

MARION TOWNSHIP
BOARD OF TRUSTEES
REGULAR MEETING
Thursday, January 23, 2020
7:30 p.m.

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

- 1) Approval of Agenda
- 2) Consent Agenda
 - a. Approval of January 9, 2020 Regular Meeting Minutes
 - b. January 15, 2020 MHOG Agenda/Minutes
 - c. January 15, 2020 HAFA Agenda/Minutes
 - d. December 2019 Financial Report
 - e. Investment Report
- 3) Health Insurance PA #152 Opt-Out
- 4) Triangle Lake Goose Control Permit Resolution
- 5) Darakjian Property
- 6) MHOG
- 7) Development Standards
- 8) Township Roads

Correspondence and Updates
Catholic Charities
CIRAB Meeting
Padnos Shredder Update

Call to the Public
Adjournment

Reminder: Next Board Packet will be ready after 3pm on Thursday, February 6, 2020

MARION TOWNSHIP
BOARD OF TRUSTEES
REGULAR MEETING
JANUARY 9, 2020

MEMBERS PRESENT: Les Andersen, Tammy Beal, Duane Stokes, Scott Lloyd, Greg Durbin, and Bob Hanvey

MEMBERS ABSENT: Dan Lowe

OTHERS PRESENT: Phil Westmoreland, Spicer

CALL TO ORDER

Bob Hanvey called the meeting to order at 7:30 pm.

PLEDGE OF ALLEGIANCE

BOARD MEMBERS PRESENT

The board members introduced themselves.

CALL TO THE PUBLIC

Don Parker, who is affiliated with Protect Livingston, asked the board members to consider supporting Dykema Gossett's letter opposing the granting of variances for the Padnos shredder on Lucy Road in the City of Howell. Bob Hanvey said this item will be added to the agenda for the board's consideration.

APPROVAL OF AGENDA

Agenda items added were Dykema Gossett letter and Moylan sewer credit. Les Andersen motioned to approve the agenda as amended. Tammy Beal seconded. **Motion carried.**

CONSENT AGENDA

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

BURNHAM & FLOWER INSURANCE RENEWAL

Les Andersen motioned to approve the proposal from Burnham & Flower for \$43,789, as presented. Scott Lloyd seconded. Roll call vote: Lloyd, Beal, Hanvey, Durbin, Andersen, Stokes—all yes. **Motion carried 6-0.**

PFEFFER, HANNIFORD AND PALKA CONTRACT

Tammy Beal motioned to accept the proposal from Pfeffer, Hanniford and Palka for \$6,825 to assist with the conversion to the chart of accounts to be consistent with the state. Duane Stokes seconded. Roll call vote: Stokes, Durbin, Hanvey, Lloyd, Beal, Andersen—all yes. **Motion carried 6-0.**

DYKEMA GOSSETT PLLC LETTER

Bob Hanvey passed out a letter from Dykema Gossett PLLC regarding the proposed shredder on Lucy Road and the upcoming ZBA meeting. Don Parker asked the board to consider opposing the variances.

Tammy Beal motioned to support the letter as presented. Les Andersen seconded. Motion carried.

2236 CRYSTAL COURT SEWER REFUND REQUEST

Scott Lloyd motioned to refund Zachary Kubiak, 2236 Crystal Court, \$532.46 after he's obtained an irrigation meter. Les Andersen seconded. Roll call vote: Beal, Andersen, Stokes, Durbin, Hanvey, Lloyd—all yes. **Motion carried 6-0.**

MOYLAN SEWER CREDIT

Les Andersen motioned to approve a credit of \$306.55 to Andrea Moylan's sewer bill once she's obtained an irrigation meter. Scott Lloyd seconded. Roll call vote: Hanvey, Durbin, Beal, Lloyd, Stokes, Andersen—all yes. **Motion carried 6-0.**

WATER LINE FOR MAGNUSON HOTEL

Les Andersen motioned to authorize the supervisor to arrange with MHOG to tap the water main on the east side of D-19 and bore under the road to the property line on the west side to be paid by the township's Water New User Fund. Duane Stokes seconded. Roll call vote: Stokes, Beal, Andersen, Hanvey, Lloyd, Durbin—all yes. **Motion carried 6-0.**

2020 POVERTY EXEMPTION GUIDELINES

Greg Durbin motioned to adopt a resolution to adopt the poverty exemption policy for 2020 Board of Review and guidelines based on the 2019 income and asset tests, as presented. Scott Lloyd seconded. Roll call vote: Durbin, Lloyd, Stokes, Andersen, Beal, Hanvey—all yes. **Resolution passed 6-0.**

BOARD OF REVIEW LETTER APPEALS

Tammy Beal motioned to adopt a resolution to allow residents to file letter appeals to the Board of Review for 2020 by noon on March 12, 2020, as presented. Les Andersen seconded. Roll call vote: Lloyd, Beal, Hanvey, Durbin, Andersen, Stokes—all yes. **Resolution passed 6-0.**

BOARD OF REVIEW TRAINING

Bob Hanvey provided a letter from MTA regarding training requirements for Board of Review members.

CELL TOWER LEASE

Les Andersen motioned to have the information from Crown Castle regarding the contract extension sent to the township attorney for review. Greg Durbin seconded. **Motion carried.**

TOWNSHIP COMPUTER UPGRADES

Les Andersen motioned to adopt a resolution to authorize purchase of computer upgrades from I.T. Right as presented, not to exceed \$20,000. Duane Stokes seconded. Roll call vote: Stokes, Durbin, Hanvey, Lloyd, Beal, Andersen—all yes. **Resolution passed 6-0.**

Tammy Beal motioned to amend the budget for account 6903-797 from \$20,000 to \$25,000. Les Andersen seconded. Roll call vote: Beal, Andersen, Stokes, Durbin, Hanvey, Lloyd—all yes. **Motion carried 6-0.**

DARAKJIAN PROPERTY

No new information on this item. Scott Lloyd suggested holding off on the appraisal for now.

PAUL MARIE INTERGOVERNMENTAL AGREEMENT

Bob Hanvey said a few items needed to be revised. Les Andersen motioned to adopt a resolution to approve the agreement as presented and authorize the supervisor and clerk to sign it. Scott Lloyd seconded. Roll call vote: Hanvey, Durbin, Beal, Lloyd, Stokes, Andersen---all yes. **Resolution passed 6-0.**

DEVELOPMENT STANDARDS

Bob Hanvey said he would like to have Dan Lowe present for this agenda item. No comments have been received yet; any comments should be sent to Dave Hamann by Thursday, January 16, 2020. Tammy Beal motioned to postpone this agenda item until the next meeting. Les Andersen seconded. **Motion carried.**

CORRESPONDENCE & UPDATES

The monthly update from the Livingston County Board of Commissioners was received.

Carlyle/Wortman sent a letter regarding donations to the community.

A letter from the Livingston County Road Commission was received regarding primary road pavement preservation projects, due by February 28. Phil Westmoreland will take another look at Schafer Road.

A Livingston County Trails Plan summit is scheduled for Wednesday, January 22 from 4-6 pm at the county's Public Safety Building.

An invitation from Tim Church of HAPRA was received inviting those interested to attend the mParks Conference and Trade Show in Novi on Wednesday, January 29.

Bob Hanvey said the interrogatories from the Witkowski's attorney were not received and the township's attorney has filed a motion to dismiss. The hearing is scheduled for Thursday, January 23 at 1:30 pm in Judge Geddis' court.

MTA is scheduled for April; those interested in attending should inform the Clerk's office.

CALL TO THE PUBLIC

Bruce Powelson, 3466 Pingree Road, asked about the donation letter from the planner. He also suggested that if the township has computer monitors to dispose of, they could be donated to the RE Olds Transportation Museum in Lansing. Bob Hanvey said there are specific rules for donations from the township.

ADJOURNMENT

Les Andersen motioned to adjourn at 8:47 pm. Tammy Beal seconded. **Motion carried.**

Submitted by: S. Longstreet

Tammy L. Beal, Township Clerk Date

Robert W. Hanvey, Township Supervisor Date

Request for Zoning Administrator, **Dave Hamann**, to be present at
the Board of Trustee meeting on JANUARY 23, 2020.

Date

Requested by Robert W. Hamney.

Signature

MHOG Water Authority Meeting
January 15, 2020
5:00 PM at Oceola Township Hall

AGENDA

1. Approval of the Minutes of December 18, 2019
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 December 18, 2019 at 5:00 PM at the Oceola Township Hall. Members present were Bamber, Coddington, Rogers, Hanvey, Schuhmacher, Hunt, Counts and Lowe.

The meeting was called to order by Chairman Hanvey.

A motion was made by Rogers to approve the minutes of the November 20, 2019 meeting. The motion was seconded by Schuhmacher and carried.

A call to the public was held.

A motion was made by Counts to approve expenditures of \$171,972.44 from the M.H.O.G. Operating Fund represented by checks numbered 8274-8302, and for direct deposit debits 521 thru 528. The motion was seconded by Schuhmacher and carried.

A motion was made by Coddington to approve expenditures of \$51,780.50 from the MHOG Capital Reserve Improvement Fund represented by check numbers 104 and 105. The motion was seconded by Schuhmacher and carried.

A motion was made by Schuhmacher to adjourn. The motion was seconded by Hunt and carried.

William J. Bamber, Secretary

HOWELL AREA FIRE AUTHORITY MEETING
Oceola Township Hall
1577 N. Latson Rd. – Howell, MI
January 15, 2020 – 6:00 PM

Authority Board
Members and Other
Officials:

Bill Bamber
Oceola Township
Chairman

Mike Coddington
Howell Township
Vice Chairman

Mark Fosdick
Cohoctah Township
Secretary

Robert Hanvey
Marion Township
Member

Nick Proctor
City of Howell
Treasurer

Andy Pless
Fire Chief

Laura Walker
Asst. Sec/Treasurer

1. Meeting called to order at 6:00 pm.
2. Pledge of Allegiance (all stand)
3. Approve minutes of the regular meeting of December 18, 2019
4. Call to Public (items not on agenda)
5. Discussion/Approval: Resolution 01-20 A Resolution to exempt the Howell Area Fire Authority from the requirements of Public Act 152 for the next succeeding year
6. Discussion/Approval: Resolution 02-20 Amendment to the 2019-2020 Fiscal Year Budget
7. Discussion/Approval: Purchase of Kenwood portable radios in the amount of \$6,852.80.
8. Discussion/Approval: Purchase of 10 sets of turnout gear in the amount of \$22,464.70.
9. Chief's Comments
 - a. Awards Banquet January 29th 7:00pm at Station 20
10. Approve payment of bills and payroll in the amount of \$138,948.92
11. New Business
12. Old Business
13. Closed Session
14. Adjourn

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.

HOWELL AREA FIRE AUTHORITY

December 18, 2019 – 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, Fire Chief Andy Pless, Asst. Sec/Treas. Laura Walker

Absent: Attorney Kevin Gentry

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

Approve the minutes of the regular meeting of November 20, 2019: MOTION by Mr. Proctor, SUPPORT by Mr. Fosdick to approve the minutes of the regular meeting of November 20, 2019. MOTION CARRIED UNANIMOUSLY.

Call to Public: No Response

Approve Payment of Bills and Payroll: MOTION by Mr. Proctor, SUPPORT by Mr. Coddington to authorize payment of bills and payroll in the amount of \$152,399.96. MOTION CARRIED UNANIMOUSLY.

Approve minutes of closed session meeting on November 20, 2019: MOTION by Mr. Hanvey, SUPPORT by Mr. Proctor to approve minutes of closed session meeting on November 20, 2019. MOTION CARRIED UNANIMOUSLY.

Adjourn: MOTION by Mr. Proctor, SUPPORT by Mr. Fosdick to adjourn the meeting at 6:12pm. MOTION CARRIED UNANIMOUSLY.

Respectfully Submitted: *Laura Walker*
Laura Walker, Asst. Secretary/Treasurer

Approved By: _____
Mark Fosdick, Secretary

MONTHLY UPDATE TO THE BOARD

TO: HOWELL AREA FIRE AUTHORITY BOARD OF DIRECTORS
FROM: ANDREW PLESS, FIRE CHIEF
SUBJECT: MONTHLY HAFD REPORT FOR DECEMBER, 2019
DATE: JANUARY 3, 2020

During the month of December, the HAFD responded to a total of 123 calls for service. There were 107 calls in December of 2018. The total year-to-date runs for 2019 was 1583. Last year's total at the end of December was 1379.

Some of the more significant events for the month included:

On December 3rd Howell Firefighters responded Mutual Aid to Fowlerville Fire on a working structure fire in the 500 block of Fowlerville rd. On arrival Howell Firefighters assisted with extinguishment of an attached garage that was fully involved and spreading into the attic of the home. The home suffered significant fire damage due to the progression of the fire prior to arrival. Cause of the fire is under investigation.

On December 5th Howell Firefighters responded Mutual Aid to a reported fully involved structure fire in the 1900 block of Bridgets Way in Unadilla Township. On arrival personnel from the Marion and Main stations assisted with extinguishment of the fire. All Livingston County Fire Departments assisted at the scene due to the size of the structure. The home was a total loss. Cause of the fire is under investigation.

On December 18th Howell Firefighters responded to a report of a barn on fire in the 2500 block of Cedar Lake Rd. in Marion Township. On arrival Firefighters found a small barn on fire with livestock in the barn. Firefighters were able to rescue all the animals from the barn. Cause of the fire was determined to be from a shorted water tank heater in the barn. Damage was limited to an interior wall and the inside roof of the barn.

Training for the month of December consisted of Apparatus pumping operations and Hydraulics, Station training and Scenario based presentations.

Reminder: The annual HAFD Awards banquet will be Wednesday January 29th at 7pm at the Main Station.

The next meeting of the Howell Area Fire Authority Board is scheduled for Wednesday January 15th, 2020 at 6:00 pm.

**HOWELL AREA FIRE DEPARTMENT
FIRE MARSHAL DIVISION**

1211 W. Grand River
Howell, MI 48843
517-546-0560
FAX: 517-546-6011
firemarshal@howellfire.net

DATE: January 6, 2020
TO: Chief Pless
Fire Authority Board
FROM: Jamil Czubenko, Assistant Chief/Fire Marshal
REF: December 2019 Month End

The month of December 2019 was busy in the Fire Marshal Division.

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

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.

To date approximately 1900 kids and 1800 adults have made public education contact with the HAFD, totaling approximately 350 personnel hours.

The HAFD visited 7 homes and installed a total of 12 smoke detectors and 3 CO detectors. To date, 297 working smoke detectors plus the 141 smokes and 36 CO detectors we've installed.

22 new inspections and 13 re-inspections were completed. 39 plan reviews, consultations and fire safety tests were also completed.

December 2019 brings us more planning for future projects, various fire prevention events and Christmas and a New Year.

January 2020 brings us more planning for future projects, various fire prevention events and a New Year.

Howell Area Fire Department

Howell, MI

This report was generated on 1/2/2020 11:13:49 AM



Incidents per Zone for Date Range

Start Date: 12/01/2019 | End Date: 12/31/2019

INCIDENT NUMBER	INCIDENT TYPE	DATE	LOCATION	APPARATUS
ZONE: COHOCTAH - COHOCTAH				
2019-1466	311 - Medical assist, assist EMS crew	12/02/2019	11285 BOHM RD	BR24
2019-1470	600 - Good intent call, other	12/03/2019	106 W ALLEN RD	BR24
2019-1472	551 - Assist police or other governmental agency	12/04/2019	3593 STEINACKER RD	BR20,BR24,CPT24
2019-1504	611 - Dispatched & cancelled en route	12/11/2019	5788 CRANDALL RD	CH2
2019-1523	311 - Medical assist, assist EMS crew	12/16/2019	7050 BYRON RD	BR20,BR24
2019-1534	311 - Medical assist, assist EMS crew	12/19/2019	7351 SANFORD RD	BR24,CH2,FM2
2019-1541	611 - Dispatched & cancelled en route	12/20/2019	4130 S CENTER DR	CH2

Total # Incidents for COHOCTAH: 7

ZONE: FOWLERVILLE VILLAGE - FOWLERVILLE VILLAGE				
2019-1486	611 - Dispatched & cancelled en route	12/06/2019	120 VERMONT CT	EN20,FM2
2019-1537	571 - Cover assignment, standby, moveup	12/20/2019	11795 NICHOLSON RD	EN21

Total # Incidents for FOWLERVILLE VILLAGE: 2

ZONE: GENOA - GENOA TOWNSHIP				
2019-1550	324 - Motor vehicle accident with no injuries.	12/23/2019	1396 E I96	EN20

Total # Incidents for GENOA: 1

ZONE: HANDY - HANDY TWP				
2019-1469	111 - Building fire	12/03/2019	503 FOWLERVILLE RD	EN20,EN22,FM2

Total # Incidents for HANDY: 1

ZONE: HOWELL CITY - CITY OF HOWELL				
2019-1460	551 - Assist police or other governmental agency	12/01/2019	440 E WASHINGTON ST	EN20
2019-1467	551 - Assist police or other governmental agency	12/02/2019	1224 W GRAND RIVER AVE	BR20,CH2
2019-1468	412 - Gas leak (natural gas or LPG)	12/02/2019	527 W GRAND RIVER AVE	EN20,FM2
2019-1473	311 - Medical assist, assist EMS crew	12/04/2019	511 N HIGHLANDER WAY	BR20
2019-1474	631 - Authorized controlled burning	12/04/2019	1280 BYRON RD	BR20
2019-1475	131 - Passenger vehicle fire	12/05/2019	312 ANNETTE DR	EN20,LT20
2019-1476	311 - Medical assist, assist EMS crew	12/05/2019	1320 ASHEBURY LN	EN20
2019-1481	611 - Dispatched & cancelled en route	12/05/2019	1320 ASHEBURY LN	CH2
2019-1482	741 - Sprinkler activation, no fire - unintentional	12/05/2019	301 CATRELL DR	EN20
2019-1484	311 - Medical assist, assist EMS crew	12/06/2019	612 DEARBORN ST	BR20
2019-1492	600 - Good intent call, other	12/08/2019	101 LUCY RD	CH20
2019-1495	741 - Sprinkler activation, no fire - unintentional	12/09/2019	1450 MCPHERSON PARK DR	EN20

Only REVIEWED incidents included. Archived Zones cannot be unarchived.



INCIDENT NUMBER	INCIDENT TYPE	DATE	LOCATION	APPARATUS
2019-1496	551 - Assist police or other governmental agency	12/09/2019	605 PERE MARQUETTE	BR20
2019-1497	622 - No incident found on arrival at dispatch address	12/09/2019	501 ABERDEEN WAY	CH20,EN20
2019-1499	311 - Medical assist, assist EMS crew	12/10/2019	934 S MICHIGAN AVE	BR20
2019-1500	551 - Assist police or other governmental agency	12/10/2019	33 VERDUN CT	BR20,CH20
2019-1502	611 - Dispatched & cancelled en route	12/11/2019	322 BIJOU	CH20
2019-1506	611 - Dispatched & cancelled en route	12/12/2019	195 E HIGHLAND RD	CH2
2019-1507	151 - Outside rubbish, trash or waste fire	12/12/2019	323 E WASHINGTON ST	CH20,EN20
2019-1509	611 - Dispatched & cancelled en route	12/13/2019	490 ROLLING OAKS DR	EN20
2019-1510	550 - Public service assistance, other	12/13/2019	1333 W GRAND RIVER AVE	EN20
2019-1513	311 - Medical assist, assist EMS crew	12/13/2019	3003 W GRAND RIVER	BR20
2019-1521	551 - Assist police or other governmental agency	12/15/2019	1320 ASHEBURY LN	BR20
2019-1524	311 - Medical assist, assist EMS crew	12/16/2019	331 S HIGHLANDER WAY	BR20,FM2
2019-1525	600 - Good intent call, other	12/16/2019	1530 FIRST AVE	BR20,BR22,CH20
2019-1528	443 - Breakdown of light ballast	12/17/2019	425 E WASHINGTON ST	CH2,CH202,EN20
2019-1533	745 - Alarm system activation, no fire - unintentional	12/18/2019	1320 ASHEBURY LN	CH20
2019-1536	311 - Medical assist, assist EMS crew	12/20/2019	1400 W GRAND RIVER AVE	BR20
2019-1540	746 - Carbon monoxide detector activation, no CO	12/20/2019	407 BROWNING DR	CH20,EN20
2019-1543	311 - Medical assist, assist EMS crew	12/21/2019	316 E BROOKS ST	BR20,CH20
2019-1545	550 - Public service assistance, other	12/21/2019	316 E BROOKS ST	CH20,EN20
2019-1547	611 - Dispatched & cancelled en route	12/21/2019	1195 S MICHIGAN AVE	BR20
2019-1553	311 - Medical assist, assist EMS crew	12/25/2019	1205 THURBER DR	BR20,CH20
2019-1554	611 - Dispatched & cancelled en route	12/25/2019	1205 THURBER DR	CH2
2019-1557	311 - Medical assist, assist EMS crew	12/25/2019	127 NORMANDY DR	BR20
2019-1560	551 - Assist police or other governmental agency	12/25/2019	1224 CURZON ST	BR20
2019-1561	743 - Smoke detector activation, no fire - unintentional	12/25/2019	1320 ASHEBURY LN	EN20
2019-1566	551 - Assist police or other governmental agency	12/25/2019	605 PERE MARQUETTE	BR20
2019-1567	311 - Medical assist, assist EMS crew	12/26/2019	503 S HIGHLANDER WAY	BR20,CH20
2019-1569	745 - Alarm system activation, no fire - unintentional	12/27/2019	1320 ASHEBURY LN	CH2,EN20
2019-1575	741 - Sprinkler activation, no fire - unintentional	12/29/2019	1301 MCPHERSON PARK DR	EN20
2019-1576	622 - No incident found on arrival at dispatch address	12/29/2019	223 W GRAND RIVER AVE	EN20
2019-1578	745 - Alarm system activation, no fire - unintentional	12/30/2019	2 W LEGRAND ST	LT20
2019-1580	551 - Assist police or other governmental agency	12/30/2019	212 N NATIONAL ST	BR20

Total # Incidents for HOWELL CITY

44

ZONE: HOWELL TWP - HOWELL TOWNSHIP				
2019-1462	463 - Vehicle accident, general cleanup	12/01/2019	1335 W I96	CH20,EN20,FM2
2019-1463	611 - Dispatched & cancelled en route	12/01/2019	2895 W GRAND RIVER	EN20

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INCIDENT NUMBER	INCIDENT TYPE	DATE	LOCATION	APPARATUS
2019-1485	551 - Assist police or other governmental agency	12/06/2019	989 RIVER LINE DR	BR20
2019-1488	551 - Assist police or other governmental agency	12/06/2019	3432 CHERYL DR	BR20
2019-1489	551 - Assist police or other governmental agency	12/06/2019	3432 CHERYL DR	BR24
2019-1491	311 - Medical assist, assist EMS crew	12/07/2019	3432 CHERYL DR	BR20,BR22,CPT24
2019-1493	551 - Assist police or other governmental agency	12/08/2019	135 MEADOW LN	BR20,BR24,CH24
2019-1498	551 - Assist police or other governmental agency	12/09/2019	3705 W GRAND RIVER	BR20,CH20
2019-1501	132 - Road freight or transport vehicle fire	12/11/2019	1367 E I96	CH20,CH202,EN20,EN21,EN22,FM2
2019-1503	311 - Medical assist, assist EMS crew	12/11/2019	5788 CRANDALL RD	BR24
2019-1505	311 - Medical assist, assist EMS crew	12/12/2019	5483 OAKMONT DR	BR20,LT23
2019-1511	324 - Motor vehicle accident with no injuries.	12/13/2019	1333 E I96	CH20,EN20
2019-1514	622 - No incident found on arrival at dispatch address	12/14/2019	4499 BYRON RD	EN20
2019-1516	311 - Medical assist, assist EMS crew	12/14/2019	5479 BRADBURY DR	BR20
2019-1517	611 - Dispatched & cancelled en route	12/14/2019	5479 BRADBURY DR	CH2
2019-1518	311 - Medical assist, assist EMS crew	12/14/2019	2834 PINEWAY TRL	BR20,BR24,CH20
2019-1522	611 - Dispatched & cancelled en route	12/15/2019	2820 N BURKHART RD	CH2
2019-1526	424 - Carbon monoxide incident	12/16/2019	313 E BARRON RD	CH20,EN20
2019-1527	551 - Assist police or other governmental agency	12/16/2019	3413 KNEELAND CIR	BR20,EN20
2019-1529	551 - Assist police or other governmental agency	12/18/2019	3003 W GRAND RIVER	BR20
2019-1530	745 - Alarm system activation, no fire - unintentional	12/18/2019	3003 W GRAND RIVER	EN20
2019-1538	551 - Assist police or other governmental agency	12/20/2019	5428 ARBORETUM TRL	BR20
2019-1544	745 - Alarm system activation, no fire - unintentional	12/21/2019	2072 W BARRON RD	CH20,CH24,EN20
2019-1551	324 - Motor vehicle accident with no injuries.	12/24/2019	3199 W GRAND RIVER	CH20,EN20
2019-1556	745 - Alarm system activation, no fire - unintentional	12/25/2019	2970 OAK GROVE RD	BR20,CH20,CH24,EN20
2019-1563	311 - Medical assist, assist EMS crew	12/25/2019	3900 CRANDALL RD	BR20,BR24,CH24
2019-1564	551 - Assist police or other governmental agency	12/25/2019	5287 N BURKHART RD	BR20,BR24,CH24
2019-1577	551 - Assist police or other governmental agency	12/29/2019	3821 SQUIRES PL	BR20,BR22,BR24
2019-1581	611 - Dispatched & cancelled en route	12/31/2019	5479 BRADBURY DR	BR20,CH2
2019-1583	551 - Assist police or other governmental agency	12/31/2019	5479 BRADBURY DR	BR20

Total # Incidents for HOWELL TWP:

30

ZONE: MARION - MARION TOWNSHIP				
2019-1471	745 - Alarm system activation, no fire - unintentional	12/03/2019	470 HOSTA	CH20,EN20
2019-1478	551 - Assist police or other governmental agency	12/05/2019	1342 PEAVY RD	EN20

Only REVIEWED incidents included. Archived Zones cannot be unarchived.



INCIDENT NUMBER	INCIDENT TYPE	DATE	LOCATION	APPARATUS
2019-1479	611 - Dispatched & cancelled en route	12/05/2019	4238 NORTON RD	BR20
2019-1508	311 - Medical assist, assist EMS crew	12/13/2019	5210 W COON LAKE RD	BR23,CH23
2019-1515	412 - Gas leak (natural gas or LPG)	12/14/2019	2999 PINCKNEY RD	CH23,EN23
2019-1519	611 - Dispatched & cancelled en route	12/15/2019	5128 QUEENSWAY	EN20
2019-1532	111 - Building fire	12/18/2019	2581 CEDAR LAKE RD	BR23,CH2,CH202,CH24,EN20,EN22,EN23,EN24,FM2,TA22
2019-1535	746 - Carbon monoxide detector activation, no CO	12/19/2019	4084 CHESTNUT CROSSING DR	EN20
2019-1542	651 - Smoke scare, odor of smoke	12/21/2019	2831 BUTTERCUP CT	BR24,CH20,CH23,CH24,EN20,EN21,EN22,EN23,EN24,FM2,R20,TA22
2019-1548	551 - Assist police or other governmental agency	12/22/2019	80 GROVELAND DR	BR20
2019-1552	311 - Medical assist, assist EMS crew	12/24/2019	2575 COUNTY FARM RD	BR23,LT23
2019-1555	551 - Assist police or other governmental agency	12/25/2019	5929 CROFOOT RD	BR20
2019-1558	324 - Motor vehicle accident with no injuries.	12/25/2019	1500 PINCKNEY RD	BR20,CH20,EN20,R20
2019-1571	551 - Assist police or other governmental agency	12/27/2019	1500 PINCKNEY RD	CH2
2019-1573	746 - Carbon monoxide detector activation, no CO	12/28/2019	147 NEWBERRY LN	EN20
2019-1579	311 - Medical assist, assist EMS crew	12/30/2019	3000 PINGREE RD	BR23
2019-1582	324 - Motor vehicle accident with no injuries.	12/31/2019	2399 PINCKNEY RD	BR23,CH2,CH23,LT23

Total # Incidents for MARION:

17

ZONE: OCEOLA - OCEOLA TOWNSHIP

2019-1458	445 - Arcing, shorted electrical equipment	12/01/2019	6350 DUNN RD	CPT22
2019-1459	463 - Vehicle accident, general cleanup	12/01/2019	1 E HIGHLAND RD	EN20
2019-1461	445 - Arcing, shorted electrical equipment	12/01/2019	4330 GOLF CLUB RD	BR22,CPT22,EN20
2019-1464	551 - Assist police or other governmental agency	12/02/2019	6050 BROPHY RD	BR22
2019-1465	311 - Medical assist, assist EMS crew	12/02/2019	4781 HIDDEN HILLS CIR	EN22
2019-1483	745 - Alarm system activation, no fire - unintentional	12/06/2019	2667 WILLOWCREST CIR	CPT22,EN22
2019-1487	611 - Dispatched & cancelled en route	12/06/2019	2493 PLEASANT RDG	EN22
2019-1490	611 - Dispatched & cancelled en route	12/06/2019	51 ENDICOTT DR	BR22
2019-1494	611 - Dispatched & cancelled en route	12/09/2019	3541 BROPHY RD	CH2
2019-1512	311 - Medical assist, assist EMS crew	12/13/2019	6396 BAKER DR	BR22,CPT22
2019-1520	311 - Medical assist, assist EMS crew	12/15/2019	4159 STAMPER WAY	BR20,BR22,BR24
2019-1531	321 - EMS call, excluding vehicle accident with injury	12/18/2019	4061 ORCHARD PARK BLVD	BR22
2019-1539	745 - Alarm system activation, no fire - unintentional	12/20/2019	1594 PRINCEWOOD BLVD	CH22
2019-1549	551 - Assist police or other governmental agency	12/23/2019	7999 E HIGHLAND RD	CPT24,EN22
2019-1559	745 - Alarm system activation, no fire - unintentional	12/25/2019	2367 GOLF CLUB RD	CH20,CH24,EN20
2019-1568	551 - Assist police or other governmental agency	12/27/2019	4131 ORCHARD PARK BLVD	BR22,CH2

Only REVIEWED incidents included. Archived Zones cannot be unarchived.



INCIDENT NUMBER	INCIDENT TYPE	DATE	LOCATION	APPARATUS
2019-1570	311 - Medical assist, assist EMS crew	12/27/2019	774 ARGENTINE RD	BR22
2019-1572	311 - Medical assist, assist EMS crew	12/28/2019	1350 GULLEY RD	BR20,BR22,CH22
2019-1574	311 - Medical assist, assist EMS crew	12/29/2019	1244 SWEET GRASS TRL	BR22,CH2

Total # Incidents for OCEOLA: 19

ZONE: OUTSIDE - OUTSIDE OF SERVICE AREA

2019-1546	611 - Dispatched & cancelled en route	12/21/2019	11560 POST LN	CH2
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Total # Incidents for OUTSIDE: 1

ZONE: UNADILLA - UNADILLA TWP

2019-1477	111 - Building fire	12/05/2019	1954 BRIDGETS WAY	EN23,FM2
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Total # Incidents for UNADILLA: 1

TOTAL # INCIDENTS: 123

Only REVIEWED incidents included. Archived Zones cannot be unarchived.



FISCAL YEAR 2019-20 MARION TOWNSHIP FINANCIAL REPORT

Dec-19

GENERAL FUND CHECKING

Previous Balance	\$	1,160,772.79
Receipts	\$	38,093.98
Interest	\$	790.83
	\$	<u>1,199,657.60</u>
Expenditures	\$	153,261.61
Balance	\$	<u>1,046,395.99</u>

CEMETERY FUND

Previous Balance	\$	16,077.77
Receipts	\$	-
Interest		
	\$	<u>16,077.77</u>
Expenditures	\$	215.00
Balance	\$	<u>15,862.77</u>

PARKS & RECREATION FUND

Previous Balance	\$	2,513.76
Receipts	\$	-
Interest		
	\$	<u>2,513.76</u>
Expenditures	\$	-
Balance	\$	<u>2,513.76</u>

WATER - NEW USER

Previous Balance	\$	413,937.94
Receipts	\$	33,821.96
Interest	\$	268.30
	\$	<u>448,028.20</u>
Expenditures	\$	25,708.72
Balance	\$	<u>422,319.48</u>

SEWER OPERATING & MANAGEMT

Previous Balance	\$	118,581.80
Receipts	\$	46,327.10
Interest		
	\$	164,908.90
Expenditures	\$	48,517.74
Balance	\$	116,391.16

SEWER - NEW USER

Previous Balance	\$	215,928.08
Receipts		
Interest		
	\$	215,928.08
Expenditures	\$	-
Balance	\$	215,928.08

SPEC ASSESS. FUND

Previous Balance	\$	160,661.49
Receipts	\$	11,620.53
	\$	172,282.02
Expenditures	\$	7,025.00
Balance	\$	165,257.02

SUMMARY TOTALS

General Fund	\$	1,046,395.99
Cemetery Fund	\$	15,862.77
Parks & Rec Capital Chk	\$	2,513.76
Water - New User	\$	422,319.48
Sewer Operating & Mana	\$	116,391.16
Sewer - New User	\$	215,928.08
Special Assess. Fund	\$	165,257.02
TOTAL	\$	1,984,668.26

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01/07/20

Accrual Basis

General Fund
Custom Transaction Detail Report
Monthly Ledger Report

Type	Date	Num	Name	Memo	Amount
Dec 19					
Check	12/02/2019	10780	EDWARD LATSON	November 20...	-375.00
General Journal	12/02/2019	CHA ...		CHARTER P...	32,563.91
General Journal	12/02/2019	ATT- ...		AT&T CELL T...	2,281.31
Check	12/02/2019	10781	MICHIGAN ASSES...	2020 MEMBE...	-280.00
Check	12/02/2019	10782	MICHIGAN MUNICI...	INVOICE# 17...	-75.00
Check	12/02/2019	10783	AT&T -General	ACT# 517 54...	-286.16
Check	12/02/2019	10784	Colonial Life	BCN# E4270...	-265.83
Check	12/02/2019	10785	Marion Township Fl...	2020 BCBS D...	-53,200.00
Check	12/02/2019	10786	ECONO-PRINT INC.	INVOICE# 64...	-1,965.78
General Journal	12/02/2019	NOV 1...		ADP FEE - N...	36.62
Check	12/05/2019	10790	LIV CO CLERKS AS...	2019 CLERK'...	-40.00
Check	12/05/2019	10791	Culligan of Ann Arbor	ACCOUNT 76...	-35.00
Deposit	12/05/2019			Deposit	1,716.06
Deposit	12/05/2019			Deposit	50.00
Check	12/09/2019	10792	Heidi Gillespie	HALL RENTA...	-100.00
General Journal	12/10/2019	NOV 1...		TOTAL TAXE...	-10,043.54
Check	12/10/2019	10787	VOYA Institutional T...	NOVEMBER ...	-300.00
Check	12/10/2019	10788	Marion Township Fl...	NOVEMBER ...	-2,005.32
Check	12/10/2019	10789	ALERUS PAYMENT...	DIVISION# 40...	-3,426.58
Check	12/10/2019	5710950	TAMMY L. BEAL	NOVEMBER ...	-2,700.81
Check	12/10/2019	5170951	JESSICA S. TIMBE...	NOVEMBER ...	-2,059.76
Check	12/10/2019	5170952	THOMAS A. LLOYD	NOVEMBER ...	-500.13
Check	12/10/2019	5170953	DIANE D. BOCKHA...	NOVEMBER ...	-92.35
Check	12/10/2019	5170954	GAIL A. BURLINGA...	NOVEMBER ...	-2,613.80
Check	12/10/2019	5170955	KITSEY A. RENNEL...	NOVEMBER ...	-2,080.88
Check	12/10/2019	5170957	DUANE M. STOKES	NOVEMBER ...	-2,975.93
Check	12/10/2019	5170958	SANDRA J. LONGS...	NOVEMBER ...	-2,099.35
Check	12/10/2019	5170959	GREGORY L. DUR...	NOVEMBER ...	-1,074.53
Check	12/10/2019	5170960	LAWRENCE W. GR...	NOVEMBER ...	-220.25
Check	12/10/2019	5170961	LINDA M. MANSON...	NOVEMBER ...	0.00
Check	12/10/2019	5170962	DAVE HAMANN	NOVEMBER ...	-2,510.30
Check	12/10/2019	5170963	ROBERT W. HANV...	NOVEMBER ...	-3,672.65
Check	12/10/2019	5170964	KAREN D. HAWKINS	NOVEMBER ...	-1,923.22
Check	12/10/2019	5170965	PATRICIA J. HUGH...	NOVEMBER ...	-1,639.55
Check	12/10/2019	5170966	LOREEN B. JUDSON	NOVEMBER ...	-3,185.75
Check	12/10/2019	76091...	CHERYL A. RANGE	NOVEMBER ...	-92.35
Check	12/10/2019	76091...	LESLIE D. ANDERS...	NOVEMBER ...	-390.23
Check	12/10/2019	76091...	SCOTT R. LLOYD	NOVEMBER ...	-276.58
Check	12/10/2019	76091...	DANIEL F. LOWE	NOVEMBER ...	-603.70
Check	12/10/2019	76091...	LARRY J. FILLINGER	NOVEMBER ...	-92.35
Check	12/10/2019	76091...	BRUCE V. POWEL...	NOVEMBER ...	-92.35
Check	12/10/2019	10793	MICHAEL J. KEHO...	INVOICE# 30...	-55.25
Check	12/10/2019	10794	NEOFUNDS BY NE...	ACCOUNT# 7...	-264.00
Check	12/10/2019	10795	ACCIDENT FUND CO	WORKERS C...	-2,571.00
Check	12/10/2019	10796	FOWLerville NE...	INVOICE# 38...	-393.00
Check	12/10/2019	5201346	TAMMY L. BEAL	NOVEMBER ...	-254.12
General Journal	12/10/2019	NOV 1...		TOTAL TAXE...	-59.78
Check	12/11/2019	10798	Marion Township Fl...	DECEMBER ...	-2,005.32
Check	12/11/2019	10799	LIV CO REGISTER ...	Schroeder Bo...	-30.00
General Journal	12/11/2019	NOV 1...		ADP FEE - N...	-22.95
Check	12/12/2019	10797	PFEFFER-HANNIF...	Audit for YE J...	-8,235.00
Check	12/12/2019	10803	DTE ENERGY	ACCOUNT# 9...	-510.68
General Journal	12/13/2019	NOV 1...		ADP FEE - N...	-189.45
Check	12/16/2019	10800	Tiffany Richards-Pa...	HALL RENTA...	-100.00
Check	12/16/2019	10801	JENNA LASSILA	HALL RENTA...	-100.00
Check	12/16/2019	10802	PAULA LASSILA	HALL RENTA...	-100.00
Check	12/16/2019	10804	Charter Communica...	ACT# 8245 1...	-406.64
Check	12/16/2019	10805	VOID	VOID: ACT# ...	0.00
Deposit	12/16/2019			Deposit	50.00
Check	12/16/2019	10814	DAVID HAMANN	VOID: DECE...	0.00
Check	12/16/2019	10815	Applied Imaging Sys...	VOID: INVOI...	0.00
Check	12/17/2019	10806	Howell Area Parks &...	INVOICE# 20...	-26,250.00
Check	12/18/2019	10807	CARLISLE/WORTM...	CLIENT# 266 ...	-297.50
Check	12/18/2019	10808	CONSUMERS ENE...	ACT# 1000 1...	-291.57
Check	12/18/2019	10809	B&L Services	SNOWPLOW...	-505.00
Check	12/18/2019	10811	Patrica Hughes	NOVEMBER ...	-19.72
Check	12/18/2019	10812	LIV CO EQUALIZAT...	KEY TOPICS ...	-30.00

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01/07/20

Accrual Basis

General Fund
Custom Transaction Detail Report
Monthly Ledger Report

Type	Date	Num	Name	Memo	Amount
Check	12/23/2019	10810	Rebecca Kangas	HALL RENTA...	-100.00
Check	12/23/2019	10813	Bonnie Cheyne	VOID: HALL ...	0.00
Check	12/26/2019	10816	Blue Cross Blue Shi...	GROUP 0070...	-15,263.82
Check	12/26/2019	10817	DAVID HAMANN	DECEMBER ...	-99.18
Check	12/26/2019	10818	Applied Imaging Sys...	INVOICE # 14...	-504.09
Check	12/26/2019	10819	Colonial Life	BCN# E4270...	-265.83
Check	12/26/2019	10820	BS & A SOFTWARE...	INVOICE# 12...	-205.00
Deposit	12/26/2019			Deposit	1,296.08
Deposit	12/26/2019			Deposit	100.00
Check	12/30/2019	10821	EDWARD LATSON	DECEMBER ...	-300.00
Dec 19					-124,629.95

INTEREST EARNED 2nd QTR FY2020-21

INVESTMENT INTEREST EARNED REPORT FY2020

GENERAL FUND	BALANCE 6/30/2019	Oct	Nov	Dec	EARN YTD	BALANCE YTD
#003						
FNBH Sav #599	\$ 319,029.53	\$ 67.78	\$ 65.61	\$ 67.81	\$ 402.27	\$ 319,431.80
FNBH Land Acq.#342	\$ 50,269.70	\$ 34.03	\$ 32.93	\$ 34.04	\$ 142.30	\$ 200,412.00
FNBH GEN CHECKING	\$ -	\$ 844.32	\$ 814.21	\$ 790.83	\$ 5,380.62	\$ -
The State Bank #737	\$ 240,956.23	\$ 5,006.53			\$ 5,006.53	\$ 245,962.76
Flagstar Bank #054	\$ 124,395.00			\$2,208.70	\$ 2,208.70	\$ 126,603.70
Flagstar Bank #8365	\$ 110,712.07		\$ 1,273.19		\$ 1,273.19	\$ 111,985.26
Key Bank #700	\$ 238,634.07	\$ 101.49	\$ 98.25	\$ 101.57	\$ 602.24	\$ 239,236.31
Monthly Totals	\$ 1,083,996.60	\$ 6,054.15	\$ 2,284.19	\$ 3,202.95	\$ 15,015.85	\$ 1,243,631.83

WATER FUND	Monthly Totals	Oct	Nov	Dec	EARN YTD	BALANCE YTD
#003						
CIBC CD #321	\$ 199,894.81	\$ 301.59	\$ 288.28	\$ 268.30	\$ 2,165.53	\$ 202,060.34
FNBH WATER NEW USER	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Monthly Totals	\$ 199,894.81	\$ 301.59	\$ 288.28	\$ 268.30	\$ 2,165.53	\$ 202,060.34

SEWER FUND	Monthly Totals	Oct	Nov	Dec	EARN YTD	BALANCE YTD
#002						
TCF #072 Closed 12/09/19	\$ 253,610.01	\$ -	\$ -	\$ 5,534.40	\$ 5,534.40	\$ -
Chem #3471 Open 12/9/19	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 200,000.00
Chemical Bank #707	\$ 53,876.48	\$ -	\$ -	\$271.43	\$ 829.38	\$ -
FNBH Sew NOW #6029	\$ 534,094.72	\$ 409.73	\$ 290.36	\$ 337.46	\$ 2,670.04	\$ 650,615.03
Old National Bank #8030	\$ 200,000.00	\$ 410.67	\$ -	\$ -	\$ 410.67	\$ 200,410.67
CIBC CDARS #5648	\$ 2,510,346.54	\$ 4,828.93	\$ 4,681.97	\$ 4,847.17	\$ 28,634.80	\$ 2,538,981.34
Monthly Totals	\$ 3,017,833.03	\$ 5,649.33	\$ 4,972.33	\$ 10,990.46	\$ 38,079.29	\$ 3,590,007.04
Grand Total	\$ 12,005.07	\$ 7,544.80	\$ 14,461.71	\$ 57,105.86	\$ 5,458,018.69	

1st Qtr (Jul-Sept)	\$ 23,094.28
2nd Qtr (Oct-Dec)	\$ 34,011.58
3rd Qtr (Jan-Mar)	\$ -
4th Qtr (Mar-Jun)	\$ -
July to June Total	\$ 57,105.86



MARION TOWNSHIP

mariontownship.com

RESOLUTION TO APPROVE PERMIT FOR TRIANGLE LAKE GEESE MANAGEMENT FUNDED BY THE EXISTING SPECIAL ASSESSMENT DISTRICT

At a meeting of the Township Board (the "Township Board") of the Township of Marion (the "Township") held at the Township Hall on January 23, 2020 at 7:30 p.m. local time, there were:

PRESENT:

ABSENT:

The following preamble and resolution were offered by _____ and seconded by _____.

WHEREAS, the township board of the Township of Marion, Livingston County, Michigan, pursuant to a request by the Triangle Lake Property Owners Association Board of Directors, has reviewed the requirements for a State of Michigan Geese Round Up permit;

AND WHEREAS, the Township Board is aware of the possibility that the geese rounded up may be killed and/or processed for use as charitable food donations;

AND WHEREAS, residents have tried alternate methods of control;

AND WHEREAS, a geese roundup permit requires participation in nest destruction;

NOW THEREFORE IT BE RESOLVED AS FOLLOWS:

1. The Marion Township Board approves the application for a Canadian Geese Round Up permit for Triangle Lake.

2. The Marion Township Board approves the application for a Canadian Geese nest destruction permit for Triangle Lake.
3. The permit fee will be funded by Marion Township and reimbursed to the township by the Special Assessment District already created.
4. This resolution shall be in effect for the same time period as the Special Assessment District that ends with the expenses for 2024.

Upon roll call vote on the adoption of the resolution,

The following voted "Aye":

The following voted "Nay":

The following abstained:

**THE SUPERVISOR DECLARED THE RESOLUTION ADOPTED.
STATE OF MICHIGAN
COUNTY OF LIVINGSTON**

I, the undersigned, the duly qualified and acting clerk for the Township of Marion, Livingston County, Michigan, DO HEREBY CERTIFY that the foregoing is a true and complete copy of certain proceedings taken by the Board of Trustees at a meeting held on the 23th day of January, 2020 and further certify that the above Resolution was adopted at said meeting.

Tammy L. Beal, Marion Township Clerk

From City of Howell tax records. Last years the parcels were taxed by the City. North parcel AV \$537,100, South parcel AV \$296,900. Total AV \$834,000, implies combined true cash value of \$1,668,000.

North Darakjian Parcel

General Information for 2014 Winter Taxes

School District	47070
Taxable Value	\$537,100
Property Class	202 -
Tax Bill Number	00210
Last Payment Date	01/02/2015
Base Tax	\$3,591.36
Admin Fees	\$35.91
Interest Fees	\$0.00
Total Tax & Fees	\$3,627.27

PRE/MBT	0.0000%
Assessed Value	\$537,100
Last Receipt Number	00001906
Number of Payments	1
Base Paid	\$3,591.36
Admin Fees Paid	\$35.91
Interest Fees Paid	\$0.00
Total Paid	\$3,627.27

South Darakjian Parcel

General Information for 2010 Winter Taxes

School District	47070
Taxable Value	\$296,900
Property Class	302 -
Tax Bill Number	01536
Last Payment Date	01/06/2011
Base Tax	\$1,671.85
Admin Fees	\$16.71
Interest Fees	\$0.00
Total Tax & Fees	\$1,688.56

PRE/MBT	0.0000%
Assessed Value	\$296,900
Last Receipt Number	00002248
Number of Payments	1
Base Paid	\$1,671.85
Admin Fees Paid	\$16.71
Interest Fees Paid	\$0.00
Total Paid	\$1,688.56

MEMO

To: Marion Township Board
From: Bob Hanvey
Subject: MHOG Water Reliability Study Implications
Date: January 23, 2020

Attached to this memo is a summary of the MHOG Water Reliability Study that is required by the State of Michigan to demonstrate that the authority will be able to meet the demands for water service by the residents in the service area. It looks at the existing conditions and projections for five and twenty-five years in the future.

As currently constructed, the wells and water treatment plant have the ability to produce more water than be distributed by the existing water mains.

To resolve this situation, MHOG has been working on plans to add water main from Sanitorium Road to the water tower at Hometown with a projected cost of about \$3,500,000 to meet demand in the near-term.

Looking at water demand in the five year term, an additional water main from the water plant on Norton Road to the ground storage tanks on Sanitorium will be required at an estimated cost of \$2,500,000.

Because the two water mains are located in the same area, there should be substantial savings if they are contracted and constructed as a single project.

These two improvements are considered "system improvements" that benefit all four townships and as such the cost should be shared equally.

Also attached to this memo is a letter from Ken Palka with possible suggestions for financing the project without the need to sell bonds.

This is an appropriate time for the Township to begin discussion on the issue.

Water Reliability Study

December 2019

PRESENTED TO

MHOG Sewer and Water Utilities
2911 Dorr Road
Brighton, Michigan 48116

PRESENTED BY

Tetra Tech P +1-517-316-3930
401 S. Washington Square F +1-517-484-8140
Suite 100 tetratech.com
Lansing, Michigan 48933



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EXECUTIVE SUMMARY

Marion-Howell-Oceola-Genoa Sewer and Water Utilities (MHOG) operates a public drinking water system in portions of Marion, Howell, Oceola, and Genoa Townships in Livingston County, surrounding the City of Howell and west of the City of Brighton. As such, Part 12 of Michigan Public Act 399 of 1976, known as the Safe Drinking Water Act, requires each owner of a public drinking water system to complete a study every five years to evaluate the reliability of the system to ensure a continuous supply of water. Compliance is enforced by the Michigan Department of Environment, Great Lakes, and Energy (EGLE). MHOG initiated this study to comply with the reporting requirement and assess the performance of the MHOG water system. The last reliability study was completed in 2014. This past year, Tetra Tech was retained to complete the study, which includes compiling water demand data, calibrating and running a numerical model of the distribution system, and mapping efforts, among other tasks. The purpose of this report is to present the required data, provide an assessment of the system's performance, and look at future growth and demand conditions to make Capital Improvement recommendations.

Existing System Data

The MHOG system has approximately 5,507 current service connections. Residential customers account for 4,947 of them. Most of the commercial customers are located along Grand River Avenue and M-59. Since 2014, just under 5 miles of new water main was added to the distribution system.

MHOG's water is supplied by wells that can produce up to 12 million gallons per day (MGD) of raw water. The water is treated by one of the two interconnected water treatment plants and pumped into the distribution system. The North Plant has a capacity of 4 MGD and the South Plant has a capacity of 8 MGD. There are six wells in the system, located adjacent to the water treatment plant, where softening, pH adjustment, filtration, disinfection, and fluoride addition occurs. The wells have a firm capacity of 10 MGD. Wells are performance tested annually, and one well each year is pulled, televised, and reconditioned as necessary. All wells were in good operating condition in 2019.

The water distribution network is comprised of 4- to 24-inch diameter water mains. The water main is primarily ductile iron, with small percentages of PVC and HDPE. The oldest water mains in the system were installed in the late 1980s.

There are four major booster stations (Butler, Industrial Drive, Sanitorium Road West, and Sanitorium Road East) in MHOG's system to maintain levels in the water towers, and one smaller, local booster station (Georgetown) to maintain pressure for 10 homes near the ground storage tanks in Marion Township. The six storage facilities in the system have a total storage volume of 6.8 million gallons (MG). The two ground storage tanks are filled while the water treatment plant is operating and supply water to the system via the Sanitorium Road Booster Station. All towers were inspected, cleaned, and painted as necessary between 2016 and 2019 and were found to be in good overall condition.

In case of a power failure, the water supply and treatment plant have three permanent auxiliary power sources which can operate all six wells and the treatment process. MHOG also has permanent or portable power sources at all booster stations and towers.

MHOG has completed several tasks in the last five years to ensure that they continue to provide a reliable source of drinking water to their customers. On a regular basis they review and update planning materials, flush the system, test auxiliary power sources, exercise valves, and have the wells and storage facilities inspected. MHOG has also replaced two of the 2 MGD high service pumps with one 4 MGD high service pump, replaced the programmable logic controller (PLC) and replaced the north plant claricone lime sludge waste pump. They also upgraded their SCADA system and replaced the PLCs at Butler Road Booster Station, Golf Club Road PRV, and Oceola Tower.

MHOG's current Capital Improvement Plan includes eight projects, including six which were identified as recommended improvements in the 2014 Reliability Study.

The MHOG System Emergency Response Plan was updated in December 2019.

Water Production and Demands

The average day demand (ADD) from January 2015 through November 2019 was 1.74 MGD averaged over all months and 2.24 MGD for the May to September period, including backwashing and hydrant flushing operations. During the summer months, the ADD is more than 250 gallons per day (gpd) per REU. Since 2015, the average day demand has been increasing at approximately 3 percent per year.

The maximum day demand (MDD) recorded for the system is 4.5 MGD, which occurred in 2007. Since 2008, the maximum day demand has not exceeded 4.45 MGD, which occurred in July 2018.

The future service area boundaries projected for MHOG's system are approximately the same as the existing service boundaries for the 5-year planning period, with development outside of the existing service boundaries projected within the 20-year planning period. The growth in the 5-year planning period is assumed to occur at the same rate as the last two years. By 2024, growth is projected to increase the ADD, MDD, and PHD of the system to 2.9, 5.8, and 9.0 MGD, respectively. The growth in the 20-year planning period was projected to increase the demand to about 8.0 MGD during the maximum day demand.

The difference between the amount of water that is produced but not billed is called non-revenue water. A portion of the non-revenue water is used by MHOG for purposes such as hydrant flushing or firefighting (unbilled utility use), but the remaining water is considered lost water. The average non-revenue water between 2015 and 2019 was approximately 9 percent of the total water production which is considered low. As a general rule, water losses in excess of 15 percent are considered high in the industry.

Hydraulic Model Updates

MHOG maintains a hydraulic model of its water distribution network. As part of the water reliability study, the pipe network, demands, and the calibration were reviewed and updated. The model uses summer demands and system controls for the extended period performance simulations.

Static and residual pressure measurements were made at 26 locations in the system in June 2019. Five tests were discarded for the calibration because upon review the data did not appear accurate or the pressure drop was not satisfactory. Pump operation and tower levels were also recorded. A 2 psi threshold was used to ensure satisfactory calibration of the static pressures and a 15 percent threshold of the projected available flow rate at 20 psi residual pressure was used to ensure satisfactory calibration of the system's energy losses.

The modeled pressures matched the measured pressures well and the model was verified to be within 9 to 7 percent of predicted flow rates at 20 psi. Overall the difference between the modeled and measured static pressures was 0 psi. For the residual calibration, the model is conservative since it underestimated the available fire flow at 20 psi residual pressure by 3 percent (60 gpm) on average.

System Performance and Recommendations

The system performance, including supply capacity, storage volume capacity, and distribution capacity, was assessed for existing, 5-, and 20-year planning periods. Pressures were evaluated using the extended period simulation function of the model, which calculates the pressure throughout a 24-hour period as demand, pump operation, and tank levels change. Typically, the minimum pressure occurs during the peak hour demand. Available fire flows were evaluated with a steady state simulation at the maximum day demand.

The supply capacity should equal or exceed the maximum day demand to provide a reliable supply of water, while the peak hour demand should be accommodated by storage in the system. The current condition maximum day demand does not exceed MHOG's supply and treatment firm capacities.

During a power failure, there is adequate auxiliary power and storage to maintain normal system operation and maintain sufficient volume in storage in case of a fire on an average demand day. There is also adequate storage volume during the maximum day demand during the existing, projected 2024, and projected 2039 conditions. Additional storage volume in case of a power failure is not critical at this time.

For existing conditions, minimum pressures during the peak hour demand remain above 35 psi throughout the system and all portions of the service area have at least 1,000 gpm of available fire flow at 20 psi residual pressure. No distribution improvements are recommended for the existing conditions based on the current system performance.

During the projected 2024 conditions, with the current system, the minimum pressures during the peak hour demand drop to below 20 psi in Pressure Districts 2, 3 and 4. Hometown, Oceola, and Marion #1 and #2 Towers completely dewater and fire flows in Pressure District 2 and 3 drop below 1,000 gpm.

Several improvements are recommended to mitigate the lower tower levels, improve pressure and fire flow, and reduce the operating time of the water treatment plant for the projected year 2024 conditions:

- Improvement A: Move the portion of the service area along Latson Road in Oceola Township from Pressure District 2 to Pressure District 3 by opening and closing existing valves.
- Improvement B: Switch the pumping direction of the high and low head pumps at the Sanitorium Road Booster Station and construct 7,000 feet of 20-inch water main from County Farm Road to Peavy Road.
- Improvement C: Construct 10,000 feet of 24-inch water main from Norton Road to the Marion tanks to provide a dedicated feed line from the water treatment plant.

With the recommended improvements, the model predicts that the pressures will rebound to at least 35 psi in all locations during the peak hour demand and all towers will maintain a sufficient reserve volume.

By 2039, MHOG plans on connecting to the existing Genoa Township Oak Pointe water system which is south of Pressure District 3 and is projected to add 1 MGD to the MDD. During the projected 2039 conditions with the 2024 improvements in place and the water treatment plant operating at 12 MGD, the minimum pressures during the peak hour demand drop to below 20 psi in Pressure District 3 and 4. Hometown and Genoa Towers completely dewater and fire flows in Pressure District 3 drop below 1,000 gpm.

Several improvements are necessary to mitigate the lower tower levels and improve pressure and fire flow for the projected year 2039 conditions:

- Improvement D: Abandon the Industrial Drive Booster Station and construct a 3,600 gpm (firm capacity) booster station on Lucy Road near I-96.
- Improvement E: Construct 8,300 feet of 16-inch water main from Lucy Road to Grand Oaks Drive.
- Improvement F: Construct 1,700 feet of 16-inch water main on Latson Road between Vicksburg Way and Rainier Drive.
- Improvement G: Construct 14,400 feet of 12-inch water main on south Latson, from Beck Road to Siem Road, to connect to the existing Oak Pointe water distribution network and construct an 1100 GPM pump station at the east end of Siem Road to supply Oak Pointe's elevated tower.

With the recommended improvements, the model predicts that the pressures will rebound to at least 35 psi in all locations during the peak hour demand.

Conclusions

MHOG operates a safe and reliable potable water system for its customers and has been proactive in its efforts to maintain and improve its infrastructure and planning for future needs. Using a calibrated model of the distribution system, pressures were shown to remain above 35 psi for the existing peak hour demand and fire flows at 20 psi residual pressure exceed 1,000 gpm in all locations.

For the projected year 2024 conditions, several infrastructure improvements are projected to be necessary to maintain a reliable system. MHOG should continue to plan for these improvements, as they are all high priority improvements. For the projected 2039 conditions, several additional infrastructure improvements are projected to be necessary to maintain a reliable system and to be able to connect the existing Oak Pointe water system to MHOG's system.

This report meets the requirements of a water reliability study, including:

- Population, service connections, and residential equivalency units within the service area.
- Current and projected 5- and 20-year average day, maximum day, and peak hour demands.
- Historical water supply by source.
- Water supplied to other water systems (none) and water use by customer class.
- Summary of facility conditions.
- Analysis of unaccounted water and potential sources.
- Demonstration of adequate capacity for existing and future demands and continuous distribution capacity.
- Demonstration of adequate backup power service.
- Calibrated hydraulic model with model runs for existing, 5-, and 20-year conditions and capital improvements for the 5- and 20-year planning periods.
- General Plan Map with water main location, size, material, and age and other critical facilities.
- Emergency Response Plan



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January 10, 2020

Dr. Greg Tatara
Utility Director
Marion-Howell-Oceola-Genoa Water Authority (MHOG)
2911 Dorr Road
Brighton, Michigan 48116

Dear Greg,

You have requested we give to you our recommendation as to how to finance the construction of two water system projects in the MHOG water system. The projects and respective budgets are as follows:

- 1) Water Transmission from Sanitorium to Hometown Village \$3,500,000;
- 2) Water Transmission from Water Treatment Plant to Sanitorium Water Storage Tanks \$2,500,000.

The total estimated cost is \$6,000,000. Both of these projects are considered common costs (beneficial to all users), therefore the costs should be applied evenly over all users.

The Authority has the option of bonding for the projects. You have explained the Authority really does not want to do this because of the financing costs (legal, interest, etc) involved.

We believe the Authority has the ability to pay cash for the projects. The Authority has approximately \$2,000,000 and the Townships have approximately \$4,000,000. We suggest the water new user monies at the township level be contributed toward the projects on an equal basis. We believe this can be done even though each Township does not have at this time monies available in its water new user (tap) funds.

Based on discussions with Township officials and knowing the amount of monies available in MHOG Reserves, we are providing the following example for the financing of the projects.

Contribution from MHOG Reserves - \$2,000,000

Contribution from Oceola Township - \$3,000,000

Contribution from Genoa Township - \$1,000,000

Contribution from Howell Township - \$0.00

Contribution form Marion Township - \$0.00

The Townships will settle up in the future with additional contributions (outside of the current required \$3,500 per REU) in order to equalize overall contributions. An accounting would be maintained tracking the original contributions and amounts of future contributions.

In this case, each Township would be required to contribute \$1,500,000 (\$6,000,000 / 4 townships). Since Oceola Township is contributing \$3,000,000 at this time, it would have a credit of \$1,500,000. Genoa Township will have an amount due of \$500,000. Howell and Marion Townships will have amounts due of \$1,500,000 per each township.

The amounts used are for example purposes only and could be changed depending on how much each Township has in its water new user tap funds available for contribution to MHOG.

We look forward to discussing the aforementioned at your convenience.

Sincerely,

A handwritten signature in cursive script, appearing to read "K Palka".

Kenneth Palka

**MARION TOWNSHIP
DEVELOPMENT STANDARDS
AUGUST 2019**

DRAFT

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GENERAL PLAN SUBMITTAL REQUIREMENTS AND PROCEDURES

I. PURPOSE

- A. It is the purpose of this Section to specify standards and data requirements, which shall be followed in the preparation of the site plans. It is also the purpose of this Section to ensure that:
1. The proposed use will not be injurious to the surrounding neighborhood and protects the general health, safety, welfare, and character of the Township;
 2. Natural resources will be preserved to the maximum extent possible in the site design by developing in a manner which will not detrimentally affect or destroy natural features such as lakes, ponds, streams, wetlands, steep slopes, soils, ground water, and woodlands; and
 3. Landscaping, including grass, trees, shrubs, and other vegetation is provided to maintain and improve the aesthetic quality of the site and area.

II. SITE PLAN PROCEDURE SUMMARY

- A. A site plan shall be reviewed by the Planning Commission, who shall then provide a recommendation of approval, approval with conditions, or denial, to the Township Board of Trustees. The Township Board of Trustees must approve or approve with conditions the final site plan prior to the establishment of any new land use, change of use, addition to an existing use, or the erection of any structure in any zoning district. Individual single-family structures erected within a single lot, parcel or building envelope shall not require site plan review.
1. The Township shall not issue a land balancing permit until the final site plan has been approved by the Township Board of Trustees and is in effect.
 2. No grading, removal of trees or other vegetation, landfilling, land balancing, or construction of improvements shall commence for any development that requires site plan approval until a final site plan is approved and is in effect, except as otherwise provided in these specifications.

B. Preliminary Site Plan

1. **Application.** Any applicant may submit a request for preliminary site plan review by filing with the Zoning Administrator completed forms, payment of the review fee required herein, and three (3) copies of the plans or a PDF file. Upon review and approval by the Zoning Administrator, the Township Planner, the Township Engineer, and any other applicable agencies, nine (9) copies of the administratively approved preliminary site plan drawing(s) shall be submitted for distribution to the Township Planning Commission. Upon Planning Commission approval, an additional eight (8) copies of the plans shall be submitted for distribution to the Township Board of Trustees. Unless specifically directed by the Zoning Administrator, the Board of Trustees submittal shall be the same as the Planning Commission submittal and no changes shall be made to the plans. The Administrator shall transmit only administratively complete submittals of the preliminary site plan to the Planning Commission and Township Board. The purpose of such preliminary review is to confirm general compliance with Township standards as well as to suggest changes, if necessary, for final site plan approval
2. **Combining Preliminary and Final Site Plans.** An applicant may, at the discretion of the Administrator and/or the Planning Commission, request to combine a preliminary and final site plan in one (1) application for approval. In such a situation, the portion of the review process concerning preliminary site plan application and review may be waived by the Planning Commission. The Planning Commission shall have the authority to require

submittal of a preliminary site plan separate from a final site plan where, in its opinion, the complexity and/or scale of the site for the proposed development to warrant.

3. **Pre-application meeting.** The applicant may request a pre-application meeting with the Planning Commission to discuss a proposed project. The item will be placed on an agenda of a regularly scheduled Planning Commission meeting. Site plan approval will not be given during a pre-application meeting discussion.
4. **Information Required.** Site plans shall consist of an overall plan for the entire development. Sheet size shall be at least 24" x 36" with plan view drawn to a scale of no greater than 1" = 50'. A preliminary site plan submitted for review shall contain all of the following information in a clear and legible format:

General Information

- a. Name of the proposed development
- b. Name, address, phone, fax number and/or email address of applicant(s), property owner(s), engineer(s), architect(s), and landscape architect(s). The property owner must provide written approval of all project representatives.
- c. A written narrative of the proposed use(s) of the property. For other than residential uses, including factors that potentially impact the proposed development may have on the surrounding area.
- d. One (1) presentation quality aerial photograph with adjacent property information and features including, though not limited to, the following: land use(s), property owner(s), sidwell number(s), location of adjacent buildings, driveways, streets, existing and proposed lot lines, building lines, structures, and parking areas on the parcel and within one hundred (100) feet of the site.
- e. Date of plan preparation, including revision dates.
- f. Complete legal description of the site.
- g. Professional seal of a registered architect, engineer, surveyor, landscape architect, or a planner.
- h. Vicinity map drawn at a scale of 1" = 2,000'.
- i. Dimensions and gross acreage of the site.
- j. Zoning classification of petitioner's parcel and all abutting parcels and demonstration of compliance with lot area, width, coverage, and setback requirements.
- k. Scale and north arrow on each plan sheet.
- l. Existing natural features and man-made features to be retained or removed.
- m. Adjacent property information and features including, though not limited to, the following: land use(s), property owner(s), sidwell number(s), zoning classification, location of adjacent buildings, driveways, streets.
- n. Existing and proposed lot lines, building lines, structures, parking areas, etc., on the parcel and within one hundred (100) feet of the site.
- o. Proposed construction phasing.
- p. Identification of variances that are be required.

Physical Features

- a. Location, size, and dimension of proposed buildings/structures, including floor area, finished floor elevation, number of floors, height, number and type of dwelling units (where applicable).
- b. Location of existing and proposed private and public roads and access drives, including general alignment, right-of-way or easement, surface type, and width.

- c. Location, size, and dimension of the following existing and proposed site features: water main, wells, detention and forebay basins, private utilities, utility poles, and public and private easements.
- d. Location, size, and dimension of existing and proposed storm sewer, culverts, ditches, and public and private storm sewer easements.
- e. Location, size, and dimension of existing and proposed sanitary sewer, septic fields, reserve septic fields, sewage disposal facilities, and public and private sanitary sewer easements.
- f. Location of all existing and proposed parking, including dimensions of spaces, maneuvering lanes, and surface type, where applicable.

Natural Features

- a. Soil characteristics of the parcel to at least the detail provided by the U.S. Soil Conservation Service, Soil Survey of Livingston County, Michigan.
- b. Existing topography with a maximum contour interval of two (2) feet for the site and beyond the site for a distance of one hundred (100) feet in all directions. Final grading plan, showing finished contours at a maximum interval of two (2) feet, correlated with existing contours so as to clearly indicate required cutting, filling, and grading.
- c. Location of existing wetlands, drainage courses, floodplains, and associated bodies of water, within one hundred (100) feet of the site, and their elevations.
- d. Location of existing woodlands delineated with symbolic lines tracing the spread of the outermost branches and shall be described as to the general sizes and kinds of trees contained.
- e. Location of natural resource features, including, but not limited to, woodlands and areas with slopes greater than eighteen percent (18%) incline.

Additional Requirements for Residential Developments

- a. Density calculation by type of unit.
- b. designation of units by type and number of units in each building.
- c. Amount, type, and location of common open space, including general and limited common elements within a site condominium, and any recreational amenities (i.e., playground equipment).

5. **Planning Commission Action.** The Planning Commission shall recommend to the Township Board of Trustees approval, approval with conditions, or denial of the preliminary site plan. If the preliminary site plan requires extensive revisions to meet Township requirements, the Planning Commission may recommend denial of the preliminary site plan. The Planning Commission shall set forth the reason for its action in the record of the meeting at which action is taken.
 - a. The Planning Commission recommendation of the preliminary site plan shall be forwarded to the Township Board of Trustees for its review.
 - b. If the preliminary site plan is recommended for denial, the applicant may address all the conditions and submit the revised preliminary site plan to the Zoning Administrator for further action by the Planning Commission.
 - c. The Township Board of Trustees shall review the preliminary site plan and approve, approve with conditions, or deny the preliminary site plan.
 - d. If the Board of Trustees approves the preliminary site plan, the applicant may

submit a final site plan to the Zoning Administrator in accordance with the provisions herein.

- e. If the preliminary site plan is approved with conditions, the applicant shall address all the conditions during final site plan review.
 - f. If the preliminary site plan is denied by the Township Board, the applicant may submit an alternative preliminary site plan to the Zoning Administrator for review by the Planning Commission in accordance with the provisions herein.
6. **Effect of Approval.** Approval or approval with conditions of a preliminary site plan by the Township Board of Trustees shall indicate general acceptance of the use and the proposed layout of buildings, streets and drives, parking areas, other facilities, and overall character of the proposed development.
7. **Expiration of Approval.** Approval of a preliminary site plan by the Board of Trustees shall be valid for a period of one (1) year from the date of approval and shall expire and be of no effect unless a completed application for a final site plan approval with all necessary supporting information is filed with the Zoning Administrator within that time period.

C. Final Site Plan

1. **Application.** For final site plan, the applicant shall submit to the Zoning Administrator three (3) copies of the plans or a PDF file. Upon review and approval by the Zoning Administrator, the Township Planner, the Township Engineer, and any other applicable agencies, nine (9) copies of the administratively approved preliminary site plan drawing(s) shall be submitted for distribution to the Township Planning Commission. Upon Planning Commission approval, an additional eight (8) copies of the plans shall be submitted for distribution to the Township Board of Trustees. Unless specifically directed by the Zoning Administrator, the Board of Trustees submittal shall be the same as the Planning Commission submittal and no changes shall be made to the plans. The Administrator shall transmit only administratively complete submittals of the preliminary site plan to the Planning Commission and Township Board.
2. **Information Required.** Site plans shall consist of an overall plan for the entire development. Sheet size shall be at least 24" x 36" with plan view drawn to a scale of no greater than 1" = 50'. A final site plan submitted for review and approval shall contain all of the information required for the preliminary site plan in addition to the following data presented in a clear and legible format.

Physical Features

- a. Location of existing and proposed centerline, edge of roadway, approach radii at intersections, and pavement cross-sections for public and/or private roads on site or abutting the site. Acceleration, deceleration, passing lanes, approaches, and curb and gutter shall also be shown.
- b. There is a proper relationship between major thoroughfares and proposed service drives, driveways, and parking areas. Proper access to all portions of the site and all sides of any structure is provided. All structures or groups of structures shall be so arranged as to permit emergency vehicle access by some practical means.
- c. Existing and proposed location, width, and approach radii of access drives, driveways, sidewalks, pathways, and curb and gutter. Pavement cross sections shall be provided for each.
- d. Existing and proposed off-street parking with calculation of the number of parking spaces required and provided.

- e. Location of existing storage tanks. This may include, but not be limited to, information on the following:
 - I. Chemical and fuel storage tanks and containers;
 - II. Water supply facilities;
 - III. Sanitary sewage disposal facilities;
 - IV. Storm water control facilities and structures; and
 - V. Location of all easements.
- f. Sites which include storage of hazardous materials or waste, fuels, salt, or chemicals will be designed to prevent spills and discharges of polluting materials to the surface of the ground, groundwater or nearby water bodies in accordance with County and State standards, where applicable.
- g. Location, size/dimension of existing and proposed fire hydrants, water service and fire suppression leads, and public and private water main easements. (All proposed water mains must meet the standards of the Marion, Howell, Ocoola, Genoa (MHOG) Water Authority.)
- h. Grading and overflow route for proposed and existing detention and forebay basins and public and private drainage easements. Calculations shall be included and indicate that the detention and forebay areas meet the Livingston County Drain Commission standards.
- i. A note shall indicate the ultimate outlet for storm water runoff (County Drain, creek, or river).
- j. Location of all building structures with setback and yard dimensions.
- k. Dimensioned floor plans and typical elevation views for all buildings, where applicable.
- l. Proposed exterior lighting locations, typical detail, and illumination pattern.
- m. Location and description of all existing and proposed landscaping, berms, fencing, retaining walls, and quantity and size of all proposed landscaping.
- n. Trash receptacle pad location, area, method of screening, pavement type and cross-section.
- o. Location, area, depth, and method of screening of transformer pads, compressors, air conditioners, generators, refrigeration units, and similar equipment, where applicable.
- p. Entrance detail(s) including traffic control and monument sign locations and size.
- q. Designation of fire lanes.
- r. Proposed grading and how it shall tie into existing grading, and the limits of clearing and grading. Elevations shall be provided at, though not limited to: top of curb and/or edge of pavement, edge of walk/pathway, top and bottom of retaining wall, property corners, finished floor, storm structures, and detention and forebay high water.
- s. Location of existing and proposed ground, wall, or directional signs, and details of all proposed signs.
- t. Any other pertinent physical features.

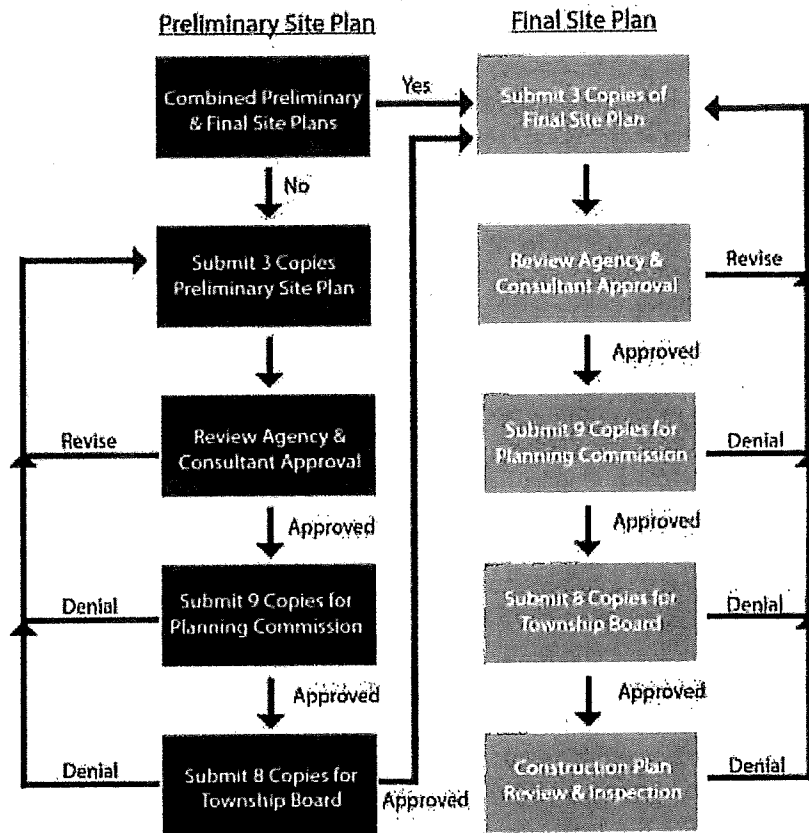
Additional Requirements for Commercial and Industrial Developments

- a. Loading/unloading areas.
- b. Total and useable floor area.
- c. Number of employees in peak usage.

3. **Standards for Review.** In reviewing the final site plan, the Planning Commission and Township Board shall determine whether the plan meets the following specification and standards:
 - a. The plan conforms to the approved preliminary site plan and with all Zoning Ordinance regulations.
 - b. All required information is provided.
 - c. The proposed use is in compliance with all Township Ordinances and any other applicable laws.
4. **Planning Commission Action.** The Planning Commission shall recommend to the Township Board of Trustees approval, approval with conditions, or denial of the final site plan. If the final site plan requires extensive revisions to meet Township requirements, the Planning Commission may recommend denial of the preliminary site plan. The Planning Commission shall set forth the reason for its action in the record of the meeting at which action is taken.
 - a. The Planning Commission recommendation of the final site plan shall be forwarded to the Township Board of Trustees for its review.
 - b. If the final site plan is recommended for denial, the applicant may address all the conditions and submit the revised final site plan to the Zoning Administrator for further action by the Planning Commission.
 - c. The Township Board of Trustees shall review the final site plan and approve, approve with conditions, or deny the final site plan.
 - d. If the preliminary site plan is denied by the Township Board, the applicant may submit an alternative final site plan to the Zoning Administrator for review by the Planning Commission in accordance with the provisions herein.
5. **Effect of Approval.** A recommendation of approval advances the final site plan to the Township Board of Trustees for its review and action. Upon approval of a final site plan by the Township Board of Trustees, the applicant may apply for a land use permit **for land balancing ONLY** in accordance with the terms of the approved final site plan and any other Township requirements. Land use permits for building shall only be issued after construction plan approval.
6. **Expiration of Approval.** Approval of a final site plan shall expire and be of no effect one (1) year following the date of approval unless construction has begun on the property in conformance with the approved final site plan.
7. **Conformity to Approved Site Plans.** Property, which is the subject of an approved final site plan, must be developed in strict compliance with the approved final site plan and any amendments thereto which have been approved by the Township Board of Trustees. If construction does not conform to the approved final site plan, the approval shall be revoked. Upon revocation of such approval, all construction activities shall immediately cease upon the site, other than actions taken to correct the violation. For residential developments, no land use permit for dwellings shall be issued until the first course of blacktop, by development phase if applicable, and landscaping has been installed. The required landscaping shall include, but not be limited to, greenbelts, entrance(s), detention/retention basins, and buffers as shown on the approved final site plan.
8. **Amendment of Approved Site Plan.** The Zoning Administrator shall have the authority to determine if a proposed change requires an amendment to an approved final site plan. The Zoning Administrator may approve minor changes in an approved final site plan, provided that a revised final site plan drawing(s) be submitted showing such minor changes, for purposes of record. An approved final site plan may be amended upon re-

application including any fees required and in accordance with the procedure herein for a final site plan.

- D. **Construction Plan Review** Following approval of the final site plan by the Township Board of Trustees, the applicant shall submit to the Zoning Administrator two (2) copies of construction plans as well as any other data and exhibits hereinafter required. The construction plans shall be consistent with the approved final site plan but shall provide greater detail in accordance with these standards. Approval of the construction plans by appropriate authorities is required prior to beginning construction.
- E. **Construction Observation** Marion Township or its designated representative will provide observation on all proposed public utilities and improvements, as well as limited construction observation of private improvements. The requirements for construction observation and final project closure shall be in accordance with these standards, as amended.



III. CONSTRUCTION PLAN SUBMITTAL PROCEDURES

- A. Following approval of the preliminary and final site plans by the Township, the applicant shall submit to the Zoning Administrator two (2) copies of construction plans as well as any other data and exhibits hereinafter required, the review fee, and a completed application form. After the initial submittal, subsequent revisions can be sent directly to the Township Engineer.
- B. The construction plans shall address the same concerns as the final site plan but shall include much greater detail in accordance with the adopted Marion Township Engineering Standards. Approval of the construction plans is required prior to beginning construction.
- C. As part of the review process, the Township Engineer may contact the Township, the DPW, Fire Department, or other regulatory agencies for comments and feedback. If other agencies (MDOT, MDEQ, LCRC, LCDC, etc.) have not completed their reviews, the Township Engineer may request that their comments be supplied to the Township Engineer prior to final approvals. In general, the following agencies shall have review authority over the type of improvement:
 1. Marion Township
 - a. Sanitary sewer and appurtenances
 - b. Public and Private water distribution system and appurtenances
 - c. Private storm sewer and appurtenances
 - d. Stormwater management (detention, retention, etc.)
 - e. Private roads and paved areas
 - f. Pathways and sidewalks
 - g. Grading and restoration
 - h. Any other improvements not regulated by another agency
 2. Livingston County Road Commission (LCRC)
 - a. Public roads, streets, and right-of-ways
 3. Livingston County Drain Commissioner (LCDC)
 - a. Public storm sewer and appurtenances
 - b. Stormwater management (detention, retention, etc.)
 - c. Soil Erosion Control
 4. Livingston County Department of Public Health
 - a. Private septic fields
 - b. Private water wells
 5. Marion Howell Ocala Genoa Water Authority (MHOG)
 - a. Public water distribution system and appurtenances
- D. When plans are complete and ready for approval the Township Engineer will request additional sets of plans be submitted for distribution to MDEQ for sanitary sewer permitting (see item 7 in this section).
- E. The applicant shall be responsible for submitting directly to the LCRC, LCDC, MHOG, and other separate regulatory agencies (MDOT, MDEQ for wetland permitting, etc.). Any such approvals shall be forwarded to the Township Zoning Administrator and the Township Engineer prior to beginning construction.
- F. All public improvement plans submitted for permits must carry the seal and signature of the Design Engineer. Note that the amount and type of sanitary and/or water main pipe must be summarized on the cover sheet when MDEQ permitting is required.
- G. Sanitary sewer plans along with a completed MDEQ Sanitary Sewer Permit Application Part 41, shall be provided to the Township Engineer. The Township engineer will have the Township execute the permit application and then forward the application and plans to the MDEQ for

permitting.

- H. Modification of Plan During Construction. All improvements shall conform to the final site plan. It shall be the responsibility of the applicant to notify the Zoning Administrator of any such changes prior to such change being made. Any changes which result in a material alteration of the approved final site plan shall require resubmittal of a site plan, which shows the proposed changes, to the Planning Commission including any fees determined by the township Board of Trustees. The Planning commission or Township Board of Trustees may require the applicant to correct the changes so as to conform to the approved final site plan.
- I. Phasing of Development. The applicant may, at their discretion, divide the proposed development into two (2) or more phases. In such case, the preliminary site plan shall cover the entire property involved and shall clearly indicate the location, size, and character of each phase. A site plan for each phase shall be submitted in accordance with the procedure herein for a final site plan including any fees required.
- J. Appeals. No decision or condition related to a construction plan approval shall be taken to the Zoning Board of Appeals
- K. Fees. The Marion Township Board shall establish by resolution a fee schedule to defray costs, which may include but not be limited to inspection, plan review, administration, and enforcement of this section. Before final approval, any costs incurred by the Township shall be paid by the applicant. The applicant may also be required to post a cash Escrow Account according to Section 4.07 of the Marion Township Zoning Ordinance.

IV. INSURANCE

- A. Prior to construction, the Contractor shall procure and maintain, during the term of the project, public liability and property damage insurance with a responsible insurance company which meets the approval of Marion Township, in such amounts as will be adequate to protect the public, Marion Township interests, and shall not be less than the limits set forth herein.

Type of Insurance:

- 1. Workmen's Compensation Insurance and Employer's Liability Limit: As required by laws of State of Michigan

Public Liability & Property Damage:

Bodily Injury:	Each Occurrence:	\$1,000,000
	Aggregate:	\$2,000,000
Property Damage:	Each Occurrence:	\$1,000,000
	Aggregate:	\$2,000,000

Owner's and Contractor's Protective Liability & Property Damage:

Bodily Injury:	Each Occurrence:	\$1,000,000
	Aggregate:	\$2,000,000
Property Damage:	Each Occurrence:	\$1,000,000
	Aggregate:	\$2,000,000

Motor Vehicle (including Owner, Hired and Non-Owned Vehicles):

Bodily Injury:	Each Occurrence:	\$1,000,000
Property Damage:	Each Occurrence:	\$1,000,000
Combined Single Limit:		\$2,000,000

- B. Policies shall be made available to Marion Township and the Township Engineer for examination as to their validity and any undesirable exclusions deemed improper by legal opinion rendered to the Township regarding same. Underground construction, where applicable, shall be specified in

the coverage. Certificates of coverage signed by the insurance carriers shall include a guarantee that 30 days written notice shall be given by the insurance carrier to Marion Township prior to cancellation of, or any change in the respective policies. In the event that the insurance is canceled, operations shall cease prior to the cancellation date and shall not resume until evidence is provided that proper insurance is again in effect. Additional Named Insured under Owners and Contractors Protective Public Liability and Property Damage Insurance shall include Marion Township, the Township Engineer (specifically by name) and members of staff, employees and agents for the Township.

- C. The name of the proposed development must be included on the insurance documents.

V. CONSTRUCTION OBSERVATION PROCEDURES

Marion Township or their designated representative will provide observation on all proposed public utilities and improvements, as well as limited construction observation of private improvements. Any facilities installed without Township provided observation may not be accepted by the Township, and therefore may be required to be re-installed. The requirements and procedures for Construction Observation and final project closure shall be as follows.

- A. Pre-Construction Meeting
 1. Upon construction plan approval and receipt of all permits, but prior to commencing construction, a Pre-construction meeting shall be held. The Developer or the Developer's Authorized Representative shall contact the Township Engineer to schedule the Pre-construction meeting.
 2. Attendees shall include: Township representatives, Township Engineer, Developer or Developer's Authorized Representative, Design Engineer, Underground and Paving Contractors and any interested regulatory agency.
 3. At the Pre-construction meeting, the following information shall be provided:
 - a. Proof of insurance naming Marion Township and its Engineer as additionally insured.
 - b. All permits from other agencies (MDOT, MDEQ, LCRC, etc.).
 - c. Approximate schedule for construction.
 4. Prior to the Pre-construction meeting, the contractor shall provide the inspection escrow to the Township. Proof of payment should be forwarded to the Township Engineer. The final approval letter from the Township Engineer will detail the amounts and basis of the escrow based upon industry standard production rates.
 - a. Unused observation and administration escrow funds will be eligible for return as described in the final approval letter.
 - b. The Township Engineer shall monitor the observation escrow and may require additional deposits. This shall be dependent on the contractor's rate of progress and the difficulty in completing the project.
 - c. Failure to keep the observation escrow current may result in withholding construction observation, and therefore possibly delaying construction.
- B. Initially and/or after a significant delay in construction, the Township Engineer shall have a minimum 72 hour's notice (not including weekends or holidays) prior to the start of any construction requiring observation.
- C. The Township's Engineer shall observe all public and private improvements according to the following criteria. The criteria may be adjusted for large or phased developments, at the discretion of the Township. The Township's Engineer may inspect all other operations requested by the Township.

1. Tree removal and site clearing – Representatives of the Township, the Township’s Engineer, the Developer or Developer’s Authorized Representative, the Design Engineer, and the Developer’s Contractor will meet prior to beginning any site work. The meeting will take place on site after the removal/clearing limits have been marked or staked, with the purpose being to verify general compliance with the approved plans. The proposed clearing limits must be clearly marked on the site prior to the meeting.
 2. Mass grading – The Township or the Township’s Engineer will not review the site grading for compliance with the plans unless specifically directed by the Township. Responsibility for adhering to the approved grading plan shall fall upon the developer or their engineer/surveyor. Any irregularities observed while out performing other inspections will be brought to the Township’s and developer’s attention. A grading certificate as described under project acceptance requirements shall be required.
 3. Soil erosion control - All inspections related to soil erosion control will be handled by the permitting agency, LCDC. Any problems observed by the Township’s engineer while on site performing other inspections will be brought to the Township’s, LCDC’s, and the developer’s attention.
 4. Water system improvements – Full time inspection will be provided by MHOG or their representatives as outlined in their approvals and permits.
 5. Sanitary system improvements – Full time inspection will be provided by the Township’s Engineer.
 6. Storm system improvements (private sewers) – The Township’s Engineer will perform a maximum of two (2) inspections during the storm sewer installation to verify general compliance with the plans and specifications. The developer shall be responsible for certifying the storm system prior to project acceptance. Copies of testing reports and all certifications shall be provided to the Township.
 7. Storm system improvements (public sewers) – All inspections related to public storm sewers will be handled by the permitting agency, LCDC, or the Township Engineer. Any problems observed by the Township’s Engineer while on site performing other inspections will be brought to the Township’s, LCDC’s, and the developer’s attention.
 8. Private road improvements – The Township’s Engineer will perform inspections at critical junctions of the road construction process. Critical junctions will be defined as:
 - a. Witnessing the proof-roll of the sub-grade (Permit to place sub-base)
 - b. Verification of sub-base construction (Permit to place base)
 - c. Verification of base construction (Permit to place pavement material)
 - d. Two (2) inspections during the placing of the asphalt or concrete pavement to verify general compliance with the plans and specifications.
 The developer shall be responsible for certifying the road system prior to project acceptance. Copies of testing reports and all certifications shall be provided to the Township.
 9. Public road improvements - All inspections related to public road improvements will be handled by the permitting agency, LCRC. Any problems observed by the Township’s Engineer while on site performing other inspections will be brought to the Township’s, LCRC’s, and the developer’s attention.
- D. Acceptance of final project:
1. The Township Engineer will generate a preliminary punch list. Once the items have been addressed, the Township and the Township’s Engineer will conduct a final site inspection.
 2. All punch list items must be addressed.
 3. All fees and escrows must be paid in full.

4. A Maintenance and Guarantee bond should be provided to the Township. The bond should be 50% of the engineer's estimate for public improvements. The Township will keep the bond for two years from the date of acceptance.
5. Record drawings and related documents must be provided to the Township:
 - a. Upon acceptance of field improvements, the Developer's Engineer will be provided with a copy of the Inspector's Daily Reports (IDR), any applicable lead reports, and a blank "Record Drawing Requirement Checklist" in order to provide record drawings to the Township's Engineer for review and approval.
 - b. A grading certificate will be required at this time. This form (provided by the Township's Engineer with IDR's) will also need to be signed and sealed by the Developer's Engineer and then submitted to the Township's Engineer along with the record drawings.
 - c. Easements for public utilities based on "As-Built" conditions requires a sketch and legal description to be submitted by the Developer's Engineer to the Township's Engineer for review and approval along with the record drawings. Once easements documents are approved, the Township's Engineer will mail the Developer/Township the easements to be recorded with the County Register of Deeds. Once the easements are recorded with liber and page number, recorded copies will need to be forwarded to the Township and the Township's Engineer.
 - d. Once the record drawings are approved by the Township's Engineer, the Developer's Engineer will be instructed as to what is required for final distribution (i.e. blueprints, mylars, CD-ROM or possibly micro-film.)

CONSTRUCTION PLAN REQUIREMENTS

The following is a list of requirements that shall be used to assist in Construction Drawing and Record Drawing preparation. Items or criteria not specifically on this list or contained within the Marion Township Zoning Ordinance shall be subject to Township approval, based solely on the Township's discretion as to appropriate standards, regulations, or local impact.

I. PLAN REQUIREMENTS

A. GENERAL

1. Plan paper shall be 24" x 36"
2. Plan scale shall be a maximum horizontal scale of 1":50' and vertical scale of 1":5'.
3. Plan cover sheet shall include the following; project name, name of Marion Township, Livingston County, Michigan, proprietor's, engineer's, architect's and landscape architect's name, address, phone and fax number, a location map (1" = 2000' scale) with north arrow, property Sidwell number(s), agency approvals required, plan sheet index, and professional architect's or engineer's seal.
4. A title block shall be present on each plan sheet.
5. The legal description for the property shall be included, must also be represented by bearing angles and distances in plan view, and shall have a ratio of closure no greater than 1 part in 5000.
6. Zoning information including zoning designation, land use, minimum lot area, frontage, and setbacks; and maximum lot coverage and building height requirements for the site's zoning designation.
7. A topographic survey plan sheet shall be included; additional requirements are outlined in Section II, Topographical Survey, of this document.
8. A general area plan shall be included at 1"=100' or 1"=200' when size of the site prohibits a single sheet. The general plan shall show existing and proposed roadways, site location and dimensions, utilities, building structures, landscaping, and topography.
9. A landscaping plan with tree survey information shall be included.
10. Location of wetlands, drainage courses, and floodplain areas.
11. On and offsite permanent and temporary easements shall be shown on the plans.
12. Private and public roadways, road right-of-way, and road easements shall be shown on the plans.
13. Dimensions for existing and proposed road right-of-way and/or easements, roadways, parking areas, driveways, sidewalks, and pathways shall be shown on the plans and shall be in accordance with the Marion Township Zoning Ordinance and the requirements outlined herein.

II. TOPOGRAPHICAL SURVEY

A. GENERAL

1. A complete topographical survey is required for all sites. Existing offsite elevations must be given at a minimum of 100' abutting the entire perimeter of the site. Onsite contours are required to establish the existing site drainage. Contours shall be at the following spacing:
 - a. 1-foot contours if scale of plan is less than or equal to 1"=50'
 - b. 2-foot contours if scale of plan is greater than 1"=50'

2. A minimum of two (2) benchmarks based on NAD83 or NGVD88 must be included. The datum shall be clearly referenced.
3. Property lines shall be indicated by bearing and distance.
4. All existing conditions shall be shown, including but not limited to the following items (location and elevation):
 - a. All utilities including sanitary, water main, gas, telephone, cable, and electrical (including rim and invert elevations).
 - b. Along property lines.
 - c. The building finished floor.
 - d. Sidewalks and pathways.
 - e. Retaining walls.
 - f. Finished grades of all adjacent buildings.
 - g. All easements.
 - h. 100-year flood plain.
 - i. Existing drainage courses and wetlands.
 - j. Upstream and downstream culverts.
 - k. Adjoining road right-of-way.
5. Road Topography shall extend across the entire site with grades shown on both sides of the street for:
 - a. Property line.
 - b. Ditch centerline and top of bank.
 - c. Edge of shoulder.
 - d. Edge of pavement or top of curb.
 - e. Crown or centerline.

III. UTILITIES (GENERAL)

A. GENERAL

1. The location, size, and type of pipe of all existing and proposed utilities shall be shown in plan view.
2. Proposed sanitary shall extend across the property frontage(s) or to a property line, as directed by the Township.
3. No new utilities shall be placed below or within a 1:1 influence of a building footprint. The limits of all removals and/or abandonments shall be shown on the plans. The following criteria shall apply for all existing utilities within the influence of a building foundation:
 - a. Utilities within five (5) or less below a footing shall be removed.
 - b. Utilities greater than five (5) feet below a footing shall be grouted full using a standpipe to prevent air voids.
 - c. Utilities that are to be abandoned and are not within the influence of a footing shall be bulkhead unless the utility is determined to be a hazard, nuisance or potential maintenance problem by the Township.
4. A minimum ten (10) feet wide horizontal separation shall be required between water main and sewers.
5. No water main or sanitary sewer shall be within five (5) feet (measured horizontally) from the high-water elevation of a detention, retention, and/or forebay basin.
6. All utility crossings, including sanitary sewer leads, shall specify top and bottom of pipe elevations in both plan and profile view. An 18" minimum vertical clearance between water main and storm or sanitary sewer is required.

7. A casing pipe shall be provided when utilities must cross retaining walls or when a bore is proposed under a roadway. The casing pipe must extend beyond the angle of repose of the retaining wall or roadway. The size, length and invert of the casing pipe shall be indicated. All bores under roadways shall meet the requirements of the Livingston County Road Commission Requirements.

IV. WATER MAIN

A. GENERAL

1. The location, size, length and type of existing and proposed water main, water service leads, and water main appurtenances such as, though not limited to; valves, hydrants, vertical and horizontal bends, and tees shall be shown in plan view. All water main, including appurtenances shall meet the Marion Howell Ocoola Genoa Sewage and Water Authority standards and the Howell Fire Department standards.

V. SEWERS (SANITARY/STORM)

A. GENERAL

1. The following must be shown in plan view for sanitary and storm sewer:
 - a. Length, size, type, class, and slope of pipe between structures.
 - b. Top of casting elevation at structures.
 - c. Easement width (20' minimum for sanitary sewer, 12' minimum for storm sewer).
 - d. Progressive numbering system for all structures.
2. The following must be shown in profile view for sanitary and storm sewer:
 - a. Length, size, type, class, and slope of pipe between structures.
 - b. Size and type of structure.
 - c. Top of casting and sewer invert elevations at structures.
 - d. Existing and proposed ground elevations.
 - e. Hydraulic grade line (storm sewer only).
 - f. Utility crossings, including top and bottom of pipe elevations.
 - g. Special backfill areas under or within pavement areas.
 - h. Progressive numbering system for all structures.
3. Storm and sanitary sewer size, grade, and structure spacing table

Size	Std Grade (%)	Min Grade (%)	Max Grade (%)	Std Grade (ft)	Max Grade (ft)		
10" *	0.60	0.30	6.2	300	350		
12" **	0.40	0.22	6.0	300	350		
15"	0.24	0.16	3.6	300	350		
18"	0.18	0.12	2.8	300	400		
21" & greater		0.14		0.10	2.2	300	400
*	minimum allowable sanitary sewer size is 10"						
**	minimum allowable storm sewer size is 12"						

4. All pipe connections at structures shall be separated by a minimum of one (1) foot between pipe walls and 40% of the structure circumference must remain intact. The design engineer shall provide details for all structures with multiple pipe connections not meeting the requirements below:

<u>Structure Diameter</u>	<u>Max. Pipe Size for Straight – Through Installation</u>	<u>Max. Pipe Size For Right Angle Installation</u>
48"	24"	18"
60"	36"	24"
72"	42"	36"
96"	60"	42"

5. Where Manning's equation is used to compute flow, a minimum value for "n", roughness coefficient shall be as follows:
 - a. Sewers = 0.013
 - b. Culverts = 0.025
 - c. Open Channel = 0.035

VI. SANITARY SEWER

A. GENERAL

1. A minimum 20' wide easement is required for all public sanitary sewer. Wider easements will be required for deeper sewer to maintain a 1:1 excavated side slope within the easement. The sanitary sewer shall be centered within the public easement.
2. Prior to acceptance of the sewer, the developer or contractor shall provide a videotape or approved digital image file of the sewer (with flows) to the Township. The video shall be taken no less than 30 days after installation.
3. The Township Engineer will inspect all sanitary taps into existing Township structures.
4. Lift stations will not be permitted unless there is no other alternative for sewer service. If a lift station is required, the Design Engineer shall provide the Township with all design details and calculations, which shall be in accordance to all current local, County and State requirements.
5. The testing requirements are as follows:
 - a. The contractor shall conduct a sanitary air test with the Township Engineer witnessing. Air tests shall comply with current testing standards and requirements. Air testing should not be used if the groundwater level is 2 feet or more above the top-of-pipe at the upstream end (reference ASTM F1417) or if the air pressure required is for testing is greater than a psi-gauge.
 - b. A sanitary infiltration test shall comply with current standards and is required when the water table is 7' or higher than the invert elevation.

B. DESIGN CRITERIA

1. A quantity list and design data (on the cover sheet or first sheet of the plans) shall be provided and be in accordance with the current 10 States Standards.
2. The maximum depth to the invert of any sanitary sewer pipe shall not exceed 80% of the manufacturer's recommendation.
3. When there is a change in direction in a sewer at a manhole, an allowance of 0.10 feet in grade shall be made for a loss of head through the manhole.
4. Whenever there is a change in pipe size, the inverts of both sewers shall be set at a grade so that both sewers maintain the same energy gradient.
5. Siphons shall only be allowed when specifically approved by the Township and Township Engineer.
6. A minimum cover of 4' is required over all sanitary sewers, including leads.

7. The building lead location, size, type, and slope (minimum 6" diameter, SDR 23.5, and 1%) shall be provided. In order to verify the slope of the lead, invert elevations shall be provided at the finished grade of the building and at the connection to the mainline sanitary sewer. The 6" lead shall extend all the way to the building.
8. All sewer leads in high groundwater areas to be installed according to the township standard lead detail.
9. In sanitary sewers where construction of building leads to the property line is not required, a wye branch (tees not allowed) shall be installed for each lot or potential building site.
10. Leads shall not be connected to manholes unless specifically approved by the Township for connection to the last manhole or connection to deep sewer. A drop connection will be required at connections to manholes.

C. DROP CONNECTIONS

1. External drop connections are required when there is an 18" vertical difference between inverts on the outlet and inlet pipes and shall be constructed according to the Standard Details.
2. The Township must approve internal drop connections. The connection shall be based on field conditions and in accordance with standard details.

VII. STORM SEWER

A. GENERAL

1. A drainage area map shall be provided. The drainage area map shall show the storm sewer system, sub-area boundaries and acreage contributing to each storm structure, and impervious (C-factor) for each sub area.
2. Storm water shall not be diverted onto adjoining properties nor shall storm water flow be impeded from its existing drainage path due to a proposed development. Detention may be required to meet County discharge rate requirements. See the Detention/Retention section of this document for requirements.
3. Storm water discharge shall be per the Livingston County Drain Commissioner's requirements or the Livingston County Road Commission's requirements if discharging into the road right-of-way. At no time shall storm water discharge exceed a rate of 0.2 cfs/acre.
4. The location, size, type of pipe, and length of all culverts shall be shown on the plans. Culvert requirements are further outlined in the design criteria of this section.
5. The location, length and cross-section of all ditches shall be shown the plans. The cross-sectional ditch requirements are further outlined in the design criteria of this section.
6. Roof drainage and sump pump leads may be directed overland or connected to a storm sewer system. If connecting to a storm sewer system, the connection shall be made at a storm structure unless otherwise approved by the Township Engineer. If approved, a tap to an existing 12" concrete storm sewer may be made with a Fernco EZ Tap and a tap to a larger concrete storm sewer pipe with a KOR-N-TEE. The location, size, type and slope of the leads shall be included on the plans.
7. The owner/developer shall be responsible for cleaning and maintaining all storm sewer, storm structures, sediment forebays, filter berms, detention basins, and detention basin outlets. These storm water management systems shall be cleaned once all buildings within the development are complete. A note indicating this, as well as a description of the mechanism for which the owner/developer plans to establish in order to provide for long term maintenance, should be included on the plans.

B. DESIGN CRITERIA

1. Enclosed storm sewer design calculations shall be submitted using the Rational Method, $Q = CIA$. The following shall be considered:
 - a. 10-year storm, $I = 175/(T+25)$ with initial $T=15$ minutes. Time (T) shall be based on the actual time of flow from the most distant point of flow measurement.
 - b. Typical surface runoff coefficients shall be:

Surface	C
Pavement (Asphalt, Concrete, Brick)	0.90
Roofs	0.90
Open Water	1.00
Aggregate	0.65
Greenbelt (Lawns, Vegetation)	0.20

Note: Surface area of detention, retention, and forebay areas shall be considered open water unless a naturally vegetative basin is provided.

2. Velocity: Minimum = 2.0 ft/s; Maximum = 10.0 ft/s. Velocities exceeding 5.0 ft/s will require erosion protection as directed by the Township Engineer.
3. Manning's formula shall be used to calculate pipes flowing full to verify the capacity of the storm sewer system: $Q = (1.49/n) AR^{2/3}S^{1/2}$
4. The storm sewer system shall be designed, if possible, so that the hydraulic grade line (HGL) is within the pipe. When discharging storm sewer into an existing or proposed detention basin, the 10-year storm elevation or bankfull elevation shall be considered when calculating the HGL of the proposed system. When discharging into an existing storm sewer system, the HGL must be calculated from the outlet of the existing system.
5. Sewer and structure requirements
 - a. All storm sewer shall be in accordance with Section V., Sewers (Sanitary/Storm).
 - b. The minimum size storm sewer shall be 12" diameter.
 - c. The Township Engineer must approve direct taps for storm sewer. Direct taps shall only be permitted if the storm sewer that is to be tapped is significantly larger than the tapping pipe. A KOR-N-Seal boot connection shall be required for allowable taps. A detail shall be included on the plans.
 - d. The sump leads and roof drain leads connecting to a storm sewer system shall be a minimum of 4" diameter and shall be SDR 35, non-perforated, solid wall, PVC pipe.
 - e. Storm sewer, unless otherwise approved by the Township Engineer, shall be reinforced concrete pipe (RCP) and shall meet the following requirements:
 - I. Class IV for a depth up to 14 feet
 - II. Class V for depth 14 feet to 24 feet
 - III. Class III may be allowed in greenbelt areas for a depth up to 14 feet. At no time shall Class III be allowed under or within the influence of pavement areas
All RCP shall meet ASTM C76 requirements
 - f. RCP elliptical storm sewer may be allowed and must be approved by the Township Engineer. Elliptical storm sewer shall meet ASTM C507 requirements.
 - g. Plastic storm sewer pipe may be allowed in greenbelt areas only and must be approved the Township Engineer. The following requirements shall apply:
 - I. Maximum 18" diameter

- II. Smooth interior
 - III. PVC pipe shall meet ASTM F949 requirements
 - IV. HDPE pipe shall meet ASTM M294 requirements
- h. End sections shall be RCP, with a bar grate and 8" to 15" rip rap at the outlet.
 - i. Manholes and catch basins shall be a minimum of 48" diameter. A detail of a typical manhole and catch basin shall be included on the plans. The type of casting for each structure shall be indicated in either plan or profile view and on the detail.
 - j. Inlets shall be a minimum of 24" diameter. Inlets shall only be permitted at a structure that is the first (upstream) structure in a series and 12" diameter pipe serves as the discharge. The next downstream structure must have a sump.
 - k. A minimum cover of 2'-6" is required. MDOT "lowhead" or "flat top" structures are required instead of a cone/corbel section if there is less than 4' of cover over the pipe. Both plan and profile shall specify "low head" where necessary. A detail of the "lowhead" structure should be included on the plans.
 - l. A two (2) foot sump is required for any structure receiving surface runoff, with the exception of inlet structures.
 - m. All storm sewer shall be premium joint (rubber gasket). A note indicating this shall be included on the plans.
 - n. Trench drains shall only be permitted within truck wells. A trench drain detail shall be included in the plans.
 - o. All storm water runoff within a truck well or discharging into a wetland shall be pre-treated with an oil and gas separator. A detail of the treatment structure, including the type and model number, shall be included on the plans.
6. Culvert calculations shall be submitted for inlet headwater control or outlet tailwater control with proper "K" factors used to determine culvert sizes. All culverts shall be sized for a 10-year storm event.
7. Culvert requirements
- a. The minimum size culvert shall be 12" diameter
 - b. Culverts 48" diameter and greater shall require sloped paving at the inlet. Headwalls shall not be permitted.
 - c. Culverts shall be either corrugated metal pipe (CMP) or reinforced concrete pipe (RCP) and shall meet the following requirements:
 - i. 12" – 24" CMP shall be 16 gauge
 - 30" – 36" CMP shall be 14 gauge
 - 42" – 54" CMP shall be 12 gauge
 - 60" – 72" CMP shall be 10 gauge
 All RCP shall be a minimum of Class IV
8. Open ditch calculations shall be submitted and shall be sized for a 10- year storm event using Manning's formula: $Q = (1.49/n) AR^{2/3}S^{1/2}$. A one (1) foot freeboard shall be required.
9. Open ditch requirements:
- a. Minimum flat bottom width: 2'
 - b. Minimum flat bottom depth: 2' (measured from shoulder hinge point).
 - c. Transverse slopes: 1.0% - 5.0%; ditch slopes exceeding 3% shall be sodded to a point one (1) foot above the ditch flow line.
 - d. Maximum side slopes 3:1
 - e. Culverts sized for a 10-year storm elevation

- f. Flow through an open ditch system shall not exceed eight (8) cfs
- g. No more than six (6) acres of tributary area may be conveyed through an open ditch system. An enclosed storm sewer system is required for all tributary areas exceeding six (6) acres.
- H. A ditch cross-section, which clearly indicates the dimensions outlined above shall be included on the plans.

VIII. DETENTION/RETENTION

A. GENERAL

- 1. The location of the detention, standpipe riser structure, retention, forebay, forebay filter berms, and rain garden areas shall be shown in plan view. Storm water management systems proposed under the jurisdiction of the Drain Commissioner shall be located on common-owned property, not on privately owned lots.
- 2. Detention must accommodate all onsite drainage and any runoff entering the site from neighboring properties.
- 3. The Livingston County Drainage District for which the site discharges should be indicated on the plans. Discharge rates shall not exceed 0.2 cfs/acre. More restrictive discharge rates may be required based on site conditions and the drainage district for which the site discharges. The Township Engineer and/or the Livingston County Drain Commissioner shall determine if a more restrictive discharge rate is required.
- 4. Detention basins shall be wet basins or storm water marsh systems. Dry basins, providing extended storage, will be accepted when the development site's physical characteristics or other local circumstances make the use of a wet basin infeasible.
- 5. Storm water management system incorporating pumps shall not be permitted in developments with multiple owners. Variances from this requirement will only be considered if a demonstration that no other alternative is feasible is provided on the plans.
- 6. The use of underground detention/retention is not allowed without Township approval.

B. DETENTION/RETENTION/FOREBAY DESIGN

- 1. Calculations for sizing the detention basin shall be submitted and included on the plans. All detention basin sizing shall be per the Drain Commissioner's "Simple Method of Detention Basin Design" for a 100-year storm event and have a minimum freeboard of one (1) foot. Drainage calculations shall include the following:
 - a. Tributary area in acres.
 - b. C-factor
 - c. Discharge rate
 - d. Volume of storage required
 - e. Volume of storage provided
 - f. Volume of the permanent wet area, which shall be based on the following equation:

$$2.5 * 0.5 \text{ inch} * \text{runoff coefficient} * \text{site drainage area (cf)}$$
 - g. Bankfull elevation. This volume shall be based on a 1.5-year, 24-hour storm event and the following equation:

$$5160 * \text{tributary area acreage} * \text{C-factor}$$
 - h. The bankfull volume shall be stored not less than 24-hours and not more than 40 hours.
 - i. First flush elevation. This volume represents the first 0.5 inch of runoff and shall be calculated using the following equation:

1815 * tributary area acreage * C-factor

- j. Standpipe-type riser structures are required for all detention basins. The size of the riser pipe and calculations showing the size and number of infiltration holes within the riser pipe shall be included. Riser pipes shall be a minimum of 36" diameter for a height up to four (4) feet and a minimum of 48" diameter for a height exceeding four (4) feet. Infiltration holes shall be set at the bottom of the riser pipe and at the first flush and bankfull elevations. A standpipe detail shall be included on the plans.
 - k. Hoods or trash racks shall be installed on the riser to prevent clogging. Grate openings shall be a maximum of three inches.
 - l. Orifice plates are discouraged. Where an orifice plate is to be used in the standpipe to control discharge, it will have a minimum diameter of four inches
 - m. The riser shall be placed near the pond embankment to provide for ready maintenance access.
 - n. Riser pipes will be constructed with concrete bottom.
 - o. Outlet pipe size. The outlet pipe shall be sized for a 10-year storm event.
2. A marsh fringe shall be established near the inlet or forebay and shall surround a minimum of 50% of the basin's perimeter. The location of this area shall be shown on the plans.
3. If connecting into an existing detention basin, calculations showing the total volume of the existing basin, the C-factor used to size the existing basin, the amount of storage volume dedicated for the site and the amount of storage volume required for the site.
4. Calculations for sizing a retention basin shall be submitted and included on the plans. Retention basins shall be sized to accommodate two consecutive 100- year storm events and shall be capable of storing two (2) inches of runoff from the entire tributary area. A minimum three (3) foot freeboard shall be required. Calculations shall include all requirements for detention basins shown in sections a-e above.
5. Calculations for sizing the sediment forebay(s) shall be included on the plans. The capacity of the forebay shall be equivalent to 5% of the 100-year storm volume based on the area tributary to the inlet. Forebays shall be separated from the detention basin using either gabions or compacted earthen filter berms. A detail of the separation method shall be included on the plans. Direct maintenance access to the forebay for heavy equipment will be provided.
6. Basin side slopes, regardless of the type shall be no flatter than 20:1 and no steeper than 3:1. Slopes steeper than 5:1 must have a four (4) foot high chain link fence with a twelve (12) foot wide access gate. The fence shall completely surround the basin.
7. Anti-seep collars should be installed on any piping passing through the sides or bottom of the basin to prevent leakage through the embankment.
8. All basins will have provisions for a defined emergency spillway, routed so that it can be picked up by the main outflow channel while not discharging directly over the outlet pipe. The emergency spillway will be set at an elevation six inches above the design high water elevation.
9. Adequate maintenance access from public or private right-of-way to the basin will be reserved. The access will be on a slope of 5:1 or less, stabilized to withstand the passage of heavy equipment, and will provide direct access to both the forebay and the riser/outlet.
10. The placement of retention/detention basins within a floodplain of a stream, creek, or lake is prohibited.

C. PERMANENT RETENTION PONDS

1. Freeboard: Retention Basins shall provide three feet of freeboard.
2. Storage Volume
Retention basins will be capable of storing two inches of runoff from the entire tributary area, contingent upon the following:
 - a. An overflow assessment will be required. The assessment should include descriptions of the surrounding areas, including nearby homes, which would be impacted in the event of an overflow.
 - b. The proprietor must submit a soil boring log taken within the basin bottom area to a depth of 25 feet below existing ground or 20 feet below proposed basin bottom elevation. The Drain Commissioner reserves the right to require additional storage up to that required by two consecutive 100-year storm events based on the results of soils data or the overflow assessment. If such additional storage is required, freeboard requirements may be reduced at the discretion of the Drain Commissioner.

D. RAIN GARDEN

1. Located a minimum distance of 10' from any building structure or parking area.
2. Maximum contributing acreage shall be five (5) acres. Contributing acreage of one (1) acre or less is preferred.
3. The size of the rain garden shall be indicated on the plans. Sizing shall be based on contributing drainage area, amount of imperviousness, and soil type. The calculations using following formula shall be included on the plans:
$$A = \text{Drainage area} * 5\% * R_v \quad R_v = 0.05 + (\% \text{ impervious})$$
4. A cross-section of the rain garden shall be included on the plans and shall meet the following requirements:
 - a. Soil mixes shall consist of 50%-60% sand, 20%-30% topsoil and 20%-30% compost.
 - b. Water depth shall be based on the ground slope of the surrounding area.
Depth = 4" – 5" for slopes 2%-4%
Depth = 6" – 7" for slopes 5%-7%
Depth = 8" for slopes 8% - 12%
Water depth shall not exceed 8" and ground slopes should not exceed 12% within 30 feet from the rain garden.
 - c. A minimum 4" mulch layer shall be placed between the water storage area and planting soil bed. The mulch specified shall be appropriate for water quality gardens. Coarse, fibrous, shredded wood chip mulch is preferred.
 - d. (If necessary) Type and size of underdrain shall be specified. All underdrain shall be surrounded by pea gravel with 12" minimum layer of class II sand.
 - e. Water depth shall be based on the ground slope of the surrounding area.
5. The number and type of plants should be included. The plants shall be water tolerant and the one (1) plant for every square foot of rain garden area is required.

E. GENERAL REQUIREMENTS

1. All runoff generated by proposed impervious surfaces, unless otherwise permitted by the Drain Commissioner, must be conveyed into a stormwater storage facility for water quality treatment and detention/retention prior to being discharged from the site.
2. Public safety will be a paramount consideration in stormwater system and pond design. Providing safe retention/detention is the proprietor's responsibility. Pond designs will incorporate gradual side slopes, topsoiling, seeding and mulching, plantings per

landscape plan if one is required, and safety shelves. Where further safety measures are required, the proprietor is expected to include them within the proposed development plans.

F. DETENTION REQUIREMENTS

1. The volume and storage provided for controlling the "bankfull" flood will be equal to or in excess of the total rain from a 1.5-year, 24-hour storm. This storage volume is slightly increased from C_{pv} , the channel protection storage volume, as used in Appendix H. This can be determined by:

$$8160 \times \text{acreage} \times \text{the relative imperviousness factor } C = \text{cubic feet}$$

The release rate from the "bankfull" storage volume will be such that this volume will be stored not less than 24 or more than 40 hours.

2. The "first flush" of runoff is defined as the first 0.5 inch of runoff over the entire site. The majority of this volume will be captured in the sediment forebay, with the residual volume detained for a minimum of 24 hours. The volume of the first flush can be determined by:

$$1815 \times \text{acreage} \times \text{the relative imperviousness factor } C = \text{cubic feet}$$

3. Basin Inlet/Outlet Design
 - a. Engineered velocity dissipation measures based on discharge flow rates and velocities will be incorporated into basin designs to minimize erosion at inlets and outlets, to minimize the re-suspension of pollutants, and to create sheet flow conditions where feasible.
 - b. To the extent feasible, the distance between inlets and outlets will be maximized. The length and depth of the flow path across basins and marsh systems can be maximized by:
 - I. increasing the length-to-width ratio of the entire design.
 - II. increasing the dry weather flow path within the system to attain maximum sinuosity. If possible, inlets and outlets should be offset at opposite longitudinal ends of the basin.
 - c. The outlet will be well protected from clogging.
 - d. Riser Design
 - I. The use of a perforated standpipe-type riser structure to assure an appropriate detention time for all storm events is required.
 - II. Orifices used to maintain a permanent pool level should withdraw water at least one foot below the surface of the water.

IX. FLOOD PLAIN DEVELOPMENT

- A. An MDEQ permit is required for work within the floodplain.
- B. An equivalent volume of excavation must compensate for all fill within floodplain in order to maintain water storage volume.
- C. In certain instances, the 100-year flood plain boundary must be shown on the plans.
- D. Where available, the community flood insurance study shall be used.

X. SITE GRADING

A. GENERAL

1. Sufficient proposed grades must be indicated to ensure the following:
 - a. Drainage is adequately discharged offsite with proper detention or retention.
 - b. No upstream drainage is restricted.
 - c. Paving slopes are adequate.

- d. The site generally drains without standing water.
 - e. Site grading merges with grading on neighboring sites.
 - f. Sight lines are not obstructed.
- B. The finished grade elevation for all proposed and existing buildings on site or on neighborhood properties must be provided.
 - C. The maximum slope to an abutting property line is 1:4.
 - D. A slope of 1:3 may be approved based on township review. a slope of 1:3 shall be restored using an approved "erosion blanket". this shall be identified on the plans.
 - E. Grading plans shall take into account the natural features of the land as much as possible.
 - F. A grading easement from an adjacent property owner will be required for any offsite grading and for any retaining wall footing or where it appears that "normal" (1 on 1 side slope) excavation to the bottom of the footing encroaches the adjacent property.
 - G. No filling will be allowed within the flood plain of a river, stream, creek, or lake unless under the terms of a permit granted by the mdeq.

XI. RETAINING WALLS

A. GENERAL

- 1. Walls separating a grade differential of more than 2' are considered a retaining wall and require a structural engineering design and review. The Design Engineer must supply a cross-sectional detail on the plans and computations (sealed by a registered engineer) with the plan submittal. The cost of all retaining walls must be included in the engineering cost estimate.
- B. Top and bottom of wall elevations and dimensions above and below grade and from the property line shall be shown on the plans.
 - C. The face of a retaining wall shall be a minimum of 2' from the property line.
 - D. Edge drain shall be provided along the base of all retaining walls. edge drain shall be a minimum of 6" diameter. the type of pipe should be included in the cross-sectional detail.
 - E. The developer shall provide appropriate material testing at his/her cost during construction.
 - F. Protective railing is required for all walls within 2' of parking, driving, pedestrian walkways and/or when the height of the wall is 30" or greater.
 - G. The design engineer shall execute and submit a retaining wall certification form. see page 31.
 - H. Type of walls allowed, specifications, and inspection items
 - 1. Concrete Walls
 - a. Formwork dimensions for the base (inspection only)
 - b. Steel size, quantity, spacing, overlap (2" minimum clearance for reinforcing steel from any formwork.
 - c. Box-outs, keyways, weep holes, footing drain and any other plan details.
 - d. No vibration of concrete occurs inside the form during placement (inspection only).
 - e. Concrete cylinders, slump, air entrainment tests performed by developer's testing firm are acceptable (inspection only).
 - f. Concrete mix shall not be over watered at the job site (inspection only).
 - g. Copies of the delivery tickets are obtained (inspection only).
 - 2. Pre-cast walls
 - a. Certification shall be obtained from the manufacturer (inspection only).
 - b. Wall base placement, material, size, thickness, and compaction.
 - c. Embedment and batter are per the manufacturer's recommendations.
 - 3. Wood Walls

- a. Certificates of treatment level for wood materials.
 - b. Connection details and fasteners (i.e. nails, bolts, etc.)
 - c. Proper length and embedment of "dead men".
4. Boulder Walls
- a. Maximum height: 4 feet.
 - b. Boulder size shall range from 24" to 30" and embedment shall be a minimum of 8" into the ground.

Date: _____

XXXXX
XXXXX
XXXXX
XXXXX

Regarding: Retaining Wall Review for: _____
S.T.P.C.#: _____
Sidwell#: _____

Design Engineer and Firm Name: _____
Address: _____
Phone: _____ Fax: _____

Owner: _____
Address: _____
Phone: _____ Fax: _____

A retaining wall(s) is proposed for the above referenced site. The wall(s) was designed to applicable standards, and all necessary loads (including vehicular surcharge) have been incorporated into the design. In addition, the wall meets minimum factors of safety against both overturning and sliding.

A retaining wall detail has been incorporated into the drawings and has been submitted for review.

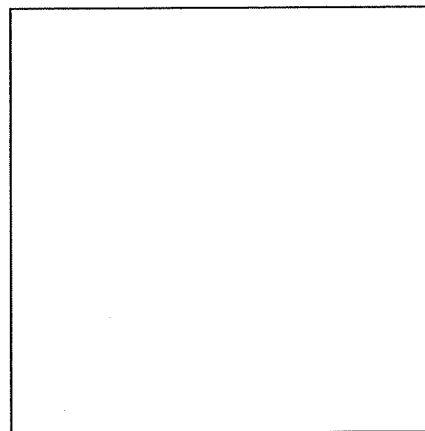
Sincerely,

Seal

Printed Name of Professional Engineer

Signature

cc: Philip Westmoreland, P.E., Spicer Group, Inc.,
125 Helle Blvd., Ste. 2
Dundee, MI 48131



XII. PAVING AND ROADS

- A. All public roads shall meet the requirements of the Livingston County Road Commission and the Marion Township Zoning Ordinance.
- B. All private roads shall meet the requirements of the Marion Township Ordinances and the standards outlined within the private road sections below.
- C. All facets of the intersection of two or more roads, public or private, where at least one (1) of the roads is a public road, shall meet the then current requirements of the Livingston County Road Commission.
- D. The type of surface proposed for roadways, parking areas, driveways, sidewalks, pathways, loading zones, and dumpster pads shall be shown on the plans and shall be in accordance with the requirements outlined herein.
- E. All applicable pavement and/or gravel cross-sections shall be included on the plans for roadways, parking areas, driveways, sidewalks, pathways, and dumpster pads. Curb and gutter cross-sections shall be included on the plans, if applicable.
- F. Private roads shall be limited to serving no more than thirty (30) single-family dwelling units on a single access and seventy-five (75) with more than one point of access. Any dwelling unit whose only means of ingress or egress is via the private road shall be considered in the number of dwelling units allowed. If private roads are an extension of a dead-end public road, the number of dwelling units along the public road shall be considered in the number of dwelling units allowed. This limit shall apply to any type of roadway surface, gravel or pavement.
- G. Private roads with only one connection to a county road, state highway, or another approved private road shall not be longer than two thousand (2000) feet.
- H. Dead end roads shall terminate with a cul-de-sac, unless site conditions necessitate the use of another configuration. The Township must approve any alternate configuration.
- I. All cul-de-sacs or turnarounds shall terminate at the property line except when precluded by a natural barrier or when the cul-de-sac terminates at the last available building envelope, lot, or parcel within the development and that building envelope, lot, or parcel fronts upon the cul-de-sac.
- J. Frontage measurements along a cul-de-sac shall be measured tangent to the front setback line and at right angles to the side lot lines.
- K. Not more than four (4) principal buildings or lots shall have frontage on a cul-de-sac. any lot located on a cul-de-sac shall have its side lot lines designed to be radial to the front property line or right-of-way line on either public or private roads, except where such lot lines would create unusual, inconvenient, or irregular lot shapes.
- L. **PRE-EXISTING OR NEW PRIVATE ROADS SERVING 2-5 DWELLING UNITS**
 - 1. Any road serving between 2 and 5 dwelling units shall be considered a private road and shall be referred to as a Minor Private Road.
 - 2. Minor Private Roads should generally conform to the following criteria. Additional requirements are set forth in Marion Township General Ordinance for Private Roads No. 07-03.
 - 3. Requirements for Minor Private Roads will be on a case-by-case basis. The requirements set forth herein are general guidelines to ensure public health, safety and welfare, and may be adjusted by the township as necessary based on site conditions.
 - 4. Submission requirements shall be sufficient to determine the nature and extent of the existing conditions and any proposed improvements. The extent of the information provided shall be at the discretion of the Township, Township Engineer, and Township Planner.
 - 5. Right-of-way or easements should have sufficient width to encompass the entire cross

- section of the road, including any ditches or drainage systems.
6. Roadway width should be sixteen (16) feet whether paved or gravel. A one (1) foot grass shoulder should be provided on both sides of the road.
 7. Roadway cross section should generally conform to the following:
 - a. Gravel road:
 - I. Six (6) inches MDOT 22A aggregate placed in two (2) courses.
 - b. Paved road:
 - I. Four (4) inches bituminous surface placed in two (2) courses. No course or lift shall exceed 2" in depth.
 - II. Eight (8) inches of aggregate base, MDOT 21AA Limestone.
 8. All roadways should be sufficiently crowned for drainage.
 9. Vertical alignment should generally conform to the following guidelines:
 - a. Site distances at all intersections (public roads or private roads) should be verified and shall meet the requirements of the Livingston County Road Commission.
 - b. Roadway grades should be minimized and provide safe emergency vehicle access.
 10. A system to adequately collect and discharge tributary roadway runoff is required. Either open ditch or enclosed storm sewer systems are acceptable and shall be sized reasonably for the anticipated run-off. Generally, a 10- year storm event shall be used to determine run-off.

M. PRE-EXISTING, NON-CONFORMING PRIVATE ROADS SERVING MORE THAN 5 DWELLING UNITS

1. Pre-existing, non-conforming private roads should generally conform to the following criteria. Additional requirements are set forth in Marion Township General Ordinance for Private Roads No. 07-03.
2. Requirements for pre-existing, non-conforming private roads will be on a case-by-case basis. The requirements set forth herein are general guidelines to ensure public health, safety and welfare, and may be adjusted by the township as necessary based on site conditions.
3. Submission requirements shall be sufficient to determine the nature and extent of the existing conditions and any proposed improvements. The extent of the information provided shall be at the discretion of the Township, Township Engineer and Township Planner. In general:
 - c. Minor changes in the physical characteristics of the road will require a sketch of the proposed improvements. The sketch shall be legible and clearly identify all improvements. The sketch should utilize current aerial information but do not need to be to scale. Aerial information is available at the Livingston County GIS Management Department, 304 E. Grand River Ave., Suite 101, Howell, MI 48843.
 - d. Major changes in the physical characteristics of the road will require detailed plans. The level of detail shall meet the requirements of a full, complete construction plan submittal.
4. Right-of-way or easements should have sufficient width to encompass the entire cross section of the road, including any ditches or drainage systems. Depending on the location of the private road easement in relation to adjacent parcels, a landscape buffer as provided in the Township Zoning Ordinance may be required by the Township to reduce the impact of the private road upon existing abutting parcels.
5. Roadway width should generally meet the following requirements:
 - a. Gravel road: twenty-two (22) feet edge of gravel to edge of gravel.

- b. Paved road:
 - I. Shoulder (with or without ditch): twenty-two (22) feet edge of pavement to edge of pavement, with a one (1) foot wide gravel shoulder on either side of pavement edge.
 - II. Curb and gutter: a minimum of twenty-five (25) feet back of curb to back of curb, with a minimum lane width of eleven (11) feet. Either a 2-½ foot wide curb and gutter or a 1-½ foot wide curb and gutter are acceptable.
- 6. Roadway cross sections should generally conform to the following:
 - a. Existing or alternate cross sections may be considered if the alternate section has been demonstrated to have equivalency to the required section via the AASHTO Guide for the Design of Pavement Structures. Geotechnical analysis may be required by the Township Engineer.
 - b. Gravel road:
 - II. Six (6) inches MDOT 22A aggregate placed in two (2) courses. Six (6) inch sand sub-base, meeting MDOT Class II requirements.
 - c. Paved road:
 - III. Four (4) inches bituminous surface placed in two (2) courses. No course or lift shall exceed 2" in depth. Eight (8) inches of aggregate base, MDOT 21AA Limestone.
 - d. Shoulder sections shall match the section for the road.
- 7. Vertical alignment should generally conform to the following guidelines:
 - a. Site distances at all intersections (public roads or private roads) should be verified and shall meet the requirements of the Livingston County Road Commission.
 - b. The roadway grade within one hundred (100) feet of an intersection should generally not exceed a slope of three (3) percent regardless of surface type.
 - i. Gravel Surface:
 - 1. Minimum: one (1) percent.
 - 2. Maximum: five (5) percent.
 - ii. Paved surface:
 - 1. Minimum: 0.5 percent.
 - 2. Maximum: six (6) percent.
- 8. All roadways, regardless of surface type, should have a sufficient crown to adequately drain runoff from the roadway.
- 9. Drainage should conform to the following requirements:
 - a. A system to adequately collect and discharge tributary roadway runoff is required. Either open ditch or enclosed storm sewer systems are acceptable and shall be sized reasonably for the anticipated run-off. Generally, a 10- year storm event shall be used to determine run-off.
 - b. All paved roads with curb and gutter shall have an enclosed storm sewer system, unless otherwise approved by the Township.
 - c. Drainage ditches and swales shall meet the following:
 - a. Minimum flat bottom depth of one (1) foot, measured from shoulder hinge point.
 - b. Longitudinal slope shall generally follow the slope of the road. The slope design shall minimize soil erosion. Slopes shall generally be between one (1) percent and five (5) percent. Maximum front slope is 1:3, and the maximum back slope is 1:2.

- d. Culverts should be sized for a 10-year storm elevation and their invert set at the ditch flow-line. Culverts shall be clean and free of debris.
- 10. Roadway signage shall meet the requirements of the Livingston County Road Commission and the Michigan Department of Transportation's Manual of Uniform Traffic Control Devices.
- 11. Any pre-existing, non-conforming road that serves multi-family residential, commercial, or industrial uses shall meet the requirements for a new road according to the Township Engineering Standards. Any changes in the road will require the road be improved to meet the standards for a new road in its entirety.

N. NEW PUBLIC AND PRIVATE ROADS

- 1. New roads, whether public or private, shall meet the following criteria. Additional requirements are set forth in Article VI: General Provisions, Section 6.20 New Private Roads of the Township Zoning ordinance.
- 2. All roadways that are to be public shall meet the requirements of the Livingston County Road Commission. Approval and acceptance of the roads shall be granted by the Livingston County Road Commission.
- 3. All roadways that are to be private shall meet the requirements of the Livingston County Road Commission, the Marion Township Zoning Ordinance and the standards outlined below. If a conflict exists between the Road Commission and Township standards, the stricter requirements shall govern.
- 4. Right-of-way or easements shall have sufficient width to encompass the entire cross section of the road, including any ditches or drainage systems.
 - a. Depending on the location of the private road easement in relation to adjacent parcels, a landscape buffer as provided in the Township Zoning Ordinance may be required by the Township to reduce the impact of the private road upon existing abutting parcels.
 - b. Minimum road right-of-way or easement width shall meet the following:
 - i. All residential (single or multi-family) shall be sixty-six feet (66').
 - ii. Commercial, industrial and all other uses shall be eighty feet (80').
- 5. Roadway width shall meet the following requirements:
- 6. Gravel road:
 - a. Gravel road: thirty (30) feet edge of gravel to edge of gravel.
- 7. Paved road:
 - a. Residential streets without curb shall be a minimum of twenty-two (22) feet edge of pavement to edge of pavement, with a four (4) foot wide paved or gravel shoulder on either side of roadway edge.
 - b. Residential streets with curb and gutter: a minimum of twenty-seven (27) feet back of curb to back of curb, with a minimum lane width of twelve (12) feet. Either a 2-½ foot wide curb and gutter or a 1-½ foot wide curb and gutter are acceptable.
 - c. Commercial streets shall be a minimum of twenty-nine feet (29') back of curb to back of curb. Minimum lane width shall be twelve feet (12'). A 2-½ foot wide curb and gutter is required.
 - d. Industrial roads shall be a minimum of thirty-five feet (35') back of curb to back of curb. Minimum lane width shall be fifteen feet (15'). A 2-½ foot wide curb and gutter is required.

- e. In areas where on-street parking is allowed, the minimum width of the road shall be increased by 8'. Including the gutter pan in the width extension for parking is not permitted.
 - f. Roadway recovery areas, (clear zones) shall be a minimum of 7' for straight-line sections and inside diameter curves. A minimum of 15' is required for outside diameter curves. Recovery areas shall be considered the distance between a permanent structure and edge of gravel shoulder or back of curb.
8. Roadway cross sections shall conform to the following criteria. Alternate cross sections may be considered if the alternate section has been demonstrated to have equivalency to the required section via the AASHTO Guide for the Design of Pavement Structures. Geotechnical analysis may be required by the Township Engineer:
- a. Residential roads or streets shall have a minimum of four (4) inches bituminous surface placed in two (2) courses (no course or lift shall exceed 2" in depth), with eight (8) inches of aggregate base (MDOT 21AA limestone), Gravel roads, if permitted by the Township, shall consist of a minimum of eight (8) inches of aggregate base (MDOT 22A) and six (6) inches of sand sub-base meeting the requirements of MDOT Class II.
 - b. Commercial streets shall have a minimum four (4) inches of bituminous surface placed in two (2) courses (no course or lift shall exceed 2" in depth), with eight (8) inches of aggregate base (MDOT 21AA limestone), and six (6) inches of sand sub-base meeting the requirements of MDOT Class II. An open graded drainage course may be substituted for sand sub-base.
 - c. Industrial streets shall have a minimum of nine (9) inches of non-reinforced concrete pavement, four (4) inches of aggregate base (MDOT 21AA limestone), and four (4) inches of sand sub-base meeting the requirements of MDOT Class II.
 - d. Shoulder pavement sections shall match the section of the road.
 - e. The pavement shall have transverse slope (crown) of 2% each way of the pavement center-line. Superelevated sections are prohibited in any development having a proposed operating speed of less than fifty-five (55) miles per hour. Where the design speed for a proposed street or road is less than fifty-five (55) mph and super elevation would otherwise be required as determined in the latest edition of the AASHTO Policy on Geometric Design for Streets and Highways, the horizontal curve shall be designed with a radius long enough to counter the need for superelevation.
 - f. Edge drain is required on all streets with curb and gutter. The trench must be filled with pea stone to the level of the base material, and the entire trench wrapped with geotextile fabric.
 - g. Proposed sections utilizing an open ditch section shall have a ditch depth of not less than two (2) feet relative to the shoulder hinge point and two (2) feet wide rounded at the bottom. The depth shall be increased if warranted by drainage discharge calculations.
 - h. The maximum slope within the proposed right-of-way shall be 1:4 (rise/distance). The use of slopes steeper than 1:4 outside of the proposed right-of-way draining toward the roadway should be avoided.
 - i. Driveway slopes or lot access areas shall have a slope not greater than 1:10 within the right-of-way. Only one drive approach is allowed per single-family dwelling unit. Driveways beyond the right-of-way shall generally not exceed 12% slope without significant topographical limitations.

- j. Pavement sections for residential driveways shall meet the following:
 - i. Gravel – six (6) inches of MDOT 21AA limestone or MDOT 22A.
 - ii. Asphalt – three (3) inches of bituminous surface over six (6) inches of MDOT 21AA limestone.
 - iii. Concrete – six (6) inches of concrete over four (4) inches of MDOT Class II.
 - k. Pavement sections for commercial or industrial driveways shall meet the following:
 - i. Gravel drives will not be permitted.
 - ii. Asphalt – four (4) inches of bituminous surface over eight (8) inches of MDOT 21AA limestone. For development with significant truck traffic, asphalt approaches will not be permitted.
 - iii. Concrete – eight (8) inches of concrete over four (4) inches of MDOT Class II.
9. Horizontal alignment shall conform to the following guidelines. All horizontal alignment and intersection design shall follow the latest edition of the AASHTO Policy on Geometric Design for Streets and Highways. The design speed shall be thirty-five (35) mph for interior subdivision streets unless otherwise directed by the Township or Road Commission.
- a. Minimum center-line radius for a horizontal curve shall be 230 feet.
 - b. Minimum cul-de-sac radius at the outside edge of the pavement shall be fifty (50) feet, not including any curb.
 - c. The fillet radius from cul-de-sac to tangent sections shall be a minimum of fifty (50) feet.
 - d. Intersection radii shall be a minimum of thirty-five (35) feet for residential streets and a minimum of forty-five (45) feet for commercial and industrial streets.
 - e. Intersection shall be at right angles and shall be designed such that the first sixty-five (65) feet in any direction shall be straight line sections.
 - f. Boulevard intersections or entrances shall have concrete curb and gutter around the island.
 - g. MDOT Detail M openings shall be used for all commercial or industrial drives or approaches. All commercial or industrial approaches shall be curbed regardless of the road cross section.
 - h. Commercial and industrial drive approaches shall have a minimum forty-five (45) foot radius.
 - i. Drive approaches shall be contained within the property lines, including radii and any acceleration/deceleration tapers, if required.
 - j. Drive approaches shall be a minimum of 125' from any intersection, measured from the centerline of the drive approach to centerline of the road.
10. Vertical alignment shall conform to the following guidelines. All vertical alignment design shall follow the latest edition of the AASHTO Policy on Geometric Design for Streets and Highways. The design speed shall be thirty-five (35) mph for interior subdivision streets unless otherwise directed by the Township or Road Commission.
- a. The percent of grade on a road with an open ditch cross section shall be no less than 1.0% or more than 5.0% where ditch grades are centerline dependent.

- b. The percent of grade on a road with a curb and gutter cross section shall be no less than 0.50% or more than 6.0%.
 - c. A vertical curve shall be required where the algebraic difference in slopes of the tangent sections exceeds 1.0%. The minimum length of the vertical curve shall be 100'.
 - d. Road grades within 100' of an intersection shall not exceed a slope of three (3) percent regardless of the surface type.
11. A drainage system to adequately collect and discharge tributary roadway runoff is required. Either an open ditch or enclosed storm sewer system per the Township requirements is acceptable.
- a. All paved roads with curb and gutter shall have an enclosed storm sewer system unless otherwise approved by the Township.
 - b. The maximum allowable storm water runoff tributary area conveyed overland in drainage ditches shall be no more than six (6) acres. When the tributary area is more than six (6) acres or the amount of flow in the ditch exceeds 8.0 cfs, an enclosed storm sewer system and curb and gutter will be required.
 - c. The percent of grade in an open ditch shall not be less than 1.0% or greater than 5.0%
 - d. Any open ditch that exceeds 3.0% shall have a sodded ditch bottom. Sod in these areas shall extend from the ditch bottom up either side of the ditch to a point one foot above the flow line of the ditch.
12. Roadway signage shall meet the requirements of the Livingston County Road Commission and the Michigan Department of Transportation's Manual of Uniform Traffic Control Devices.

XIII. PARKING LOT REQUIREMENTS

- A. A striping and traffic control plan for parking areas shall be included. The location of all traffic control, regulatory, street, and subdivision signs shall be shown on the plans.
- B. Minimum drive widths and parking dimensions shall be in accordance with the Marion Township Zoning Ordinance.
- C. Concrete curb and gutter shall be provided for the perimeter of the parking area and for all island areas within the parking area.
- D. Minimum drive widths and parking dimensions shall be in accordance with the Marion Township Zoning Ordinance.
- E. Private Developments
 - 1. Loading zones and dumpster pads: 8" concrete on 6" 21 AA limestone aggregate.
 - 2. Minimum drive widths and parking dimensions shall be in accordance with the Marion Township Zoning Ordinance.

XIV. PATHWAYS AND SIDEWALKS

- A. Sidewalks shall be located in the right of way and one (1) foot from the ultimate right-of-way line.

- B. The sidewalk will be five (5) feet wide constructed of four (4) inches of concrete on compacted well-draining subgrade. The walk must be continued through driveway sections where it will be increased in thickness to eight (8) inches on major thoroughfares and collector roads and six (6) inches in all other instances. Curbs must be tapered to meet the walk.
- C. Proposed grades must be shown along the property line, driveways, and intermittent locations along the length of the walk.
- D. Any structures, hydrants, poles, etc., which are existing along the alignment of the walk, must be adjusted or relocated at the expense and coordination of the developer.
- E. All sidewalk construction will be according to public Act No. 8, 1973, the new MDOT standards for ADA ramps with detectable warning domes.

XV. SOIL EROSION AND SEDIMENT CONTROL

A. GENERAL

1. All proposed erosion control measures and sequence of soil erosion control measures shall be shown on the plans.
- B. Erosion control shall conform to Livingston County standard details, with a detail of each measure used shown on the plans.
 - C. The smallest practical area of land should be exposed at any one time during development. "Practical area" shall be defined as the area in which temporary or permanent restoration can and will be performed within a reasonable period of time, as defined by the Township. When land is exposed during development, the exposure should be kept to the shortest possible period of time, as deemed by the Township.
 - D. Temporary vegetation or mulching may be required to protect areas exposed during development, particularly if an unexpected erosion problem becomes evident. The developer will be required to assign this activity top priority upon notification by the Township. Failure to act after a second notification will be grounds for the Township to take necessary action to address the problem and charge the owner/developer accordingly.
 - E. Sediment basins or temporary basin outlet standpipe filters shall be maintained during construction to ensure that sediment within runoff is not being discharged onto neighboring properties.
 - F. Sediment basins prior to discharge into any wetland, stream, pond, etc., require 1 x 3 stone outlet filter at all low points/discharge points properly toed into silt fence.
 - G. Permanent vegetation and structures/basins should be installed as soon as practical during development. This should be included in the Soil Erosion Control Sequence noted above.
 - H. Wherever feasible, natural vegetation should be retained and protected.
 - I. The development plan should be best fitted to the topography and soil so as to create the least erosion potential. The best earth balance may not be the best fit with respect to topography and natural vegetation.
 - J. All new or existing (disrupted ditches) shall be sodded.
 - K. Seed and mulch is not permitted on slopes greater than 1:4. "Excelsior" Mulch blanket, sod pegged per Township specifications, or approved equal will be required on such slopes.
 - L. Erosion protection shall be provided in the public roadway for all drainage structures receiving road runoff to the low point.
 - M. The developer shall clean all structures impacted during construction along with any other erosion control items prior to occupancy.
- ### N. SITES REQUIRING PERMITS
1. A permit is required for all earth moving activities as follows:
 - a. All projects that disturb one (1) or more acres.

- b. All projects that occur within 500 feet of surface water and disturb more than 225 square feet.
- c. Construction of new ponds or alterations to existing ponds.
- d. All major projects as defined by Livingston County.

O. INTENT OF PERMIT

- 1. The intent of this requirement is to ensure that no silt or sediment enters the public stream or watercourses. This is accomplished through means of sediment basins, filters, diversions, etc.

P. PLAN REQUIRED

- 1. A soil erosion and sediment control plan is required for all sites that require a permit. This can be made a part of the plan documents. Itemized on this plan shall be step-by-step requirements for controlling erosion (sequence of construction). No work, including site clearing, will be allowed until approved soil erosion and sediment control measures are in place.

Q. Accelerated erosion and sedimentation must be prevented during all phases of construction including:

- 1. Initial site clearing.
- 2. Utility construction.
- 3. Building construction.
- 4. Site paving.
- 5. Final site approval.

R. INSPECTION

- 1. Inspection will be made periodically throughout construction on the maintenance and effectiveness of soil erosion control methods by designated consultants or personnel from Marion Township and Livingston County.

S. If inspection reveals that the controls are not being implemented, a cease and desist order on all site construction may be issued.

Livingston County Road Commission

3535 Grand Oaks Drive • Howell, Michigan 48843-8575
Telephone: (517) 546-4250 • Facsimile: (517) 546-9628
Internet Address: www.livingstonroads.org

January 6, 2020

Dear Livingston County Township Managers and Supervisors,

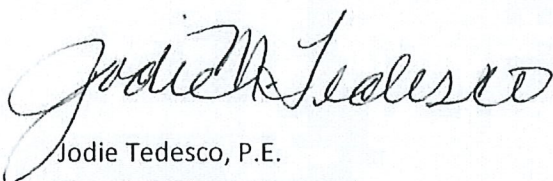
The Livingston County Road Commission has budgeted approximately \$2,500,000 for Primary Road Pavement Preservation. We hope to maximize our program again by asking Townships to submit primary road projects that they would consider partnering on.

Attached is a costing guide for budgeting purposes only. Please forward proposed projects that are of importance to your area. Once we have all the projects identified we will evaluate projects and available dollars to maximize our 2020 pavement program.

Please submit your road candidates by February 28th.

Road Name	Termini	Length	Base Cost (Max)	Total Cost	Twp Match \$

Thank You,



Jodie Tedesco, P.E.
County Highway Engineer

Enclosures

2020 PPP Average Cost / Mile

Treatment	Average Cost / Mile	Recommended Road Candidate Condition
2.0" Hot Mix Asphalt(HMA) Overlay	\$165,000	Paser Rating high 4, Surface raveling or first signs of wheel path cracking. Block cracking over 50%, patches in good condition.
HMA Wedge Course and 2.0" HMA Overlay	\$250,000	Paser Rating 3 or low 4, Moderate Rutting, extensive block cracking, patches in poor condition.
Base Repair/HMA Wedge Course/ 2.0" HMA Overlay	\$300,000	Paser Rating high 2 or 3. Significant road deterioration. Patches 1,000 syds or less per mile. Unbuilt road with poor underlying soils.
2.5" Mill existing pavement/ 3.0" HMA Pavement 2-Lifts	\$350,000	Paser Rating 2 – 4. Roadway with curb and gutter or grade control. Surface raveling, cracking, poor patches.
Crush and grade existing pavement. HMA Pave, 400#/Syd 2-Lifts	\$385,000	Paser Rating 2 or 3. Significant road deterioration. Patches in poor condition greater than 1000 syd per mile. Decent underlying road base.
Chip Seal with a Fog Seal	\$45,000	Low volume rural paved road. Minor surface defects and cracking.
HMA Wedge with a Chip Seal and Fog Seal	\$150,000	Low volume rural paved road. Minor rutting and deformation of pavement.
Reclamite HMA pavement surface rejuvenator	\$15,000	3-5 year old newly paved roadway. Rejuvenates bitumen in the pavement to extend pavement life.
Overband Crack Seal	\$10,000	Cracks 1/4" or larger



LIVINGSTON COUNTY
**CATHOLIC
CHARITIES**
HELPING LIVES GROW

2020 E. Grand River, Suite 104 • Howell, MI 48843 • Office: (517) 545-5944 • Fax: (517) 518-8275 • Livingstoncatholiccharities.org

January 6, 2020

Bob Hanvey
Marion Township Hall
2877 W. Coon Lake Rd
Howell, MI 48843

Dear Bob,

- “Holy Cow! I never expected to receive so much! I thank you from the bottom of my heart!”
- “What a surprise, you are Angels! I can’t remember the last time I had Christmas gifts! I am saving my gifts until Christmas, but thank you-thank you for the food and toiletries. God Bless you!”
- “Thank you for everything, all was so nice! Tell everyone involved thank you so much.”
- “Thank you for all you do for me. I wish I could do something for you.”
- “I thank the Lord for the people who do this for us! Sometimes this is all the Christmas I get.”

I wanted to share a few of the calls and comments that we received at the office from the seniors who had joyfully received blessings through the 2019 Christmas Blessing project. They were overwhelmed and so thankful for the generosity of all who donated. Not only does this delivery bring them much needed items, but also the realization, as you can see by the comments, that there are people out there, like you, that care about them and are thinking of them this Christmas season.

Thank You to you and your staff for your assistance and the generous donation of the use of the Marion Twp. hall for the 2019 Christmas Blessing project, a community endeavor that Livingston County Catholic Charities (LCCC) hosts each year for homebound and low-income senior citizens. Your generosity, along with others is a huge part of this project each year. This year, with your support, we served 161 seniors, up from 146 served last year.

Thank you for being a part of such a meaningful endeavor...loving and serving our brothers and sisters in need. Please visit Livingston County Catholic Charities’ Facebook page to view photos from the overall project. Enclosed is a listing of all of the generous donors that we gave each senior with their packages so they can see the tremendous number of people and organizations involved. Merry Christmas and God Bless you all!

Sincerely,

Suzanne Snyder
Director of Senior Services

Jra

Items in this box were lovingly provided by:

140 Ice Den, Justin & Michelle Anderson, **John & Kathi Backhuus**, Karl & Linda Bangert, **Loretta Beland**, Brighton High School Athletic Teams, **Brighton NC Machine Corp.**, **Brighton Senior Center**, Catholic Council on Aging, **Catholic Foundation of Michigan**, Joel & Lucinda Clark, **Coalition of Oral Health for Aging**, Cowdrey Family, **Daughters of Isabella Society St. Augustine**, Dearborn Sausage Co., **Dan Hall—Pinckney Chrysler Jeep Dodge Ram**, Dennis & Jacque Durco, **Extreme Machine**, Family Medicine Residency Program—St. Joseph Mercy Livingston Hospital, **Friend of Court Employees**, **Frontal Lobe CoWorking**, Lou G., Janet Gardella, **Hamburg Twp. Senior Center**, Hartland Lions Club, Holy Spirit Catholic School, **K of C #12295**, K of C #2050 4th Degree Assembly, Gerard & Emma Kabzinski Family, **Kellogg Dental**, Kensington Woods School, **Bette Klann**, Gary Kozyra, **Rob & Deb Kwapisz**, Chris Larson, **LCCC Employees**, Richard Lim Photography, **Livingston Civitan Club**, Livingston Sunrise Rotary, **Ruta McCormek**, Marion Township Hall, **Medilodge of Howell**, Navigator Middle School, **Parker Middle School**, Pathfinder Middle School, **Jim and Charlotte Ratke**, Pat Reimer, St. Agnes Parishioners, 5&6 Gr. Religious Ed & Christian Service, **St. Augustine Parishioners**, St. Joseph School & Quilters, **St. John the Baptist Parishioners & Christian Service Commission**, St. Mary Catholic School & Parishioners, **St. Mary Magdalen Parishioners**, St. Patrick School Families, **St. Patrick Christian Service & Parishioners**, Rick Smithers, Ron & Wanda Snyder, **Courtney & Fabrizio Tarara**, Universal Container Corp, **Gerard Waldecker**, Dennis & Chris Wysocki, **Remy Montalbo-Young**



LIVINGSTON COUNTY
CATHOLIC
CHARITIES
HELPING LIVES GROW

All boxes were packed by staff and volunteers from Livingston County Catholic Charities and many community volunteers.

Bob Hanvey

From: Bob Hanvey <supervisor@mariontownship.com>
Sent: Wednesday, January 15, 2020 9:49 AM
To: Scott Lloyd
Subject: CIRAB meeting

CIRAB Members,

February 3rd at 4 pm is when the majority of the members are able to meet. We will provide an agenda prior to the meeting. Look forward to seeing you all there.

Thanks,

Mike Spitler

WWTP Operations Manager / City of Howell

O: (517)546-6230

C: (517)410-1085

Mspitler@cityofhowell.org