis Road force main outfalls to a manhole on Francis about 350' east of D-19, where it is carried north along D-19 and then northwest along the Marion-Genoa Drain to the Peavy Road pump station.

This Gorman-Rupp pump station utilizes a 15 HP, 460VAC, 3-Phase Toshiba non-submersible duplex pump enclosed in an uninsulated fiberglass hut. It has an SMS controller with a Verbatim auto-dialer and bubbler level system

Burkhart

The Burkhart Road pump station is located on the south side of Mason Road about 300' west of Burkhart Road. It collects wastewater from gravity mains along Burkhart Road between Norton Road and Mason Road, plus 1200' along Groveland Dr and the 600' between Groveland and Burkhart. The Burkhart Road force main outfalls at the intersection of Norton Road and Burkhart, where wastewater is then carried by gravity main to the MHOG pump station.

This Gorman-Rupp pump station utilizes a 15HP, 460VAC, 3-Phase Toshiba non-submersible duplex pump enclosed in an uninsulated fiberglass hut. It has an SMS controller with a Verbatim auto-dialer and bubbler level system.

Allstot

The Allstot Road pump station is located at the west side of Allstot Road, which forms a loop. It collects wastewater from Allstot Road as well as some properties to the west. The Allstot force

main outfalls to an off-road manhole where wastewater is carried by gravity along the Marion-Genoa Drain east to the Peavy Road pump station.

This Gorman-Rupp pump station utilizes a submersible duplex pump enclosed in a fiberglass dome insulated with spray-on foam. It is equipped with an Arrestor Guard Model AG4803C3 surge protector. It has an SMS controller with a Verbatim auto-dialer and bubbler level system. A noticeable siphon effect was observed during inspection; the pump shuts off at 2.0 ft, but the level continues to drop to 1.3 ft.

Maple Farms - Mason

The Maple Farms – Mason Road pump station is located on Mason Road 330' east of the entrance to Maple Farms subdivision. It collects wastewater from the Maple Farms subdivision only. The outfall is located on Norton Road 350' west of Bonnie Circle, where wastewater is carried by gravity to the Norton Road pump station.

This Gorman-Rupp pump station utilizes a submersible duplex pump enclosed in a fiberglass dome insulated with spray-on foam. It has an SMS controller with a Verbatim auto-dialer and bubbler level system.

Wright Road - Parker

The Wright Road – Parker pump station is located on Wright Road 700' east of D-19. It collects wastewater from a private sewer system serving Parker Middle School. The outfall is on the west side of D-19 200' south of the entrance to Hometown Village subdivision. Wastewater is then carried by gravity sewer north along D-19 and northwest along the Marion-Genoa Drain to the Peavy Road pump station.

This Gorman-Rupp pump station utilizes a 10HP, 460VAC, 3-Phase WEG non-submersible duplex pump in an uninsulated fiberglass hut. It is equipped with a Delta – Lightning Arrestor Model 3764854 surge protector and a Siemens Sitrans FM, Magflo, Mag500 flow totalizer. It has an SMS controller with a Verbatim auto-dialer and bubbler level system.

General Pump Station Inspection Notes

- The Peavy Road pump station, as well as those with non-submersible pumps have been known to have especially high electric bills during the winter due to lack of insulation.
- The pump stations have no protection from vehicles or vandalism, such as bollards or fencing.
- There are no on-site generators, with the exception of Peavy Road pump station.
- Other pump stations are equipped with portable generator receptacles rated for 600VAC, 50-400Hz, 200 Amp, 4-wire, 4-pole.

REMAINING USEFUL LIFE

The remaining life of the collection system varies by component. Table 2 – 3 shows the life expectancies used in this study for determining remaining useful life of the Township's assets.

Table 2 - 3 Typical Service Life

Typical Life Expectancies	
Component	**Expected Service Life (Years)**
Concrete Manholes	75
PVC Pipe	100
Concrete Wet Well/Valve Vault	75
Pump Station	75
Pump	25
Pump Motor	10
Valves and Piping	20
Motor Control Center	20
Telemetry System	10
Level Sensing System	8
Generator	20
HVAC	20
Security Fence	25

In general, as of 2017:

- The average Marion Township manhole has 58 years of life remaining, with the range being from 56 to 65 years of life remaining.
- The average Marion Township PVC pipe has 83 years of life remaining, with the range being from 81 to 90 years.
- The average Marion Township pump station has 8 years of life remaining.

The Marion Township sanitary sewer collection system was mostly constructed around 2000, making it nearly 20 years old at the time of this publication. There were a few exceptions to this, where new developments were constructed with sanitary sewer. Pipes and manholes have a useful life expectancy far exceeding the current age of the system so only minor maintenance would be anticipated in the near future.

Pump stations, on the other hand, do not have such long useful life expectancies. The majority of the stations that still have their original pumps have doubled the pump motor life expectancy and are nearing the life expectancy for the pumps themselves. They are also at the anticipated life for the motor controls, valves, and piping. However, many of these stations are not heavily used and have infrequent run cycles, which can greatly extend their service life. The table below summarizes the relative ages of each component the pump stations and the remaining life expectancy for individual components:

Table 2 - 4 Estimated Remaining Service Life for Pump Station Components

Station	Year Installed	Motor (yrs)		Pump Age (yrs)		Motor Control Center Age (yrs)		Valves & Piping Age (yrs)		Generator Age (yrs)	
		Age	Life	Age	Life	Age	Life	Age	Life	Age	Life
Norton	2000	18	-8	18	7	18	2	18	2	n/a	-
Peavy	2000	18	-8	18	7	18	2	18	2	2	18
Tracilee	2000	18	-8	18	7	18	2	18	2	n/a	-
MHOG	2000	18	-8	18	7	18	2	18	2	n/a	-
Francis	2000	18	-8	18	7	18	2	18	2	n/a	-
Burkhart	2000	18	-8	18	7	18	2	18	2	n/a	-
Allstot	2000	18	-8	18	7	18	2	18	2	n/a	-
Maple Farms	2000	18	-8	18	7	18	2	18	2	n/a	-
Parker	2005	13	-3	13	12	13	7	13	7	n/a	-

VALUE OF ASSETS

Asset valuations provide asset managers with the knowledge of estimated current replacement costs. The valuation process takes every registered asset and assigns it an estimated replacement cost, and those costs are summed to estimate the replacement value of the whole system. The replacement value is the cost of replacing the asset in today's dollars. These costs are based on construction bids, industry knowledge, and/or financial records.

The Township's estimated total replacement value in 2019 dollars is shown below. It is estimated that it would take approximately $150 million to replace all wastewater assets owned by the Township. As summary of the value calculation is as follows:

Manholes (average of all sizes and conditions)		
467 manholes @ $4,000 per manhole		$1,868,000
Sewer Pipe (average of all sizes and conditions)		
753,000 feet @ $190 per foot		$143,184,000
Pump Stations		
1 major station @ $750,000		
8 standard stations @ $500,000		$4,750,000
	Total	**$149,802,000**

SECTION 3 – LEVEL OF SERVICE

METHODOLOGY

To adequately plan any capital improvements, the owner of the system must first determine the desired Level of Service it wishes to provide its customers. Level of Service is not necessarily a discrete, quantitative measure. Rather, it can be a qualitative measure that fits on a spectrum from high to low. The levels of service have been ranked as low, medium and high, defined as:

- Low LOS, the project is the minimum needed to conform with applicable regulations etc. Repairs or replacement would be completed after the appurtenance had reached the failure point.
- Medium LOS would be expanding the project to include work that is not critical to conform to regulations, but that makes sense for a long term sustainable result. For instance, instead of performing spot repairs on cracked sanitary sewer pipes (Low LOS), the repair is to line the entire length manhole to manhole (Med. LOS). For pump stations, an example of medium LOS is installing an onsite permanent generator instead of using a portable generator and personnel. Medium LOS would generally include replacing equipment before it is at the end of its useful service life and/or already failed.
- High LOS includes total replacement of equipment or infrastructure that could be repaired instead. This would be done on assets that have not failed, but are in need of repair. This is more expensive, however, results in a longer useful service life.

Marion Township's sanitary sewer system is less than 20 years old. With the exception of pump stations, the system has many years of valuable life remaining. Most of the pump stations are original from 2000 with very few upgrades, improvements, or modifications. Currently, the Township is providing a medium level of service, but without continued improvements to the aging pump stations, failures will degrade the level of service. The approach being taken in this Asset Management Plan is that this sewer system can be reasonably expected to maintain the current, satisfactory Level of Service by addressing known issues as soon as financially feasible and implementing routine inspection and maintenance in the future to address new issues as they arise.

This Asset Management Plan focuses on addressing the components with the highest risk in a timely manner, while simply preparing to address the lower risk components in the future. It is not the intent of this plan to reconstruct the entire collection system to achieve perfection; rather, the intent is to maintain the high level of service without imposing unnecessary rate increases on customers of the sewer system. This will be achieved through smart planning of capital improvements spread out over an appropriate timeline as well as consistent O&M routines.

SECTION 4 – CRITICAL ASSETS / RISK MANAGEMENT

INTRODUCTION

Critical assets are defined, for the purposes of this Asset Management Plan, as the components of the sewer system which are at risk for negatively impacting the functionality of the system. This AMP is intended to seek out Critical Assets and reduce their risk to meet the desired Level of Service by implementing a Capital Improvement Plan. Risk, as defined by NASSCO, "takes into account the asset's physical condition, as well as the impact that its failure would have on the system performance and stakeholders."

LIKELIHOOD OF FAILURE (LOF)

An asset's Likelihood of Failure is used to estimate the probability of that asset failing, based on physical condition. The calculation of LoF is based on the rating system used for the Condition Assessment; in this case, PACP Quick Rating was used. In general, the LoF is calculated by dividing the first two digits of the Quick Rating by 10. There was one exception to this rule in Marion Township's Asset Management Plan: A manhole had a Quick Rating in which the second digit was the letter "A". In this case, the letter is replaced with a zero, the first two digits are then divided by ten, and 1.0 was added to the result.

By default, the values calculated for Likelihood of Failure must fall within 0.0 to 6.0, inclusive. A Likelihood of Failure of 0.0 represents a manhole with no condition assessment data available; this is due to manholes that were inaccessible for inspection.

CONSEQUENCE OF FAILURE (COF)

An asset's Consequence of Failure is used to quantify the direct and indirect negative impacts due to an asset failure. NASSCO uses "Triple Bottom Line (TBL)" to evaluate Consequence of Failure. TBL considers social, environmental, and economic consequences equally in determining CoF.

Economic costs consist of direct and indirect costs to the owner due to asset failure. Direct costs may include the costs of asset repairs, legal fees, and fines. Indirect costs may include loss in property value, utility credibility, and increased insurance rates. Determination of economic CoF in this AMP was based on the size, depth, and location of the assets. Larger assets cost more to replace, deeper buried assets cost more to construct, and assets found deep in the woods cost more to construct than assets located in the greenbelt within a road right-of-way.

Social costs represent the impact on society due to the failure of an asset. Typical considerations when evaluating social costs may include number of affected users, proximity of important users, duration of failure, and public image. This AMP considers pipe size and location code when calculating social costs. Generally, larger pipes are indicative of more users served. Location code is taken into consideration because assets located under a busy road may cause traffic delays during replacement or repair, whereas assets located off-road may only impact aesthetics.

Environmental costs consider the impact to ecological conditions as a result of an asset's failure. To calculate this cost, proximity to the nearest waterway was calculated for each asset. Assets in close proximity were given a higher environmental cost than assets far away.

Each of the three bottom line costs considered were given a score from 0.0 to 6.0, inclusive. They were then used to calculate the overall CoF, with each bottom line cost receiving equal weight. The following equation was used:

$$CoF = \frac{Economic\ Costs + Social\ Costs + Environmental\ Costs}{3}$$

Similar to the LoF, as well as the three bottom line costs, the CoF must fall within 0.0 to 6.0, inclusive.

Risk

With the Likelihood and Cost of Failure calculated for each asset. The risk can be calculated using the following equation:

$$Risk = Likelihood\ of\ Failure\ (LoF)\ x\ Consequence\ of\ Failure\ (CoF)$$

The benefit of calculating risk, rather than using Quick Score, LoF, or CoF independently is that an asset with very high Consequence of Failure but very low Likelihood of Failure may not need as much consideration as a manhole with medium-high scores for both.

Manholes

Data collected in the field was imported to Microsoft Excel spreadsheets, where it was used to calculate Likelihood of Failure, Consequence of Failure, and Risk. Detailed breakdowns for each factor that was evaluated for manholes in the Marion Township sanitary sewer can be found in Appendices B, C, and D. The histograms in Figures 4 – 1 through 4 – 3 demonstrate the frequency of varying levels of LoF, CoF, and Risk.

Figure 4 - 1

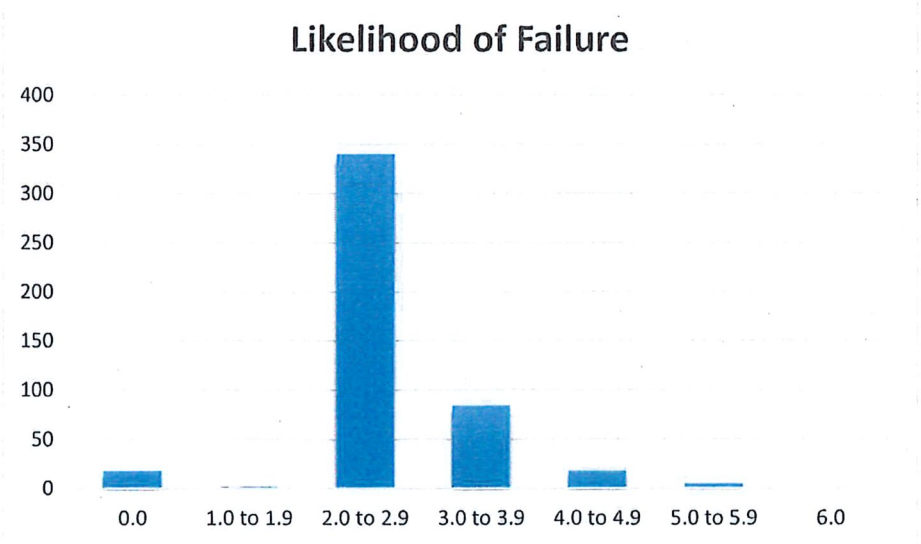


Figure 4 - 2

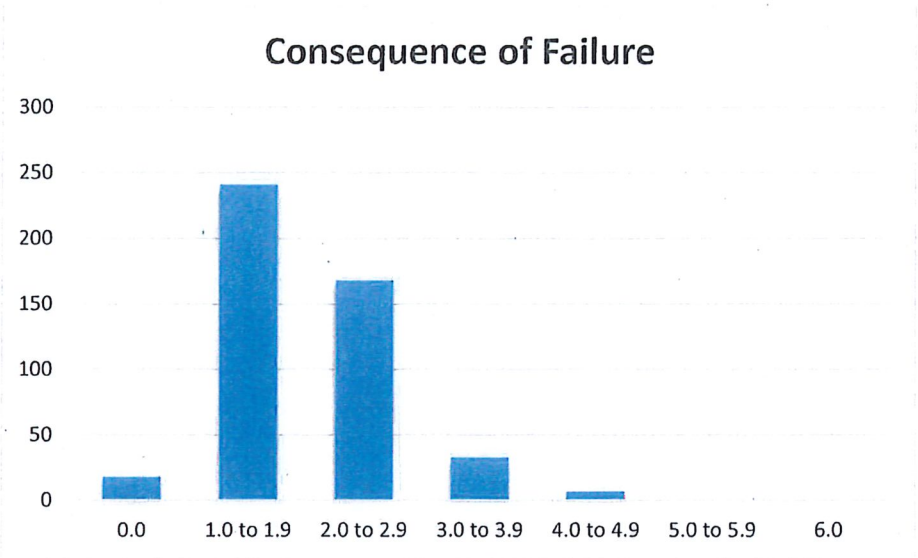
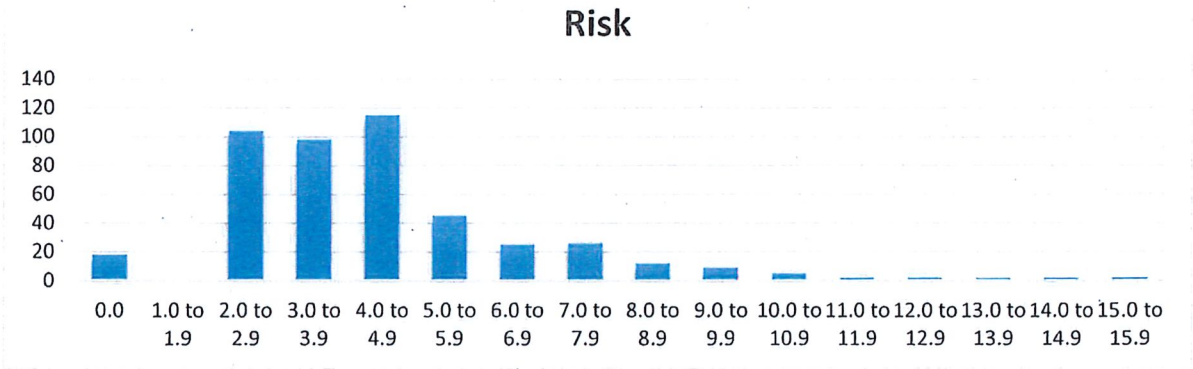


Figure 4 - 3



In general, the consequence of failure in the system is relatively low. Over half of the manholes in the system have a Consequence of Failure lower than 2.0, and over half of the manholes have a Likelihood of Failure lower than 3.0. This results in 67% of manholes having a risk rating less than 5.0 on a scale from 0.0 to 36.0, inclusive. The highest risk rating in the system is 15.0 out of 36.0.

PUMP STATIONS

The nine pump stations in the Marion Township sanitary sewer system were inspected and CoF and LoF were determined. The LoF was based on the current age, number of pumps, and the overall condition of the station. The CoF is based on service area, proximity to open water, and cost of repair/replacement.

The methodology used in determining LoF is based on age of the station and number of pumps utilized. Stations were assigned a number of points based on age. Eight of the stations were constructed in 2000; those stations were assigned 2 points for age. The Parker station was

constructed in 2005 and was assigned 1 point for age, as most components still have significant service life remaining. As for number of pumps, it can be expected that larger stations, with more flow, have more mechanical components which can fail. To account for this, we assigned 1 point for the Peavy Road triplex station but zero for the duplex stations. This methodology provides a range of LoF ratings of 1 to 4.

When considering CoF, the first thing to take into account is service area and flow volume. The Peavy Road station sees the greatest flow in the system, as all the flow from the Township system is directed through it before going to the City of Howell WWTP. The Norton Road and Francis Road stations also serve a significant population. The remainder of stations serve relatively small areas and don't have very high flow volume. The second factor taken into account is proximity to open water. Several of the pump stations in the system are located near rivers or drains. These stations were assigned one additional point for CoF. Finally, number and type of pumps were taken into account. The submersible and non-submersible duplex stations were assigned one point, and the Peavy triplex station was assigned two points. This methodology results in CoF ratings in the range of 1 to 5. Not surprisingly, the Peavy station has a CoF of 5, as it is near open water, serves a large area, and is the most expensive station to repair or replace.

Following suit with the methodology of Risk Assessment for manholes and pipes, the Risk rating for pump stations is the product of the LoF and CoF. As expected, the Peavy Road station has by far the highest risk of all the other pump stations. The Norton, MHOG and Francis stations have the next highest risk due to either their proximity to water or the size of their service area. The remaining stations are relatively low risk, with the lowest risk station being the Parker station. This station is the newest in the system, is not near open water, and serves a small area.

Table 4 - 1 Pump Station Risk Analysis

Station	Age	Pumps	LoF	Proximity to Open Water	Service Area Size	Number of Pumps	CoF	Risk
Norton	2	0	2	1	1	1	3	6
Peavy	2	1	3	1	2	2	5	15
Tracilee	2	0	2	0	0	1	1	2
MHOG	2	0	2	1	0	1	2	4
Francis	2	0	2	0	1	1	2	4
Burkhart	2	0	2	0	0	1	1	2
Allstot	2	0	2	0	0	1	1	2
Maple Farms	2	0	2	0	0	1	1	2
Parker	1	0	1	0	0	1	1	1

SECTION 5 – CAPITAL IMPROVEMENT PLAN

INTRODUCTION

The Capital Improvement Plan (CIP) is a preliminary outline of recommended projects to be completed based on the desired Level of Service. The projects are prioritized and spread out over time in such a way that balances risk reduction against cost. The Capital Improvement Plan is essential in smart budgeting for future expenditures and will assist the Township in determining an appropriate sewer rate.

MANHOLE REHABILITATION

Using the information collected from MACP inspections, deficiencies were noted throughout the collection system and then ranked based on NASSCO guidelines for Risk Assessment. Forty-eight of the 467 system manholes were identified for structural repairs or maintenance. The work for repairing the manholes (4) with the most serious structural deficiencies is proposed in the first year of the capital improvement plan. The work on the remaining 44 manholes is proposed in year 2 and 3 of the CIP.

Table 5 - 1 Manhole Repairs

Str. No.	Defect	Description	Location	Recommended	
				Repair 1	Repair 2
2	Obstacles_Obstructions	Other	Channel	clean	
3	Roots_Medium	Joint	Wall	remove roots	grout
14	Deposits_Attached	Encrustation	Wall	clean	grout
106	Infiltration	Dripper		grout	
108	Roots_Fine	Barrel	Channel	clean	
140	Deposits_Settled	Fine	Channel	clean	
142	Deposits_Settled	Fine	Channel	clean	
145	Deposits_Settled	Fine	Channel	clean	
146	Deposits_Settled	Fine	Channel	clean	
147	Deposits_Settled	Fine	Channel	clean	
148	Deposits_Settled	Fine	Channel	clean	
149	Deposits_Settled	Fine	Channel	clean	
150	Deposits_Settled	Fine	Channel	clean	
157	Deposits_Attached	Encrustation	Channel	clean	
181	Deposits_Settled	Other	Channel	clean	
182	Deposits_Settled	Other	Channel	clean	
183	Deposits_Settled	Other	Channel	clean	
184	Deposits_Settled	Other	Channel	clean	
216	Roots_Fine	Connection	Channel	remove roots	grout
218	Roots_Fine	Connection	Channel	remove roots	grout
220	Deposits_Attached	Encrustation	Wall	clean	grout
253	Deposits_Attached	Encrustation	Wall	clean	grout

Str. No.	Defect	Description	Location	Recommended	
				Repair 1	Repair 2
256	Infiltration	Runner		grout	
264	Infiltration	Dripper		grout	
277	Infiltration	Dripper		grout	
333	Roots_Fine	Connection	Chimney	remove roots	grout
343	Deposits_Settled	Other	Channel	clean	
352	Deposits_Attached	Encrustation	Wall	clean	grout
354	Infiltration	Runner		grout	
358	Deposits_Settled	Fine	Channel	clean	
359	Deposits_Settled	Fine	Channel	clean	
473	Infiltration	Weeper		grout	
489	Infiltration	Weeper		grout	
533	Deposits_Ingress	Fine	Channel	clean	
535	Deposits_Attached	Encrustation	Wall	clean	grout
536	Deposits_Attached	Encrustation	Wall	clean	grout
544	Brickwork	Missing Mortar Large	Chimney	reconstruct chimney	
551	Obstacles_Obstructions	Pipe Material in Invert	Channel	clean	
554	Deposits_Attached	Ragging	Channel	clean	
556	Roots_Tap	Joint	Channel	clean	
558	Deposits_Attached	Grease	Channel	clean	
564	Roots_Fine	Joint	Chimney	remove roots	grout
573	Crack	Multiple	Wall	grout	
588	Roots_Fine	Joint	Chimney	remove roots	grout
589	Deposits_Attached	Encrustation	Wall	clean	grout
629	Surface_Damage	Aggregate Missing	Wall	liner	
632	Surface_Damage	Chemical Attack	Wall	liner	
641	Roots_Fine	Joint	Chimney	remove roots	grout

Beyond the initial repair program, a 20-year manhole rehabilitation plan is recommended. This program will target approximately 20 manholes per year for cleaning and any necessary rehabilitation. The order of the manhole rehabilitations should be based on a combination of risk and location. This will provide an appropriate balance between addressing highest-risk manholes early and considering the impact of project area on cost. Costs can be kept lower if the work can be kept in a smaller geographic area.

Capital improvements are not a one-time activity; sanitary sewer systems require constant maintenance and improvements. After the first three years of manhole rehabilitations are complete, there will be new defects in manholes that will need to be addressed and the Township should plan for that. A preliminary estimate of $10,000 per year of manhole rehabilitations should be considered as part of this Capital Improvement Plan.

Manhole Rehabilitation Methods

After reviewing the MACP inspection data, defects were categorized into 5 methods of rehabilitation: cleaning, removing roots, grouting, reconstructing chimney, and lining. Some manholes require more than one of the proposed methods of rehabilitation. For example, pavement repairs are only required on manholes that require the frame to be adjusted or replaced. Below is an explanation of each proposed rehabilitation method.

Cleaning

Thirty manholes in the system required cleaning. Often, these manholes were found to have a buildup of solid deposits or ragging in the flow channel. These obstructions impede flow through the sewer and tend to cause additional obstructions to collect. Eventually, these obstructions will become a complete blockage. To clean a manhole, a contractor will use a water jet and vacuum to break free and remove debris.

Remove Roots

Seven manholes had evidence of root intrusion into the structure. The roots are evidence of infiltration and can obstruct flow through the manhole leading to blockage. The contractor will mechanically remove the roots from the structure and grout any holes that remain.

Grouting

There were 22 manholes in the system which require additional mortar on the chimney or walls. In many cases, defects observed were simply staining found on otherwise sound manholes. Often, the mortar on the brick or concrete ring joints from the cone section up to the frame (chimney) have broken apart over time or the horizontal joints between barrel sections or the holes for lift pins do not get sealed well during construction and are hotspots for infiltration. This work simply requires a contractor to place mortar at the designated locations in the manhole wall.

Replace Chimney

One manhole was found with chimney in such a state of disrepair that simply pointing the mortar joints will not be sufficient. These chimneys require a complete replacement. This work will require pavement repair as well for manholes that are located in paved areas.

Lining

Two manholes in the system have enough damage to the surface of the structure to warrant a complete lining of the structure. This is typically due to the corrosive environment inside the manhole eroding the concrete. The project will involve a contractor spraying a chemical liner on the inside of the manhole to provide a barrier against future erosion.

PIPE REHABILITATION

The Marion Township system includes approximately 17.3 miles of sewer pipe of various sizes. The Township does not currently have a program in place for televising and cleaning sewers on an annual basis. The recommendation is to begin televising and cleaning approximately 1 mile of the system every other year beginning in 2020. As the system continues to age and inflow/infiltration becomes more prevalent, the amount televised and cleaned should increase. Any necessary repairs that are identified during the televising should be completed the following year.

The 20-year capital improvement budget has amounts shown for both televising and repairs. However, these amounts should be reviewed annually to ensure significant progress is being made maintaining the system.

PUMP STATION REHABILITATION

Each component of a pump station has an estimated life expectancy which can be used for budgeting for future repairs or replacement. It is common for system operators to wait until failure to replace components, because otherwise it seems like wasted money. However, replacing aged components before failure is often lower in cost and provides a higher level of service due to shorter down times. Regardless of whether or not components are replaced on a schedule or upon failure, it is good practice to put a rehabilitation plan in place from which a budget may be derived. It is a fact that failure will eventually occur in all components and it is best to have the capital on hand to fund the necessary repairs.

Of the nine pump stations in the Marion Township sanitary sewer system, eight are nearing 20 years in age and the Parker station is approaching 15 years in age. All of these have exceeded the life expectancy for the pump motors. The motor control center and internal valves and piping are nearing their life expectancy for all of the stations except Parker. The pump bodies still have significant life remaining for all of the stations. Very few, if any, major components have been replaced in any of these stations.

It is not feasible to upgrade all components which have reached their life expectancy all at once due to cost. The recommended course of action is to plan improvements over a longer period of time without sacrificing the system's level of service. It is important to recognize that this is only a tentative plan to be used for budgeting purposes and as a guideline for improvements. Unplanned failures will likely occur before all of the equipment in the pump stations has been replaced. Because it is impossible to accurately plan for these failures, the plan has to be flexible and capital should be available in case of emergency.

The Capital Improvement Plan is organized primarily on Risk Assessment, but costs are also taken into consideration. The highest risk pump stations are the Peavy, Norton, MHOG, and Francis stations, with Peavy being the most critical. The next highest risk are Tracilee, Burkhart, Allstot, and Maple Farms. While these are the same age as the higher risk stations, they serve lower populations or don't have high environmental risks. The Parker station is the newest and currently the lowest risk. However, it should be noted that a very large development of over 400 residential units is planned to connect to this station within a few years. It is expected that the Parker station will become more critical over time. The future improvements to this station were

planned with this in mind. The following tables indicate the improvements planned at each station and the timeframe for these improvements.

Table 5 - 2 Pump Station Component Replacement Plan

Station	Year Installed	Motor			Pumps		
		Agerage Lifespan:		10	Agerage Lifespan:		25
		Year Replaced	Age at Replacment	Age Over/Under Expectancy	Year Replaced	Age at Replacment	Age Over/Under Expectancy
Peavy	2000	2020	20	10	2030	30	5
Norton	2000	2021	21	11	2031	31	6
MHOG	2000	2022	22	12	2032	32	7
Francis	2000	2023	23	13	2033	33	8
Tracilee	2000	2031	31	21	n/a	n/a	n/a
Burkhart	2000	2025	25	15	2035	35	10
Allstot	2000	2029	29	19	2039	39	14
Maple Farms	2000	2027	27	17	2037	37	12
Parker	2005	2030	30	20	n/a	n/a	n/a

Table 5 - 3 Pump Station Component Replacement Plan

Station	Year Installed	Motor Control Center			Valves & Piping		
		Agerage Lifespan:		20	Agerage Lifespan:		20
		Year Replaced	Age at Replacment	Age Over/Under Expectancy	Year Replaced	Age at Replacment	Age Over/Under Expectancy
Peavy	2000	2030	30	10	2030	30	10
Norton	2000	2031	31	11	2031	31	11
MHOG	2000	2032	32	12	2032	32	12
Francis	2000	2033	33	13	2033	33	13
Tracilee	2000	n/a	n/a	n/a	n/a	n/a	n/a
Burkhart	2000	2035	35	15	2035	35	15
Allstot	2000	2039	39	19	2039	39	19
Maple Farms	2000	2037	37	17	2037	37	17
Parker	2005	2035	35	15	2035	35	15

The Township is also considering upgrading their communications systems at all the pump station locations. This includes adding radio equipment and SCADA programming for each station. This would replace the auto-dialer alarms at each station and allow for better monitoring of the equipment. The cost for implementing this improvement was added to the total pump station budget in 2020.

Maintenance is a constant effort, and the system will be in perpetual need of upgrades, repairs, and improvements. It is important to plan for these improvements based on life expectancy, so the work can be included in the Township's budget.

Summary of Capital Improvements

After determining the capital improvements necessary to reach and maintain the desired level of service, a plan was set in place to accomplish these improvements over time in a cost-feasible manner. This Capital Improvement Plan will be used not only as a guide for the improvements themselves, but also as a basis for the Township's financial planning. By having a 20-year outlook on capital improvements, the Township is able to set sewer rates appropriately to ensure sufficient revenue to fund the improvements.

A 20-year estimate of costs for capital improvements is provided in the following tables and graph. Each capital improvement detailed in this section is included in the estimate and adjusted for inflation.

Figure 5 - 1

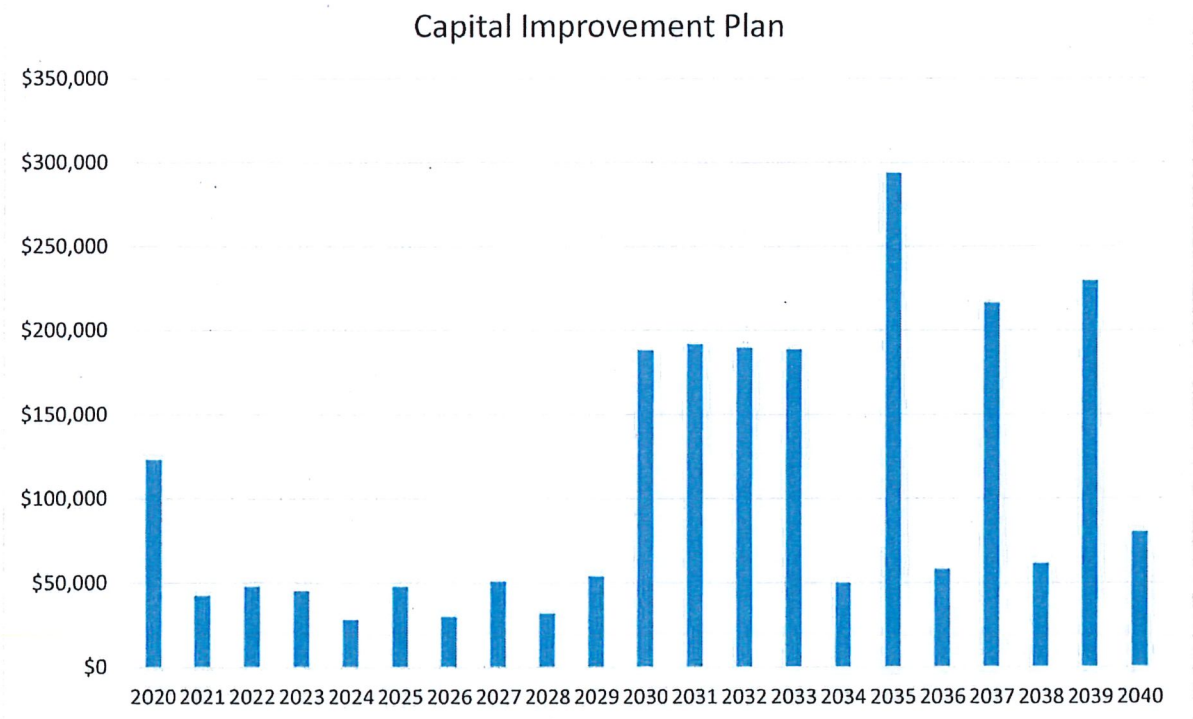


Table 5 – 4 Capital Improvements by Type and Year

	Year Planned	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1	PUMP STATION IMPROVEMENTS											
	Peavy	$37,000										$123,700
	Norton	$7,000	$30,900									
	MHOG	$7,000		$21,200								
	Francis	$7,000			$21,900							
	Tracilee	$7,000										
	Burkhart	$7,000					$23,200					
	Allstot	$7,000									$26,100	
	Maple Farms	$7,000							$24,600			
	Parker	$7,000										$26,900
	Total	$93,000	$30,900	$21,200	$21,900	$0	$23,200	$0	$24,600	$0	$26,100	$150,600
2	MANHOLE IMPROVEMENTS	$15,000	$10,300	$10,600	$10,900	$11,300	$11,600	$11,900	$12,300	$12,700	$13,000	$13,400
3	PIPE IMPROVEMENTS	$15,000	$11,600	$15,900	$12,300	$16,900	$13,000	$17,900	$13,800	$19,000	$14,700	$24,200
	TOTAL	$123,000	$52,800	$47,700	$45,100	$28,200	$47,800	$29,800	$50,700	$31,700	$53,800	$188,200

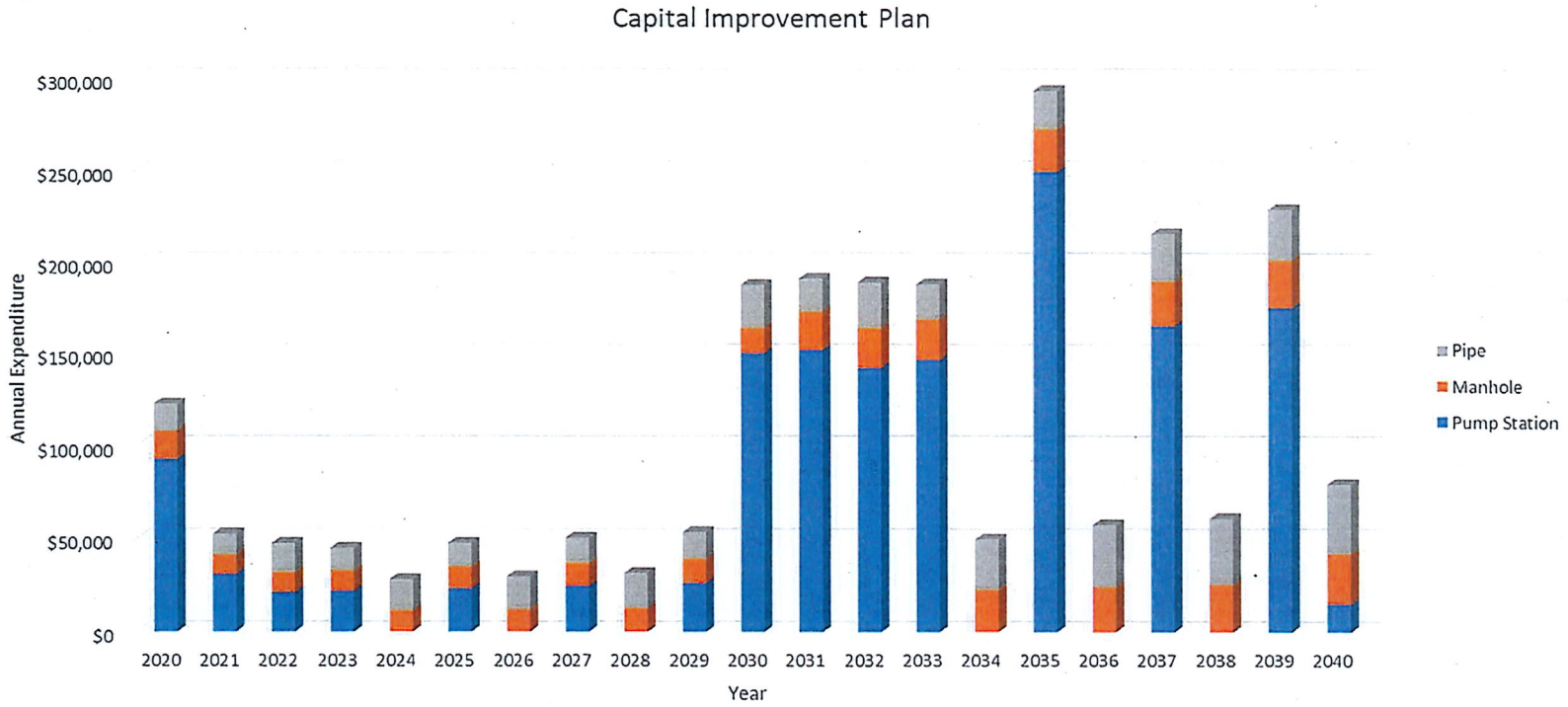
Cost estimates include an approximate 3% increase per year to account for inflation, rounded to reflect estimating uncertainty

Table 5 – 4 Capital Improvements by Type and Year

	Year Planned	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
1	PUMP STATION IMPROVEMENTS										
	Peavy										$14,900
	Norton	$138,400									
	MHOG		$142,600								
	Francis			$146,900							
	Tracilee	$13,800									
	Burkhart					$155,800					
	Allstot									$175,400	
	Maple Farms							$165,300			
	Parker					$93,500					
	Total	$152,200	$142,600	$146,900	$0	$249,300	$0	$165,300	$0	$175,400	$14,900
2	MANHOLE IMPROVEMENTS	$20,800	$21,400	$22,000	$22,700	$23,400	$24,100	$24,800	$25,500	$26,300	$27,100
3	PIPE IMPROVEMENTS	$18,700	$25,700	$19,800	$27,200	$21,000	$33,700	$26,000	$35,800	$27,600	$37,900
	TOTAL	$191,700	$189,700	$188,700	$49,900	$293,700	$57,800	$216,100	$61,300	$229,300	$79,900

Cost estimates include an approximate 3% increase per year to account for inflation, rounded to reflect estimating uncertainty

Figure 5 – 2 Expenditures by Type and Year



SECTION 6 - REVENUE STRUCTURE / LONG-TERM FUNDING

INTRODUCTION

A proactive Capital Improvement Plan is intended to allow the Township to maintain its current level of service into the future while maximizing the life of its assets. However, the CIP cannot fulfill this purpose unless the Township plans for the capital expenses necessary to perform the planned maintenance and repairs. This section discusses how the Capital Improvement Plan can be funded.

MEHODOLOGY AND RESULTS

Marion Township owns the collection system within the Township and contracts with the City of Howell for wastewater treatment and collection system maintenance. The largest operating cost is the wholesale treatment cost billed to the Township by the City. This accounts for approximately 71% of the annual expenditures before capital improvements. Other operating costs relate primarily to administration, billing, supplies, utilities and occasional professional services.

The rate analysis assumes a consistent 0.34% growth rate in the customer base and total wastewater discharge to the City. This is consistent with the growth rate for the last four years. It should be noted at a significant development is planned at the Marion Oaks site that will increase the users by over 400, an approximate 40% increase in the total number of users. This increase has not been factored into the analysis at this time, due to the uncertainty of the project schedule. As significant numbers of these users are added to the system, the rate structure should be re-analyzed.

An inflationary increase of 3% was added annually to the sewage treatment rate from the City of Howell. The same annual 3% increase was added to the other system operating costs.

The Township currently levies a Ready to Serve charge of $10.88 per user per quarter. This was maintained throughout the full 20-year analysis without change.

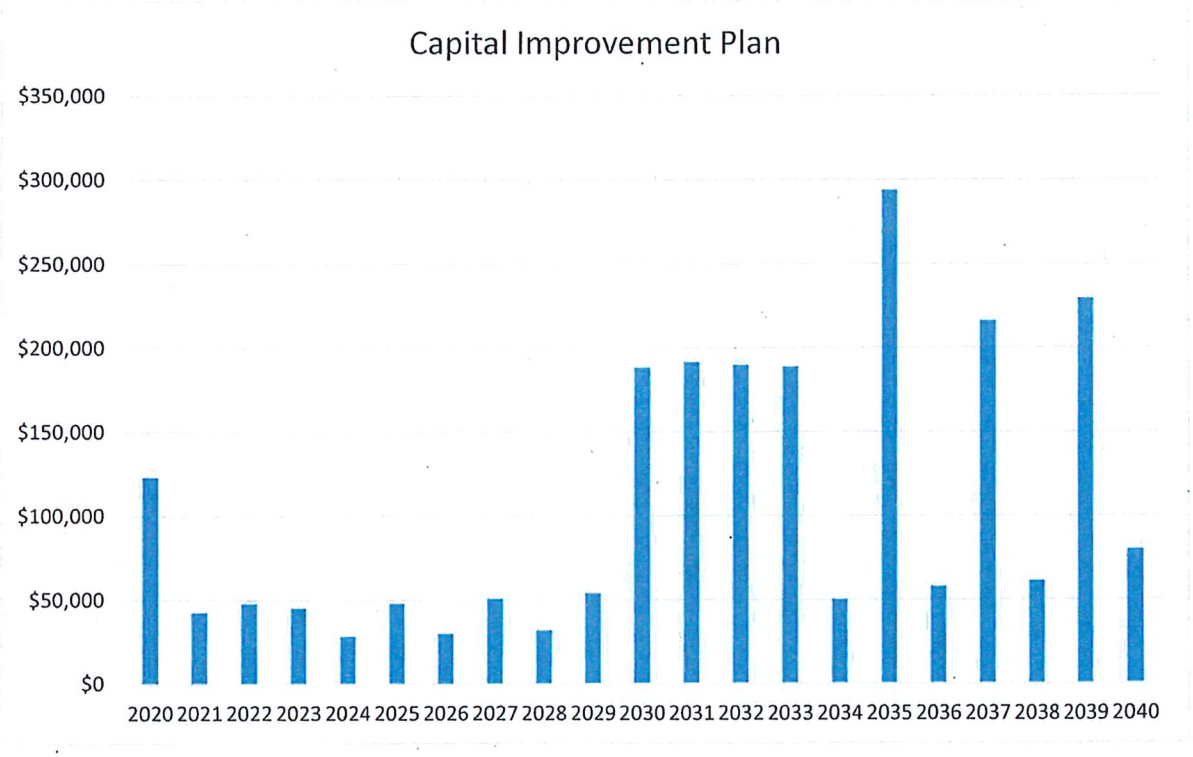
The overall Township sewer fund has a beginning balance of approximately $2.5 million. This includes both operating and capital improvement funds. At some future time, the Township will be required by contract to participate in the City of Howell WWTP equipment replacements and upgrades. The funds required for these improvements are unknown at this time, as is the schedule for the improvements. Therefore, it is necessary for the Township to maintain a high fund balance in anticipation of these future costs.

It is important to continuously compare the assumptions listed above to actual conditions. For example, City of Howell could increase rates more or less than the assumed 3%, which could have a significant impact on the recommended sewer rate increase imposed on the customers.

Capital Improvement Needs

Based on the infrastructure analysis, approximately $2.25 million of capital improvement needs to the Township's sewer system have been identified. This is over a 20 year period. The majority of costs are related to the 9 pump stations situated in the Township. Additional investments will be required in manhole improvements and collections system pipes. The chart below illustrates the annual capital investment planned for the Marion Township sewer system.

Figure 6 - 1

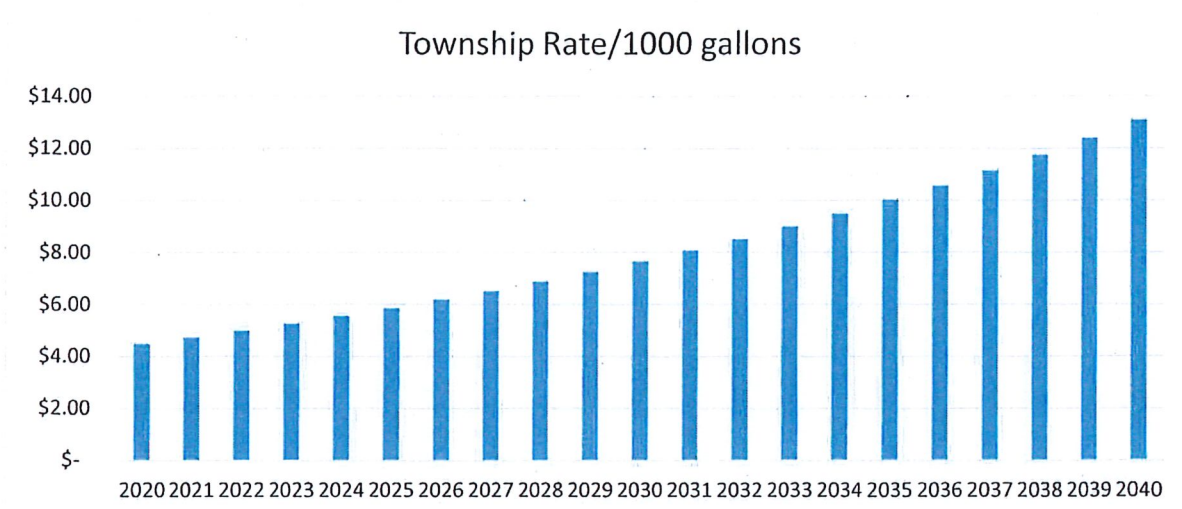


To fund these improvements, the Township has the option of bonding or paying with cash and revenues from rates. An evaluation of the two options suggests the Township could fund the improvements using a combination of rate increases and utilization of cash reserves. This approach will allow the Township to avoid incurring debt and the associated costs of debt issuance and interest.

Sewer Rates

The Township's sewer rate structure includes a usage charge per volume of flow and a ready to serve fee. These charges are billed quarterly to the system customers. To pay for the identified capital projects and ongoing O&M costs, the Township will need to implement a series of annual rate increases of roughly 5.5% over the life of the CIP. The chart below summarizes the estimated charges needed over the next twenty years.

Figure 6 - 2



Rate Impact On Sewer Fund

The figures below demonstrate the impact the recommended rate increases would have on the sewer revenues and the impact on the overall sewer fund. The rate increase strategy will maintain the sewer fund at approximately its current balance over the next 40 years. Figure 6 – 3 shows the annual revenue versus the annual expenses. Figure 6 – 4 demonstrates the resulting fund balance at the end of each year.

Figure 6 - 3

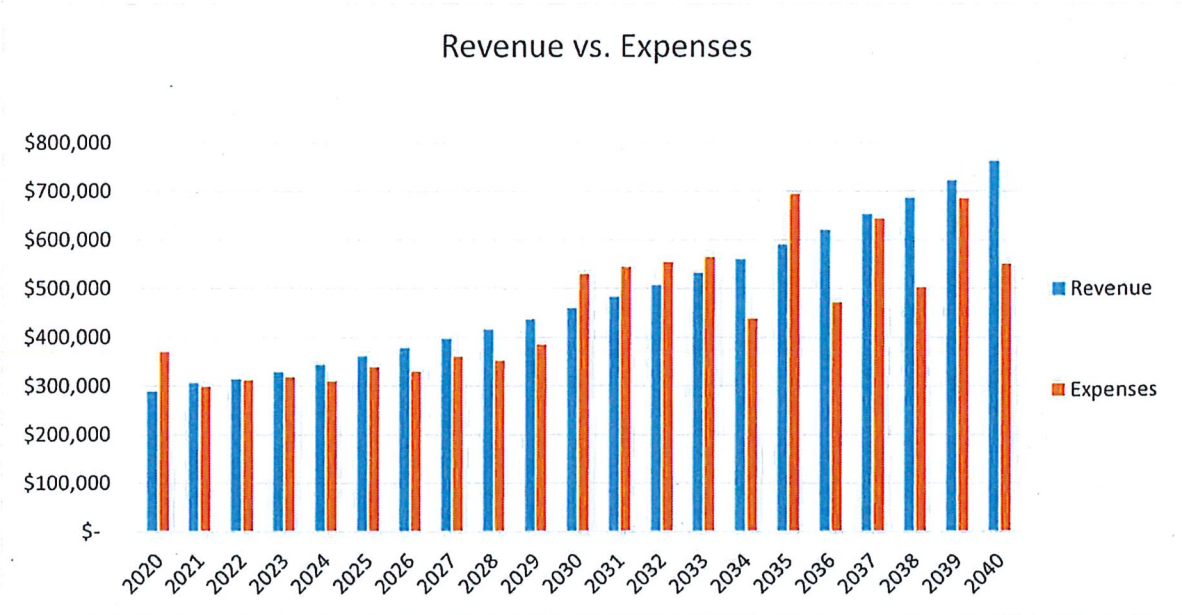
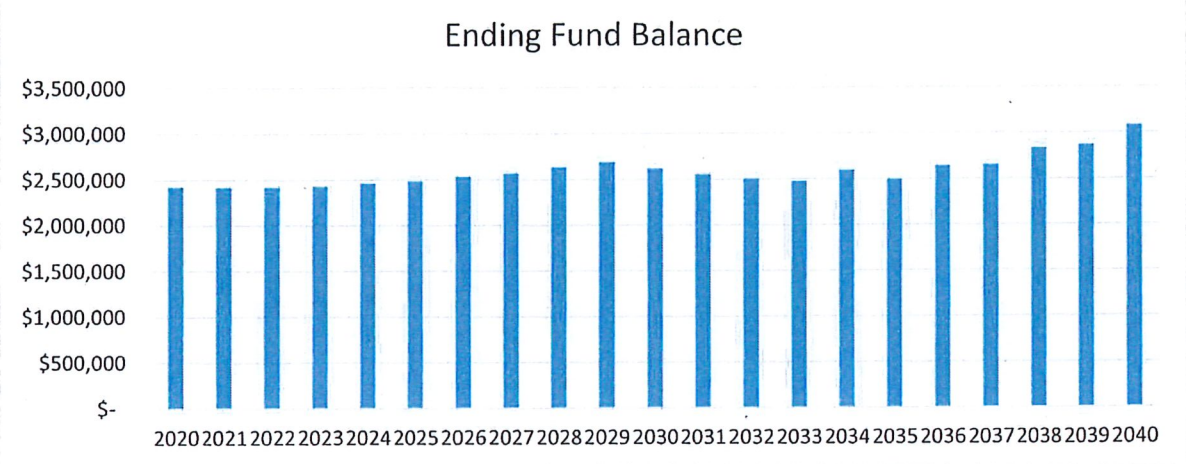


Figure 6 - 4



RATE IMPLEMENTATION

The above noted rate strategy is based on a number of assumptions, which may or may not be realized over time. The Township should take action to implement a rate adjustment consistent with the recommendation for year 1 (2020). In subsequent years, the Township should re-evaluate rate requirements, in light of the overall strategy of managing a consistent sewer fund level and an increase in rates. The actual rate adjustments required in a given year may differ from the forecasted rate projections in this report. It will be important to regularly evaluate and adjust rates each year, to avoid sudden rate increases in response to rising costs of sewer operations and capital needs.

SECTION 7 - OPERATION & MAINTENANCE STRATEGIES

INTRODUCTION

Sanitary sewer systems require constant maintenance to keep them functioning at a desirable level of service. There are several means and methods of maintaining a sewer system.

Continual flushing of sanitary sewer pipes by jetting and vactoring is the simplest, yet effective, means of maintenance. The jet sprays water at the interior pipe walls at high pressure to loosen grease and other materials blocking the pipe. The vactor removes the debris that is loosened by the jet.

Another simple, yet effect, means of maintaining a sanitary sewer system is Closed-Circuit Televising (CCTV). This is typically done after jetting and vactoring, and is used to view the inside of the pipe to locate damages from roots, breaks in the pipe, and illegal connections. These can lead to back-ups in the system and increase costs for the plant. Televising sewers is an effective method of preventative maintenance as cracks and fractures can be observed before the pipe collapses. Infiltration can be observed from televising the sewer and can significantly increase costs of treatment due to infiltration during heavy rain.

It is not only sewer pipes that require inspection and maintenance. Manholes should be inspected regularly by field operators to ensure they are structurally sound and not introducing infiltration into the system. It is common for manhole chimneys to deteriorate and allow groundwater to seep through cracks in the mortar. It is especially important to maintain chimneys located in roads, as they provide structural support where vehicles drive over the manhole lids.

Smoke testing is an effective inspection method to locate illegal connections to the sanitary sewer, breaks in pipe that may create sink holes, and breaks in manholes. Smoke is blown by a high-powered fan into the pipe system and a field operator inspects the area for signs of exiting smoke. Observing smoke from nearby locations such as gutter drains indicates and illicit connection that should be addressed. These illicit connections increase flow through the sanitary sewer and to the wastewater treatment plant, which increases cost of treatment.

It is important to record the locations of manholes and pipe segments between manholes. Unique numbers should be assigned to each manhole and pipe segment. This allows for the collected inspection data to belong to an individual manhole or pipe segment. This is how the data collection for Marion Charter Township is organized.

COLLECTION SYSTEM O&M

The methods of operation and maintenance proposed for Marion Township's collection system are: annual jetting and vactoring sanitary lines, annual CCTV inspections of the sanitary lines, annual manhole inspections, and systematically recording the inspection data.

Routine Cleaning

The City of Howell's Operations and Maintenance staff currently performs routine cleaning of the Marion Township sewer lines on an as-needed. More routine jetting and cleaning will help to prevent deposits such as calcium, ragging, and grease from accumulating in the collection system. Consistent jetting of the system will reduce the potential for blockage and will maintain maximum flow capacity.

Routine Television Inspections

The City of Howell staff does not currently implement a sewer televising routine. CCTV inspections will allow O&M staff to evaluate the condition of the sewer mains and effectively plan repairs. Televising the entire system would be an expensive undertaking, but televising a small amount at a time and prioritizing suspect areas may provide insight into what causes any backups or blockages.

Routine Manhole Inspections

Manhole inspections were performed in 2017 through 2018 of the entire Marion Township sanitary sewer system, which includes about 700 manholes. After completion of the inspections, a risk assessment was determined for each manhole based on consequence and likelihood of failure. This is risk assessment is the basis for prioritizing future manhole repairs.

Manhole inspections should be performed any time field staff opens or enters a manhole. By adding manhole inspections as an additional step to other tasks, field staff will not need to dedicate time specifically for manhole inspections. These inspections can be completed using paper forms or electronically by using an electronic device equipped with ESRI Collector, depending on staff preference. Regardless of means of collection, the sewer GIS should be updated with inspection data as it is collected.

Routine manhole inspections are necessary to be completed a minimum of every ten years. To make this task feasible for LCDC O&M staff to complete, it is recommended that about 10% of manholes – approximately 70 – be inspected each year. As mentioned previously, by inspecting manholes as they are opened for other tasks, the number of manholes targeted for inspection can be reduced.

Continual Monitoring Procedures and Processes

Marion Charter Township and the City of Howell staff currently do not have a method to track the conditions of their assets. To address this, a sewer system GIS was created as a repository of all data collected for the creation of this Asset Management Plan. The GIS is intended to not only provide insight for the Capital Improvement Plan, but to be updated and utilized on a continual basis by the Township and LCDC O&M staff. The GIS map can be used to accurately locate features, and the attribute tables can be used to refer to and update data relevant to each feature.

By using electronic devices such as iPads, GIS can be utilized in the field to update attributes in real time. This system will allow O&M staff to be able to track all assets and will inform them of ones that are critical in the system that should be prioritized for inspection.

PUMP STATION O&M

The City of Howell's O&M staff inspects the pump stations on a regular basis, which should continue as the ongoing Operation & Maintenance Strategy. The current staff has a thorough knowledge of the system, as they work with and inspect it regularly. However, it is recommended that this thorough knowledge be recorded in such a way that it can be passed down in the event of staff turnover. The O&M manuals that are currently available have been digitized and are accessible from GIS via hyperlinks in the pump stations layer. The missing manuals should be replaced, digitized, and stored accordingly. It is also recommended that a digital maintenance record be maintained and accessible via GIS. This is something that should be continually updated as staff makes their rounds checking on the pump stations.

SECTION 8 - GIS & MAPPING SYSTEM

While performing MACP inspections, field staff used GPS to locate assets in the Marion Township sanitary sewer system. These GPS locations were used to create features in a Geographic Information System (GIS) using ESRI ArcGIS. After a map of the Township's sewer was created in ArcGIS, inspection notes, condition assessments, and risk management data was imported, along with as-built records and pump station O&M manuals.

The GIS was used to create maps of the system displaying data such as defects and risk in a color-coded scale. These maps were used to prioritize the improvements in the Capital Improvement Plan by grouping improvements geographically to minimize construction mobilization costs.

Maps of the Marion Township sanitary sewer system can be found in Appendix A. The GIS will be continually updated and built upon as repairs are made, additional assets are constructed, and new defects are discovered. New fields can be added to the GIS in the future, if desired, and customized maps can be created to display any data contained within the GIS.

Livingston County Department of Planning

MEMORANDUM

TO: Livingston County Planning Commissioners

FROM: Robert Stanford, Principal Planner

DATE: July 20, 2021

SUBJECT: MP-02-21
New Marion Township Master Plan (Draft July 2021)

Kathleen J. Kline-Hudson
AICP, PEM
Director

Robert A. Stanford
AICP, PEM
Principal Planner

Scott Barb
PEM
Principal Planner

Livingston County Planning Department received correspondence from the Marion Township Planning Commission requesting Livingston County Planning Commission review and comment on the proposed new *Marion Township Master Plan* (Draft March 2021). This request is in accordance with Section 41 of the Michigan Planning Enabling Act (P.A. 33 of 2008). This newly proposed Master Plan replaces the current Township Master Plan, which was adopted in October 2010.

County Planning Staff reviewed the aforementioned documents for compatibility with the *2018 Livingston County Master Plan* and for potential impacts on Livingston County residents and communities. Staff's comments are as follows:

The Marion Township Planning Commission proposes a new Township Master Plan, as follows:

To begin, the proposed Marion Township Master Plan is organized in the following manner:

- **Chapter One: Introduction**
- **Chapter Two: Demographic Profile**
- **Chapter Three: Natural Features**
- **Chapter Four: Transportation**
- **Chapter Five: Community Facilities**
- **Chapter Six: Existing Land Use**
- **Chapter Seven: Goals and Objectives**
- **Chapter Eight: Future Land Use**
- **Chapter Nine: Implementation**
- **Appendix: Marion Township Master Plan Community Survey**

The following is a brief summary of each chapter in the proposed Plan.

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- **Chapter One: Introduction**

The Introduction Chapter presents an overview of the purpose and role of the Plan, the process followed in its preparation, and key planning policies.

- **Chapter Two: Demographic Profile**

Population

The Demographic Profile Chapter provides a population profile that includes the 2017 Census Estimate population for the township, which was 10,668. The text states the following regarding future population growth in the township:

SEMCOG forecasts that Marion Township's population will grow to over 12,000 by [the year] 2040. This reflects a 2017 to 2045 population gain of 2,403 persons. The largest ten-year period of growth was between the years 2000 and 2010. For each five- year period thereafter, SEMCOG forecasts that the Township will gain progressively less population with a smaller percent population change.

Housing Units

The text states that the number of housing units in Marion Township has risen significantly between 2000 and 2010 when the census recorded 2,388 housing units and 2010 when the census recorded 3,397 housing units. This change reflects a growth of 1,288 new housing units.

Education

The text states that Marion Township consists of a highly-educated population age 25 years and older. Of this adult population group, 96.6% has graduated from high school or obtained a higher degree level. Marion Township's educational attainment level is higher than Livingston County's 95.1% high school graduate or higher attainment, and higher than that achieved by surrounding communities. Of this adult population group in Marion Township, 30.5% has obtained a bachelor's degree or higher as compared to 33.6% in Livingston County as a whole.

Occupations

The text states that Marion Township has an employed civilian population aged 16 and over, consisting of 4,811 workers. Most of these workers (84%) are private wage and salary workers (2,964) with government workers comprising the second largest class of workers in the Township (8% or 297 workers). Self-employed workers in their own unincorporated business comprise the third largest class of workers in the Township (7% or 234 workers).

The text further explains that the dominant occupation category in Marion Township is management, professional, and related occupations. Over 1,000, or 31.2%, of the 3,522 workers claim this as their occupation. Sales and office occupations is the second largest occupation category with 940 workers or 26.7% of the employed civilian population aged 16 and over. The third largest occupation category in the Township is production, transportation, and material moving occupations. This occupational category has 679 workers or 19.3% of worker

Income

The Plan's Demographic Profile concludes by stating that Marion Township's median household income of $82,787 and $32,557 per capita are in the upper half of Livingston County community values. Compared with surrounding communities, Marion Township has the highest 2015 household median income. Most Marion Township households have an income between $50,000 and $125,000, with the bulk of households in the $75,000 - $100,000 range.

- **Chapter Three: Natural Features**

Topography / Slope Classifications Map

Marion Township is generally level with a few locations of steep (>18%) slopes. The largest of these is located in Section 4, south of Norton Road and west of Sanitorium Road. The Plan provides a map of steep slope classifications.

The Plan states that these areas should be viewed as natural and aesthetic open space areas. It correctly asserts that, if development should occur, sensitive site planning would be required along these slopes to prevent soil erosion and that care must be taken to ensure that extensive grading is minimized and to ensure that other natural features such as vegetation and topsoil are retained.

Watersheds Map

Interestingly, the Plan states that Marion Township has the distinction of being the only Township in the state with waters draining to three different Great Lakes. It explains that the eastern half of the Township is in the Shiawassee River Watershed, which drains to Lake Huron. The western half is a part of the Upper Grand River/Red Cedar Watershed and drains to Lake Michigan. Finally, two areas of the Huron River watershed poke across the Township's southern boundary, which ultimately drains to Lake Erie.

Rivers Lakes and Wetlands Map

The Plan explains that the four largest lakes in Marion Township are Cedar Lake (117 acres), Coon Lake (106 acres), Pleasant Lake (78 acres), and Triangle Lake (51 acres). There are five additional lakes ranging in size from 12 to 25 acres. The combined surface area of these nine lakes is nearly 450 acres.

The Plan explains further that Marion Township is the source of two important rivers. The Red Cedar, which begins at Cedar Lake, runs west and eventually joins the Grand River near Lansing, and the South Branch of the Shiawassee, for which Coon Lake is the source, continues north into Shiawassee County. There are several significant creeks and drains in the Township as well.

This section concludes by stating that there are approximately 600 acres of wetlands in Marion Township, including large systems associated with the Shiawassee and Red Cedar Rivers.

Septic Limitations Map

The Plan provides a Septic Limitations within the township.

Agricultural Lands

The Plan states the agricultural land encompasses approximately 40% of Marion Township. It further explains that according to the most recent land use data (1995 MIRIS and 2002 departmental updates), Marion Township contains approximately 9,400 acres of agricultural land, or approximately 40% of the entire Township. The majority of the agricultural lands are in the southeast, southwest, and northwest quadrants of the Township. The quadrant with the largest amount of farmland is the northwest, where there remains almost 3,500 acres of contiguous agricultural land. Finally, this section concludes by stating that much of the agricultural land in the northeast quadrant has been overtaken by development, especially within the Township's sewer service area.

Woodlands

The Plan explains that approximately 2,200 acres of woodland currently cover Marion Township. In addition, it states there are two parcels enrolled in the State's P.A.116 agricultural preservation program.

Environmental Concerns: Part 201 Sites: NREPA Environmental Remediation sites

The Plan states that Marion Township has one Act 201 site of environmental contamination. That site is the Wellman Property Disposal at 4875 Pinckney Road in Section 25. The Plan explains further that Act 201 sites are scored by the State on a scale of 0 to 48, which assists the Michigan Legislature in funding site evaluation, interim response, and final response activities. The Wellman Property Disposal site was added to the list in September of 1991 and has a score of 18 (updated on August 3, 2004) on the State scale.

Environmental Concerns: Leaking Underground Storage Tanks (LUST)

The Plan also points out that Marion Township also has two Leaking Underground Storage Tank (LUST) sites, one open and one closed. The Plan explains that "Open" means that the site is currently listed with the Department of Natural Resources and Environment (MDEQ) as either "inactive" or "Cleanup Actions Taken of in Progress", while "Closed" means a site where cleanup actions have been completed, although the site may not meet current environmental standards. The Plan states that both of the Township's LUST sites are on Pinckney Road north of I-96. The Open LUST site is the Total station #2773. The Closed LUST site is Holiday Mobil.

Environmental Concerns: Wellhead Protection

The Plan explains that Marion Township has two wellhead protection areas within its boundaries. It further explains that Zoning Ordinance language was established by the City of Howell and Marion, Howell, Oceola, and Genoa (MHOG) Townships, to protect the water supply that each of these communities share in the center of Livingston County. It states that Marion Township adopted this language and incorporated it into their Zoning Ordinance. It identifies the general location of these wellhead protection areas being found in Section 1 north of I-96 and in all of Sections 4 and 5 and parts of Sections 3, 6, 7, 8, 9, and 10. It concludes this section by stating that in 2010, the Marion Township Planning Commission and the City of Howell Planning Commission worked together to establish an environmental review process for proposed uses within the City's wellhead protection area in Section 1.

- **Chapter Four: Transportation**

Existing Traffic Conditions – Traffic Counts Map – High Crash Intersections Table

The Plan states that Marion Township's transportation system is made up of 35 miles of paved and 44 miles of unpaved county and state roads. These numbers do not include I-96 or local subdivision roads.

The Plan provides a Transportation and Traffic Counts Map, source data obtained from Livingston County Road Commission (2019/2020 data).

The Plan also provides a High Crash Areas table, source data obtained from SEMCOG (2010-2014).

Alternate Modes of Transportation (Bus, Non-Motorized, Airport)

The Plan states that the only public transit available is the county-wide small bus dial-a-ride service from Livingston Essential Transportation Service (LETS). It points out that the Township has no non-motorized vehicle paths for bicycles or pedestrians and has limited sidewalk availability.

The Plan further explains that Marion Township does not currently offer non-motorized paths or trails except for some isolated sidewalk systems associated with some of the Township's residential developments. It states that there are currently no plans to install any non-motorized trails in the Township. It points out that the Livingston County Comprehensive Plan identifies three potential areas in Marion Township where non-motorized transportation corridors may work. One being an electricity utility corridor that runs north and south along the western edge of the Township. The other two are associated with the Township's river system.

In addition, the Plan states that the Red Cedar River and the South Branch Shiawassee River corridors have both been identified as ideal places where non-motorized trails could be built in a rural setting.

The Plan identifies that the survey conducted for the 2002 Marion Township Parks and Recreation Plan indicated that the most desired recreational use in the Township was bike paths and that the most desired park feature, should the Township develop parks in the future, was wildlife paths. The second most desired open space feature was a greenway network. It further explains that the survey also indicated that just over 77% of the respondents would support a temporary one mill assessment to their winter tax bill to acquire land for recreational purposes.

- **Chapter Five: Community Facilities**

Police Service, Fire Service, Schools, Sewer and Water

The Plan explains that Police protection is provided by the Livingston County Sheriff Department and the Michigan State Police.

It also identifies that fire protection is provided by the Howell Area Fire Authority which consists of a main station in the City of Howell and three substations located throughout the coverage area - one of which is located next to the Marion Township Hall.

The Plan states that according to Livingston County 911 Central Dispatch/Emergency Management, all of Marion Township falls within the Howell Fire Service Area. The Howell Fire Service Area is serviced by the Howell Area Fire Authority (HAFA).

The Plan points out that most Marion Township residents are served by individual septic systems and private wells. It further explains that municipal water services are available to Township residents in the northern portion of the Township, with water mains running along Lucy Road south to Francis Road, Francis Road west to D-19, D-19 north to I-96, I-96 northwest until it heads west to Foxfire Road, Foxfire Road north to Norton Road, and west along Norton Road and forming a loop with Cedar Lake Road, Sanitorium Road, and County Farm Road. Marion Township is a member of a water authority made up of four Townships: Marion, Howell, Oceola, and Genoa (MHOG). The MHOG wells and water treatment plant are located in the northwestern part of the Township on Norton Road near Amos in Section 5.

The Plan states that in 2000, a proposed water/sewer boundary was established in the northern tier of the Township, covering the majority of Sections 1, 2, 3, 4, 5 and 12, and smaller parts of Sections 6, 7, 8, 9 and 11.

It concludes this section by stating that private community sewage/waste water treatment facilities are allowed by Special Use Permit in Township developments.

Recreation Lands

The Plan points out that most recreational land use in Marion Township is privately owned. Privately-owned recreation opportunities include a privately owned gun club, game ranch and the Howell Conference and Nature Center. It states that the Howell Conference and Nature Center includes camping, conference, and educational experiences, as well as many recreational facilities, including a ropes course, a camp, an outdoor animal rehabilitation center, and cross country skiing trails. It highlights that Marion Township currently contracts public recreational opportunities with the Howell Area Parks and Recreation Authority (HAPRA) program, mainly to provide Township residents access to the recreational programs HAPRA offers.

This section concludes by explaining that Marion Township has two parks. Fred Brown Memorial Park is on the east side of Triangle Lake Road, south of W. Coon Lake Road. There is a baseball diamond, soccer field, play area and walking path. The second is Jack Lowe Memorial Park, adjacent to the Marion Township Hall.

- **Chapter Six: Existing Land Use**

At the outset, the text states the following with regards to Township existing land use analysis:

Existing land use in Marion Township was analyzed in several ways. The Southeast Michigan Council of Governments (SEMCOG) land coverage map was used as a base map for field analysis. Field research resulted in several changes to the SEMCOG map that yielded a new existing land use map (see map at end of chapter). Further changes were made after comparing the new existing land use map to Livingston County digital ortho photography, plat maps, and various road map sources.

The text states that fourteen (14) existing land use categories were established to describe and map land use throughout Marion Township. The categories are based on Michigan Resource Inventory System (MIRIS) Current Land Use/Land Cover Categories and are described as follows:

*1) **Agriculture** - This land use category includes cropland, orchards, confined feeding areas, permanent pasture, farmsteads and other agricultural lands.*

*2) **Commercial** - This land use category includes service and institutional uses, primary central business districts, shopping centers/malls, secondary mixed business districts, and office centers or parks.*

*3) **Extractive** - The Extractive land use category includes open pits, underground extractive operations and oil or gas wells.*

*4) **Industrial** - The Industrial land use category includes general industrial and industrial parks.*

*5) **Recreation and Open Space** - This land use category includes public assembly spaces, outdoor recreation, and cemeteries.*

*6) **Highways** - This land use category indicates highway and interstate roads.*

*7) **Residential** - The Residential land use category includes single-family residences that are not developed in dense residential communities nor dense lakeside clusters of residences.*

*8) **Existing Residential Subdivisions** - This land use category includes platted existing residential subdivisions developed prior to March 14, 1996 (the effective date of the current Marion Township Zoning Ordinance).*

*9) **Residential Developments** - This land use category includes new, smaller lot (generally less than one acre), dense residential developments, manufactured home communities, subdivisions, condominiums, site condominiums, apartments, planned unit developments, cluster developments and open space preservation communities are also included.*

The Township Plan provides a "Residential Developments Map" which indicates all dense residential developments, manufactured home communities, subdivisions, planned unit developments, cluster developments and open space preservation communities

*10) **Utilities** - The Utilities land use category includes transportation networks such as air, rail, water and road transportation. The category also includes communication, waste disposal, water and other utility structures.*

*11) **Vacant/Undeveloped** - This land use category encompasses all land area that is not being used for any of the purposes of the other land use categories.*

*12) **Lakes, Ponds and Streams** - In addition to lakes, ponds and streams, this land use category includes reservoirs, drains and other waterways.*

*13) **Wetlands** - This land use category includes both forested and non-forested wetlands.*

*14) **Woodlands** - The Woodlands land use category includes both deciduous and coniferous forested land area and Christmas tree plantation*

The Township Plan provided a Livingston County Generalized Existing Land Use Map for Marion Township (dated December 2004).

- **Chapter Seven: Goals and Objectives**

In this Chapter, the Township Plan provides a number of Goals and Objectives concerning the following topics (Goals are identified for each below):

Community Character:
Goals:

Foster/encourage a balance between growth and development, and protection and enhancement of the quiet, scenic, rural character of Marion Township.

Planning and Land Use:
Goals:

Coordinate planning efforts with neighboring communities regarding shared resources such as corridors, commercial, conservation and development areas.

Maintain easy to understand, action-oriented Master Plan language that guides future land use decisions and includes a procedure for periodically updating the Plan while providing meaningful public participation in the process.

Natural Environment:
Goals:

Protect environmentally sensitive areas such as wetlands, groundwater recharge areas, wellhead protection areas, and inland lakes from the harmful effects of incompatible development.

Recreation:
Goals:

Provide a variety of recreational opportunities to area residents through a system of public and private facilities.

Infrastructure and Community Facilities:
Goals:

Minimize strain on local infrastructure through land use decisions and infrastructure improvement planning.

Assist the Livingston County Road Commission in maintaining a safe and efficient road network and improve roads to promote use in a manner consistent with the goals and objectives of the Marion Township Master Plan.

Where public utilities exist, ensure a safe and adequate water supply and environmentally-sound sewage treatment that is efficiently provided and cost effective.

Develop township services and facilities as necessary and financially practical.

Only allow expansion of the water and/or sewer utilities currently not serviced within the Township in the case of septic system failures, water contamination or other emergencies.

Ensure a water supply of sufficient quantity, quality and an environmentally sound sewage and septic treatment system.

Ensure all lakes, streams, creeks and drainage systems are protected from industrial, residential, road run off contamination.

Housing and Residential Development:
Goals:

Encourage a variety of residential dwelling types that meet the needs of a changing population, are sensitive to existing natural features, and are compatible with the character of existing residences.

Commercial and Industrial Development:
Goals:

Encourage the development of commercial and light industrial activity in locations where adequate public facilities are available, and that are consistent with the Marion Township Master Plan.

Solid Waste and Recycling:
Goals:

Ensure the safe, efficient, and cost-effective disposal of solid waste and toxic substances.

Interjurisdictional Cooperation:
Goals:

Encourage uniform or compatible land use planning and zoning across municipal boundaries by coordinating efforts with the surrounding Townships and the City of Howell.

Enhance the feasibility and effectiveness of providing public facilities and services through cooperation and sharing of costs with other municipalities.

Agriculture and Open Space Preservation:
Goals:

Keep farming a viable and visible part of Marion Township's future land use plan.

Open Space green way and farmland preservation should be of the highest priority.

Hazard Mitigation:
Goals:

Cooperate with County, Regional, State and Federal hazard mitigation initiatives.

Transportation:
Goals:

Promote a transportation system that is safe for all modes of transit.

Provide a transportation system that maximizes the mobility of people and supports the efficient transfer of goods and services.

Under transportation "**OBJECTIVES**", the text includes the following specific County-wide transportation-related objectives:

- *Endorse and support the efforts of Livingston Essential Transportation Service (LETS) and the Livingston County Transportation Coalition Master Plan.*
- *Develop a transportation system that is sensitive to and which complements the natural environment.*
- *Work with the County Road Commission on the development of a comprehensive traffic and flow plan for the Township based on current and future traffic conditions. Seek Township resident support for major road improvements.*

- **Chapter Eight: Future Land Use**

The Plan provides the following information and analysis regarding Future Land Use:

RESIDENTIAL FUTURE LAND USE DESIGNATIONS AND CORRESPONDING ZONING PLAN		
Residential Future Land Use Designation	**Future Land Use Development Densities**	**Corresponding Zoning Plan**
LR Lakes Residential	1 dwelling unit per 18,000 square feet	ERS-1 Existing Residential Subdivision
SHDR Sewered High-Density Residential	1 single-family dwelling unit per 15,000 sq. ft., or 6-10 multiple-family units per 1 acre	UR Urban Residential
SSR Sewered Suburban Residential	1 dwelling unit per .75 acre (32,670 sq. ft.) without sewer, or 2 dwelling units per acre if sewer is provided	SR Suburban Residential
MDR Medium Density Residential	1 dwelling unit per 1 acre	RR Rural Residential
LDR Low Density Residential	1 dwelling unit per 2 acres	RR Rural Residential

NON RESIDENTIAL FUTURE LAND USE DESIGNATIONS AND CORRESPONDING ZONING PLAN		
Non-Residential Future Land Use Designation	**Future Land Use Development Densities**	**Corresponding Zoning Plan**
C Commercial	1 structure/building per 1 acre	HS Highway Service District
I Industrial	1 structure/building per 4 acres or 1 structure/building per 1 acre in an industrial park	LI Light Industrial
CF Community Facilities	1 structure/building per 11,000 sq. ft.	PL Public Lands

The Township conducted a Residential Buildout analysis, which produced the following results:

MARION TOWNSHIP PROPOSED FUTURE LAND USE BUILDOUT					
Future Land Use Designation	**Density (acres per unit)**	**Area (acres)**	**Buildable Area (acres)**	**Buildout Units**	**Buildout Population**
LR Lakes Residential	0.41	435	129	315	868
SHDR Sewered High Density Residential	0.34	297	203	597	1,648
SSR Sewered Suburban Residential	0.50	3,971	2,522	5,044	13,921
MDR Medium Density Residential	1	2,572	1,559	1,559	4,303
LDR Low Density Residential	2	15,186	9,397	4,699	12,968
TOTALS		**22,461**	**13,810**	**12,213**	**33,708**

Lot Size	% of Buildable Lots
1 to <5 acres	51.2%
1/2 to <1 acre	41.3%
under 1/2 acre	7.5%

Proposed Water/Sewer Boundary Area Buildout Analysis

An additional buildout analysis of the Marion Township Proposed Water/Sewer Boundary area was conducted in order to more accurately project the potential number of residential units that could be built within this boundary area. The total acreage and number of parcels in each residential zoning category was calculated as follows:

Zoning District	Total Acreage	Number of Parcels
Suburban Residential	3666.1	760
Urban Residential	214.4	648
TOTALS	**4,123 acres**	**1,413 parcels**

After subtracting wetland areas, the final zoning-based buildout units were calculated by multiplying the total buildable acreage by the number of lots allowed per acre under each residential zoning district. The resulting figures are as follows:

Zoning district	Total Buildable Acreage	Allowable Lots Per 1 Acre	Buildable Units
Suburban Residential	3,054.1	2 (w/sewer)	6,108
Urban Residential	187.6	3.63	681
TOTALS	**3,412.3 acres**	---	**7,642 units**

Therefore, based on 2002 residential zoning of the Proposed Water/Sewer Boundary, it is possible that 7,642 dwelling units could be developed and could potentially be served by water and sewer utilities. While this analysis does not account for the potential buildout of the nonresidential zoning districts (Highway Commercial and Industrial) within the Proposed Water/Sewer Boundary area, residential zoning dominates the boundary area.

- **Surrounding Future Land Uses**

The Planning Enabling Act of 2008 (Public Act 33) requires more communication between municipalities before and during the master plan process. To further the actual land use coordination between Marion Township and the communities surrounding the Township, the Marion Township Future Land Use Map was compared to the future land use categories of the communities that are contiguous to Marion Township.

IMPORTANT NOTE: regarding the Plan's use of the Livingston County Comprehensive Plan

The Marion Township Master Plan Used the County Plan approved in 2002, not the new Master Plan adopted in 2018.

However, the Livingston County Master Plan (approved 2018) does not direct future land use patterns, or development within Livingston County. Alternatively, it offers a county-wide land use

perspective when reviewing potential rezoning amendments. The Land Use & Growth Management chapter of the plan includes decision-making recommendations regarding potential land use conflicts and promoting good land governance.

For benefit of the Township, the steps undertaken by the County and resident participants follows:

SW Quadrant SWOT/Opportunities & Constraints Analysis issues identified in the County Master Plan

In November 2016, Livingston County Planning Department held a Master Plan Visioning Session as one of the quarterly programs of the Brown Bag Lunch Series. One of the activities of the vision session involved a mapping exercise. The goal of the mapping exercise was to:

1.) Generate ideas for County Master Plan policies and best practices;
2.) Develop Master Plan goals & objectives; and
3.) Create a County Master Plan map that shows opportunities and constraints in Livingston County.

Following are the results of this exercise to Map Land Use Opportunities & Constraints in the Southwest Quadrant of the County, where Marion Township is located. Each Opportunity and Constraint is numerical and relates to a Map # number. The tables depict responses regarding a particular Opportunity or Constraint Type: Recreation, Water, Transportation, Infrastructure and suggested Best Practices.

The Opportunities and Constraints maps were developed by the County Planning Department in lieu of developing a Future Land Use Map in the Livingston County Master Plan. The rationale for this decision was that Future Land Use Maps are already contained within each master plan of the twenty local units of government in Livingston County. Therefore, Livingston County Planning Department sought to depict a different type of map from a region/county-wide perspective, which may of more benefit to the future land use decision-making processes of local municipalities.

A complete digital copy of the County's 2018 Master Plan can be found here:

Online at: https://www.livgov.com/plan/Pages/2018-Livingston-County-Master-Plan.aspx

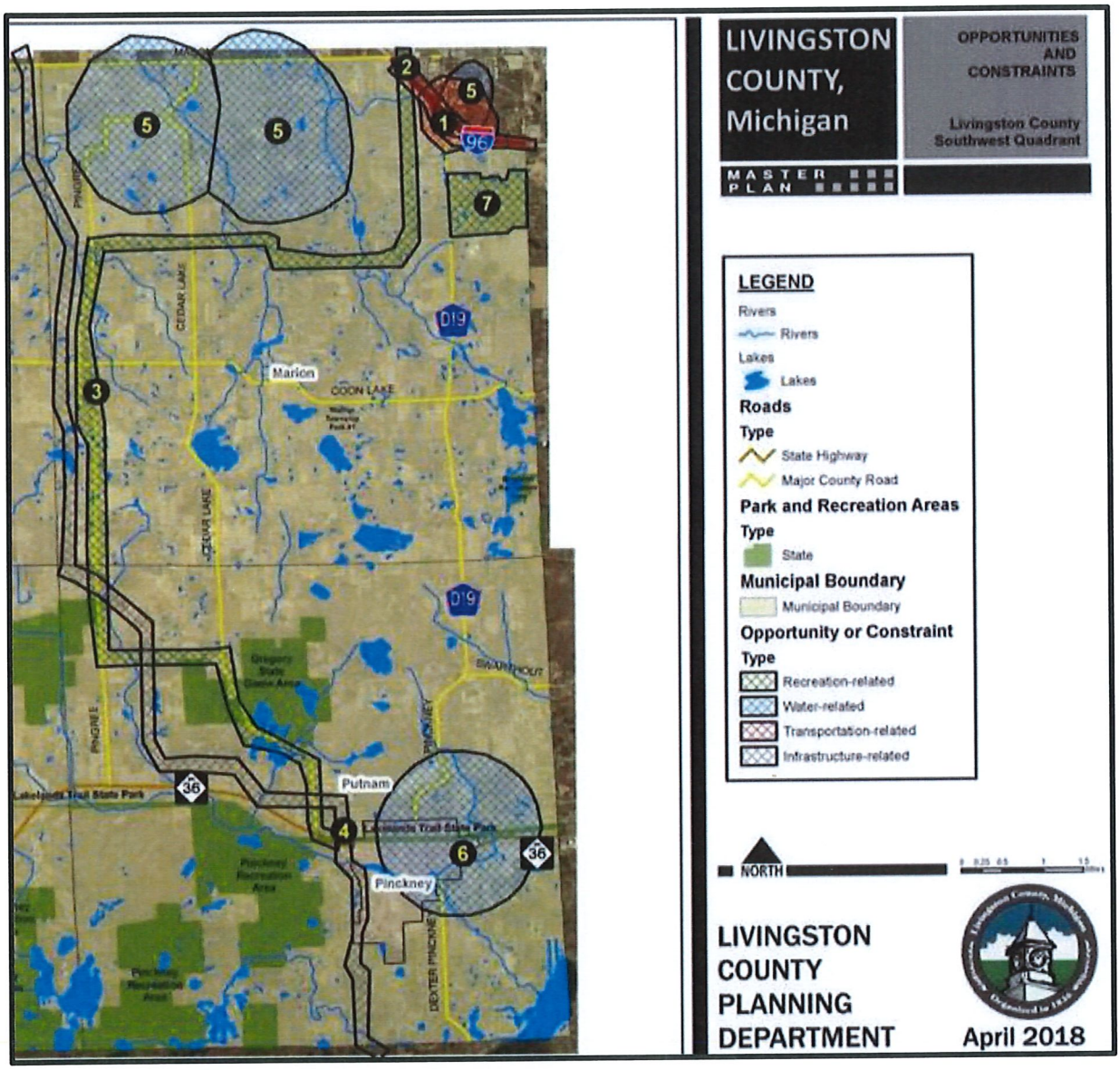
STAFF COMMENT: Staff would highly recommend that the Township delete the current text on pages 81-84 regarding the County Master Plan as it provides outdated information. Staff would recommend implementing the text as provided above as well as the tables and maps on the following pages as this is the most current information regarding future land use in the County Master Plan.

SOUTHWEST QUADRANT

The Southwest Quadrant of Livingston County includes the Village of Pinckney, Putnam, Unadilla, Iosco and Marion Townships.

MAP# ON SW QUAD MAP	GROUP RESPONSE	OPPORTUNITY OR CONSTRAINT ?	TYPE OF OPPORTUNITY OR CONSTRAINT	EXPLANATION OF OPPORTUNITY OR CONSTRAINT
#1	I-96 & D-19 Gateway to Township	Opportunity	Transportation	D-19 south of I-96 is a transportation corridor with great potential for new development. This area should be the gateway to Marion Township.
#2	Pedestrian and Bike Paths	Opportunity	Recreation	The City of Howell is uniquely situated in the middle of Livingston County. This makes it an opportune location for connecting the four quadrants of the county with pedestrian and bike paths.
#3	Trail Connections	Opportunity	Recreation	A trail should be planned through Marion Township to connect the existing Lakelands Trail State Park to the City of Howell.

MAP# ON SW QUAD MAP	GROUP RESPONSE	OPPORTUNITY OR CONSTRAINT ?	TYPE OF OPPORTUNITY OR CONSTRAINT	EXPLANATION OF OPPORTUNITY OR CONSTRAINT
#4	Natural Gas Pipeline	Constraint	Infrastructure	The Rover natural gas pipeline traverses the Southwest quadrant of Livingston County in a north/south fashion. The pipeline was mapped as a constraint due to concerns regarding the safety of the pipeline.
#5	MHOG Wellhead Protection Areas	Opportunity	Water	Three (3) wellhead protection areas were mapped within the Marion/Howell/ Oceola/Genoa (MHOG) municipal water district. The wellhead areas are mapped within the City of Howell and Marion Township, and they are for preserving safe water within the MHOG district
#6	Pinckney Wellhead Protection Area	Opportunity	Water	The Pinckney Wellhead Protection Area was mapped surrounding the Village of Pinckney. This wellhead protection area provides an opportunity for preserving safe water within the Village of Pinckney municipal water district.
#7	Redevelopment of Golf Course	Opportunity	Recreation	The abandoned Marion Oaks golf course located along D-19 in Marion Township, provides an opportunity for future recreational development and/or use as a natural area.


LIVINGSTON COUNTY, Michigan
MASTER PLAN
OPPORTUNITIES AND CONSTRAINTS
Livingston County Southwest Quadrant
LEGEND
Rivers
Rivers
Lakes
Lakes
Roads
Type
State Highway
Major County Road
Park and Recreation Areas
Type
State
Municipal Boundary
Municipal Boundary
Opportunity or Constraint
Type
Recreation-related
Water-related
Transportation-related
Infrastructure-related
NORTH
LIVINGSTON COUNTY PLANNING DEPARTMENT
April 2018
Marion
COON LAKE
Putnam
Pinckney
Pinckney Recreation Area
Lakelands Trail State Park
Gregory State Game Area
CEDAR LAKE
PINCKNEY
DEXTER PINCKNEY
SWARTHOUT
D19
96
36

- **Chapter Nine: Implementation**

The Plan highlights the following Implementation Strategies.

Use the Plan for Making Zoning and Land Use Decisions

- *Future rezoning requests and land use decisions should be reviewed for agreement with the policies and Future Land Use Map of this Master Plan. Relying on the Plan as a basis for zoning and land use decisions gives the Planning Commission, Township Board, Zoning Board, and the Master Plan greater credibility. The Land Use Decision Matrix on the following page will assist the commission and boards with this process.*

- *Use the Plan in a consistent manner so the integrity of the Plan is not compromised.*

- *Use the Plan as a component of the decision-making process when proposing public services. To be fiscally responsible and give the Township a measure of control over future growth, new infrastructure must correspond with the Master Plan.*

Periodically Update the Plan and Associated Ordinances

- *Update sections of the Master Plan as needed to reflect changing conditions and resident perspectives in the Township. This includes reviewing the goals and objectives section of the Plan periodically.*

- *Revise the Township Zoning Ordinance where necessary to reflect the Master Plan. Zoning is the major tool used to put the Plan into action and shape future growth and development. It is used to support the goals and policies of the Master Plan.*

- *Review the Township General Ordinances to make sure they are aligned with the goals and policies of this Plan.*

- *Update the entire Master Plan at least every five years or as often as the Township deems it necessary. It is important to revisit the Plan as things change and the population grows in the Township.*

Continue Public Education Efforts

- *Educate residents on the intent of the Master Plan, and involve them in carrying out its mission whenever possible. Public understanding and support is critical to the effectiveness of the planning process.*

- *Flexible development options that can achieve the recommended density for each area of the Township while preserving more open space, a characteristic that is highly desired by Marion Township residents (as revealed in the Marion Township Master Plan survey). Development with flexible standards can be achieved through the following methods:*

- ***Planned Unit Development Overlay District (PUD)** - The Marion Township Zoning Ordinance provides the option of a PUD overlay district which allows flexibility in the design of residential developments so that natural features are preserved, variety in housing styles is allowed, residential and non-residential uses can be mixed, and utilities, lot sizes and circulation can be economized.*

- ***Open Space Preservation Option*** *- The Marion Township Zoning Ordinance provides the option of clustering new homes on smaller lots in order to provide home sites with permanently preserved open space. This option is enabled by Michigan P.A. 177 of 2001 and it can be accomplished on undeveloped land that is zoned for residential development at 2 units or less per acre without sewer (21,780 square foot or larger lots), or 3 units or less per acre with sewer (14,520 square foot or larger lots).*

- *Through this development option, the density for the residential development remains the same as the number of units allowed by the underlying zoning (excluding unbuildable areas); however, the homes may be clustered on lots that are smaller in size than the minimum lot size of the underlying zoning. Lots must be clustered in a manner that results in fifty percent (50%) of the land being set aside as permanent open space. The open space must remain perpetually in an undeveloped state, protected by a legal covenant that runs with the land (e.g. conservation easement, plat dedication, etc.)*

- **Appendix: Results of the Marion Township Master Plan Community Survey**

A Community Survey of local residents was performed in 2018 regarding the desired development patterns and processes for the future in Marion Township. There were approximately 600 to 700 responses.

STAFF COMMENTS

This is a fairly well-written and comprehensive Master Plan. The township and all who were involved in the development of the Plan are to be commended.

The goals as presented for each subject area are simple to comprehend, while the associated objectives are concise, appear to be reasonably attainable, and are measureable (in order to determine implementation of the Master Plan over time).

Staff would recommend that maps be revised and presented in a larger format (11" x17" foldout) and be presented clearer, as many are somewhat difficult to read and decipher details in many locations in their current format.

Staff would highly recommend that the township revise the future land use section detailing the Livingston County Master Plan as it contains outdated information and to implement the information from the current County Plan as it more accurately depicts the County's position on local future land use planning.

RECOMMENDATION

That the Livingston County Planning Commission concur with staff's comments on the *2021 Marion Township Master Plan* and submit the foregoing comments to the Marion Township Planning Commission.

Liv.Co UPDATE

Monthly News from the Livingston County Commissioners

August 2021

Livingston County Board of Commissioners

District 1 - Martin Smith
District 2 - Carol Sue Reader
District 3 - Wes Nakagiri
(Board Chairman)
District 4 - Douglas G. Helzerman
District 5 - Jay R. Drick
District 6 - Mitchell Zajac
District 7 - Carol S. Griffith
(Board Vice-Chairwoman)
District 8 - Jerome Gross
District 9 - Brenda Plank

Monthly Meetings

All meetings are in-person, but have a Zoom participation option.

- Via Zoom (on-line meetings): https://zoom.us/j/3997000062?pwd=SUdLYVFFcmozWnFxbm0vcHRjWkVIZz09
- Via the Zoom app - **join a meeting**, meeting number: **399 700 0062**
  Enter the password: **LCBOC**
  (ensure there are no spaces before or after the password)
- Dial by your location: +1 929 205 6099
  Meeting ID: **399 700 0062**
  Password: **886752**

8/18/2021 - Finance Committee at 7:30 AM followed by the Personnel Committee

8/23/2021 - Full Board Meeting at 5:30 PM

9/7/2021 - General Government & Health & Human Services Meeting at 5:30 PM

9/13/2021 - Finance Committee at 7:30 AM

9/15/2021 - Personnel Committee at 8:00 AM

"The mission of Livingston County is to be an effective and efficient steward in delivering quality services within the constraints of sound fiscal policy. Our priority is to provide mandated services which may be enhanced and supplemented to improve the quality of life for all who work, reside, and recreate in Livingston County."

Livingston County Prepares Broadband Survey To Assess Countywide Broadband Services

merit

Now, more than ever, broadband Internet is an essential and crucial service to those who live, learn, and work in Livingston County. The need for broadband has become more evident throughout the past year with people teleworking, students learning from home, patients using telemedicine for appointments with their doctors, and our residents depending on the Internet to stay connected with their friends and family.

The Livingston County Board of Commissioners understand that there are many areas in the county that are unserved or underserved by broadband access. In order to bridge this digital divide, the county, in partnership with Merit Network, is working to create a survey for our residents to complete that will provide accurate data regarding which properties have Internet access. This information will only be used to plan for potential broadband expansion and is the critical first step toward addressing needs in our community. By participating in this survey, each resident will help Livingston county plan for a connected future.

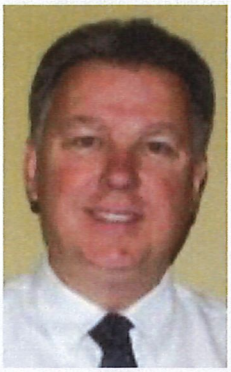
More information about the survey, including the kickoff and end dates and communication materials the community can use to encourage our residents to take the survey, will be coming from the county in the following weeks. We'd like to ask our local municipalities, community service organizations, public safety organizations, and any organization that serves our residents to partner with us to share the information about the survey. The more our residents know about the benefits of broadband access and a better connected Livingston County, we'll be able to collect a more accurate picture of the current state of our community and where we can make improvements. If you or your organization has ideas or suggestions to best reach your community or those you serve, please contact Allison Nalepa at analepa@livgov.com.

Resolutions Passed by the Board of Commissioners

- The Specialty Courts and Programs have extended their contracts with Attorney Paige Favio to provide legal services to the Veterans Treatment Court and the Intensive Treatment Medical Health Court until March 31, 2022.
- Juvenile Court's Fiscal Year 2022 Child Care Fund Budget has been approved and submitted to the State for acceptance.
- The Juvenile Court has been authorized to apply for, and if awarded, accept the Michigan Department of Health and Human Services grant funding to enhance legal representation in child protective hearings for fiscal year 2022.
- The updated 2021-2025 Livingston County Emergency Operations Plan has been adopted.
- The Board has approved the County's participation in the MiDEAL contract with Staples for office supplies and print services until May 31, 2022.
- Renovations will be completed at the Sheriff's Office. Contracts have been approved for Creative Construction Concepts, Marxmoda, John Stewart General Contractors, and Safe and Sound, LLC.
- The Sheriff's Office will be participating in the 2022 State Traffic Enforcement Grant.
- Ten mobile vehicle radios will be replaced for the Sheriff's Office.
- A second quarter budget amendment was approved for the 2021 budget to recognize actual expenditure activity and adjust for anticipated collection levels.
- The Sheriff's Office Field Services Division will add five patrol vehicles to their fleet.
- Nathan Burd and Kathleen Kline-Hudson have been appointed as respective Officer Delegate and Employee Delegate for the 2021 Municipal Employees' Retirement System Annual Conference.
- Ronald Staley and Thomas Janego have been appointed to the Livingston County Aeronautical Facilities Board with terms expiring July 24, 2026.
- The Livingston County Community Mental Health Authority, Livingston County Health Department, Livingston County Juvenile Court, Community Mental Health Partnership of Southeast Michigan, Livingston Educational Service Agency and the Department of Health and Human Services have agreed to enter into a local collaborative venture to provide comprehensive behavioral health managed care services for children who are residents of Livingston County and who meet the enrollment criteria for said services.
- The Juvenile Court has been approved to apply for an accept the Michigan Department of Health and Human Services, Michigan Committee on Juvenile Justice Racial Ethnic Disparities Data Collection Fiscal Year Grant and the Raise the Age Grant.
- Veterans Services will participate in the Michigan Veterans Affairs Agency's Service Grant.
- Car Pool will replace 15 outdated vehicles with new vehicles leased through Enterprise Fleet Management.
- Reorganization of the Information Technology Department has been approved. Two new positions, an Information Technology Project Coordination Specialist and Application Support Analyst, will be added to the department.
- The Airport has entered into multiple agreements for taxiway and terminal repairs. Contract have been approved with C&S Engineering and Lois Kay Contracting Company. The Michigan Aeronautics Commission has authorized a federal/state/local grant agreement to provide funding for these projects.
- Carol Sue Reader has been appointed to the Substance Use Disorder Policy Board with a term expiring October 1, 2023.
- The Board has entered into an agreement with The Michigan State Police Emergency Management and Homeland Security Division to approve the Fiscal Year 2022 Emergency Management Performance Grant Agreement documents.

Please Note: The Liv.Co Update highlights a portion of resolutions and work completed by the Livingston County Board of Commissioners. Please refer to the Board's meeting minutes for more information regarding specific resolutions. To be redirected to the Board's Meeting Minutes, please click **here** or visit www.livgov.com.

Helpful Contractor Tips From Livingston County's Building Official



You might have noticed that we are currently in the middle of a very busy construction season. To help you get the most out of your renovation or construction project, Livingston County's Building Official, Jim Rowell, has some great tips to use when choosing a contractor. Jim reminds us that communication is the cornerstone of a good homeowner-contractor relationship.

Check References
Any reputable contractor will be happy to supply references. Make sure the references they provide are for projects similar to yours. You probably don't want a siding contractor to remodel your bathroom!

Ask, Do you guarantee your work?
There is no requirement for a contractor to provide a warranty. If they do offer one, make sure you get it in writing.

Are you licensed and insured?
The State requires contractors to be licensed and carry liability insurance. Make sure your contractor has the necessary paperwork.

What is a firm date that the project will be completed?
Delays happen, but never leave the completion date open ended. Get an estimated timeline up front. You don't want to become the "filler" job.

Will you pull the necessary permits?
Some contractors don't like to pull permits because their work is not up to standards. The codes permits provide are a bare minimum for what your project requires. Surely you expect the bare minimum for the work you need done, and so does your contractor.

Who will be here every day?
Many projects require numerous tradesmen to be on site. Be sure to ask, Who is supervising? Who will open up and lock up?

How will you communicate?
Do you prefer phone calls, emails, or texts? Agree on a way that the both of you will receive regular updates and discuss issues that will surely pop up.

Discuss when payments will be due and stick to the schedule.
Contractors need funds to operate, so know that some money is always required up front. However, don't pay for an entire job up front. Get a payment schedule and that to stay on track.

What kind of documentation will I receive after completion?
End of project documents should always include copies of waivers of lien from all subcontractors and suppliers. There should be a general document from the contractor that states they have paid their suppliers and subcontractors. If someone supplies labor or material for your project, they have a right to lien your property for payment, even if you have paid the contractor. Make sure this paperwork is included and keep it filed in case there is ever an issue.

Happy Building!