Lower Grand River Watershed Progress Report

City of East Grand Rapids

Reporting Period: August 1, 2017– July 31, 2018

Prepared by the:

GVMC

Grand Valley Metropolitan Council

Environmental Programs

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http://www.lgrow.org

Contents

Tables

Figures

List of Abbreviations/Acronyms

AWRI	Annis Water Resources Institute
BMP	Best Management Practice
CES	Center for Environmental Study
CoC	Certificate of Coverage
DIP	Data, Information, and Procedures
DPW	Department of Public Works
GI	Green Infrastructure
GVMC	Grand Valley Metropolitan Council
HD	Health Department
ICMA	International City/Country Management Association
IDEP	Illicit Discharge Elimination Plan
I&E	Information and Education
KCDC	Kent County Drain Commissioner
KCRC	Kent County Road Commission
KIH	Kent Innovation High School
LGROW	Lower Grand River Organization of Watersheds
LGRW	Lower Grand River Watershed
LID	Low Impact Development
MACC	Macatawa Area Coordinating Council
MDEQ	Michigan Department of Environmental Quality
MGROW	Middle Grand River Organization of Watersheds
MS4	Municipal Separate Storm Sewer System
MSUE	Michigan State University Extension
MWEA	Michigan Water Environment Association
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
O&M	Operation and Maintenance
OCWRC	Ottawa County Water Resources Commissioner
PCC	Post-Construction Controls
PEP	Public Education Plan
POS	Point-of-Sale
SEMCOG	Southeast Michigan Council of Governments
SESC	Soil Erosion and Sedimentation Control
SWPPI	Stormwater Pollution Prevention Initiative
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
USEPA	U.S. Environmental Protection Agency
WMEAC	West Michigan Environmental Action Council
WMP	Watershed Management Plan
WMSECN	West Michigan Soil Erosion Control Network
WMSRDC	West Michigan Shoreline Regional Development Commission
WQI	Water Quality Index

Purpose

This Lower Grand River Watershed Progress Report was developed by the Grand Valley Metropolitan Council's (GVMC) Department of Environmental Programs in collaboration with the regulated communities within the Lower Grand River Watershed. This document satisfies the requirement set forth in the Michigan Department of Environmental Quality's (MDEQ) National Pollutant Discharge Elimination System (NPDES) Wastewater Discharge General Permit, Storm Water Discharges from Municipal Separate Storm Sewer Systems (MS4s) Subject to Watershed Plan Requirements as outlined in Section B(3).

Part 1 – Contact Information

Contact Information for Michigan Department of Environmental Quality (MDEQ):	
Please provide current contact information for MDEQ to use regarding stormwater issues.	
Permit Application Contact	
Name	Doug La Fave
Title	Assistant City Manager
Address	750 Lakeside Dr SE
City, State, Zip	East Grand Rapids, MI 49506
Telephone (with area code)	616-940-4817
Fax (with area code)	616-831-6121
E-mail	dlafave@eastgr.org
Stormwater Program Manager	
Name	Doug La Fave
Title	Assistant City Manager
Address	750 Lakeside Dr SE
City, State, Zip	East Grand Rapids, MI 49506
Telephone (with area code)	616-940-4817
Fax (with area code)	616-831-6121
E-mail	dlafave@eastgr.org
Stormwater Permit Fee Billing Address	
Name	Doug La Fave
Title	Assistant City Manager
Address	750 Lakeside Dr SE
City, State, Zip	East Grand Rapids, MI 49506
Telephone (with area code)	616-940-4817
Fax (with area code)	616-831-6121
E-mail	dlafave@eastgr.org

Part 2 – Municipal Stormwater Pollution Prevention Initiatives (SWPPI) Commitments

Committees have been working to address different subject areas to make program implementation as efficient as possible. Municipal Separate Storm Sewer System (MS4) permittees participate in the Lower Grand River Organization of Watersheds (LGROW) committees. Committee meetings have also been used to update everyone on the progress of the other committees and the program in general. The committees are as follows:

- Public Engagement Committee
- Stormwater Ordinance Committee (SWOrd)
- Technical Committee
- Sustainability Committee
- Fund Development and Membership Committee
- LGROW Executive Committee

The list of committee members who have served on the committees during this reporting period are indicated in Table 2 below. Members denoted with an asterisk are not MS4 permitted representatives.

Table 1. LGROW Committee Membership List as of July 31, 2018

Community	Representative	Public Engagement	Stormwater Ordinance (SWOrd)	Technical	Sustainability	Fund Development & Membership	LGROW Executive
Cascade Charter Township	Mr. Steve Peterson						
East Grand Rapids, City of	Mr. Brian Donovan					X	X
East Grand Rapids, City of	Mr. Doug LaFave						
Forest Hills Public Schools	Ron Boezwinkle						
Fruitport, Village of	Jeremy Statler						
Georgetown Charter Township	Mr. Rod Weersing	X					
Grand Haven, City of	Ms. Cheryl Davidson	X					
Grand Rapids Charter Township	Bob Versluys						
Grand Rapids, City of	Mr. Mike Lunn			X			

Table 1. LGROW Committee Membership List as of July 31, 2018

Community	Representative	Public Engagement	Stormwater Ordinance (SWOrd)	Technical	Sustainability	Fund Development & Membership	LGROW Executive
Grand Rapids, City of	Ms. Carrie Rivette	X	X		X	X	X
Grand Rapids, City of	Mr. Michael Staal	X	X		X		
Grand Rapids, City of	Mr. Dan Taber		X	X			
Grandville, City of	Mr. Ken Krombeen		X			X	X
Grandville, City of	Mr. Todd Wibright			X			
GVSU*							
Hudsonville, City of	Ms. Jill Frielink	X					
KCDC	Mr. Brad Boomstra		X				
KCRC	Mr. Bruce Schutte	X					
Kent County Health Department*	Mr. Brendan Earl	X					
Kent Resource Recovery*	Ms. Megan Kretz	X					
Kentwood, City of	Mr. Jim Beke		X	X			
Kentwood, City of	Mr. Dan Vanderheide		X				
Kentwood, City of	Ms. Kelsey Sloan	X		X			
MDEQ*	Ms. Amanda St. Amour						
MDEQ*	Ms. Michelle Storey	X				X	
MDEQ*	Ms. Dana Strouse	X		X			
OCWRC	Mr. Dennis Cole	X	X				
OCWRC	Ms. Angela Walachovic	X					
OCRC	Mr. Jerry Olman	X					
Plainfield Charter Township	Mr. Rick Solle		X				
Plainfield Charter Township	Ms. Mary Trapp-Gunst	X					

Table 1. LGROW Committee Membership List as of July 31, 2018

Community	Representative	Public Engagement	Stormwater Ordinance (SWOrd)	Technical	Sustainability	Fund Development & Membership	LGROW Executive
Spring Lake, Village of	Ms. Chris Burns						
Walker, City of	Mr. Scott Conners		X			X	X
Walker, City of	Ms. Rachell Nagorsen	X	X	X	X		X
Wyoming, City of	Mr. Aaron Vis	X		X			X
Wyoming, City of	Mr. Myron Erickson		X				

Public Engagement Committee

The Public Engagement Committee met on September 13, 2017, November 8, 2017, January 10, 2018, February 14, 2018, and May 16, 2018 during the reporting period. Agendas and minutes for the meetings are posted to https://www.lgrow.org/public-engagement. Throughout the reporting period, the group focused on implementation of the updated Public Education Plan (PEP) approved in February of 2013, available here: https://www.lgrow.org/ms4information.

The Public Engagement Committee has been functioning as a joint committee of the Lower Grand River Organization of Watersheds (LGROW) and the permitted Lower Grand MS4 communities since January of 2014. The goals of LGROW, the Lower Grand River Watershed Management Plan, the strategic plan, and the MS4 Public Education Plan align closely, and through this joint committee's combined efforts, the result has been a larger group of involved stakeholders. This group shares the common goals of raising awareness about the Lower Grand River Watershed (LGRW) and improving the stormwater quality within the watershed. The group focuses on messaging and outreach events that address the target messages of: Personal Watershed Stewardship, Ultimate Stormwater Discharge, Public Reporting of Illicit Discharges, Personal Actions that can Impact the Watershed, Waste Management, Management of Riparian Lands. A detailed list of these events and the outreach conducted during this reporting period is provided in Part 3.

SWOrd Committee

The Storm Water Ordinance (SWOrd) Committee met on January 12, 2018, March 9, 2018, March 27, 2018, May 15, 2018 and July 16, 2018 during the reporting period. Meetings were focused on follow up items related to the LGRW alternative approach, the model ordinance, the standards manual, and the stormwater design spreadsheet for MS4 permittees to utilize in their implementation of the new post-construction stormwater control requirements outlined in the 2016 NPDES Permit Application.

The committee finalized templates for the standards manual, model ordinance, the standards manual BMP design criteria appendix, and the LGROW Design Spreadsheet based on feedback from the Michigan Department of Environmental Quality (MDEQ) after the April 2015 submittal of the alternative approach for channel protection. The standards manual follows the steps outlined in the flow chart submitted with the permit applications for the design, review, and permitting of sites with post construction controls. The standards manual was developed in tandem with a LGROW Design Spreadsheet to assist site designers and reviewers to ensure site designs meet all the regulatory criteria outlined in the permit. The development of maintenance agreements per the stormwater post-construction controls is ongoing, and will continue through the next reporting period.

The manual and Design Spreadsheet tools are also designed to ensure that the alternative approach is only utilized as a last resort. The committee finalized the model ordinance for communities to customize for the application of these standards. On March 14, 2018 a meeting was held by GVMC for all MS4's in order to update each community with the progress made regarding their permit application. Since this work began in 2015, much of this reporting period was spent editing and revising permit application documents to accurately reflect how each community implements their MS4 program, accounting for new stormwater regulations under the next MS4 permit.

Technical Committee

The Technical Committee met on August 16, 2017, October 18, 2017, December 20, 2017, February 14, 2018, April 18, 2018, and June 20, 2018 during this reporting period. Agendas and minutes from the meetings are available at the following site: https://www.lgrow.org/technical-committee. During the reporting period, the committee members focused on the development of the LGROW Data Repository, which will serve as a resource for the sharing and viewing of water quality data collected throughout the watershed. The Data Repository can be accesses here: https://www.lgrow.org/data-repository/

The Committee also continued work on the watershed monitoring manual to guide the collection, processing, and storage of data in the Lower Grand River Watershed and the Lower Grand River Total

Maximum Daily Load (TMDL) monitoring, as required by the MS4 permit. The committee is coordinating the TMDL monitoring in the stream reaches identified in the MS4 Permit application letters. The City of Wyoming and the City of Grand Rapids are providing sampling equipment and laboratory space to collect and analyze the samples. This work will continue into the next reporting period. At the October 2017 meeting, the committee enjoyed an engaging presentation from a representative from the United States Geological Survey (USGS). IDEP outfall screening was also a focus of the Technical Committee, since many of the MS4's in the watershed were planning to complete this work during the summer of 2018.

Training

GVMC provides multiple training documents and DVDs for Permittee use. Documents are available at: https://www.lgrow.org/ms4information. Training materials, including newsletter articles for communities to provide to residents, can be found on the LGROW website. In addition, GVMC has hosted or partnered on several training events during the reporting period including:

- 15th Annual Grand River Spring Forum
    - Held on May 11, 2018 at the Cascade Library
- Stormwater General Awareness and IDEP
    - Offered May 22 and 23, 2018 in both Kent and Ottawa Counties
- Lunch and Learn
    - Offered at GVMC on June 29, 2018 hosted by Upstream Technologies

Training Library

A lending library of training materials is housed at GVMC and is available to all watershed partners to assist with the Municipal Employee Training requirements of the discharge permit. The following materials are currently available:

DVD from Excal Visual, LLC

- IDDE – A Grate Concern: Illicit Discharge Detection & Elimination (14¼ Minutes)

DVD from Excal Visual, LLC

- Storm Watch - Municipal Stormwater Pollution Prevention (20 Minutes)

DVD from Excal Visual, LLC

- Stormwater Pollution Prevention - A Drop in the Bucket (16 Minutes)

DVD from Excal Visual, LLC

- Ground Control - Stormwater Pollution Prevention for Construction Sites (14.5 Minutes)

DVD from Excal Visual, LLC

- Spills & Skills - Non-Emergency HazMat Spill Response (18.5 Minutes)

DVD from Southeast Michigan Council of Governments (SEMCOG) and the Road Commission for Oakland County

- Keep An Eye On It! - Environmental Awareness for Gravel Road Maintenance (18.5 Minutes)

DVD from USEPA - Reduce Runoff: Slow It Down, Spread It Out, Soak It In (includes the following videos)

  - Reduce Runoff: Slow It Down, Spread It Out, Soak It In 9 Minutes
  - RiverSmart Homes: Getting Smart about Runoff 12 Minutes
  - Building Green: A Success Story in Philadelphia 11 Minutes
  - After the Storm 22 Minutes
- DVD from North Central Texas Council of Governments Municipal Employee Training Series: Preventing Stormwater Pollution: What We Can Do (includes the following videos)
  - Introduction: What We Can Do
  - Construction Activities and Land Disturbances
  - Fleet Maintenance and Material Handling
  - Streets and Drainage Maintenance
  - Parks and Grounds Maintenance
  - Solid Waste Management

Attendance at the live events and completion of other training is recorded in each MS4's individual training logs (Part 2D).

Newsletters

GVMC sent out seasonal MS4 Newsletters to communities to provide information regarding upcoming training, events, regulatory deadlines, committee meetings, and general program information during the reporting period.

www.lgrow.org Fall 2017

MS4 UPDATE

Information for MS4 Permitees in the Lower Grand River Watershed

Fish swimming over the 6th Street Dam in Sept. 2017

Newsletters such as this will periodically be sent to you. Since we are all a part of the Lower Grand River Watershed, it is important that everyone has current information, is up to date with regulatory requirements, and is aware of other activities happening in the watershed. This messaging also serves as a reminder for upcoming meetings and events, and offers MS4 training opportunities.

Leaves have begun to fall! Attached to this electronic newsletter, you will find an informational brochure about seasonal yard waste. Please post and/or distribute to your employees and community as you see fit. GVMC can print and customize this flier for your community, just let us know what changes you would like to make.

ON THE HORIZON

Next summer, many Lower Grand River MS4's will need to complete dry-weather screening of their outfalls. The last time outfall sampling occurred was in 2013 and 2014. GVMC will hire interns to complete IDEP testing. In Spring 2018, GVMC will give IDEP training and provide the materials needed to complete testing. In the coming months, please be thinking about any new outfalls, updates that need to be made to maps, problem or high-priority sites, and the amount of time it will take field personnel to complete your testing. More information will become available as testing time gets closer.

2016-2017 PROGRESS REPORT UPDATE

All MS4 Progress Reports were submitted to MDEQ by their October 1st due date. Please keep track of the trainings that you and your DPW staff complete during this reporting period. Note that the trainings listed in the progress report are examples and recommendations. MS4 training requirements may be met by other means; for example: information covered during staff meetings, fliers handed out, email blasts, or conferences attended throughout the year. Please make a note of these things as they happen in the 2017-2018 reporting period in order to meet training requirements. Thank you for your help and participation with the reporting process!

STORMWATER TRAINING OPPORTUNITIES

13th Annual MiCorps Conference and Training
Nov. 8-9, 2017 in Tustin, MI

Ottawa County Water Quality Forum
Nov. 30, 2017 in West Olive, MI

MWEA Watershed and Stormwater Seminar
Dec. 5, 2017 in East Lansing, MI

More information on these trainings can be found here.
Training DVDs are still available through GVMC. GVMC is looking to acquire more up-to-date training that is applicable to your municipality. If you have any ideas for MS4 materials to train DPW employees, please let us know.

UPCOMING COMMITTEE MEETINGS @ GVMC

Public Engagement Committee
November 8, 2017 3-4 PM
Sustainability Committee
December 4, 2017 1:30-2:30 PM
Technical Committee
December 20, 2017 10:30 AM- 12 PM
2018 Meeting dates and times can be found here.

MS4 COMMUNITIES

If you have any stormwater information or events coming up in your community that you would like to share with other MS4s in the area, please let us know so we can get the word out! (Send an email to cara.decker@gvmc.org)

GVMC

More MS4 information can be found on the **LGROW website**

www.lgrow.org Summer 2018

MS4 UPDATE

Information for MS4 Permitees in the Lower Grand River Watershed

Thank you for attending the 15th Annual LGROW Spring Forum on May 11, 2018!

Attached to this electronic newsletter, you will find an informational brochure about ways to prevent pollution during the summer. There are also newsletter articles that highlight general watershed awareness. Please post and/or distribute to your employees and community as you see fit.

MS4 PERMITS

All communities have received their updated Stormwater Standards Manuals. These manuals outline design standards to comply with new Post Construction Controls under the next MS4 permit. This is one of many documents that will make up the entire MS4 program for your community.

Timely review is necessary. Please work with Cara to get your comments incorporated into these documents. If you need extra explanation or desire further clarification, please do not hesitate to contact GVMC for help.

Once review is complete, the permit application will be submitted to MDEQ. While we are waiting for MDEQ's Permits Section to issue new MS4 permits, the LGROW Design Spreadsheet will be finalized in order to aid developers with compliance to the new permit requirements.

IDEP OUTFALL SCREENING

This summer, GVMC will be completing dry-weather screening of MS4 outfalls in accordance with the Illicit Discharge Elimination Plan (IDEP). The last time outfall screening occurred was in 2013 and 2014. GVMC will let you know when we will be in your community to complete this work. Screening is weather dependent, so we appreciate your willingness to be flexible.

GVMC provided IDEP training in May. Many thanks to those who attended- this will be documented in your annual progress report to MDEQ.

The training is available for you to share with those who were not able to attend. You can find the slides here: **www.lgrow.org/ms4information**
Please record the date and the names of DPW employees who view the training. We will report them to MDEQ in your progress report.

More information can be found on the LGROW website

www.lgrow.org Winter 2018

MS4 UPDATE

Information for MS4 Permitees in the Lower Grand River Watershed

Snowmelt carrying nonpoint source pollution (salt) to storm drain with direct connection to the Grand River

Winter is still here! Attached to this electronic newsletter, you will find an informational brochure about ways to prevent pollution during the winter. There is also a newsletter article that highlights LGROW's illicit discharge reporting website. Please post and/or distribute to your employees and community as you see fit.

MS4 PERMIT MEETING

A full MS4 meeting will be held on Wednesday, March 14, 2018, from 1:30-3:30pm, at the City of Walker's Commission Chambers located at: 4243 Remembrance Rd NW, Walker, MI 49534.

GVMC will give updates to the permit application process and review new stormwater standards that your community will be responsible for implementing once the ordinance is adopted. This is an important meeting to have all municipal employees and elected officials attend in order to review and understand the new permit requirements before they go to MDEQ's permit section and your new permit is issued. Please make every effort to attend and invite engineers, planners, supervisors, and other employees from your community who will have responsibility in implementing these new standards.

2017 PUBLIC EDUCATION PLAN FOCUS GROUP

A focus group was held on December 18, 2017 at GVMC with the purpose to determine changes in the awareness, education, and behavior of the public as a result of stormwater education efforts since 2009. This focus group ended up being a very educational experience for its participants, while providing valuable feedback on LGROW outreach activities. The mixed demographic of participants and the number of MS4 communities participating provided a fairly diverse view of LGROW's reach into the watershed, and participants shared many ideas to improve LGROW messaging. We plan on using recommendations from this focus group to update the MS4 Public Education Plan, and provide more effective stormwater messaging throughout the watershed. The complete report can be found at: **www.lgrow.org/ms4information**

More information can be found on the LGROW website

Monitoring

The Grand River Water Quality Index (WQI) is used to show the trend of Grand River water quality downstream of Grand Rapids. A WQI of 71-90 indicates good water quality with high diversity of aquatic life and very few limits for recreational use. Grand Rapids has been monitoring the Grand River for forty years and all of the data are available upon request. A record of the WQI for Wealthy Street Bridge is provided as an example of improving water quality in the Grand River. An interactive map and data from sampling events can be viewed as follows: https://grandrapids.maps.arcgis.com/apps/Embed/index.html?webmap=b58bd9f6cda949599b15753b888a7048&extent=-85.8676,42.8116,-85.4244,43.0326&zoom=true&scale=true&search=true&searchextent=false&legend=true&disable_scroll=false&theme=light

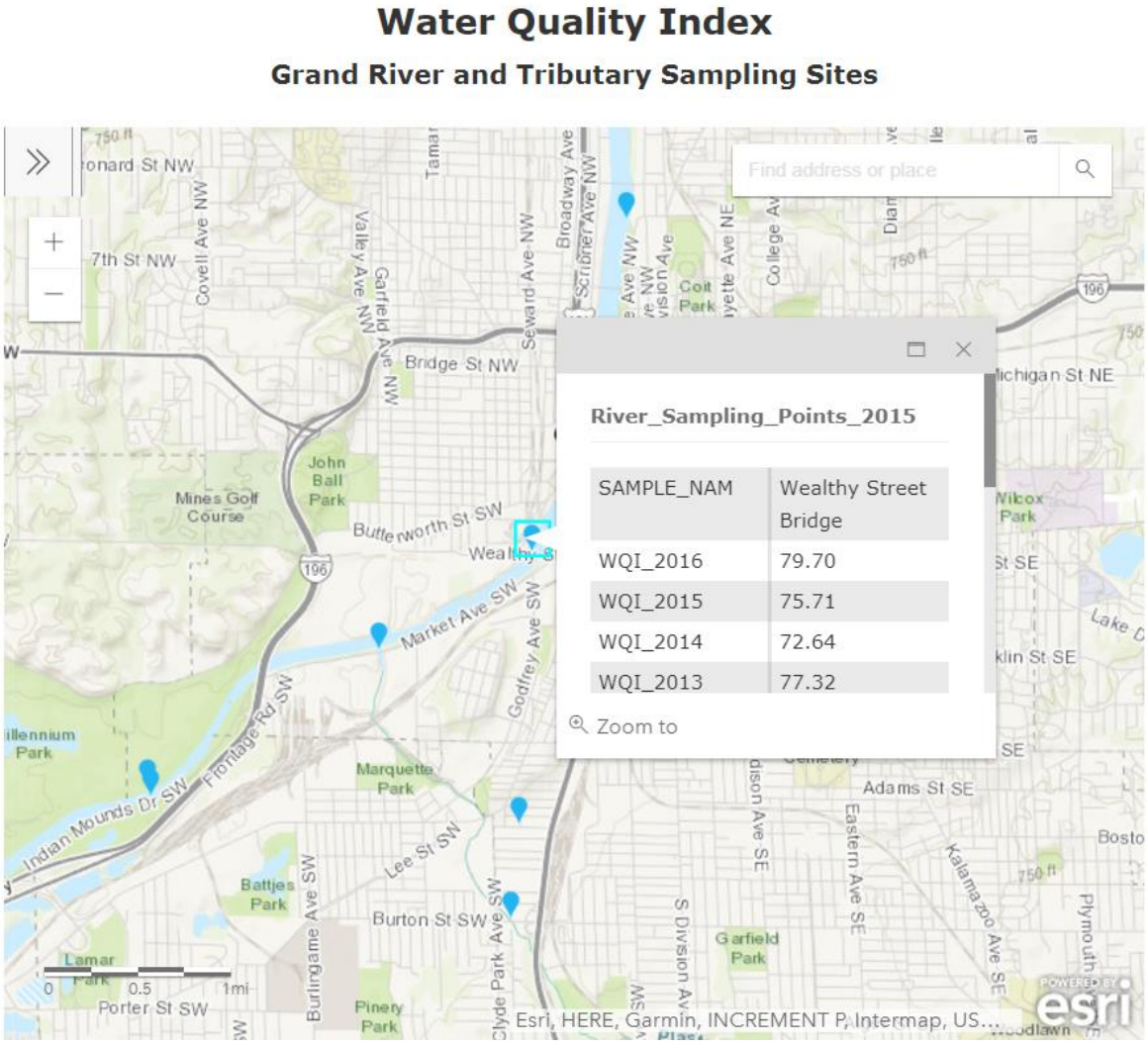


Figure 1 Grand Rapids Water Quality Index Web Interface

Data Repository

The LGROW Technical Committee continued working on the design for a watershed-wide data repository with the help of GVMC's Regional Geographic Information System (REGIS) department. Using data collected by the Friends of Buck Creek as part of their 319 monitoring grant, and Indian Mill Creek, as part of GVSU Graduate Students' research, the committee designed a landing page, which provides access to the collected data via an Arc GIS online interface – a free online GIS software that allows users basic viewing and searching capabilities. The group also designed a tutorial for data repository users. The long-term goal is that the data repository will be a central location to access water quality data from sampling events in the Lower Grand River Watershed. With this goal in mind, the Technical Committee also developed submittal tools to allow users to share collected scientific water quality data. The data will be reviewed and checked by LGROW before it is uploaded into the data repository for public viewing at this site: https://www.lgrow.org/data-repository/. Some students and teachers in local school districts have already begun to use the repository to aid classroom learning.

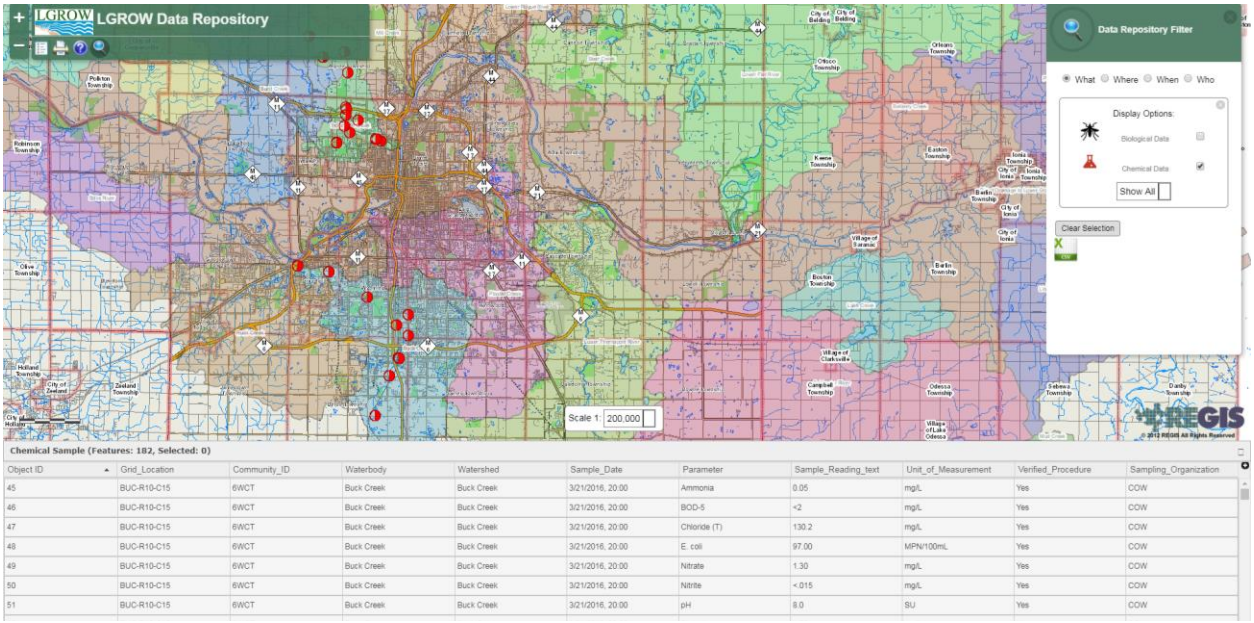


Figure 2 LGROW Data Repository

MDEQ Program Audits

GVMC assists communities in preparing for audits, and in addressing any deficiencies identified by MDEQ. During this reporting period, MDEQ performed audits on site for the following communities in the Lower Grand River Watershed:

City of Wyoming, August 29, 2017

City of Grandville, January 18, 2018

Kent County Road Commission, January 24, 2018

Supplemental documentation for these audits will be included in this report for each of the communities listed above. All communities that were audited during this reporting period were found to be in compliance and are implementing effective MS4 programs.

Part 2A - Lower Grand River Watershed Management Plan Prioritized Objectives

Encouraging proper septic tank maintenance

Each year a portion of the public education materials distributed address proper septic tank maintenance. Detailed information regarding the nature of these materials is included in Part 3 - PEP of this progress report. Additionally, communities in both Kent and Ottawa Counties work collaboratively with their respective Health Departments to report and ensure correction of failing or failed septic systems. Individual communities track this data in Part 4 – IDEP of this progress report.
The US EPA hosts SepticSmart Week once a year, and LGROW uses the materials provided to encourage of proper septic system care. SepticSmart Week 2017 was held on September 18-22, and focused on educating homeowners and communities on the proper care and maintenance of their septic systems.

Encouraging septage ordinance

The Ottawa County Health Department presently has an ordinance in place requiring point of sale inspections. The permitted communities located within Ottawa County collaborate with and rely on the Ottawa County Health Department for ongoing enforcement of the ordinance.

Kent and Muskegon Counties have not passed an ordinance requiring point of sale septic system inspections. The permitted entities within Kent and Muskegon County rely on implementation of the IDEP and reporting/enforcement through their stormwater ordinances and the Health Department to follow up on failing or failed septic systems. In the case of a failed septic system, a connection to sanitary is typically required if a sanitary sewer connection is available within 250 feet.

Implement vegetative buffering practices and restore and protect the stream buffer and canopy

Several communities including the City of East Grand Rapids and the City of Grand Rapids have instituted or evaluated the potential for buffer ordinances. The Cities of Hudsonville and Rockford have included buffer provisions within their zoning ordinances. Many other communities have adopted mowing buffer procedures on the properties they own and maintain. These procedures are identified in Part 2C.

Implement Michigan Department of Natural Resources wildlife population management practices

Three communities are working with the Michigan Department of Natural Resources on supervised programs to control populations of Canada Geese. These programs include Egg Destruction (East Grand Rapids and Kent County Drain Commissioner), Goose Relocation (Kent County Drain Commissioner), Nest Destruction (Kent County Drain Commissioner), and Targeted Goose hunts for population reduction (Plainfield Charter Township). Communities throughout the watershed are utilizing signage to discourage the feeding of waterfowl, actively installing goose deterrents, and/or instituting procedures for a no-mow buffer adjacent to streams and ponds to function as a natural deterrent. The City of Hudsonville has provided a portal on their website for residents to report nuisance wildlife.

Implement sanitary sewer maintenance practices

Sanitary sewer service is provided by several communities to residents in expanded service areas. Through these partnerships, many communities are able to utilize sanitary sewer infrastructure instead of relying on septic fields. The City of Grand Rapids collaborates with Cascade Charter Township, the City of East Grand Rapids, Forest Hills Public Schools, Grand Rapids Charter Township, Kent County, Kentwood, and the City of Walker. The City of Wyoming collaborates with the City of Kentwood and portions of the City of Grandville. The City of Grandville collaborates with the City of Hudsonville and portions of Georgetown Charter Township. The City of Grand Haven collaborates with the City of Ferrysburg and the Village of Spring Lake. The North Kent Sewer Authority collaborates with Plainfield Charter Township and the City of Rockford. All of the MS4 LGROW community members have procedures to inspect and maintain their sanitary sewer systems, which are independent of their MS4 systems. Information related to the maintenance and upgrades of sewer infrastructure is included in Part 2B of the report.

Implement Low Impact Development Practices

Low Impact Development (LID) and Green Infrastructure (GI) are critical components in both the SWPPI and the PEP. Detailed information on the training related to LID practices and implementation is detailed in Part 2D. Tracking of the installation and consideration of LID practices by Permittees is tracked in Part 2E. The PEP incorporates messages on the implementation of LID practices such as rain gardens, buffer strips, and native plantings for their direct benefits to water quality. The PEP focuses on LID practices that are feasible for individual homeowners to implement, rather than large scale development.

Implement watershed focused land-use planning

Throughout the watershed, construction in FEMA mapped floodplains is regulated by the Michigan Building Code to ensure that construction below the base flood elevation does not occur. This is accomplished by providing prescribed release rates for Bank Erosion Control, as well as Flood Control.

Water Quality control is addressed with detention and infiltration, where possible, or delayed and restricted release where it is not.

As the Stormwater Ordinance Committee worked on developing the model stormwater ordinance for the next MS4 permit, many of the design requirements needed to prevent or mitigate flooding in site designs were left intact. Though these were not required as part of the MS4 permit application, permitted communities recognize the need for flood protection for the protection of downstream residences and receiving waters.

Implement proper soil erosion and sedimentation control techniques

Part 91, Soil Erosion and Sedimentation Control (SESC), of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended, regulates the activity of earth work and mandates that projects disturbing an area greater than one acre in size or an area less than 500 feet from a lake or stream obtain a soil erosion permit from the regulatory agency with jurisdiction over the area in which they are working. Table 2 details which Permittees work collaboratively with the county enforcing agent (CEA), which Permittees administer their own program as a municipal enforcing agent (MEA), and which Permittees have the authority to oversee their own projects as authorized public agencies (APA). MEA, CEA, and APA programs implement a thorough soil erosion and sediment control plan review and regular site inspections in their programs for permitted sites. Plan review and site inspections are conducted by staff with either a comprehensive or inspector construction site stormwater operator certification respectively.

Training on topics related to construction site stormwater runoff is detailed in Part 2D. Training ensures that even if a community does not oversee their own program, field staff will be informed regarding observations on a construction site and the appropriate entity to report to if there is an offsite discharge or poorly maintained SESC measures. Many LGRW MS4 permitted communities who administer a Part 91 program also work closely with the West Michigan Soil Erosion Control Network, a professional network that provides regular training, panel discussions and field demonstrations on BMPs and new technologies in this field.

Table 2. LGRW Part 91 Administration Authority as of July 31, 2018							
Community	**Part 91 Contact Info**		**MEA**	**Utilizes CEA**			**APA**
	Name	**Phone**		**Kent**	**Muskegon**	**Ottawa**	
Cascade Charter Township	KCRC	616-242-6914		X			
East Grand Rapids, City of	KCRC	616-242-6914		X			
Ferrysburg, City of	OCWRC	616-994-4530				X	
Forest Hills Public Schools	KCRC	616-242-6914		X			
Fruitport, Village of	Muskegon County DPW	231-724-6411			X		
Georgetown Charter Township	OCWRC	616-994-4530				X	
Grand Haven, City of	OCWRC	616-994-4530				X	
Grand Rapids Charter Township	KCRC	616-242-6914		X			
Grand Rapids, City of	Environmental Services Dept.	616-456-3057	X				X
Grandville, City of	KCRC	616-242-6914		X			
Hudsonville, City of	OCWRC	616-994-4530				X	
Kent County Drain Commissioner & Administration	Deputy Drain Commissioner	616-336-3688					X
Kent County DPW	Kent Co. DPW	616-336-3694					X
Kent County Road Commission (Kent County CEA)	KCRC	616-242-6914		X			X
Kentwood, City of	Engineering Dept.	616-554-0737	X				X
Ottawa County Water Resources Commissioner & Administration (Ottawa County CEA)	OCWRC	616-994-4530				X	X
Ottawa County Road Commission	Engineering Dept.	616-842-5400					X
Plainfield Charter Township	KCRC	616-242-6914		X			
Rockford, City of	Public Services Dept.	616-866-9631	X				
Sparta, Village of	KCRC	616-242-6914		X			
Spring Lake, Village of	OCWRC	616-994-4530				X	
Walker, City of	Engineering Dept.	616-453-6311	X				
Wyoming, City of	KCRC	616-242-6914		X			

Implement channel and stream bank stabilization, bio-engineering and erosion control techniques

The MDEQ requires a joint permit from the state of Michigan for all work performed in channels that are designated as waters of the state. Any work that occurs within 500 feet of a lake or stream requires a soil erosion control permit from the authorized Part 91 agency, as referenced above. These permitting procedures work in tandem to prevent negative impacts during and after construction, as well as to ensure adequate restoration. Permitted communities in the Lower Grand River Watershed have policies in place to ensure protection of drainage systems from construction site runoff as detailed in Part 2C and perform regular training as referenced in Part 2D related to construction site stormwater runoff and water quality protection.

Implement turf management and proper fertilizer application practices

Permitted communities within the Lower Grand River Watershed have developed procedures for managing vegetation and using fertilizers on Permittee owned properties as outlined in Part 2C. These policies and procedures were reviewed as permittees prepared their individual permit applications in Spring 2015. All staff at the communities and their subcontractors adhere to these procedures. Training is also provided in the form of the brochure, "What Every Landscaper Must Know". This brochure is distributed as part of the comprehensive training plan on controls to reduce the discharge of pesticides, herbicides, and fertilizers, as described in Part 2D. The brochure was updated in 2014 to allow for permitted MS4s to customize it for distribution to their staff and contractors as well as local landscaping businesses.

Part 2B - Stormwater Controls Inspection, Maintenance and Effectiveness
August 1, 2017 to July 31, 2018

Property Name: Municipal Parking Lot @ 659 Croswell Ave.				
Structural Storm Water Control	**Inspection Frequency**	**Maintenance Schedule**	**Inspection and Maintenance Conducted and Location of Log (if applicable)**	**Effectiveness of Control and Support Documentation**
Catch Basin sumps	Annually	5 year cycle Clean sumps (Public Works Complex)	Catch basins in this lot were cleaned in 14/15 and inspected during this reporting period.	Effective. Catch basins are functioning properly.
Property Name: EGR Community Center @ 750 Lakeside Drive				
Structural Storm Water Control	**Inspection Frequency**	**Maintenance Schedule**	**Inspection and Maintenance Conducted and Location of Log (if applicable)**	**Effectiveness of Control and Support Documentation**
Catch Basin sumps	Annually	5 year cycle. Clean sumps (Public Works Complex)	Catch basins in this lot were cleaned in 14/15 and inspected during this reporting period.	Effective. Catch basins are functioning properly.
Storm Sewer Separator	Annually	Annually or as needed. Clean chamber (Public Works Complex)	The separator was cleaned during the reporting period. May 2018	Effective. Functioning properly.
Property Name: Water Tower Property @1745 Woodlawn Ave.				
Structural Storm Water Control	**Inspection Frequency**	**Maintenance Schedule**	**Inspection and Maintenance Conducted and Location of Log (if applicable)**	**Effectiveness of Control and Support Documentation**
Grassy swale	Annually	Annually or as needed. Clean swale of debris and maintain turf. (Public Works Complex G.M.)	Swale was mowed regularly during the reporting period.	Effective. The swale filters storm water and prevents debris from entering the storm sewer system. The debris is regularly handpicked.

Property Name: Manhattan Park @ 430 Manhattan Rd.				
Structural Storm Water Control	**Inspection Frequency**	**Maintenance Schedule**	**Inspection and Maintenance Conducted and Location of Log (if applicable)**	**Effectiveness of Control and Support Documentation**
Catch Basin sumps	Annually	5 year cycle. Clean sumps (Public Works Complex)	Catch basins in this lot were cleaned in 14/15 and inspected during this reporting period.	Effective. Catch basins are functioning properly.
Grassy swales	Annually	Annually or as needed. Clean swale of debris and maintain turf. (Public Works Complex-G.M.)	Swales are cleaned annually of any/all debris. Most swales in this area remain in their natural state providing excellent runoff filtration.	Effective. The grassy swales filter storm water and prevent silt and debris from entering the storm sewer system.
Property Name: John Collins Park @650 Lakeside Dr.				
Structural Storm Water Control	**Inspection Frequency**	**Maintenance Schedule**	**Inspection and Maintenance Conducted and Location of Log (if applicable)**	**Effectiveness of Control and Support Documentation**
Rain Garden	Annually	Annually or as needed. Clean garden of debris and maintain garden plants (Public Works Complex-G.M.)	Rain garden is cleaned of debris on a routine basis.	Effective. The rain garden drains properly so it provides an effective means of storm water treatment for a portion of the park.
Property Name: Waterfront Park@2206 Reeds Lake Blvd.				
Structural Storm Water Control	**Inspection Frequency**	**Maintenance Schedule**	**Inspection and Maintenance Conducted and Location of Log (if applicable)**	**Effectiveness of Control and Support Documentation**
Vegetative Buffer Strips along shore	Annually	Annually or as needed. Clean Buffer and	The buffer strips along the shoreline have been routinely	Effective. The vegetative buffers filter storm water, slow runoff and prevent

line.		maintain vegetation (Public Works Complex-G.M.)	cleaned of debris and inspected throughout the reporting period.	silt and debris from entering Reeds Lake.
Property Name: Public Works Complex/Remington Park @2310 Reeds Lake Blvd.				
Structural Storm Water Control	**Inspection Frequency**	**Maintenance Schedule**	**Inspection and Maintenance Conducted and Location of Log (if applicable)**	**Effectiveness of Control and Support Documentation**
Catch Basin Sumps	Annually	Annually or as needed. Clean sumps (Public Works Complex)	Catch basin sumps were cleaned during this reporting period.	Effective. Catch basins are functioning properly.
Grassy swale and vegetative buffer strip	Annually	Annually or as needed. Clean and maintain turf, vegetation (Public Works Complex-G.M.)	The natural vegetative buffer strips are cleaned of debris routinely.	The vegetative buffer strips filter runoff from the Public works facility parking area providing filtering/treatment of storm water runoff.
Property Name: City Streets				
Structural Storm Water Control	**Inspection Frequency**	**Maintenance Schedule**	**Inspection and Maintenance Conducted and Location of Log (if applicable)**	**Effectiveness of Control and Support Documentation**
Catch Basin Sumps	5 year cycle	5 year cycle or as needed. Clean sumps (Public Works Complex)	149 catch basins were cleaned during the reporting period.	Effective. Catch basins are functioning properly.
Storm Sewer Separator	Annually	Annually or as needed. Clean Chamber (Public Works Complex)	Separator was cleaned during the reporting period. May 2018	Effective. Functioning properly.
Storm sewer system	5 year cycle	5 year cycle. Clean sewer lines (Public Works Complex)	Cleaned 1,647 feet of storm sewer between City crews and contractors during the reporting period.	Cleaning storm sewers removes any residual of debris and sediment from the system before ultimately entering the public waters of the state. This cleaning is an effective means of storm water treatment as it

				further catches sediments and debris for the public street system after entering the storm sewer system.

Part 2C - Procedures Status
August 1, 2017 to July 31, 2018

The following procedures were adopted by the City Commission of the City of East Grand Rapid. Dates of revised procedures are listed and revisions attached.

Procedure	**Date Adopted**	**Date Revised (if needed)**
Procedure to Ensure Protection of Drainage Systems from Construction-Site Runoff	August 16, 2010	N/A
Procedure to Dispose of Storm Sewer System Operation and Maintenance Waste	August 16, 2010	N/A
Procedures to Construct, Operate, and Maintain Streets, Roads, Highways, and Parking Lots	August 16, 2010	N/A
Procedure to Reduce Runoff of Total Suspended Solids (TSS)	August 16, 2010	N/A
Procedure to Prevent Salt and Sand from Entering Receiving Streams	August 16, 2010	N/A
Procedure to Control Dust and TSS in Runoff	August 16, 2010	N/A
Procedure for Managing Vegetation on Municipal Properties	August 16, 2010	N/A
Procedure for Using Fertilizers on Municipal Properties	August 16, 2010	N/A

Part 2D - Staff and Contractors Training on Pollution Prevention and Good Housekeeping
August 1, 2017 to July 31, 2018

Training Topic Area	Employee Group to Receive Training	Training Frequency	Potential Training Type
Required Topics			
Maintenance activities, maintenance schedules, and inspection procedures	Public Works Staff Ground Maintenance Staff	Once every two years and for all new hires.	**#1 Written O&M Procedures** **#2 Storm water Pollution Prevention Training: A Drop in the Bucket- GOOD HOUSEKEEPING:** https://www.youtube.com/watch?v=Ws2CfTzhz1E **#3 EGR-Goals and objectives-storm water related items**
Training completed:	Public Works Staff Ground Maintenance Staff	Completed 2017	**#2, #3**
Controls on streets, parking lots, maintenance garages, and storage yards	Public Works Staff	Once every two years and for all new hires.	**#1 Storm water Strategies: Housekeeping** https://www.youtube.com/watch?v=UxOam2GEVgQ **#2 Municipal Storm water-Pollution Prevention-BMP's:** https://www.youtube.com/watch?v=Knr3AWL7Pz0 **#3 Spills & Skills - Non-Emergency HazMat Spill Response** https://www.youtube.com/watch?v=WpDzBdhaTV0
Training completed:	Public Works Staff	Completed 2017 for new hires.	**#1,#2, #3**

Training Topic Area	**Employee Group to Receive Training**	**Training Frequency**	**Potential Training Type**
Disposal of O&M waste	Public Works Staff Building and Grounds Staff	Once every two years and for all new hires.	**Regulatory Requirements for Waste Disposal – Live Presentation**
Training completed:		Not Completed in 2017	
Water quality protection in flood control projects (detention basins, dams)	Public Works Engineering staff	Once every two years and for all new hires.	**#1 Flood Control: WHAT YOU CAN DO** https://www.youtube.com/watch?v=X9ntQI2WqPQ
Training completed:		Completed in 2017	#1
Controls to reduce discharge of pesticides, herbicides, and fertilizers	Grounds Maintenance Staff Licensed Yard Maintenance Contractors	Annually	**#1LGRW_LandscapingContractorTrainingBrochure_2011-08-01.pub** **#2 Proper Use of Lawn Chemicals- A video teaching the proper use of lawn chemicals** https://www.youtube.com/watch?v=TQd19qD0UqQ
Training completed:	Grounds Maintenance Staff Licensed Yard Maintenance Contractors	Completed 2017	**#1, #2**
Other Topics			
Construction site stormwater runoff	Public Works Engineering Staff Contractors utilized for City Projects.	Annually	**#1 Keep Our Water Clean: Prevent Construction Site Storm Water Pollution** https://www.youtube.com/watch?v=pc7KYrKkGi8 **#2 LGRW_ContractorTrainingBrochure_2011-09-16.pub**

Training Topic Area	Employee Group to Receive Training	Training Frequency	Potential Training Type
Training completed:	Public Works Engineering Staff Contractors utilized for City Projects.	Completed 2017	**#1**
LID	Public Works Engineering Staff	Once every two years and all new hires.	**#1 Reduce Runoff: Slow It Down, Spread It Out, Soak It In** https://www.youtube.com/watch?v=huO_NRn34GI **#2 Storm water BMP & LID Maintenance-Center for watershed protection** https://www.youtube.com/watch?v=coFbdMB-q0U
Training completed:	Public Works and Engineering Staff	Completed 2017	**#1,#2**
IDEP	Public Works Staff Building and Grounds Staff.	Once every two years and all new hires.	**#1 WaterPollutionReportForm.doc Article_City_Employees.doc** **#2 Storm water Pollution Prevention:** https://www.youtube.com/watch?v=8RR4RBfRVKE
Training completed:	Public Works Staff Building and Grounds Staff. Dave Johnson	Completed 2017 May 23, 2018	**#2** **GVMC provided training**
General Storm Water Education	Municipal officials Public Works Staff Building and Grounds Staff	Once every two years and all new hires and elected officials.	**"Back to Basics" Storm Water Training – Live Presentations** **#1 Municipal Storm water-Pollution Prevention-BMP's:** https://www.youtube.com/watch?v=Knr3AWL7Pz0

Training Topic Area	Employee Group to Receive Training	Training Frequency	Potential Training Type
Training completed:	Municipal officials Public Works Staff Building and Grounds Staff Dave Johnson	Completed 2017 May 23, 2018	**#1** **GVMC provided training**

Part 2E - Post Construction Controls Activities
August 1, 2017 to July 31, 2018

The City of East Grand Rapids has a Storm Water Ordinance, Chapter 28 of the City Code, adopted on January 7, 2002 and amendments on September 30, 2005, that controls storm water in areas of new development and significant redevelopment. It includes various levels of control depending on zones established based on the sensitivity of the receiving waters. The ordinance also ensures that the owners of facilities constructed to meet the stormwater requirements properly operate and maintain the facilities.

The City of East Grand has adopted a Master Plan for long term re-development guidance that establishes and preserves the City's natural features as well as endorses the City's Storm Water Pollution Prevention Initiative. As a fully build out community, the Master Plan provides the guidance necessary for re-development activities.

The City of East Grand Rapids has a Zoning Ordinance which requires all new development or redevelopments to be reviewed to insure compliance with state and federal regulations, the City's Storm water regulations and may include an approval of an acceptable environmental impact assessment. The City is also underway to rewrite and update the City's Zoning Ordinances which will include consideration of Low Impact Development practices and riparian buffer zone protection requirements. The City currently promotes these activities through demonstration projects and public facility improvement projects. As a fully built out community, existing open spaces, including environmentally sensitive areas are currently preserved through ownership by the City pursuant to the City's Master Plan.

Explain the enforcement activities of your comprehensive storm water management program for post-construction controls completed during this reporting period:

The City inspects all submitted drainage plans for completion. For example, if a rain garden or retention/detention area is on a plan but not constructed, the City will not sign off on an occupancy permit until the submitted and approved plan is completed and verified. For 2017-2018 only single family homes were constructed.

How many developments were approved with storm water controls according to PCC?
There were no commercial developments, just redevelopment of several single family homes.

Have any long-term operation and maintenance agreements been signed?

In this reporting period there have been no such agreements. When they have arisen, operation and maintenance responsibilities have been established and recorded in easement agreements, PUD ordinances and site condo master deeds as they are approved.

How many inspections or enforcement/compliance of O&M agreements were conducted?

Inspections are done for each new home (redevelopment). All homes were single family redevelopments which are subject to impervious surface lot coverage requirements, utilizing retention/detention systems, or rain garden type features.

Explain how the Post Construction Controls have addressed other issues, such as protecting sensitive areas, directing growth to identified areas, encouraging infill development in higher density urban areas and areas with existing infrastructure, and/or maintaining or increase open spaces.

The post construction controls in place for the fully built out community of East Grand Rapids is providing storm water detention and structural controls to reduce sedimentation from reaching the receiving waters of the community.

Part 3 - PEP

Regional PEP

The updated Public Education Plan (PEP) was approved by MDEQ in February 2013. The purpose of the PEP is to promote, publicize, and facilitate education for the purpose of encouraging the public to reduce the discharge of pollutants in stormwater to the maximum extent practicable. This section provides a report of public education activities implemented between August 1, 2017, and July 31, 2018.

Public Engagement Committee

LGRW Public Engagement Committee was formed in 1999 to begin development and implementation of the PEP. Since that time the committee has met on a regular basis to discuss and plan activities scheduled for implementation in the PEP and the LGR Watershed Management Plan. In addition to MS4 communities, the 2017-2018 Public Engagement Committee consisted of the following community partners:

Table 3. Non-MS4 Partner Organizations

Agency	Representative
MDEQ	Amanda St. Amour
GVMC – West Michigan Clean Air Coalition	Andrea Faber
Ottawa Co. Conservation District	Benjamin Jordan
Boy Scouts of America	Bridget Knight
GVMC	Eileen Boekestein
Trout Unlimited	Jamie Vaughan
Groundswell, GVSU	Joanna Allerhand
Groundswell, GVSU	Kymberly Pawelka
Kent County Resource Recovery	Megan Kretz
MDEQ	Michelle Storey
WMEAC	Jessica VanderArk
WMEAC	Kyle Hart
GVMC/GVSU	Carlos Calderon
The Right Place	Rick Chapla
GVMC	Rachel Frantz
Grand Rapids Public Museum	Stephanie Ogren
Grand Rapids Public Museum	Erin Koren
GVMC	Wendy Ogilvie
Kent County Health Department	Brendan Earl
Kent Conservation District	Jessie Schulte
Citizen Labs	Allen Clark
GVMC	Cara Decker

During this reporting period, the Committee reorganized to set priority topics and create a functional meeting schedule. Instead of holding meetings once every two months, the committee meets in January, February and May. During the summer months, meetings are not held because communities are busy attending and hosting outreach events. The group reconvenes in September to review their summer activities, and begin to plan for the next year. Meetings are then held in October and November. Goals for each meeting are as follows:

January: Distribute PEP materials and discuss distribution

February: Pick up orders, Plan for the year's events

May: Ongoing business, Committee updates

September: Review event year, Ongoing business

October: Ongoing business, Discuss changes for next year

November: Finalize orders for next year

During the October Committee meeting, the group chooses which PEP topics to focus on for the next year. Information regarding all topics covered in the PEP may be discussed and promoted by communities throughout the year, as described in detail in the remainder of this section of the report. The committee decided that if more energy is focused on a few key topics each year, then education regarding those specific topics can be thoroughly explored. Educational materials and give-aways are then designed around the key topics. While each year focuses on a particular set of topics, all six education categories will still be addressed in detail at least once during each reporting period.

Additional information regarding the Public Education Committee is available at: https://www.lgrow.org/ms4information. Materials, training opportunities, and other resources are available via this webpage.

PEP Implementation

This section describes the public education activities implemented by the Permittees from August 1, 2017 through July 31, 2018. The following report describes activities which meet the requirements of the 2013 approved PEP. Target audiences, messages, and delivery mechanisms are described for each Public Education Topic.

Public Education Topic 1 - Personal Watershed Stewardship

PEP Objective 1: Educate the public about their responsibility and stewardship in their watershed.

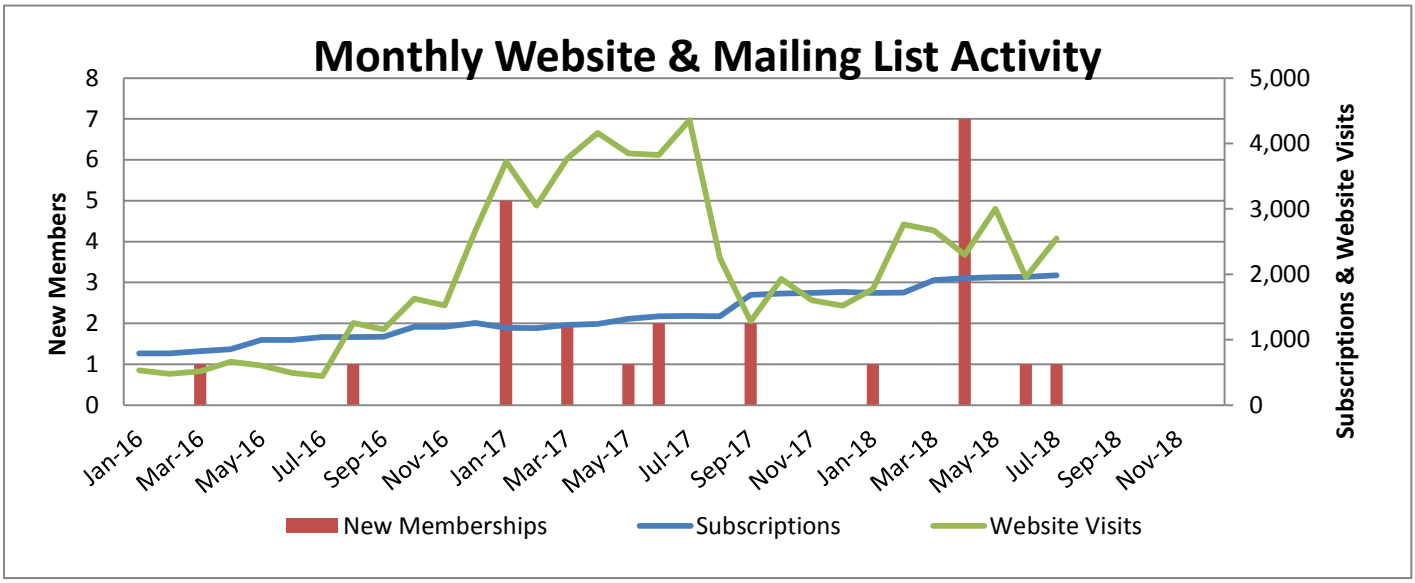
Target Audience: Residents, visitors, and public employees

Content of Message: 1) A watershed is an area of land draining to a common point. You live in the LGRW, you impact the watershed. 2) Learn more about the LGROW by visiting LGROW.org. 3) Reasons for protecting the watershed. 4) Ways individual can affect the watershed through their activities.

Delivery Method:

- Permittees' websites link to LGROW's website, www.lgrow.org. The watershed website provides information on non-point source (NPS) pollution, local watershed issues, water science education, and watershed management. A major website update was launched at the beginning of the 2017-2018 reporting period and was accessed by an average of 758 unique visitors each month. The website logged 9,090 unique visitors over the entire reporting period.
- LGROW also sends out a seasonal email newsletter with information about the watershed, upcoming educational events, and stormwater educational articles. Newsletter subscriptions and website traffic by month are displayed in Figure 3.

Figure 3. Page Visits to LGROW.org by Month



- LGROW worked to promote participation through its Facebook page with a regular posting schedule including watershed project highlights, upcoming events, and volunteer opportunities. Throughout the reporting period, LGROW Facebook posts have reached 107,622 people. As of the end of the reporting period, the Facebook page reached 935 Likes (this number has increased from the last reporting period). Facebook user engagement has shown consistent growth over the reporting period with the average number of Likes, Shares, and Comments. LGROW promoted its Facebook page three times during the reporting period using paid promotions, which increased its audience significantly. Facebook activity is displayed by month in Figure 4.

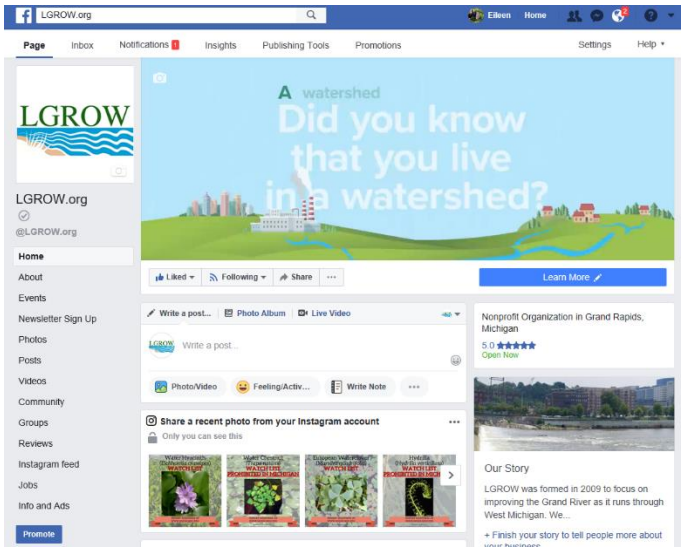
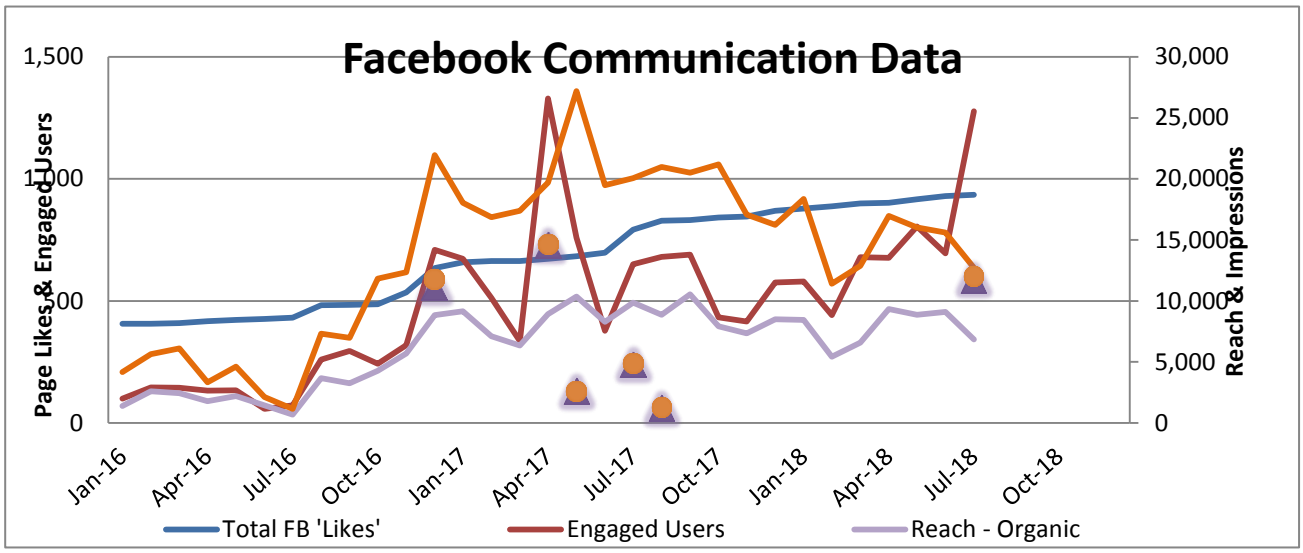


Figure 4 Facebook Communication Data by Month



- Permittees distributed LGROW, stormwater, and watershed education materials listed below to residents in the LGRW at multiple events, and venues. Materials were distributed according to

the type of event and the target audiences in attendance. Listed below are the number and type of educational materials ordered by permittees to distribute throughout the reporting period:

- 2000 LGROW Lip Balms
- 1500 "Report Illicit Discharge" fridge magnets
- 1000 Rainbow Trout "Only rain in the drain" stress balls
- 1500 "Keep your Lakes Great and your River Grand" dry bags
- 700 "Keep your Lakes Great and your River Grand" magic scarves
- 1200 "Report Illicit Discharge" coasters
- 500 Car Wash pledges and shammies
- 500 Pet Waste pledges and dispensers
- 1000 Paint by number Watershed Maps

Other public education materials ordered during previous permit cycles were also distributed by permittees, including:

- Keep Your Lakes Great and Your Rivers Grand Magnets
- Keep Your Lakes Great and Your Rivers Grand vinyl stickers
- Watershed Temporary Tattoos
- Troutie Coloring Books
- Reusable Water Bottles
- Reusable Tote Bags
- LGROW Brochures
- Landscaping for Water Quality booklets
- LGROW Gardening Gloves
- LGROW Pens
- LGROW Custom Baseballs

- Many Permittees displayed lamppost banners when first purchased in 2012 to advertise the presence of the Grand River, Rogue River, and Plaster Creek Watersheds. The banners featured the LGROW logo and the message "Yours to Protect." In early 2018, 4 communities ordered additional banners for display, including new banners for Buck Creek and the Thornapple River.

Banners on display in Spring Lake

- Through cooperation of staff in permitted MS4 communities, Public Engagement Committee participants, GVMC staff, and other members of LGROW, about 50 events around the watershed had representation from the Lower Grand River. Event participation by community is detailed in Table 4. Community-specific event activities are detailed in each Permittees' PEP questionnaire. Events attended by more than one MS4, or that were coordinated through LGROW, are discussed in the section following Table 4, and in the Delivery Method section of corresponding objectives.

Table 4 LGROW and MS4 Participant Events

MS4 Community	Event/ Activity	Date
Cascade Charter Township	LGROW Spring Forum Host	5/11/2018
Ferrysburg, City of	LGROW Focus Group	12/18/2017
Forest Hills Public Schools	Classroom Programming through Groundswell	Ongoing
Georgetown Charter Township	Jenison Public Schools Collaboration	Ongoing
	Ottawa County Water Quality Forum	11/30/2017
Grand Haven, City of	Earth Day Festival	4/21/2018
	LGROW Focus Group	12/18/2017
	Robinson Elementary	3/21/2018
	Coast Guard Festival	7/28 - 8/5/2017
	Salmon Festival	9/16/2017
Grand Rapids, City of	Home Show	3/1-4/2018
	Mayors Grand River Cleanup	9/9/2017
	Ottawa County Water Quality Forum	11/30/2017
	Grand River Water Festival	6/23/2018
	Dia del Nino	4/28/2018
	Canoemobile	5/7-5/11/2018
	Presentation to Museum School	10/11/2017
	Water Resource Recovery Facility Tours	Ongoing
	Rainbarrel Workshop	7/29/2018
	WhiteCaps Game	7/26/2018
	Grand River Spring Forum	5/11/2018
Grand Rapids Charter Township	Partner with FHPS	Ongoing
Grandville, City of	Buck Creek Cleanup	8/5/2017
	Mayors Grand River Cleanup	9/9/2017
	Michigan Week Community Event	5/16/2018
Hudsonville, City of	Ottawa County Water Quality Forum	11/30/2017
Kent County Drain Commissioner	Grand River Spring Forum	5/11/2018
Kent County Road Commission	Facility Tours	Ongoing
Kentwood, City of	Touch A Truck/DPW Behind the Scenes (with Kent Co DPW)	5/16/2018
	Buck Creek Cleanup	8/5/2017
	LGROW Focus Group	12/18/2017
	Grand River Spring Forum	5/11/2018

Table 4 LGROW and MS4 Participant Events

MS4 Community	Event/ Activity	Date
Ottawa County Administration and Water Resources Commissioner	Ottawa County Water Quality Forum	11/30/2017
	Grand River Spring Forum	5/11/2018
Ottawa County Road Commission	Partner with Georgetown Township & Jenison Public Schools	Ongoing
Plainfield Charter Township	Grand River Spring Forum	5/11/2018
Sparta, Village of	Nash Creek Cleanup-Planting	4/18//2018
	Village Hazardous Waste Collection	4/19/2018
	Partnership with Sparta Schools	Ongoing
Spring Lake, Village of	Mill Point Park River Cleanup	5/12/2018
	LGROW Focus Group	12/18/2017
Walker, City of	Grand River Spring Forum	5/11/2018
	Indian Mill Creek Cleanup	6/2/2018
	KDL Reading Carnival	6/12/2018
Wyoming, City of	Buck Creek Cleanup	8/5/2017
	Partnership with Godwin and Wyoming Schools	Ongoing
	City Cleanup	4/21/2018
	Facility Tours	Ongoing
	Grand River Spring Forum	5/11/2018

- The Quiet Water Symposium promotes non-motorized outdoor recreation and a shared concern for our Great Lakes environment. The 23rd Annual Symposium was held on March 3rd, 2018. LGROW hosted a booth with several watershed displays and distributed information and giveaways focused on watershed awareness and the development of a Water Trail throughout the Grand River. Although this event takes place outside the LGRW, many of the attendees travel through the Lower Grand during their excursions. The Symposium also presents a valuable opportunity to partner with our upstream watershed, the Middle Grand River

Organization of Watersheds (MGROW), who is actively involved in public outreach through their own MS4 program.

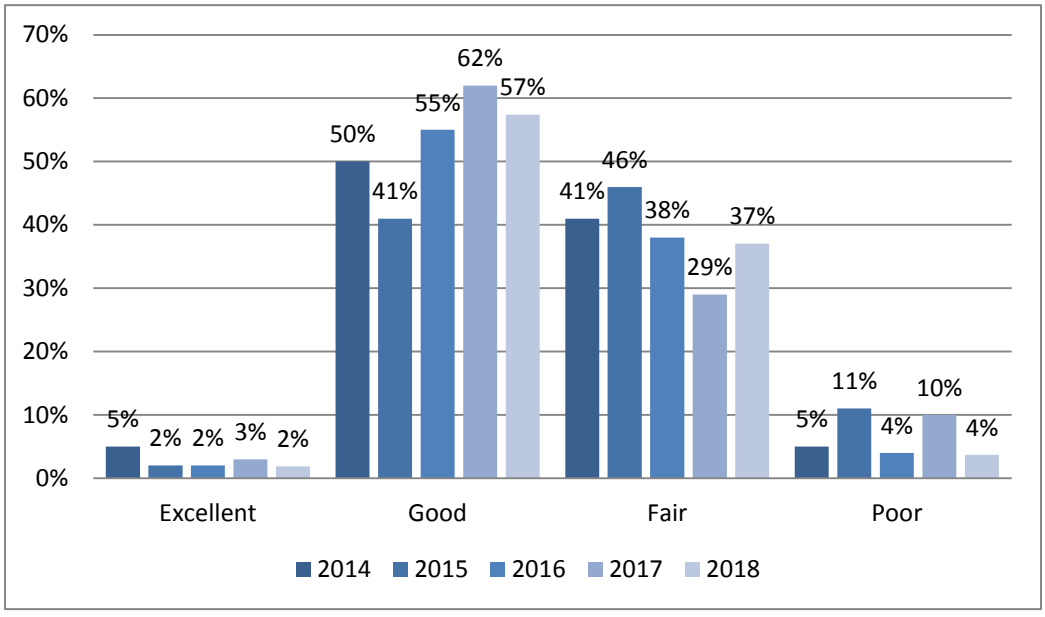
- LGROW hosted a table at the Blandford Nature Center Earth Day event on April 21, 2018. This was a public event designed to connect residents of the Grand Rapids metro area with their local community conservation resources, information on new and upcoming projects, and highlight volunteer opportunities to get involved. LGROW hosted a table with information on the watershed, the LGROW Rainscaping program pilot in Indian Mill Creek Watershed, and stormwater educational materials focusing on pet waste and car wash pledges.

- The 15th Annual Grand River Forum on May 11, 2018, was put on by LGROW at the Wisner Center in Cascade Township. The event offered 111 attendees a regional perspective on emerging issues and accomplishments from around the Watershed. This year's keynote speaker, Al Steinman, from GVSU's Annis Water Resources Institute, spoke about Integrated Water Management. Next, Scott Conners (City of Walker Engineer and LGROW Board Chair) moderated a Panel Discussion that focused on the new post-construction control stormwater requirements. Panelists included Carrie Rivette, Wastewater/Stormwater Superintendent of the City of Grand Rapids, Teresa Siedel, Director of the Water Resources Division of MDEQ, and Jeff Gritter, Project Manager at Vriesman and Korhorn Civil Engineers. The LGROW Chair, who was previously Scott Conners from the City of Walker, changed hands to Carrie Rivette from the City of Grand Rapids. This change was commemorated with a 'Passing of the Paddle' ceremony.

The remainder of the forum focused on emerging watershed issues. Presentations were given by Jessie Schulte (Kent County Conservation District) and Rob Petit (ECT) on the Regional Conservation Partnership Program; Brenda Perry (Facilitator, Kent Innovation High School), Joe Phillips (Design Lab Instructor, Kent Career Tech Center) and their students on place-based environmental education curriculum they used in their classrooms; Wes Landon (Native Edge, LLC.) and Julie Parks (Executive Director of Workforce Training, Grand Rapids Community College) on the Rainscaping Program; Natalie Henley (West Michigan Environmental Action Council) on the Grand River Water Trail; LGROW Committee Chairs gave updates for each committee; and LGROW Staff discussed the pre-forum survey results.

Each forum participant completed surveys after both registering and attending the event. A selection of the questions from each survey is asked annually to determine if there is a measurable change in people's attitudes toward and perception of the river. Figure 5 shows an increase in respondents identifying water quality in the Grand River as "Fair" rather than "Poor" from 2017 to 2018.

Figure 4. 2017 Survey Results: How would you rate the water quality in the Grand River?



- LGROW sponsored the Grand River Water Festival on June 23, 2018, at Riverside Park, which was attended by approximately 3,000 people. The festival is a free-of-charge, day-long, music driven, environmental festival featuring traditional folk, country, bluegrass, Cajun, blues, and world beat music performed by Michigan musicians. Visitors to the LGROW booth identified their location in the watershed by referencing maps, and Major Runoff, the Stormwater Mascot, engaged with children and adults. Volunteers at the LGROW booth helped children of all ages create paintings of nature scenes using native soils to the watershed, similar to artists who create field drawings using natural materials they find in the environment. The LGROW booth's educational materials focused on how homeowners can reduce stormwater runoff from their properties by installing green infrastructure practices through the LGROW Rainscaping program.

- LGROW hosted a concourse table at a WhiteCaps game on Thursday, June 26, 2018. GVMC staff and volunteers from the City of Grand Rapids (a MS4 permitted community) helped run a booth. Volunteers handed out LGROW baseballs, LGROW brochures, Pet Waste Pledges with pet waste bag dispensers, and Car Wash Pledges with shammies. Volunteers discussed the importance of watershed protection with attendees of the game.

- LGROW worked with students from schools throughout the watershed to educate about the connections between land use and water quality. LGROW led activities for 465 students from the City of Grand Rapids and Plainfield Township focused on macroinvertebrate sampling and runoff vs. infiltration at the annual Canoemobile event at Riverside Park in Grand Rapids. LGROW also worked directly with Jenison Public Schools and Forest Hills Public Schools to teach 99 students at Bauerwood

Elementary and 90 at Northern Trails 5/6 about the Grand River Watershed and the ultimate discharge location of stormwater systems, as well as personal actions that can protect water quality. These activities resulted in students marking 50 catch basins on Northern Trails' campus and 100 catch basins in the neighborhood surrounding Bauerwood. LGROW also assisted schools with their existing educational activities surrounding watersheds and nonpoint source pollution. LGROW led an activity connecting land use and habitat with macroinvertebrates and water quality at a Water Field Day for 525 students in Godfrey Lee schools in Wyoming, helped 25 students stencil 9 catch basins and complete rain garden/riparian maintenance near Buck Creek in Grandville, and assisted a teacher at Pinewood Elementary in Kentwood Public Schools with her annual Buck Creek education day for 120 students. Additionally, 40 students from Kenowa Hills High School participated in the spring Indian Mill Creek Cleanup. LGROW also participates as a member of the Groundswell advisory council, which supports schools in the Lower Grand River Watershed as they implement place-based education and stewardship projects in the watershed. Groundswell reaches approximately 500 students annually through its programs focused on the Lower Grand River Watershed, including supporting projects at 3 schools in the nested jurisdiction of Kentwood Public Schools and at 5 schools in the permitted district of Forest Hills Public Schools.

Students marking catch basins at Northern Trails 5/6 in Forest Hills

- The 'Find My Watershed Tool' was improved during this reporting period and can be accessed via LGROW's homepage, or at: https://www.google.com/maps/d/u/0/viewer?mid=1WuQZRA612p4X1t_9i4qNYlP_830_ZIi-&ll=42.99923233465322%2C-85.46882900000003&z=9 . An advertisement was created through National CineMedia, LLC regarding this tool. The 30-second advertisement is also available for viewing on LGROW's website. The advertisement ran for 8 weeks as a digital media campaign, targeted online to people who were in the Lower Grand River Watershed. About 79% of people that the advertisement was delivered to watched the entire commercial. Industry average is around 60%. The commercial was shown 120,419 times.

- Seasonal Watershed 'Tip' fliers were distributed to communities. These fliers focused on positive actions that Department of Public Works employees and citizens alike could take to improve the water quality in the watershed. Tips focused on different actions that were relevant to that respective season.

Fall Seasonal Tips Flier

<u>Public Education Topic 2 - Ultimate Stormwater Discharge Location and Potential Impacts</u>

PEP Objective 2: Education on the location of residential stormwater system catch basins, where the system discharges, and impacts from pollutants.

Target Audience: Landscapers/lawn care companies, auto repair shops, commercial power washers, carpet/floor cleaning companies, commercial operations, industries, residents, and local businesses

Storm drain markers

Content of Message: 1) Storm drains connect to your local lakes and streams, not a water treatment plant. 2) Prevent pollution from entering your storm drains and protect the health of your family, your community, and the Grand River. 3) Education on the impacts of stormwater pollutants. 4) Education on the stormwater system and receiving water bodies in a person's or company's neighborhood.

This topic was chosen as one of two key topics by the Public Education Committee to focus on during this reporting period.

Delivery Method:

- Permittees installed the plastic storm drain markers designed by the Public Engagement Committee. The drain markers carry the messages "Keep your Lakes Great and your Rivers Grand." Some Permittees also engaged with community partners to do storm drain stenciling events which are detailed in the PEP Questionnaire. This image was also used on several giveaways including vinyl stickers and magnets. In total, 150 drain markers were installed and 9 storm drains stenciled with the message "No Dumping: Drains to Waterway" in the watershed.

- Permittees utilized a variety of stormwater displays including the drop toss game, the watershed pushpin map, the LGROW banners on non-point source pollution, Car Wash and Pet Waste Pledge posters, and the "Grand River Yours To Protect" informational poster board at a variety of events and locations throughout the Watershed. The PEP Questionnaire included in this report details when and where these displays were used by individual Permittees.

- An advertisement explaining that storm drains lead directly to rivers, lakes and streams was printed on the back of all household hazardous waste collection flyers printed for Kent County MS4 communities.

- Troutie Stress Balls were provided for communities to distribute. The fish shaped stress balls had the message: 'Only rain in the drain, it leads directly to my home!' This give-away allowed people to easily make the connection between storm drains and water quality as it relates to aquatic habitat.

Household Hazardous Waste flyer advertisement

Public Education Topic 3 - Public Reporting of Illicit Discharges

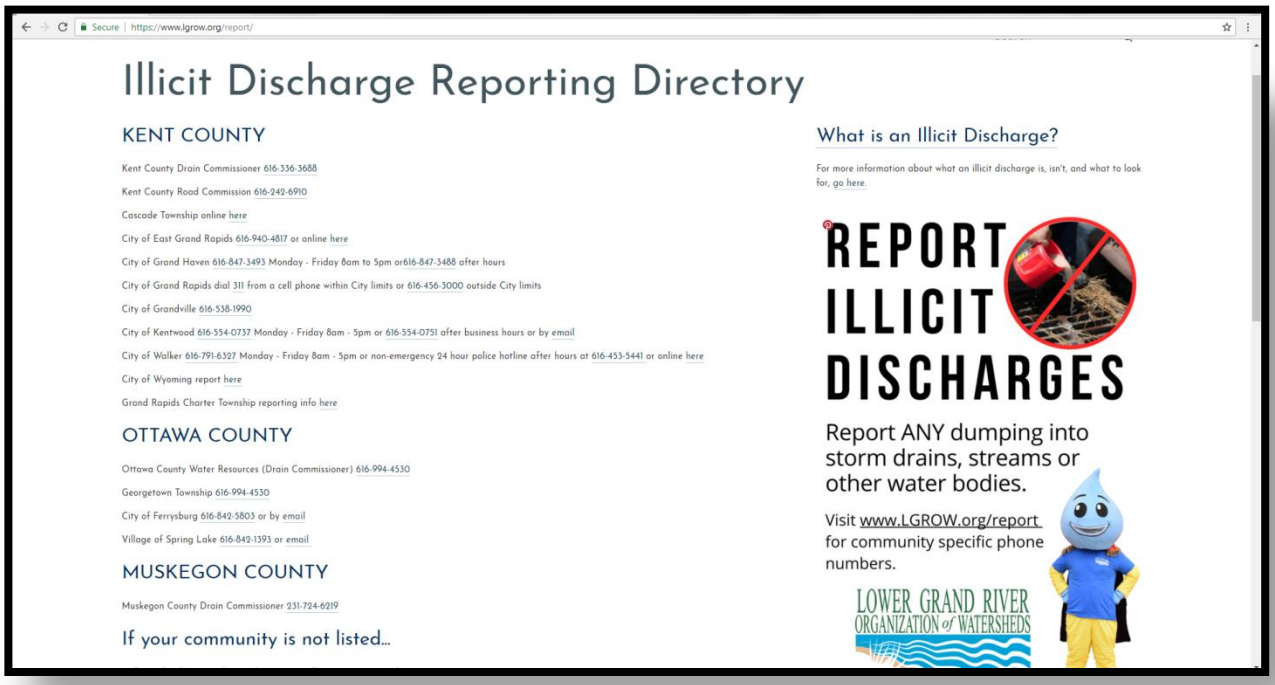
PEP Objective 3: Encourage public reporting of the presence of illicit discharges or improper disposal into the stormwater system.

Target Audience: Residents, public employees, businesses, construction activities, industries, and septic system owners/haulers.

Content of Message: 1) How to identify illicit discharges. 2) How to report illicit discharges. 3) Water quality impacts from illicit discharges. 4) Consequences/penalties associated with illicit discharges and improper waste disposal. 5) Proper septic system care and maintenance. 6) How to recognize system failure. 7) Impacts failing systems have on water quality. 8) Where to go for assistance.

The Public Reporting of Illicit Discharges was selected by the Public Education Committee as one of two key topics to focus on for this reporting period. It was important that communities focused on this topic because IDEP outfall screening occurred for many municipalities in the watershed during the summer of 2018.

Delivery Method:



- A reporting website for MS4 communities across the Lower Grand River Watershed was created in order to offer a Reporting Directory for DPW employees or citizens seeking information about how to report illicit discharges. This website can be found at: https://www.lgrow.org/report/. Communities were encouraged to share this information on their municipal webpages, and on social media.

Information was also added to the LGROW website to inform the public about what an illicit discharge is.

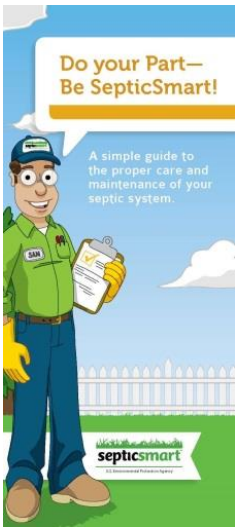
- Illicit discharge magnets and coasters were created in conjunction with the reporting website to promote use of the website and to raise awareness for DPW employees and citizens, encouraging them to report illicit discharges.

Coasters

- A newsletter article titled, 'Reduce and Report Pollution Entering the Grand River' was published for all MS4s to distribute to their employees or citizens. This article highlighted the reporting webpage, and gave advice on how to reduce stormwater pollution.

- Permittees made information about how to report illicit discharges available to residents and staff through a variety of channels. Some communities promote the Citizens Reporting form developed previously by LGROW, while others use an online reporting form. The method each community used to distribute this information is detailed in PEP Questionnaires.

- Permittees distributed the article *"How you as an Employee Can Help Reduce Pollution Entering the Grand River"* to their employees. This article encourages employees to report stormwater discharges to their community's stormwater coordinator.



- Permittees distributed copies of USEPA's *"Do your Part- Be Septic Smart!"* brochure to their residents. This brochure describes what a septic system is, how it works, and how to maintain it. LGROW participated in SepticSmart week September 18-22, 2017 by publishing a blog post and daily social media posts about proper septic maintenance.

<u>Public Education Topic 4 - Personal Actions that can Impact the Watershed</u>

PEP Objective 4: Education on the need to minimize the amount of residential or non-commercial wastes washed into the storm sewer system.

Target Audience: Residents, schools, non-profit groups conducting carwash fundraisers, public employees, visitors, recreational users, riparian landowners

Content of Message: 1) BMPs for car, pavement, power washing. 2) Preferred cleaning materials and practices, "phosphate free as important as biodegradable". 3) BMPs for pesticide use, fertilizer use and their disposal. 4) BMPs for proper management of grass clippings, leaf litter, and animal wastes. 5) BMPs for residential deicer use. 6) BMPs for native vegetation on residential properties as an alternative to turf grass. 7) Effects of residential wastes on our waterbodies. 8) Education on low impact development techniques.

Delivery Method:

- Permittees distributed the brochure "*Make your Household the Solution to Water Pollution*". The Public Engagement Committee contracted with the Hispanic Center of West Michigan to produce a Spanish translation of this brochure for communities as well.

- Several communities hosted rain barrel events or rain garden work days as detailed in their PEP Questionnaires.

- Permittees collected pet waste pledges from dog owners in exchange for a free pet waste bag dispenser to hook to the pet's leash. The pledges also provide information on dog parks in the Watershed and discuss the connection between picking up pet waste and protecting stormwater. This brochure was adapted, with permission, from a similar program in Portland, Oregon. In this reporting period, 127 new pet waste pledges were collected from around the watershed.

- Permittees collected car wash pledges from residents in exchange for a free shammy to use for home car washes. The pledge provides the following information about car washes: *There's no problem with washing your car, it just matters how and where you choose to wash it. The average homeowner uses 116 gallons of water to wash a car. If you wash your car in your driveway, all that water, along with the soap, grease, brake dust, oil, and dirt that you wash off your car flows directly into the nearest storm drain. From there, it's just a short trip to the Grand River and eventually Lake Michigan*. In addition, residents keep a portion of the pledge that provides other environmental friendly car care tips. In this reporting period, 52 new car wash pledges were collected from around the watershed.

- LGROW developed a flyer describing proper procedure for draining residential swimming pools in the fall. This was distributed publicly online via www.lgrow.org and made available for customization by MS4 communities. The flyer can be downloaded at https://www.lgrow.org/ms4information.

Public Education Topic 5 - Waste Management Assistance

PEP Objective 5: Education on proper disposal of household hazard waste (HHW), travel trailer/boating sanitary wastes, chemicals, motor vehicle fluids, and unused medications.

Target Audience: Residents, visitors, and public employees

Content of Message: 1) Protect your family's health: dispose of unwanted paints, solvents, and cleaners at your county collection center. 2) Recycle used oil and automotive fluids. Just one gallon of used motor oil dumped down a catch basin can contaminate one million gallons of your drinking water. 3) Education on types of HHW and available alternatives. 4) Education on disposal locations of HHW, travel trailer/boating sanitary wasters, chemicals, motor vehicle fluids and unused medications.

Delivery Method:

- Permittees and LGROW.org shared the newsletter articles *"How You Can Help Reduce Pollution Entering the Grand River"* and *"What Can You Do to Help Protect Your Watershed?"* These articles explain the watershed concept and encourage residents to dispose of pet waste, paints, motor oil, etc., in the appropriate locations, not in the storm drains.

- Permittees distributed the flyer "*Make Your Household the Solution to Stormwater Pollution"* in both English and Spanish, which also details the importance of proper disposal of household hazardous waste.

- Both Kent and Ottawa County communities distributed household hazardous waste flyers at events and provided information on recycling household hazardous waste via the phone and websites. Many permittees also opted to distribute these materials at their respective community events. Kent County's expanded household hazardous waste collection hours to allowed more Kent County residents to take advantage of this service.

- Many communities hosted clean up days to encourage proper disposal of unwanted materials. Details of these events, as applicable, are provided in individual PEP Questionnaires and Part 7.

Public Education Topics 6 - Management of Riparian Lands

PEP Objective 6: Education concerning management of riparian lands to protect water quality.

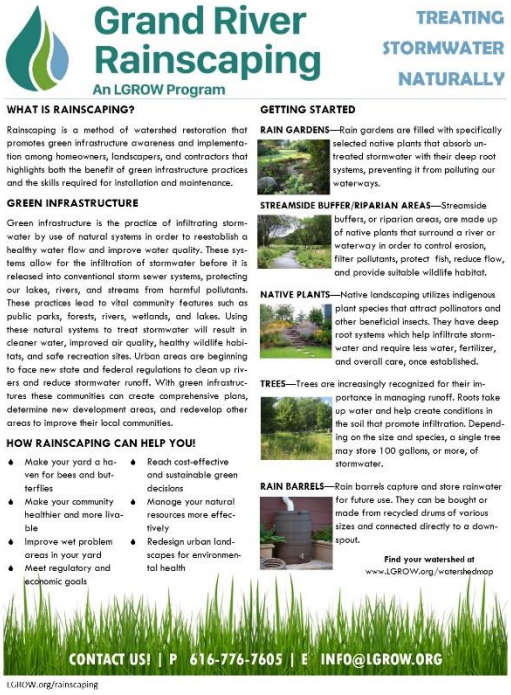
Target Audience: Riparian landowners, construction activities, landscapers

Content of Message: 1) Importance of riparian corridors/stream buffers. 2) How to landscape for better water quality. 3) Education on shoreline stabilization techniques, stream buggers, filter strips, conservation easements, and bioengineering techniques.

Delivery Method:

- Permittees distributed the brochure "*What Every Landscaper Should Know*, to their subcontractors and facilities staff. These brochures detail BMPs for fertilizer and pesticide application, lawn care, and native plantings.

- LGROW launched and promoted its Grand River Rainscaping: Treating Stormwater Naturally program. This program aims to promote installation of green infrastructure and native landscaping practices to reduce stormwater runoff from residential properties and improve water quality. Residential site assessments were performed on 28 properties, 19 of which were in MS4 communities, and a 600 square foot demonstration rain garden was installed at West Catholic High School. Residents who have a site assessment completed receive a customized report of what green infrastructure practices are best suited to their site as well as resources for implementing those practices. The Rainscaping program is aimed at both shoreline and non-shoreline properties.

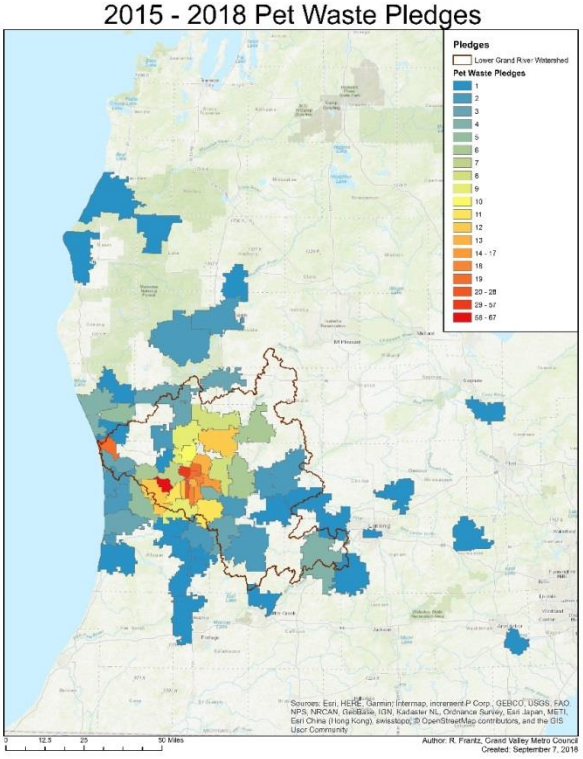


Evaluation Measures

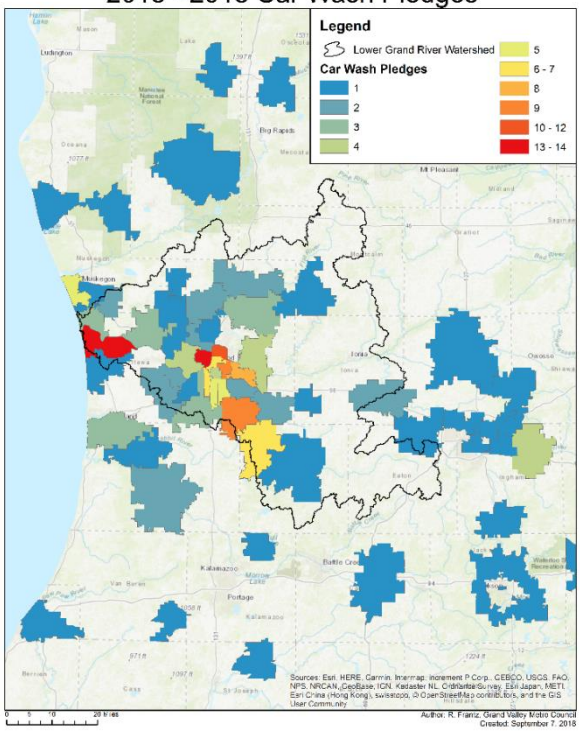
This section includes a description of the quantitative and qualitative evaluation measures of PEP effectiveness implemented between August 1, 2017, and July 31, 2018. During this reporting period, LGROW also contracted with Petersen Research Consultants, LLC to create updated robust evaluation measures for the PEP. An updated evaluation plan will be completed during the next permit cycle as part of LGROW's ongoing PEP update process.

During this permit cycle, permittees completed PEP Questionnaires to provide a quantitative and qualitative evaluation of their individual stormwater education efforts. In total, materials were distributed at over 50 events (Table 4) and at various locations throughout the watershed. The car wash and pet waste pledges represent more than an educational outreach effort; these are a commitment to a behavioral change which has an important impact on water quality. The majority of responses for both pledges were from residents within the watershed. This program was very popular, with a total of 551 pet waste and 211 car wash pledges collected since the start of the 2015-16 reporting period to the end of the 2017-2018 reporting period. Of those totals, 127 pet waste and 52 car wash pledges were collected during the 2017-2018 reporting period from across the watershed.

2015 - 2018 Pet Waste Pledges



2015 - 2018 Car Wash Pledges



2017 Public Education Focus Group

A focus group was held on December 18, 2017 at the offices of GVMC with the purpose to determine changes in the awareness, education, and behavior of the public as a result of stormwater education efforts. The last focus group held to evaluate the PEP was in 2009 at Fishbeck, Thompson, Carr & Huber (FTC&H) in Grand Rapids to determine changes in the awareness, education, and behavior of the public as a result of stormwater education efforts in 2008 and 2009.

The 2017 focus group was held with the purpose to determine changes in the awareness, education, and behavior of the public as a result of stormwater education efforts since 2009. Using the information provided from the focus group, the PEP for the LGRW communities can be edited in the future to better serve the public. The challenges, successes, and recommendations communicated in this report will be evaluated to modify the PEP as needed. The updated PEP will result in a more effective public outreach campaign to reduce stormwater pollution and raise MS4 awareness during the next permit cycle.

Focus group participants were nominated by local units of government that maintain MS4 permits. Each participating local unit of government was asked to submit two potential participants that meet the following criteria:

1. The nominees must live in Kent or Ottawa Counties, specifically in the Lower Grand River Watershed, preferably in the community they are representing
2. The individuals do not manage or have direct involvement with your community's MS4 Permit
3. The nominees have had the potential to encounter LGROW deliverables (examples: events, educational outreach, brochures or fliers, LGROW website or Facebook page)

GVMC staff administered the 1.5 hour long focus group session on December 18, 2017. Twelve invited individuals were present, representing Kent and Ottawa Counties. Eleven of the 23 municipalities that

GVMC works with regarding MS4 permits were represented. There was a diverse demographic represented among the group.

Discussion began with introductions of everyone present and an ice breaker question. The conversation followed six dialogue questions led by GVMC. The dialogue questions were as follows:

2017 LGROW Focus Group Dialogue Questions
1. What do you know about LGROW?
2. What LGROW information have you seen, heard, or read?
3. Did the message (that you have seen, heard, or read) influence you? If so, how?
4. Have you seen any stormwater or pollution prevention messaging at your workplace? Who was the message from? (LGROW, employer, other org.)
5. How could LGROW project deliverables be improved?
6. Where and how do you get information on community activities?

This focus group ended up being a very educational experience for its participants while providing valuable feedback on LGROW outreach activities. The mixed demographic of participants and the number of MS4 communities participating provided a fairly diverse view of LGROW's reach into the watershed, and participants shared many ideas to improve LGROW messaging.

Key take-aways for LGROW from the focus group are summarized in the following table:

How LGROW messages can be improved	
New Target Audiences	• *Municipal employees* • *Adults through schoolchildren* • *People living in apartment complexes* • *LEED certified building owners* • *Farmers*
Reworking Messages	• *Translating materials in to the language of the neighborhood* • *Address 'why' citizens need to know the message presented* • *Simplify messages*
Delivery Mechanisms	• *Placement of watershed information (placement of 'Entering the Watershed' signs, more signs for GI)* • *Tours of municipalities and events at breweries* • *Word of mouth*

	• *Presence at festivals* • *Advertising in churches in the watershed*

The full 2017 Focus Group Report is attached to this Progress Report. Please reference it for further details.

2018 Stormwater Public Education Plan (PEP) Questionnaire

Reporting period of August 1, 2017 to July 31, 2018

Please complete this questionnaire to provide an evaluation of the stormwater education activities you have implemented between **August 1, 2017 and July 31, 2018**. GVMC will include this information, along with watershed-wide measures of effectiveness, in your 2017 Progress Report to MDEQ. **Please return this form to GVMC by September 7, 2018.**

Community Name: City of East Grand Rapids

Brochures, Flyers, and Giveaways:

1. Which of the following general stormwater awareness/LGROW materials (brochure, flyers, giveaways) did you order/distribute from GVMC this year:

☒ LGROW Brochures
☐ Grand River Infographic
☐ "Make your home the Solution to Stormwater Pollution" brochure
☐ "Do your part – be SepticSmart! brochure
☒ Household hazardous waste disposal guidelines from Kent County DPW
☒ Seasonal Tip Sheets (Fall, Winter, Spring, Summer)
☐ LGROW Water Bottles
☒ LGROW Chapstick
☒ "Keep your Lakes Great and your River Grand" dry bags
☐ LGROW "magic scarf"
☐ LGROW Tote bags
☒ "Keep your lakes Great and your River Grand" sticker
☐ Troutie coloring book
☐ Paint by number watershed map
☐ Watershed hand stamp
☐ "Report Illicit Discharges" magnet
☒ Trout stress ball with "Only rain in the drain – it leads directly to my home"
☒ Report Illicit Discharges beverage coaster
☐ Other:

2. Have you given away all the materials (brochures, flyers, giveaways) you ordered from GVMC this year?
   ☒ Yes ☐ No

3. Where did you distribute your materials?
   ☒ Government office ☒ Library ☒ Community event ☐ Other

4. Approximately how many people did you interact with during distribution of materials? 613

5. What was the most popular giveaway from the materials distributed in your community? Tote bag

6. What topics are of greatest interest to members of your community?

☐ How to report stormwater pollution
☒ Stormwater discharge locations/impacts
☐ Native vegetation/rain gardens/riparian buffers
☐ Proper vehicle care/motor oil disposal
☐ Proper use of pesticides/fertilizers/herbicides
☐ Proper yard waste disposal
☐ Proper septic system maintenance
☐ Household hazardous waste management

Illicit Discharge Reporting

7. Did you distribute illicit discharge reporting materials to your residents?

☐ Hard copies of "Citizens Reporting Brochures" from the IDEP – Number distributed:
☒ Link to LGROW's reporting page posted to your website https://www.lgrow.org/report/
☐ Report Illicit Discharge magnets – Number distributed: 12

Please describe any interest, comments, or discussion generated from the brochure, magnet or website https://www.lgrow.org/report/:

How many complaints were received from the general public regarding illicit discharges? None

Newsletters, Banners, and Displays

8. Did you order and display new lamppost banners during this permit cycle?
   ☐ Ordered and displayed new lamppost banners at (streets):
   ☐ Displayed lamppost banners provided in 2009-2013 at (streets):
   ☒ Did not order or display lamppost banners

9. Did you distribute stormwater focused newsletter articles to your residents? ☐Yes ☒No
   a. Please describe any interest, comments, or discussion generated from the articles None received
   b. If applicable, list the newsletter name or webpage address used to distribute stormwater information to the public: "Shorelines" www.ferrysburg.org
   c. If applicable, how many residents received your community newsletter? 1,500
   d. If applicable, how many total website hits did you receive for your online newsletter articles or stormwater information website?

10. Did you use any of the following materials or activities at events during the reporting period?

Stormwater poster board display	☒Yes, Date: all year	☒No
EnviroScape interactive stormwater model	☐Yes, Date:	☒No
Watershed map with pushpins	☐Yes, Date:	☒No
Stormwater mural banner and scavenger hunt	☐Yes, Date:	☒No
Major Runoff stormwater mascot	☐Yes, Date:	☒No
Interactive Corn Hole Board	☐Yes, Date:	☒No
Interactive catch basin demos	☐Yes, Date:	☒No

Events and Pledges

11. Did you host a seed bomb or native plant workshop? ☐ Yes, on: ☒No

12. Did you distribute any additional educational materials on native plants?
    ☐ Yes (Describe): ☒No

13. Please describe any interest, comments, or discussion generated from native plant workshops or giveaways:

14. Did your community collect pet waste pledges distributed with the public education materials?
    ☐Yes, Number: ☒No

15. Did your community collect car wash pledges distributed with the public education materials?
    ☐Yes, Number: ☒No

    Please describe any interest, comments, or discussion generated from either of the pledges and associated giveaways.

16. Did you implement a storm drain awareness activity between August 1, 2017 and July 31, 2018?

☐ Yes: (streets) on (dates)
☐ Yes, we held a storm drain stenciling event on (dates) and stenciled (streets)
☐ Yes, we have approximately (#) pre-marked catch basin backs/grates with the message "No dumping, drains to waterway"
☐ Yes, we hung door knob flyers on (streets) on (dates)

Please describe any interest, comments, or discussion generated from the activities above:
Have you noticed a reduction in storm drain dumping? ☐Yes ☐No Describe:

17. Please describe any interest, comments, or discussion generated from these materials/activities:

18. Did you participate in any community stormwater events? (check all that apply)

☐ Rain barrel workshop Date: Number of Attendees:
☐ Rain garden/Green Infrastructure Workday Date: Number of attendees:
☐ River clean up (location): Date: Number of Attendees:
☐ Ottawa County Water Quality Forum – November 30, 2017
☐ MWEA Watershed & Stormwater Seminar – December 5, 2017
☐ MWEA Watershed Summit – March 28, 2018
☐ Earth Day at Blandford Nature Center – April 21, 2018
☐ 15th Annual Grand River Spring Forum – May 11, 2018
☐ Grand River Water Festival – June 24, 2018
☐ MWEA Annual Conference – June 25-27, 2018
☐ West Michigan WhiteCaps Concourse Table – July 26, 2018
☐ Other: Date: Number of Attendees:

19. Describe any materials distributed, number of attendees, messages used at these events:

20. If applicable, please describe any other stormwater public education activities your community implemented beyond the events described above (This includes education with school groups, other community events, etc.) and submit any relevant documentation.

PART 4 - IDEP

Regional IDEP Activities

The IDEP for the Lower Grand River Watershed was approved in July of 2013 as meeting requirements of the General Permit Application for Storm Water Discharges from MS4s. The IDEP is intended to prohibit and effectively eliminate illicit discharges to the MS4.

The IDEP is being implemented under a cooperative program administered by the Grand Valley Metropolitan Council (GVMC) and involving the county agencies and municipal units participating in the Watershed Approach. The approved IDEP utilizes an alternative approach which includes the sampling of all storm sewer outfalls to Waters of the State within the urbanized area for the following parameters: surfactants, temperature, ammonia, and pH. Cooperative agreements were signed by participating communities to ensure that any illicit discharges detected would be traced upstream to their point of origin within the approved timeline whether or not they crossed jurisdictional boundaries. Illicit discharges that were identified either by public reporting or staff identification during this reporting period are detailed in each community's IDEP. Descriptions of the other IDEP activities undertaken on an individual basis are included below. IDEP activities include dry-weather screening of discharge points, locating possible sources of contamination, responding to reported incidents, correcting the problems, and preventing new illicit connections.

Dry-weather screening was completed by the Kent County Drain Commissioner during this reporting period for the Drain Commissioner's MS4. Other communities in the watershed began outfall sampling in the summer of 2018, and that work had not been completed at the time this report was written. A full report on IDEP outfall screening will be included in next year's report.

Community IDEP Activities

Please describe any dry-weather screening conducted during the reporting period and the findings of that screening.
Dry weather screening was conducted on all sites listed for inspection during the reporting period and the report spreadsheet was updated. GVMC and EGR staff conducted inspections. A full illicit discharge screening report will be included in next year's progress report.
Please list any other known and/or resolved illicit discharges identified during the reporting period and status of elimination. For significant discharges, also list the pollutants involved with an estimate of the volume and loading. Examples of illicit discharges include: malfunctioning septic systems; sanitary sewer leaks, overflows, or cross-connections; laundry water discharges; leaking fluids from vehicles, barrels, dumpsters, or tanks; concrete truck wash water; polluted runoff from temporary or permanent storage areas; improper fire hydrant flushing; spills from auto accidents; power washing wastewater; industrial/commercial wastewater, dumping; and any other violation of the IDEP ordinance.
NONE
Please list the status and schedule for elimination for any illicit discharges identified but not eliminated during this reporting period. Also, report the status of any illicit discharges identified but not eliminated during previous reporting periods.
No discharge reported during the period.

Please describe actions taken when indications of illicit discharges have been identified, if any.
The City has coordinated with the DEQ and dispatched City crews to mitigate/remediate and spills.
Please provide: ● An estimated quantification of the number of discharges eliminated, and ● An estimated quantification of the volume of illicit flow eliminated (*For large spills or, where the amount discharged is possible to estimate)*.
• No discharges were reported.

Identify any specific coordination with the health department in response to illicit discharge elimination for failed or failing septic fields.
N/A
Describe the effectiveness of the program to prevent illicit discharges and the method used to assess effectiveness.
Program is effective. Reporting is available via reporting forms, phone calls, and online reporting system.

PART 5 - New Point Source Discharges of Stormwater

Do you own or operate any NEW or previously unidentified stormwater discharges? ☐Yes ☒No If "yes," please indicate which discharge points are new on your outfall map or list.
Is your stormwater discharge point map attached or provided electronically? ☐ Map is attached ☐ Map is provided electronically ☒ Other. Please explain in comments section.
Is your stormwater discharge point list attached or provided electronically? ☐ List is attached ☐ List is provided electronically ☒ Other. Please explain in comments section.
Comments: Map and list were submitted to MDEQ as Appendix 2 in Illicit Discharge Elimination Plan revision, July 30, 2013. Updated lists were submitted to the MDEQ as part of the 2016 MS4 Permit Application which is currently under review.

PART 6 - Nested Drainage System Agreements

Please list all nested jurisdictions with whom you have a cooperative agreement:		
Name of Nested Jurisdiction	**Agreement previously provided to MDEQ**	**Agreement attached**
N/A	☐Yes ☐No	☐Yes ☐No
	☐Yes ☐No	☐Yes ☐No
	☐Yes ☐No	☐Yes ☐No
	☐Yes ☐No	☐Yes ☐No
Comments:		

PART 7 - Other Actions

Please list any extra efforts your community has conducted above and beyond your commitments recorded above (e.g., stream buffer ordinance adoption, new management techniques, invasive species control, habitat enhancement/protection, logjam removal, stream/beach clean-ups, etc.) that have helped implement the **Lower Grand River Watershed Management Plan**:
• Invasive species control with the DNR, DEQ and West Michigan CISMA for European Frog-Bit found in the Reeds-Fisk Lake Channel this past year. The City provided DEQ approved treatments and an approved treatment plan with grant funding is currently taking place to control and eliminate this invasive. • The City DPW clears and maintains culverts before and after storms. • The City's SAW grant supported work to complete a Stormwater Asset Management Plan. Other work conducted with SAW grant funds included televising of all storm sewer lines. Please see documents attached to this report for more information. Note that an additional 1,593 ft of sewer lines were cleaned from July 13th to July 24th 2018.
Please list any other actions your community has conducted to reduce stormwater pollution
• Educational messages in newsletters • Storm water information distributed at City events • Informational tables and handouts at the Community Center and Library

PART 8 - Revisions to the SWPPI

Based on your evaluation of the effectiveness of your stormwater BMPs, are there any commitments that should be added to or removed from the SWPPI?

☒ No, the SWPPI does not need any revisions

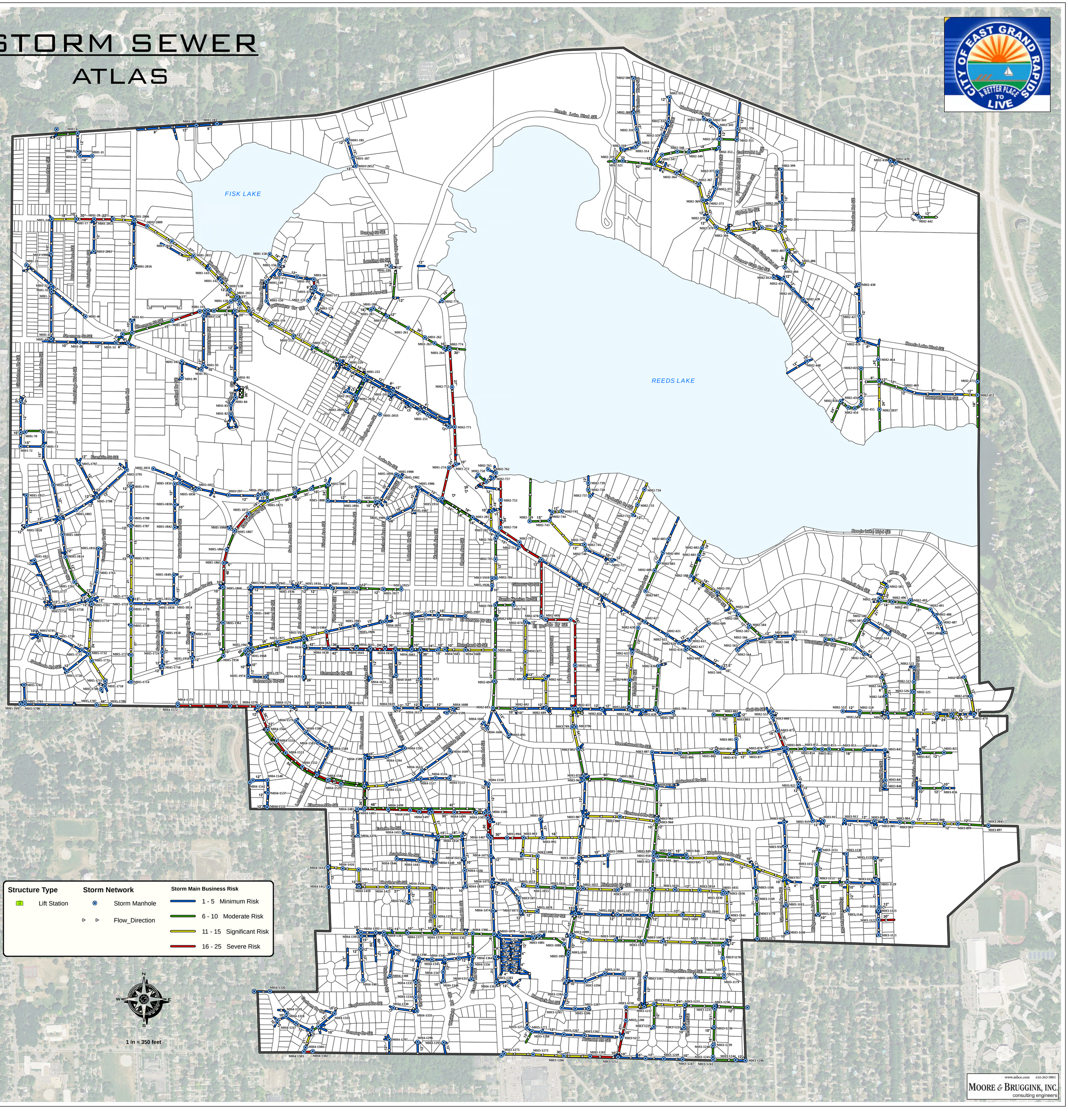
☐ The following revisions to the SWPPI could be considered:

Original SWPPI Section/Subsection	**Revision**

Additional Documentation

APPENDIX A

STORM SEWER ATLAS



Structure Type

- Lift Station

Storm Network

- Storm Manhole
- Flow_Direction

Storm Main Business Risk

- 1 - 5 Minimum Risk
- 6 - 10 Moderate Risk
- 11 - 15 Significant Risk
- 16 - 25 Severe Risk

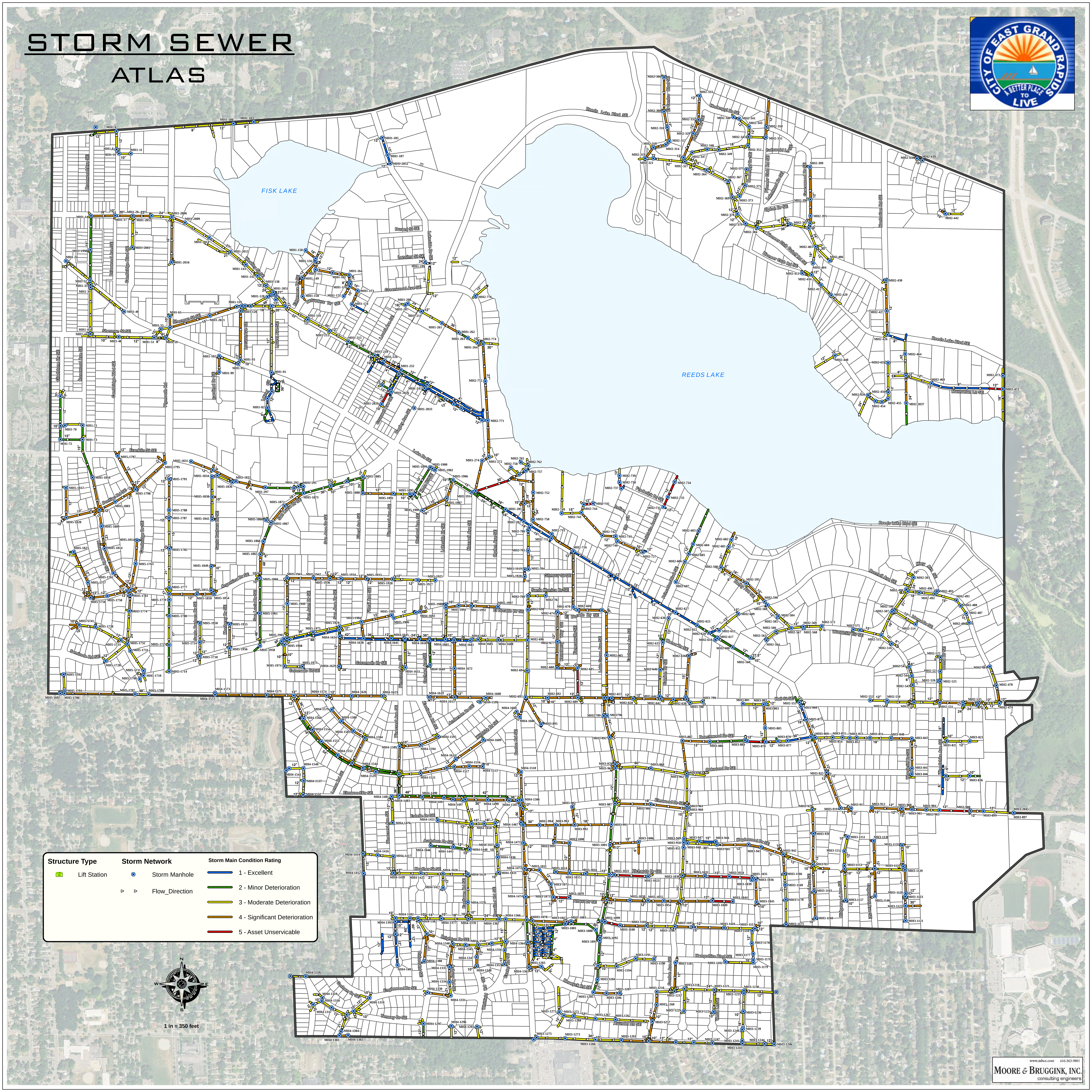
N W E S

1 in = 350 feet

www.mbce.com 616-363-9801

MOORE & BRUGGINK, INC.
consulting engineers

STORM SEWER ATLAS



APPENDIX B

For manholes, put "MH ##" for facility ID. Manhole materials are "Concrete" or "Block". material column choices are shown in the drop-down list. If an asset material is not listed, manually enter it, and

Storm Sewer System Assets	FacilityID	Contract ID	Material	Size_IN	Length_FT	UpstreamMH	DownstreamMH	YrInstalled	Condition	Probability of Failure	Consequence of Failure	BusinessRisk
	40052637	57797	Unknown	12	26				3	2	1	3
San Lucia Dr SE	30000188		Reinforced Concrete Pipe	24	377	MH5-982	MH5-981		1	1	3	3
San Lucia Dr SE	30000595		Reinforced Concrete Pipe	24	334	MH5-970	MH5-969		1	1	3	3
San Lucia Dr SE	30001378		Reinforced Concrete Pipe	18	28	MH5-967	MH5-968		1	1	3	3
Indian Trl	30003414		Concrete Pipe (non-reinforced)	8	286	30212689	30224281		3	2	3	9
Argentina Dr SE	30014763		Concrete Pipe (non-reinforced)	8	287	MH5-916	MH5-924		3	2	3	9
Lake Dr	30017289		Concrete Pipe (non-reinforced)	8	293	30211455A	30211455		1	1	3	3
Richard dr	30017410		Concrete Pipe (non-reinforced)	8	250	30203712	30218395		5	4	3	15
San Lucia Dr SE	30017638		Reinforced Concrete Pipe	24	87	MH5-979	MH5-978		1	1	3	3
San Lucia Dr SE	30018513		Reinforced Concrete Pipe	24	322	MH5-968	MH5-986		5	4	3	15
Boston dr	30019973		Concrete Pipe (non-reinforced)	12	375	30234366	30234368		3	2	3	9
Boston dr	30019978		Concrete Pipe (non-reinforced)	12	54	30234367	30234366		3	2	3	9
Argentina Dr.	30021096		Concrete Segments (unbolted)	8	106	30225417	30235735		3	2	3	9
Woodcliff dr	30023709		Concrete Pipe (non-reinforced)	8	322	30239070	30212766		3	2	3	9
Floral Ave	30023940		Reinforced Concrete Pipe	21	135	MH5-950	MH5-951		3	2	3	9
San Lucia Dr SE	30024914		Reinforced Concrete Pipe	24	41	MH5-969	MH5-968		1	1	3	3
San Lucia Dr SE	30025202		Reinforced Concrete Pipe	24	107	MH5-980	MH5-979		1	1	3	3
San Lucia Dr SE	30027073		Reinforced Concrete Pipe	24	272	MH5-963	MH5-967		1	1	3	3
Montery Dr SE	30028602		Reinforced Concrete Pipe	24	348	MH5-986	MH5-991		1	1	3	3
Santa Barbara Dr SE	30028971		Reinforced Concrete Pipe	24	47	MH5-991	30233100		3	2	3	9
San Lucia Dr SE	30030321		Reinforced Concrete Pipe	24	343	MH5-971	MH5-970		1	1	3	3
Argentina Dr SE	30032351		Concrete Pipe (non-reinforced)	8	228	MH5-928	MH5-929		4	3	3	12
Breton Rd.	30033104		Concrete Pipe (non-reinforced)	8	219	30239663	30215776		3	2	3	9
San Lucia Dr SE	30033419		Reinforced Concrete Pipe	24	217	MH5-981	MH5-980		1	1	3	3
Burchard St SE	30033934		Reinforced Concrete Pipe	21	171	MH4-877	MH4-878		3	2	3	9
Oakwood Dr.	30034484		Concrete Segments (unbolted)	8	234	30212105	30224195		4	3	3	12
San Lucia Dr SE	30034492		Reinforced Concrete Pipe	24	223	MH5-978	MH5-971		1	1	3	3
Burchard St SE	30035776		Reinforced Concrete Pipe	21	107	MH4-878	MH4-881		1	1	3	3
Burchard St SE	30037927		Reinforced Concrete Pipe	21	157	MH4-881	MH4-884		3	2	3	9
Burchard St SE	30037928		Reinforced Concrete Pipe	21	94	MH4-874	MH4-877		1	1	3	3
Breton Rd SE	30037931		Reinforced Concrete Pipe	18	105	MH4-871	MH4-870		4	3	3	12
Burchard St SE	30037943		Reinforced Concrete Pipe	21	267	MH4-873	MH4-874		3	2	3	9
San Jose Dr SE	30038075		Reinforced Concrete Pipe	24	294	MH5-951	MH5-955		3	2	3	9
San Jose Dr SE	30038077		Reinforced Concrete Pipe	21	81	MH4-893	MH5-951		1	1	3	3
El Dorado	30038084		Reinforced Concrete Pipe	21	282	MH5-955	MH5-959		1	1	3	3
Burchard St SE	30038086		Reinforced Concrete Pipe	21	266	MH4-871	MH4-872		3	2	3	9
Burchard St SE	30038566		Reinforced Concrete Pipe	21	237	MH4-872	MH4-873		3	2	3	9
Burchard St SE	30038567		Reinforced Concrete Pipe	21	142	MH4-884	MH4-895		3	2	3	9
Burchard St SE	30038568		Reinforced Concrete Pipe	21	223	MH4-895	MH4-894		4	3	3	12
Burchard St SE	30038569		Reinforced Concrete Pipe	21	346	MH4-894	MH4-893		3	2	3	9
Gladstone	30038888		Clay Tile	8	340	MH5-1077	MH5-1076		1	1	3	3
	40000023	2486	Unknown	0	38				3	2	1	3
	40000025	63930	clay	15	280				3	2	2	6
	40000213	22509	Unknown	12	46				3	2	1	3
	40000229	67929	RCP CL-IV	42	444	MH4-1646	MH4-1646	1998	1	1	5	5
	40000230	12896	Unknown	0	6				3	2	1	3
	40000232	55950	Unknown	12	60	MH4-1498	MH4-1498		3	2	1	3
	40000233	50080	Unknown	42	9			1998	2	1	5	10
	40000400	94736	Unknown	10	57			1985	3	2	1	3
	40000403	562	Unknown	24	223	MH4-1688	MH4-1688		3	2	4	12
	40000411	45082	Unknown	12	43	MH3-1131	MH3-1131	1965	4	3	1	4
Andover Ln	40000419		Reinforced Concrete Pipe	12	328	40144975	MH3-1230		3	2	3	9
Northshire	40000436		Reinforced Concrete Pipe	12	252	MH3-825	MH3-823		3	2	3	9
	40000448	49152	Unknown	54	208	MH2-752	MH2-752	1956	4	3	5	**20**
	40000455	30135	Unknown	20	266	MH1-212	MH1-212		3	2	4	12
Manhattan Rd	40000534		Reinforced Concrete Pipe	12	63	MH2-456	MH2-455		3	2	3	9
	40000536	95038	Unknown	12	287	MH2-514	MH2-514		3	2	1	3
	40000575	35242	Unknown	0	6				3	2	1	3
	40000586	32466	Unknown	12	244	MH3-1224	MH3-1224		3	2	1	3
	40000685	23415	Unknown	10	102				3	2	1	3
	40000827	89685	Unknown	0	23			1934	3	2	1	3
	40000876	37887	Concrete	27	176	MH1-143	MH1-143		3	2	5	15
	40000902	47737	Unknown	12	147	MH3-1207	MH3-1207	1963	4	3	1	4
	40000957	16176	Unknown	12	392	MH1-48	MH1-48		3	2	1	3
Woodcliff Dr	40001032		Reinforced Concrete Pipe	12	238	MH3-1135	MH3-1131		3	2	3	9
	40001113	89889	Unknown	0	73			1934	3	2	1	3
	40001117	8587	Unknown	6	68			1929	4	3	1	4
	40001137	72765	Unknown	0	57			1986	3	2	1	3
	40001241	69873	Unknown	0	40			1970	3	2	1	3
	40001254	14623	tile	12	31			1934	4	3	1	4
	40001264	62066	Unknown	12	228	MH2-560	MH2-560	1998	2	1	1	2
	40001327	31584	Unknown	12	145	MH3-1071	MH3-1071	1928	4	3	1	4
	40001331	2638	Unknown	10	40			1997	2	1	1	2
Shopping Center Dr	40001352		Reinforced Concrete Pipe	36	121	MH1-261	MH1-262		4	3	3	12
	40001377	51700	Unknown	28	26				3	2	5	15
	40001404	16291	Concrete	10	52			1971	3	2	1	3
	40001405	40173	Unknown	10	18			1987	3	2	1	3
Richards Dr	40001409		Reinforced Concrete Pipe	12	253	MH3-1019	MH3-1016		3	2	3	9
	40001410	53805	Unknown	12	311	MH4-1672	MH4-1672	1929	4	3	1	4
	40001413	28334	RCP CL-IV	24	42	MH3-1091	MH3-1091	1997	2	1	4	8
	40001414	72853	Unknown	48	671	MH4-1497	MH4-1497	1998	2	1	5	10
	40001471	40835	Unknown	0	18				3	2	1	3
	40001477	37998	Unknown	0	28			1934	3	2	1	3
	40001483	52677	Unknown	12	26			1997	2	1	1	2
	40001580	88145	Unknown	0	5			1934	3	2	1	3
	40001591	25146	Unknown	12	43			1982	3	2	1	3
	40001638	42318	Unknown	0	21			1965	3	2	1	3
	40001657	804	Unknown	10	17			1969	4	3	1	4
	40001673	19200	Unknown	0	15				3	2	1	3
	40001679	58733	concrete	10	35				3	2	1	3
	40001801	34745	Unknown	0	42				3	2	1	3
	40001906	43608	RCP C-76	10	21			1983	2	1	1	2
	40001939	95004	Clay	12	241	MH2-727	MH2-727	1956	4	3	1	4
	40001951	10213	Unknown	30	49	MH2-553	MH2-553	1997	2	1	5	10
	40001963	47609	Unknown	21	255	MH4-1449	MH4-1449		3	2	4	12
Lake Grove Ave	40001971		Reinforced Concrete Pipe	60	319	MH3-970	MH3-892		3	2	3	9
	40001975	58896	Unknown	12	328	MH3-845	MH3-845	1934	4	3	1	4
	40001988	22240	Unknown	6	40				3	2	1	3
	40001989	34636	Unknown	12	231	MH3-847	MH3-847	1968	4	3	1	4
	40002025	22449	Unknown	0	30				3	2	1	3
	40002031	15890	Unknown	0	30				3	2	1	3
	40002077	39269	Unknown	0	32			1934	3	2	1	3
	40002082	90171	Concrete	24	166	MH2-497	MH2-497		3	2	4	12
	40002095	89896	Unknown	10	14				3	2	1	3
	40002125	67765	Unknown	18	12	MH4-1675	MH4-1675	1998	2	1	3	6
Darby Ave	40002145		Reinforced Concrete Pipe	12	177	MH2-584	MH2-588		3	2	3	9
	40002336	73516	Unknown	6	37			1983	3	2	1	3
	40002359	57230	Unknown	0	6				3	2	1	3
	40002501	88142	Concrete	12	60			1934	4	3	1	4

For manholes, put "MH ##" for facility ID. Manhole materials are "Concrete" or "Block". material column choices are shown in the drop-down list. If an asset material is not listed, manually enter it, and

Storm Sewer System Assets	FacilityID	Contract ID	Material	Size_IN	Length_FT	UpstreamMH	DownstreamMH	YrInstalled	Condition	Probability of Failure	Consequence of Failure	BusinessRisk
	40002549	5695	concrete	12	368			1927	4	3	1	4
	40002636	6671	concrete	12	13			1986	2	1	1	2
	40002662	23093	Unknown	10	166	MH4-1580	MH4-1580	1929	4	3	1	4
	40002691	94840	Unknown	12	37			1934	4	3	1	4
	40002743	18143	concrete	12	207	MH1-150	MH1-150	1928	4	3	1	4
Manhattan Ln	40002748		Reinforced Concrete Pipe	18	344	MH2-472	40154142		3	2	3	9
	40002775	18072	Unknown	10	27				3	2	1	3
	40002856	15730	Unknown	21	194	MH4-1312	MH4-1312		3	2	4	12
	40002884	1371	RCP C-76	66	269			1956	4	3	5	**20**
	40003047	57577	concrete	48	147	MH5-1866	MH5-1866	1929	4	3	5	**20**
	40003144	40692	csp	12	21			1998	1	1	1	1
	40003185	48880	Unknown	18	89	MH2-2044	MH2-2044	2016	1	1	3	3
	40003196	51289	Unknown	12	44				3	2	1	3
	40003283	33910	Unknown	12	19			1982	3	2	1	3
	40003570	29726	Unknown	0	32				3	2	1	3
	40003925	56229	Unknown	30	38	MH3-1275	MH3-1275		3	2	5	15
	40003926	60673	Unknown	12	51			1985	3	2	1	3
	40003943	46938	Unknown	0	16				3	2	1	3
	40004030	51653	concrete	10	12				3	2	1	3
	40004097	93135	Unknown	18	283	MH2-515	MH2-515		3	2	3	9
	40004135	94734	concrete	27	436	MH2-771	MH2-771	1934	4	3	5	**20**
	40004188	6477	Unknown	8	53			1934	4	3	1	4
	40004242	29509	Concrete	15	257	MH4-1381	MH4-1381		3	2	2	6
	40004296	14263	Unknown	10	17				3	2	1	3
	40004345	31914	Unknown	0	96	MH2-744	MH2-744		3	2	1	3
	40004347	33649	Unknown	18	185	MH2-404	MH2-404		3	2	3	9
	40004354	1459	Unknown	36	570			1934	4	3	5	**20**
	40004430	23318	Unknown	0	23	MH2-637	MH2-637	1932	3	2	1	3
	40004451	65922	RCP C-76	48	224	MH5-1867	MH5-1867	1983	2	1	5	10
	40004534	42925	Unknown	0	12			1934	3	2	1	3
Sherwood Ave	40004553		Reinforced Concrete Pipe	12	294	MH3-1163	MH3-937		4	3	3	12
	40004580	94665	Unknown	10	19			1996	2	1	1	2
	40004606	52520	Unknown	0	40				3	2	1	3
	40004628	66588	Unknown	10	15			1970	4	3	1	4
	40004669	90254	Concrete	12	107	MH2-612	MH2-612	2012	1	1	1	1
Bonnell Ave	40004669_B		Polypropylene	12		MH2-612	CB2-613		3	2	1	3
	40004675	45529	Concrete	15	266	MH5-1762	MH5-1762	1927	4	3	2	8
	40004707	92969	Unknown	0	21			1934	3	2	1	3
	40004716	63680	clay	10	27	MH1-170	MH1-170	1933	4	3	1	4
	40004754	59697	Concrete	27	309	MH4-1376	MH4-1376		3	2	5	15
	40004759	40587	Unknown	12	86	MH5-1788	MH5-1788	1982	3	2	1	3
Woodcliff Cir	40004820		Reinforced Concrete Pipe	12	100	MH2-544	MH2-543		3	2	3	9
	40004892	52667	Unknown	0	30				3	2	1	3
	40004898	34158	Unknown	48	34			1998	2	1	5	10
	40004916	56108	Unknown	12	27			2000	2	1	1	2
	40004917	60	Unknown	12	41			1933	4	3	1	4
	40004948	66899	Unknown	12	37	MH3-1153	MH3-1153	1970	4	3	1	4
	40005017	94716	Unknown	0	49	MH1-243	MH1-243		3	2	1	3
	40005086	25509	ductile iron	12	305	MH4-1651	MH4-1651		3	2	1	3
	40005087	7696	Unknown	12	60			1928	4	3	1	4
	40005256	29388	ductile iron	24	159	MH4-1656	MH4-1656	1928	4	3	4	16
Lake Dr	40005257		Polypropylene	30	200	MH3-873	MH3-870		4	3	5	**20**
	40005270	24581	Unknown	10	25			1969	4	3	1	4
	40005296	95026	Unknown	12	34			1934	4	3	1	4
	40005406	30318	Unknown	0	26				3	2	1	3
	40005422	73822	Unknown	18	192	MH2-355	MH2-355		3	2	3	9
	40005424	53602	Unknown	0	12				3	2	1	3
East Grand Rapids Fire Dept	40005442		Polypropylene	30	90	MH2-756	MH2-757		1	1	5	5
	40005443	32828	RCP	12	25			2002	1	1	1	1
	40005444	19726	Unknown	12	26			1933	4	3	1	4
	40005543	3806	Unknown	10	45				3	2	1	3
	40005593	54479	Unknown	0	28			1929	3	2	1	3
	40005600	58791	Unknown	0	46				3	2	1	3
	40005601	37458	Unknown	12	159	MH3-905	MH3-905	1928	4	3	1	4
	40005607	21121	Unknown	12	5				3	2	1	3
	40005610	24681	PVC	4	100			1998	1	1	1	1
	40005626	21715	Unknown	0	35				3	2	1	3
	40005632	5696	Unknown	12	51			1927	4	3	1	4
	40005653	40117	Unknown	0	34				3	2	1	3
	40005658	32376	Unknown	12	342	MH4-1623	MH4-1623	1929	4	3	1	4
	40005689	17777	PVC	4	100	MH4-1364	MH4-1364	1998	1	1	1	1
	40005721	14641	clay	12	382	MH5-1949	MH5-1949		3	2	1	3
	40005869	75674	Unknown	0	61				3	2	1	3
	40005958	26235	Unknown	48	87	MH5-1967	MH5-1967	1998	2	1	5	10
Beechwood Dr	40006073		Reinforced Concrete Pipe	12	27	MH3-883	MH3-884		3	2	3	9
	40006080	12497	Concrete	27	220	MH1-2015	MH1-2015		3	2	5	15
	40006081	19977	Unknown	10	67			1980	3	2	1	3
	40006108	19969	Unknown	12	49				3	2	1	3
	40006114	94841	Unknown	10	12			1996	2	1	1	2
	40006272	46561	Unknown	30	181	MH4-1470	MH4-1470	1928	4	3	5	**20**
	40006273	67894	Concrete	18	233	MH4-1365	MH4-1365		3	2	3	9
	40006278	63589	PVC	4	105	MH3-1078	MH3-1078	1998	1	1	1	1
	40006300	39661	concrete	12	12			1956	4	3	1	4
	40006331	39	Unknown	42	141				3	2	5	15
	40006357	60403	concrete	12	260	MH4-1330	MH4-1330	1935	4	3	1	4
	40006367	62652	Unknown	10	44			1979	4	3	1	4
Lakeside Dr	40006401		Reinforced Concrete Pipe	36	114	MH1-263	MH1-264		3	2	3	9
	40006437	59296	Non-RCP	12	153	MH4-1357	MH4-1357	1962	3	2	1	3
	40006467	20490	Unknown	0	29			1928	3	2	1	3
	40006494	87975	Concrete	12	67				3	2	1	3
	40006532	12344	Unknown	0	10				3	2	1	3
	40006543	14072	Unknown	0	23				3	2	1	3
	40006604	5393	Unknown	0	14				3	2	1	3
	40006899	39505	Unknown	0	32				3	2	1	3
	40006931	45575	Unknown	18	41			1998	2	1	3	6
	40007065	46896	Unknown	10	9				3	2	1	3
	40007076	36741	concrete	12	44			1928	4	3	1	4
	40007136	93665	Unknown	10	51	MH1-264	MH1-264	1934	4	3	1	4
	40007142	39266	Unknown	6	22				3	2	1	3
	40007214	10193	Unknown	15	137			1989	3	2	2	6
	40007228	9494	Unknown	36	161	MH4-1553	MH4-1553	1928	4	3	5	**20**
	40007291	89646	Unknown	27	23				3	2	5	15
	40007304	21949	Unknown	12	11				3	2	1	3
	40007311	15816	Unknown	12	17			1927	4	3	1	4
	40007341	25946	Unknown	54	636	MH4-1552	MH4-1552	1998	2	1	5	10
	40007360	44628	Unknown	10	29				3	2	1	3
	40007385	1804	Unknown	12	14				3	2	1	3
	40007466	61696	cpp	12	176	MH1-99	MH1-99	1956	4	3	1	4
	40007474	59606	concrete	12	182	MH5-1804	MH5-1804	1927	4	3	1	4
	40007479	65085	Unknown	0	13				3	2	1	3
	40007502	46182	Unknown	0	7				3	2	1	3
	40007528	31615	Unknown	0	68			1967	3	2	1	3

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Storm Sewer System Assets	FacilityID	Contract ID	Material	Size_IN	Length_FT	UpstreamMH	DownstreamMH	YrInstalled	Condition	Probability of Failure	Consequence of Failure	BusinessRisk
	40007559	55120	Unknown	10	27			1956	4	3	1	4
	40007683	91738	Unknown	24	62	MH2-532	MH2-532		3	2	4	12
	40007715	41388	Unknown	12	107	MH3-1246	MH3-1246		3	2	1	3
	40007812	44271	Unknown	0	63				3	2	1	3
	40007990	46890	concrete	12	181	MH5-1761	MH5-1761	1928	4	3	1	4
	40007998	35566	Unknown	12	45				3	2	1	3
	40007999	60764	Unknown	0	9				3	2	1	3
	40008015	46778	Unknown	12	266	MH5-1849	MH5-1849		3	2	1	3
	40008063	190922	Concrete	18	139	MH1-282	MH1-282	2016	1	1	3	3
	40008072	36629	Unknown	12	50			1929	4	3	1	4
	40008073	36862	Concrete	10	44				3	2	1	3
	40008086	52190	Unknown	0	23				3	2	1	3
	40008179	10393	Unknown	10	36				3	2	1	3
	40008237	70158	Unknown	0	28				3	2	1	3
	40008250	13544	Unknown	42	22				3	2	5	15
	40008395	60243	Unknown	12	36				3	2	1	3
	40008452	49595	Unknown	8	81			1934	4	3	1	4
	40008661	33454	tile	12	43			1934	4	3	1	4
	40008736	56117	Unknown	0	12				3	2	1	3
	40008740	60975	Unknown	12	4				3	2	1	3
	40008742	22303	Unknown	0	8				3	2	1	3
	40008764	48597	Unknown	0	21				3	2	1	3
	40008782	90187	Concrete	18	125	MH2-496	MH2-496		3	2	3	9
	40008791	91896	Concrete	12	27			1975	3	2	1	3
	40008808	9558	Unknown	12	298	MH5-1997	MH5-1997	1956	4	3	1	4
	40008819	15923	Unknown	12	83	MH4-1517	MH4-1517		3	2	1	3
	40008838	40329	Unknown	10	36			1970	4	3	1	4
	40008886	39818	Unknown	12	104	MH2-412	MH2-412		3	2	1	3
	40008925	12867	concrete	12	153	MH5-1724	MH5-1724		3	2	1	3
	40008995	21959	Unknown	0	21			1956	3	2	1	3
	40009074	7956	Unknown	0	12				3	2	1	3
	40009107	2647	Unknown	12	42				3	2	1	3
	40009108	72292	PVC	4	110	MH3-1078	MH3-1078	1998	1	1	1	1
	40009221	25356	pvc	10	42				3	2	1	3
Croswell Ave	40009222		Reinforced Concrete Pipe	12	200	MH1-2025	MH1-231		3	2	3	9
	40009247	94675	Unknown	12	204	MH2-572	MH2-572		3	2	1	3
	40009260	55467	Unknown	10	32			1969	4	3	1	4
	40009341	92930	Unknown	0	7				3	2	1	3
Middle School	40009454		Reinforced Concrete Pipe	12	97	MH2-745	MH2-744		5	4	3	15
	40009625	60704	Unknown	12	278	MH3-1197	MH3-1197	1931	2	1	1	2
	40009642	52545	Unknown	0	10				3	2	1	3
	40009644	15477	Unknown	0	22				3	2	1	3
	40009687	25998	Unknown	10	25			1937	4	3	1	4
	40009779	45992	cor. Metal	24	232			1998	2	1	4	8
	40009783	68999	Unknown	27	277	MH4-1429	MH4-1429		3	2	5	15
	40009784	36329	Unknown	0	22			1980	3	2	1	3
	40009923	32786	Unknown	0	12				3	2	1	3
	40009926	169	Unknown	0	80				3	2	1	3
Boston St	40009955		Reinforced Concrete Pipe	12	302	MH3-1106	MH3-1101		3	2	3	9
	40010080	87956	Concrete	12	28			1975	3	2	1	3
	40010167	70810	Unknown	12	155	MH3-1204	MH3-1204	1931	2	1	1	2
	40010212	55379	Unknown	0	24			1929	3	2	1	3
	40010263	72850	Unknown	10	15				3	2	1	3
	40010286	51629	Unknown	0	25			1967	3	2	1	3
	40010292	7968	Unknown	12	359			1989	3	2	1	3
	40010310	50653	Unknown	12	171	MH4-1326	MH4-1326		3	2	1	3
	40010375	94843	Unknown	12	44			1934	4	3	1	4
	40010446	40854	Unknown	10	25			1965	4	3	1	4
	40010559	94674	Unknown	0	21	MH2-526	MH2-526		3	2	1	3
	40010580	46840	Unknown	15	24				3	2	2	6
	40010706	12181	Unknown	12	36				3	2	1	3
	40010712	55967	Unknown	12	32				3	2	1	3
	40010729	5817	Unknown	0	16			1967	3	2	1	3
	40010789	95439	Unknown	12	12				3	2	1	3
	40010807	21281	Unknown	30	180	MH3-994	MH3-994	1937	4	3	5	**20**
	40010843	6615	Unknown	12	28			1982	3	2	1	3
	40010858	19946	Unknown	12	213	MH3-1166	MH3-1166	1967	4	3	1	4
	40010980	30611	Unknown	10	26			1969	4	3	1	4
	40011031	36424	Unknown	12	43	MH3-869	MH3-869	1997	2	1	1	2
	40011052	7494	Unknown	30	101			1934	4	3	5	**20**
	40011130	40111	Non-RCP	12	132			1971	3	2	1	3
	40011169	57196	Unknown	12	347	MH3-937	MH3-937	1928	4	3	3	12
	40011226	87954	Concrete	12	15			1934	4	3	1	4
	40011233	2679	Unknown	0	5				3	2	1	3
	40011272	44777	Unknown	0	33				3	2	1	3
	40011277	16631	Concrete	12	244	MH5-1842	MH5-1842		3	2	1	3
	40011339	98704	concrete	15	86	MH1-293	MH1-293	1983	2	1	2	4
	40011376	7755	Unknown	0	25				3	2	1	3
	40011394	72012	Unknown	12	25			1982	3	2	1	3
	40011415	43601	Unknown	0	39				3	2	1	3
	40011462	94666	Unknown	12	139	MH2-563	MH2-563		3	2	1	3
	40011490	87128	Unknown	12	36	MH2-553	MH2-553	1997	2	1	1	2
	40011544	56363	Unknown	10	46				3	2	1	3
	40011759	30836	Unknown	12	158	MH4-1540	MH4-1540		3	2	1	3
	40011780	66843	clay	10	30				3	2	1	3
	40011894	57323	Unknown	10	23			1956	4	3	1	4
	40011903	39439	Unknown	0	42			1929	3	2	1	3
	40011913	11351	Unknown	27	300	MH4-1425	MH4-1425		3	2	5	15
	40011916	85688	Concrete	10	58				3	2	1	3
	40011942	92525	Concrete	12	25			2013	1	1	1	1
	40011946	70509	Unknown	0	27				3	2	1	3
	40011962	43417	Unknown	12	30			1997	2	1	1	2
	40011993	2649	Unknown	12	43			1956	4	3	1	4
	40012077	66649	Unknown	12	47			1934	4	3	1	4
	40012090	17057	concrete	42	269	MH2-367	MH2-367		3	2	5	15
	40012104	53249	Unknown	0	16				3	2	1	3
	40012174	3582	Unknown	12	12			1929	4	3	1	4
	40012206	36206	Unknown	0	47				3	2	1	3
	40012225	48554	Unknown	0	25				3	2	1	3
	40012226	62143	Unknown	0	22				3	2	1	3
	40012244	12337	Unknown	0	63				3	2	1	3
Conlon Ave	40012305		Reinforced Concrete Pipe	12	293	MH3-1106	MH3-1050		3	2	3	9
	40012307	59344	Unknown	0	13				3	2	1	3
	40012314	50480	Unknown	12	54			1927	4	3	1	4
	40012315	12214	Unknown	12	20			1982	3	2	1	3
	40012321	9259	Unknown	30	313	MH3-1273	MH3-1273		3	2	5	15
	40012371	72995	Unknown	12	25			1956	4	3	1	4
Andover Rd	40012379		Reinforced Concrete Pipe	12	69	MH3-1178	MH3-1177		3	2	3	9
	40012420	49330	Unknown	15	461	MH2-636	MH2-636	1932	4	3	2	8
	40012424	35562	Unknown	0	23				3	2	1	3
	40012432	53725	Unknown	0	9			1929	3	2	1	3
	40012472	14298	concrete	12	59				3	2	1	3

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	40012488	12237	Concrete	10	9				3	2	1	3
Priceton Blvd	40012556		Reinforced Concrete Pipe	12	81	MH2-606	MH2-605		3	2	3	9
	40012646	78351	Unknown	10	15				3	2	1	3
	40012669	9657	Unknown	12	49			1934	4	3	1	4
	40012682	67644	Unknown	27	54	MH3-951	MH3-951	1956	4	3	5	20
	40012683	25428	Unknown	12	22				3	2	1	3
Argentina Dr	40012705		Reinforced Concrete Pipe	12	193	MH5-1925	MH5-1927		3	2	3	9
	40012774	71594	Unknown	6	54			1997	2	1	1	2
Conlon Dr	40012798		Reinforced Concrete Pipe	12	139	MH2-646	MH2-644		3	2	3	9
	40012817	10751	Unknown	15	34	MH3-945	MH3-945		3	2	2	6
	40012857	28556	Unknown	10	27				3	2	1	3
	40012911	4868	Unknown	0	15				3	2	1	3
	40012976	40104	Unknown	0	26				3	2	1	3
	40013013	56011	concrete	10	91			1937	4	3	1	4
	40013024	19985	Unknown	12	304	MH3-886	MH3-886	1928	4	3	1	4
	40013049	95230	Unknown	0	7				3	2	1	3
	40013061	22439	Concrete	36	184	MH4-1638	MH4-1638	1934	4	3	5	20
	40013062	17639	Unknown	12	16			1989	3	2	1	3
	40013073	28736	Unknown	0	13			1967	3	2	1	3
	40013076	51546	Unknown	42	28			1998	2	1	5	10
	40013084	44640	Unknown	10	11			1984	3	2	1	3
	40013169	18896	Unknown	30	336	MH3-1266	MH3-1266		3	2	5	15
	40013184	70016	Unknown	0	42				3	2	1	3
	40013210	448	concrete	0	55				3	2	1	3
	40013228	74324	Unknown	12	252				3	2	1	3
	40013238	4562	Unknown	0	26				3	2	1	3
	40013270	65913	Unknown	0	43			1965	3	2	1	3
	40013280	43996	Unknown	10	10			1963	4	3	1	4
	40013293	46560	Unknown	0	177	MH1-2014	MH1-2014		3	2	1	3
	40013309	90243	Unknown	12	41			1934	4	3	1	4
	40013316	63087	Unknown	12	10			1927	4	3	1	4
	40013325	32108	Unknown	0	9				3	2	1	3
	40013342	52486	Unknown	12	228	MH1-149	MH1-149	1928	4	3	1	4
	40013426	67538	Unknown	12	110	MH2-343	MH2-343		3	2	1	3
	40013439	55234	Unknown	12	316	MH5-1738	MH5-1738		3	2	1	3
	40013442	57721	Unknown	0	30				3	2	1	3
	40013540	72980	Unknown	0	16				3	2	1	3
	40013566	36794	Unknown	0	23				3	2	1	3
	40013632	9074	Unknown	30	65				3	2	5	15
	40013709	23886	Unknown	10	21				3	2	1	3
	40013742	32581	Unknown	10	29			1963	4	3	1	4
	40013761	34187	concrete	24	361	MH5-1774	MH5-1774		3	2	4	12
	40013779	50644	Unknown	12	318	MH4-1615	MH4-1615	1929	4	3	1	4
	40013783	21759	tile	12	21			1934	4	3	1	4
	40013855	95407	Unknown	12	5			1956	4	3	1	4
	40013872	88757	Concrete	12	37			1934	4	3	1	4
Woodcliff Cir	40013889		Reinforced Concrete Pipe	12	95	MH2-545	MH2-544		3	2	3	9
	40013910	70764	Unknown	10	17				3	2	1	3
	40013929	15045	Unknown	12	27			1956	4	3	1	4
	40013976	11448	RCP	12	7			2002	1	1	1	1
	40014015	26498	csp	12	18			1998	1	1	1	1
	40014110	1381	Unknown	12	11			1956	4	3	1	4
Hall St	40014117		Reinforced Concrete Pipe	12	121	MH3-802	MH3-805		4	3	3	12
	40014133	38741	RCP CL-IV	36	98	MH4-1676	MH4-1676	1998	1	1	5	5
Darby Ave	40014164		Reinforced Concrete Pipe	18	83	MH2-602	40154149		4	3	3	12
	40014191	10399	Unknown	0	35			1934	3	2	1	3
	40014207	9832	Unknown	12	51			1927	4	3	1	4
	40014293	47564	Unknown	12	200	MH3-1072	MH3-1072	1928	4	3	1	4
Darby Ave	40014329		Reinforced Concrete Pipe	15	328	MH2-590	MH2-595		4	3	3	12
	40014366	49621	Concrete	12	172	MH4-1433	MH4-1433		3	2	1	3
	40014426	50229	Unknown	12	45			1934	4	3	1	4
	40014524	41727	Unknown	0	24				3	2	1	3
Darby Ave	40014548		Reinforced Concrete Pipe	18	287	MH2-595	MH2-598		4	3	3	12
	40014581	1824	Unknown	12	102				3	2	1	3
	40014597	48174	Unknown	10	55			1965	4	3	1	4
Indian Trl	40014609		Reinforced Concrete Pipe	12	61	MH2-740	MH2-741		3	2	3	9
	40014685	89945	Unknown	10	26	MH2-618	MH2-618	1998	2	1	1	2
	40014705	2830	RCP CL-III	8	205			2005	1	1	1	1
	40014732	22654	Unknown	0	22				3	2	1	3
	40014749	94717	Concrete	24	407	MH1-272	MH1-272	1934	4	3	4	16
	40014752	9489	clay	10	45				3	2	1	3
	40014758	50308	Concrete	12	223	MH5-1758	MH5-1758	1928	4	3	1	4
	40014940	32839	Unknown	8	24			1934	4	3	1	4
	40014975	95440	Concrete	12	19			2013	1	1	1	1
Andover Ln	40014984		Reinforced Concrete Pipe	21	11	MH3-1240	MH3-1239	1989	1	1	3	3
	40014985	40510	Unknown	12	160	MH2-332	MH2-332	1929	4	3	1	4
Conlon Ave	40015032		Reinforced Concrete Pipe	27	384	MH3-949	MH3-960	1989	3	2	3	9
	40015107	5825	Unknown	6	30				3	2	1	3
	40015238	11372	Unknown	27	184			1971	4	3	5	20
	40015282	24724	Unknown	0	26				3	2	1	3
Darby Ave	40015304		Reinforced Concrete Pipe	15	46	MH2-588	MH2-590	1980	4	3	3	12
	40015331	691	Unknown	12	24			1927	4	3	1	4
	40015365	65288	Unknown	12	205	MH3-1194	MH3-1194		3	2	1	3
	40015369	95190	Unknown	0	41				3	2	1	3
	40015377	44475	Unknown	18	11			1998	2	1	3	6
	40015388	44058	Unknown	12	30			1989	3	2	1	3
	40015423	90244	Unknown	12	17			1934	4	3	1	4
	40015509	20473	Unknown	0	20				3	2	1	3
	40015594	28175	Unknown	12	372	MH4-1609	MH4-1609	1963	4	3	1	4
	40015602	1676	tile	12	24			1927	4	3	1	4
	40015687	46155	Unknown	10	58			1965	4	3	1	4
	40015807	11733	Unknown	0	11			1929	3	2	1	3
	40015884	72931	Unknown	12	33	MH3-1099	MH3-1099		3	2	1	3
	40015913	95016	Concrete	21	263	MH2-506	MH2-506		3	2	4	12
	40016234	51190	Concrete	10	40				3	2	1	3
	40016251	4516	Unknown	10	11				3	2	1	3
	40016273	36420	clay	12	286	MH5-1928	MH5-1928	1934	4	3	1	4
Beechwood Dr	40016277		Reinforced Concrete Pipe	12	50	MH3-877	MH3-878		4	3	3	12
	40016359	71207	Unknown	10	10				3	2	1	3
	40016378	26567	Unknown	0	19				3	2	1	3
	40016434	69619	Unknown	18	31			1997	2	1	3	6
	40016440	35032	Unknown	24	340	MH1-275	MH1-275	1934	4	3	4	16
	40016441	72119	Unknown	30	97	MH4-1509	MH4-1509	1928	4	3	5	20
	40016472	51775	Unknown	10	32			1984	3	2	1	3
	40016485	51388	Unknown	0	20			1934	3	2	1	3
	40016647	21498	Unknown	10	32			1969	4	3	1	4
	40016669	66409	Unknown	0	7				3	2	1	3
	40016704	40497	clay	12	54	MH1-120	MH1-120		3	2	1	3
	40016738	17575	Unknown	12	137	MH4-1612	MH4-1612	1963	4	3	1	4
	40016796	33528	Concrete	27	283	MH1-2014	MH1-2014		3	2	5	15
	40016815	31912	Unknown	10	41			1970	4	3	1	4
	40016905	50888	PVC	4	103	MH4-1364	MH4-1364	1998	1	1	1	1

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	40016919	89960	Unknown	0	24				3	2	1	3
	40016920	26092	PVC	4	97	MH4-1364	MH4-1364	1998	1	1	1	1
Laskeside Dr	40016925		Reinforced Concrete Pipe	30	36	MH2-774	MH2-774A	1934	3	2	3	9
	40016963	25846	Unknown	12	257	MH4-1335	MH4-1335	1967	4	3	1	4
	40017019	18974	Unknown	0	5				3	2	1	3
Andover Ln	40017046		Reinforced Concrete Pipe	21	187	MH3-1239	MH3-1236	1989	3	2	3	9
	40017098	24718	Unknown	0	20				3	2	1	3
	40017099	60382	Unknown	12	296	MH4-1520	MH4-1520	1963	4	3	1	4
Santa Monica Dr	40017117		Reinforced Concrete Pipe	12	161	MH2-700	MH2-698		3	2	3	9
Conlon Ave	40017159		Reinforced Concrete Pipe	27	331	MH3-950	MH3-949		1	1	3	3
Boston St	40017195		Reinforced Concrete Pipe	12	48	MH3-1118	MH3-1113	1963	3	2	3	9
	40017203	30965	Unknown	36	30	MH4-1470	MH4-1470	1938	4	3	5	**20**
	40017414	30129	clay	15	200	MH1-70	MH1-70	1980	3	2	2	6
	40017421	26961	Unknown	27	314				3	2	5	15
	40017433	54373	Unknown	12	12			2016	1	1	1	1
	40017434	2691	Unknown	12	46			1963	4	3	1	4
	40017438	92011	clay	12	544	MH1-93	MH1-93	1965	4	3	1	4
	40017470	29336	Unknown	0	24				3	2	1	3
	40017519	92951	Unknown	0	32				3	2	1	3
	40017559	11084	Unknown	12	42				3	2	1	3
	40017622	1913	Unknown	30	44				3	2	5	15
	40017655	4765	Unknown	12	43			1929	4	3	1	4
	40017660	352	Unknown	0	9				3	2	1	3
	40017761	23374	clay	12	107	MH4-1634	MH4-1634	1946	4	3	1	4
	40017771	1572	Unknown	0	10				3	2	1	3
	40017824	50024	Unknown	10	28			1969	4	3	1	4
	40017855	3696	Unknown	10	72				3	2	1	3
	40017896	20608	Concrete	10	56	MH5-1967	MH5-1967		3	2	1	3
	40018009	20883	Unknown	12	27	MH3790	MH3790	1956	4	3	1	4
	40018019	48923	Unknown	36	245	MH4-1483	MH4-1483	1934	4	3	5	**20**
	40018021	47425	Unknown	12	13			1999	2	1	1	2
	40018063	29835	Unknown	12	120	MH2-605	MH2-605		2	1	1	2
	40018083	34418	Concrete	48	262	MH5-1865	MH5-1865	1929	4	3	5	**20**
	40018098	48917	Unknown	12	42			1939	4	3	1	4
	40018127	42264	Unknown	0	6				3	2	1	3
	40018147	29368	Unknown	48	151	MH5-1709	MH5-1709		3	2	5	15
	40018153	60442	Unknown	12	25			1937	4	3	1	4
	40018163	94848	Unknown	0	32				3	2	1	3
	40018169	24570	Unknown	0	33				3	2	1	3
	40018202	2989	Concrete	10	312			1929	4	3	1	4
	40018221	57865	Unknown	12	6			1956	4	3	1	4
	40018337	20397	Concrete	12	192	MH1-161	MH1-161	1923	4	3	1	4
	40018344	21450	Unknown	12	284	MH4-1440	MH4-1440		3	2	1	3
	40018354	3517	Unknown	12	33				3	2	1	3
Keneberry Way	40018376		Reinforced Concrete Pipe	12	120	MH2-677	MH2-680	1934	4	3	3	12
	40018380	56973	Concrete	12	172	MH5-1757	MH5-1757	1927	4	3	1	4
Ridgewood Ave	40018384		Reinforced Concrete Pipe	12	107	MH3-1152	MH3-1153	1970	3	2	3	9
	40018399	40992	Unknown	12	31			1956	4	3	1	4
Woodlawn Ave	40018564		Reinforced Concrete Pipe	12	280	MH3-1173	MH3-1170	1967	3	2	3	9
	40018612	1791	Non-RCP	27	9			1987	2	1	5	10
	40018638	22339	Unknown	0	14				3	2	1	3
Boston St	40018668		Reinforced Concrete Pipe	12	198	MH3-1107	MH3-1106	1959	4	3	3	12
	40018736	68798	Unknown	15	77	MH5-1914	MH5-1914	1997	2	1	2	4
	40018750	22150	concrete	15	288	MH5-1814	MH5-1814	1927	4	3	2	8
	40018808	17726	Unknown	10	35			1971	4	3	1	4
	40018852	49173	Unknown	12	6			1928	4	3	1	4
	40018861	51895	Unknown	12	38				3	2	1	3
	40018869	58339	Concrete	12	151	MH4-1331	MH4-1331	1967	3	2	1	3
	40018994	21414	Unknown	0	19				3	2	1	3
	40019050	2939	Unknown	0	10				3	2	1	3
	40019108	27776	Concrete	10	214	MH4-1595	MH4-1595	1929	4	3	1	4
	40019261	28825	Unknown	10	30				3	2	1	3
	40019262	45169	PVC	4	105	MH4-1364	MH4-1364	1998	1	1	1	1
	40019334	7393	Unknown	10	13				3	2	1	3
	40019362	95210	Concrete	12	40			1956	4	3	1	4
	40019376	7118	Unknown	12	41			1934	4	3	1	4
	40019436	48264	Unknown	10	15				3	2	1	3
	40019458	30409	Unknown	12	219	MH4-1412	MH4-1412		3	2	1	3
	40019475	38018	Concrete	12	291	MH5-1942	MH5-1942	1934	4	3	1	4
	40019579	93344	Unknown	0	30				3	2	1	3
	40019592	58645	ductile iron	10	125	MH1-61	MH1-61	1917	4	3	1	4
	40019747	34719	Unknown	12	10			1986	3	2	1	3
	40019750	25726	Concrete	36	299	MH5-1978	MH5-1978		3	2	5	15
	40019780	44296	ductile iron	8	237	MH3-962	MH3-962		3	2	1	3
	40019791	16524	Unknown	21	50	MH4-1304	MH4-1304	1957	4	3	4	16
	40019805	58985	Concrete	18	81			1965	3	2	3	9
	40019830	36400	clay	12	202	MH1-8	MH1-8		3	2	1	3
	40019842	59353	Concrete	10	45				3	2	1	3
	40019936	21775	Unknown	12	47			1942	4	3	1	4
	40019962	63358	clay	12	41			1927	4	3	1	4
	40020036	89952	Concrete	10	40	MH2-493	MH2-493		3	2	1	3
	40020037	88773	Unknown	12	18			1934	4	3	1	4
	40020076	1410	Unknown	12	48			1986	3	2	1	3
	40020125	33834	Concrete	10	148	MH4-1583	MH4-1583	1929	4	3	1	4
	40020141	43936	Unknown	0	52				3	2	1	3
Lake Dr	40020188		Polypropylene	30	158	MH3-808	MH3-873		1	1	5	5
	40020191	12729	Unknown	10	32			1983	3	2	1	3
Laskeside Dr	40020261		Reinforced Concrete Pipe	36	42	MH1-264	MH2-774		3	2	3	9
	40020271	65333	Unknown	12	100	MH2-753	MH2-753	1962	4	3	1	4
	40020296	3324	Unknown	12	13			1956	4	3	1	4
	40020328	4767	Concrete	12	28			1982	2	1	1	2
	40020352	36451	Unknown	36	304	MH4-1641	MH4-1641	1928	4	3	5	**20**
	40020353	8372	Unknown	36	92			1938	4	3	5	**20**
	40020367	20706	Unknown	12	256	MH5-1831	MH5-1831	1934	4	3	1	4
	40020433	15257	RCP C-76	10	16			1965	3	2	1	3
Wealthy St	40020456		Reinforced Concrete Pipe	15	211	MH1-232	MH1-218		4	3	3	12
	40020483	28148	clay	12	69			1927	4	3	1	4
	40020549	34682	Unknown	0	38				3	2	1	3
	40020554	93114	Unknown	0	17				3	2	1	3
	40020698	87959	Unknown	0	60			1934	3	2	1	3
	40020702	57522	Unknown	0	16				3	2	1	3
	40020715	70219	Unknown	0	46			1929	3	2	1	3
Edgewood Ave	40020785		Reinforced Concrete Pipe	12	313	MH3-1146	MH3-1141	1970	4	3	3	12
	40020794	2457	Unknown	12	310			1928	4	3	1	4
Conlon Ave	40020820		Reinforced Concrete Pipe	42	285	MH3-961	MH3-962	1934	3	2	3	9
	40020823	62032	Unknown	12	25			1929	4	3	1	4
	40020915	38907	Unknown	12	33				3	2	1	3
	40020932	62417	Unknown	10	24			1989	3	2	1	3
	40020936	19933	Unknown	4	110	MH3-1154	MH3-1154	1969	4	3	1	4
	40020947	78961	Unknown	10	34				3	2	1	3
	40020971	7998	Unknown	18	6			1998	2	1	3	6
	40021045	12031	Unknown	12	22				3	2	1	3

For manholes, put "MH ##" for facility ID. Manhole materials are "Concrete" or "Block". material column choices are shown in the drop-down list. If an asset material is not listed, manually enter it, and

Storm Sewer System Assets	FacilityID	Contract ID	Material	Size_IN	Length_FT	UpstreamMH	DownstreamMH	YrInstalled	Condition	Probability of Failure	Consequence of Failure	BusinessRisk
	40021132	26339	RCP CL-IV	42	270	MH4-1665	MH4-1665	1998	1	1	5	5
Andover Ln	40021163		Reinforced Concrete Pipe	21	202	MH3-1236	MH3-1235	1989	3	2	3	9
	40021230	11076	Unknown	10	53				3	2	1	3
	40021241	51893	Unknown	0	11				3	2	1	3
	40021261	68305	Unknown	48	77			1998	2	1	5	10
	40021262	2749	Unknown	0	21				3	2	1	3
	40021306	1041	Unknown	0	21			1969	3	2	1	3
	40021378	57969	Concrete	12	183	MH5-1741	MH5-1741		3	2	1	3
	40021413	5748	Unknown	18	7			1933	4	3	3	12
	40021424	68897	PVC	4	110			1998	1	1	1	1
	40021453	89880	Unknown	12	333	MH2-689	MH2-689	1928	4	3	1	4
	40021551	6406	Unknown	0	6				3	2	1	3
Frederick Dr	40021600		Reinforced Concrete Pipe	12	74	MH2-738	MH2-739	1939	5	4	3	15
	40021639	30244	Unknown	10	7			1984	3	2	1	3
	40021732	40096	Unknown	0	84	MH2-412	MH2-412		3	2	1	3
	40021764	41571	Unknown	10	38			1983	3	2	1	3
	40021783	91898	Concrete	12	158	MH2-474	MH2-474	1975	3	2	1	3
	40021806	714	Concrete	54	7			1997	2	1	5	10
	40021809	16470	csp	12	8			1998	1	1	1	1
	40021816	5321	Unknown	12	24				3	2	1	3
	40021880	11901	Concrete	12	193			1928	4	3	1	4
	40021892	26067	Unknown	0	33				3	2	1	3
	40021921	95221	Unknown	0	19				3	2	1	3
	40021924	58472	Unknown	0	18				3	2	1	3
	40021940	72998	concrete	21	21			1985	2	1	4	8
	40022005	24672	Unknown	10	32			1987	3	2	1	3
	40022101	23030	Unknown	0	16				3	2	1	3
	40022148	69766	Concrete	18	299	MH4-1377	MH4-1377		3	2	3	9
	40022189	61263	Unknown	12	56			1929	4	3	1	4
	40022324	38462	Unknown	12	26				3	2	1	3
	40022333	10124	Unknown	12	79			1967	4	3	1	4
Woodlawn Ave	40022334		Reinforced Concrete Pipe	12	132	MH3-1169	MH3-1166	1967	3	2	3	9
	40022360	98702	clay	12	319	MH1-297	MH1-297	1998	2	1	1	2
	40022433	8475	Unknown	0	58				3	2	1	3
	40022472	50678	clay	15	122	MH1-59	MH1-59		3	2	2	6
	40022483	44635	Unknown	10	6			1969	4	3	1	4
	40022605	26482	Unknown	10	13			1967	4	3	1	4
	40022632	48714	Unknown	12	47			1927	4	3	1	4
	40022660	38875	Unknown	10	18			1970	4	3	1	4
	40022665	92533	Unknown	0	5				3	2	1	3
	40022670	19220	Unknown	0	26			1967	3	2	1	3
	40022712	59065	Unknown	12	11			1989	3	2	1	3
	40022721	19092	Unknown	0	25			1928	3	2	1	3
	40022904	11723	Unknown	12	161			1928	4	3	1	4
	40022940	35746	Unknown	12	28				3	2	1	3
	40022956	65552	PVC	4	99			1998	1	1	1	1
	40022967	89950	Unknown	10	3			1998	2	1	1	2
	40023003	18778	Concrete	12	290			1927	4	3	1	4
	40023086	5032	Unknown	12	31			1929	4	3	1	4
	40023100	24470	Unknown	0	28				3	2	1	3
	40023210	20235	ductile iron	36	151	MH4-1645	MH4-1645	1928	4	3	5	**20**
	40023217	43889	Unknown	12	69	MH5-1894	MH5-1894	1997	2	1	1	2
	40023221	8773	Cpp	12	40			1929	4	3	1	4
	40023262	25030	Unknown	0	21				3	2	1	3
	40023275	26925	Unknown	12	130				3	2	1	3
Wealthy St	40023277		Polypropylene	12	28	CB1-240	MH1-239		3	2	1	3
	40023340	45313	Unknown	0	13				3	2	1	3
	40023346	31210	Unknown	0	28				3	2	1	3
	40023355	95029	Unknown	12	155	MH2-522	MH2-522		3	2	1	3
Sherwood Ave	40023357		Reinforced Concrete Pipe	12	145	MH3-1160	MH3-1163	1969	4	3	3	12
	40023512	24044	Concrete	20	242	MH1-215	MH1-215		3	2	4	12
	40023620	60327	Unknown	12	40			1933	4	3	1	4
	40023702	5492	Unknown	10	39			1969	4	3	1	4
	40023754	6278	Unknown	12	27			1999	2	1	1	2
	40023784	25040	clay	10	44				3	2	1	3
Kingswood Dr	40023806		Reinforced Concrete Pipe	12	200	MH2-442	40154134	1979	3	2	3	9
	40023836	72758	Unknown	12	187	MH5-1702	MH5-1702		3	2	1	3
	40023957	28652	Unknown	10	42				3	2	1	3
	40024035	52686	tile	12	24			1929	4	3	1	4
	40024075	61268	Unknown	0	25				3	2	1	3
	40024088	11147	ductile iron	15	458			1925	4	3	2	8
	40024161	79045	Unknown	12	27				3	2	1	3
	40024189	24173	tile	12	45			1928	4	3	1	4
	40024238	72842	Unknown	66	618	MH2-670	MH2-670	1956	4	3	5	**20**
	40024256	30515	Unknown	12	60			1927	4	3	1	4
	40024287	73568	Unknown	12	116	MH3-915	MH3-915	1928	4	3	1	4
Elmwood Dr	40024316		Reinforced Concrete Pipe	18	22	MH3-960	MH3-961	1989	3	2	3	9
Lake Dr	40024323		Reinforced Concrete Pipe	12	195	MH3-900	MH3-899	1971	4	3	3	12
	40024335	46930	Unknown	0	13				3	2	1	3
	40024346	12403	Unknown	10	8			1984	3	2	1	3
	40024355	46716	Unknown	18	10			1998	2	1	3	6
	40024367	21038	clay	12	119	MH5-1934	MH5-1934	1934	4	3	1	4
	40024388	33153	Unknown	12	135	MH5-1992	MH5-1992	1956	4	3	1	4
Boston St	40024484		Reinforced Concrete Pipe	12	46	MH3-1083	MH3-1082	1963	5	4	3	15
Breton Rd	40024565		Polypropylene	10	16	CB5-1921	MH5-1920		1	1	1	1
	40024602	48821	Unknown	12	233	MH2-650	MH2-650	1934	4	3	1	4
	40024615	87958	Concrete	12	29			1934	4	3	1	4
	40024630	48011	Unknown	0	13				3	2	1	3
	40024742	69357	Unknown	18	36			1997	2	1	3	6
	40024773	31149	Unknown	12	68	MH5-1777	MH5-1777	1982	3	2	1	3
	40024804	74326	Unknown	0	28			1987	3	2	1	3
	40024837	92724	Unknown	12	187	MH2-552	MH2-552		3	2	1	3
	40024866	57648	Concrete	24	226	MH1-2053	MH1-2053		3	2	4	12
	40025073	70714	Unknown	0	32				3	2	1	3
	40025098	95231	Unknown	10	32			1998	2	1	1	2
	40025144	43615	Unknown	10	48			1963	4	3	1	4
	40025156	40557	clay	12	62			1927	4	3	1	4
	40025172	5606	Unknown	15	9			1998	2	1	2	4
	40025252	67019	cpp	10	30				3	2	1	3
	40025263	58842	concrete	18	393	MH3-988	MH3-988	1928	4	3	3	12
	40025304	57346	Unknown	0	50				3	2	1	3
	40025338	54203	Unknown	12	275			1989	3	2	1	3
	40025362	4705	Unknown	12	38				3	2	1	3
Beechwood Dr	40025375		Reinforced Concrete Pipe	18	23	MH3-869	MH3-870	1968	3	2	3	9
	40025407	93110	Unknown	12	170	MH2-566	MH2-566		3	2	1	3
	40025414	48765	tile	10	36			1983	3	2	1	3
	40025447	72084	Unknown	0	32				3	2	1	3
	40025448	23212	Unknown	12	33				3	2	1	3
	40025461	42486	Unknown	0	35				3	2	1	3
	40025524	66339	Unknown	30	58	MH2-393	MH2-393		3	2	5	15
	40025637	73091	Unknown	0	8				3	2	1	3
	40025699	19278	Unknown	12	266			1950	4	3	1	4

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	40025704	90181	Unknown	12	104	MH2-487	MH2-487		3	2	1	3
	40025722	67149	Unknown	10	43			1942	4	3	1	4
	40025742	90183	Unknown	0	6				3	2	1	3
	40025814	57440	Unknown	10	182	MH3-1092	MH3-1092	1997	2	1	1	2
	40025816	92406	Concrete	10	54				3	2	1	3
Conlon Ave	40025881		Reinforced Concrete Pipe	30	15	MH3-948	MH3-949		3	2	3	9
	40025966	2737	Unknown	24	177				3	2	4	12
	40025968	18789	Concrete	36	185			1928	4	3	5	20
Hall St	40026068		Reinforced Concrete Pipe	12	251	MH2-532	MH2-531	1929	4	3	3	12
	40026075	57366	Unknown	0	28			1987	3	2	1	3
	40026162	35570	Unknown	12	304	MH2-362	MH2-362	1967	4	3	1	4
	40026173	46320	Unknown	12	12			1956	4	3	1	4
	40026182	65689	Unknown	12	22			1934	4	3	1	4
	40026232	3619	Unknown	12	6			1987	3	2	1	3
	40026233	6795	Unknown	12	20			1984	3	2	1	3
	40026384	49285	Unknown	0	15				3	2	1	3
Frederick Dr	40026388		Reinforced Concrete Pipe	12	72	MH2-737	MH2-738	1939	5	4	3	15
	40026561	56670	Unknown	10	22			1956	4	3	1	4
	40026620	35262	Unknown	12	154	MH4-1427	MH4-1427		3	2	1	3
Albert Dr	40026716		Reinforced Concrete Pipe	12	106	MH3-1044	MH3-1049	1930	5	4	3	15
	40026754	3150	Unknown	0	49			1965	3	2	1	3
	40026798	92968	Unknown	0	12				3	2	1	3
	40026832	39119	Unknown	0	61			1934	3	2	1	3
	40026880	16939	Unknown	0	32			1937	3	2	1	3
	40026901	15073	Unknown	12	9			1927	4	3	1	4
	40026941	69263	Unknown	0	15				3	2	1	3
Richards Dr	40026968		Reinforced Concrete Pipe	12	272	MH3-1034	MH3-1031	1929	5	4	3	15
	40026993	17579	Unknown	10	48			1983	3	2	1	3
	40027009	36781	Unknown	15	6				3	2	2	6
	40027054	11998	Unknown	0	7				3	2	1	3
	40027077	57320	Unknown	0	35				3	2	1	3
	40027091	35370	Unknown	12	68			1956	4	3	1	4
	40027109	21051	Unknown	0	9				3	2	1	3
	40027182	9271	Unknown	0	13				3	2	1	3
	40027213	43614	Unknown	12	33			1982	3	2	1	3
	40027256	33760	Unknown	15	340	MH5-1787	MH5-1787	1982	3	2	2	6
	40027314	56961	Unknown	12	15			2016	1	1	1	1
	40027335	98701	Concrete	12	52	MH1-292	MH1-292	1983	2	1	1	2
	40027396	53627	Unknown	12	19			1982	3	2	1	3
	40027424	67953	Unknown	12	53	MH2-312	MH2-312	1929	4	3	1	4
	40027444	60105	Unknown	8	33			1933	2	1	1	2
	40027469	55109	RCP	12	19			2004	1	1	1	1
	40027545	27638	Unknown	12	80				3	2	1	3
	40027554	39504	Unknown	0	36				3	2	1	3
	40027603	31328	Unknown	0	11				3	2	1	3
	40027606	71595	Unknown	0	45				3	2	1	3
	40027700	73797	Unknown	12	151	MH4-1351	MH4-1351		3	2	1	3
	40027758	48079	Unknown	0	27	MH4-1498	MH4-1498		3	2	1	3
	40027806	56465	Unknown	0	13				3	2	1	3
	40027875	8846	Concrete	24	71				3	2	4	12
	40027883	24208	Unknown	0	12				3	2	1	3
	40027884	63313	Unknown	12	261	MH5-1811	MH5-1811	1927	4	3	1	4
	40027971	46209	Unknown	0	24				3	2	1	3
	40027983	14047	Concrete	12	49				3	2	1	3
	40028056	9676	Unknown	10	35			1984	3	2	1	3
	40028091	19594	Concrete	12	115			1987	2	1	1	2
	40028191	61060	Unknown	30	136	MH4-1498	MH4-1498	1934	4	3	5	20
	40028197	3176	Unknown	0	29				3	2	1	3
	40028205	49656	Unknown	8	6			1997	2	1	1	2
	40028217	32946	Unknown	12	42			1999	2	1	1	2
	40028221	67528	Unknown	12	66	MH3-1272	MH3-1272	1990	3	2	1	3
	40028225	40162	Unknown	12	36			1934	4	3	1	4
	40028254	25687	Unknown	0	31				3	2	1	3
	40028268	18008	Unknown	0	14			1971	3	2	1	3
	40028278	71930	Unknown	0	20				3	2	1	3
Bellclaire Ave	40028314		Reinforced Concrete Pipe	12	179	MH2-733	MH2-734	1939	5	4	3	15
	40028359	41978	Unknown	12	46				3	2	1	3
	40028364	90239	Unknown	12	106	MH2-617	MH2-617	1998	2	1	1	2
	40028374	62986	RCP C-76	30	184	MH5-1885	MH5-1885	1983	2	1	5	10
	40028375	16113	Unknown	0	18				3	2	1	3
	40028407	90182	Unknown	12	198	MH2-608	MH2-608	1998	2	1	1	2
Maplewood Dr	40028457		Reinforced Concrete Pipe	12	316	MH3-944A	MH3-945	1928	4	3	3	12
	40028497	5069	Unknown	0	6				3	2	1	3
	40028522	67395	concrete	27	197	MH3-1217	MH3-1217	1971	3	2	5	15
	40028552	66691	Unknown	12	12			1985	3	2	1	3
	40028558	46781	Unknown	0	25			1930	3	2	1	3
	40028565	26616	Unknown	0	22			1934	3	2	1	3
	40028687	47709	Unknown	10	10			1969	4	3	1	4
	40028697	8004	Unknown	0	13				3	2	1	3
	40028714	44155	Unknown	15	33			1984	3	2	2	6
	40028721	73178	PVC	60	102			2005	1	1	5	5
	40028722	3420	PVC	24	9			2005	1	1	4	4
	40028724	57737	RCP CL-III	15	153	MH4-1395	MH4-1395	2005	1	1	2	2
	40028783	24868	Unknown	30	285	MH3-1261	MH3-1261		3	2	5	15
	40028812	65651	Unknown	10	51				3	2	1	3
	40028854	48603	tile	12	31			1934	4	3	1	4
	40028927	57749	clay	12	348	MH5-1985	MH5-1985	1929	4	3	1	4
	40028932	4102	tile	12	37			1928	4	3	1	4
	40028948	63857	Unknown	0	32	MH3-1235	MH3-1235		3	2	1	3
	40028962	39716	Unknown	12	23			1982	3	2	1	3
	40028966	27440	Concrete	12	198			1927	4	3	1	4
	40029029	94585	Concrete	27	424	MH2-772	MH2-772	1934	4	3	5	20
	40029278	28445	Unknown	12	21			1989	3	2	1	3
	40029332	29630	Unknown	15	251	MH2-630	MH2-630	2016	1	1	2	2
	40029377	92541	Unknown	10	19			1996	2	1	1	2
Danby Ln	40029379		Reinforced Concrete Pipe lined	12	241	MH3-1229	MH3-1218		3	2	3	9
	40029405	46114	Unknown	0	6				3	2	1	3
	40029408	18267	clay	12	306			1928	4	3	1	4
	40029458	4754	Concrete	12	333			1927	4	3	1	4
	40029662	37665	Concrete	12	228	MH1-102	MH1-102	1965	3	2	1	3
	40029736	10169	Unknown	0	12			1929	3	2	1	3
	40029767	94845	Unknown	18	404	MH3-960	MH3-960	1928	4	3	3	12
	40029770	15763	Unknown	8	9			1923	4	3	1	4
	40029970	59042	Unknown	12	37			1985	3	2	1	3
	40029993	53598	Unknown	0	12				3	2	1	3
	40030035	24407	Unknown	10	56			1963	4	3	1	4
	40030089	18361	Concrete	12	371			1927	4	3	1	4
	40030092	43415	Unknown	0	178				3	2	1	3
	40030093	54475	Unknown	10	34	MH4-1676	MH4-1676	1984	3	2	1	3
	40030100	11755	Unknown	0	21				3	2	1	3
	40030101	50455	Unknown	12	28			1928	4	3	1	4
	40030177	73445	Unknown	0	13				3	2	1	3

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Storm Sewer System Assets	FacilityID	Contract ID	Material	Size_IN	Length_FT	UpstreamMH	DownstreamMH	YrInstalled	Condition	Probability of Failure	Consequence of Failure	BusinessRisk
	40030210	5136	Unknown	10	168			1965	4	3	1	4
	40030214	5137	Unknown	0	20				3	2	1	3
	40030267	12657	Unknown	12	10				3	2	1	3
	40030268	61318	Unknown	12	50			1929	4	3	1	4
	40030331	25466	Unknown	0	12				3	2	1	3
Conlon Dr	40030358		Reinforced Concrete Pipe	12	302	MH2-633	MH2-646	1996	4	3	3	12
	40030383	27630	Unknown	6	39				3	2	1	3
	40030419	34914	Unknown	10	23			1979	4	3	1	4
Indian Trl	40030474		Reinforced Concrete Pipe	12	199	MH2-742	MH2-743	1956	4	3	3	12
	40030498	49499	Unknown	6	25				3	2	1	3
	40030504	45439	Unknown	0	8				3	2	1	3
	40030506	67189	Unknown	0	40				3	2	1	3
	40030517	10339	PVC	4	100			1998	1	1	1	1
	40030544	46521	Unknown	10	11			1983	3	2	1	3
	40030545	1685	Unknown	12	13			1931	4	3	1	4
	40030559	94726	Unknown	0	11				3	2	1	3
	40030561	61121	Unknown	48	31			1998	2	1	5	10
	40030580	70061	Unknown	10	36			1983	3	2	1	3
	40030583	69004	Unknown	10	22				3	2	1	3
	40030603	22612	ductile iron	15	230				3	2	2	6
Lake Grove Ave	40030677		Reinforced Concrete Pipe	12	83	MH3-1022	MH3-1019	1929	3	2	3	9
	40030715	60510	Unknown	10	30	MH4-1381	MH4-1381		3	2	1	3
	40030753	9795	Unknown	18	27			1998	2	1	3	6
	40030755	51673	concrete	12	291	MH4-1476	MH4-1476		3	2	1	3
	40030780	22082	Unknown	10	46			1971	4	3	1	4
Beechwood Dr	40030781		Reinforced Concrete Pipe	12	3	MH3-884	MH3-886	1928	2	1	3	6
	40030852	88141	Concrete	10	66			1934	4	3	1	4
	40030927	90176	Unknown	0	13				3	2	1	3
	40030987	27900	Unknown	27	320	MH5-1780	MH5-1780	1987	3	2	5	15
	40031026	78353	Unknown	10	37				3	2	1	3
	40031044	92565	Unknown	15	241	MH2-627	MH2-627	2016	1	1	2	2
Lake Dr	40031044_A		Reinforced Concrete Pipe	15	268	MH2-621	MH2-627		3	2	3	9
Lake Dr	40031044_B		Reinforced Concrete Pipe	15	29	MH2-627	CB2-628		1	1	3	3
	40031059	1841	Unknown	12	32				3	2	1	3
	40031107	8721	Unknown	12	11			1929	4	3	1	4
	40031149	52182	Unknown	12	38				3	2	1	3
	40031279	9428	Unknown	36	203			1938	4	3	5	**20**
	40031320	6295	Unknown	12	27			1956	4	3	1	4
	40031403	23816	Unknown	0	25				3	2	1	3
	40031412	25790	Unknown	12	100			1963	4	3	1	4
	40031424	12522	Concrete	10	55			1971	3	2	1	3
	40031514	12578	Unknown	24	218				3	2	4	12
	40031532	46327	cpp	15	461	MH2-749	MH2-749		3	2	2	6
Hall St	40031551		Reinforced Concrete Pipe	24	48	MH2-657	MH2-658	1989	1	1	3	3
	40031571	25526	Unknown	0	9			1970	3	2	1	3
	40031573	11936	Unknown	12	376			1929	4	3	1	4
	40031624	10192	Unknown	15	138				3	2	2	6
	40031647	70879	Unknown	0	11			1934	3	2	1	3
	40031698	42294	Unknown	12	48			1963	4	3	1	4
	40031779	17544	Unknown	12	26				3	2	1	3
	40031953	57244	Unknown	27	244	MH4-1426	MH4-1426		3	2	5	15
	40031973	51168	Unknown	12	19			1969	4	3	1	4
	40031994	31799	PVC	8	130			2017	1	1	1	1
	40032035	26192	concrete	12	184			1923	4	3	1	4
	40032058	23057	Unknown	10	15			1963	4	3	1	4
	40032062	89893	Unknown	10	33			1934	4	3	1	4
	40032105	29614	Unknown	6	80			1942	4	3	1	4
	40032155	25684	Unknown	12	133				3	2	1	3
	40032211	20969	Unknown	0	6				3	2	1	3
	40032227	1888	Unknown	12	328			1928	4	3	1	4
	40032308	37526	Unknown	10	32				3	2	1	3
	40032383	55563	Unknown	0	41				3	2	1	3
Conlon Ave	40032543		Reinforced Concrete Pipe	18	336	MH3-1030	MH3-951	1956	3	2	3	9
	40032573	21774	Unknown	10	51				3	2	1	3
	40032576	36613	Unknown	10	23			1965	4	3	1	4
	40032579	39945	Unknown	10	43				3	2	1	3
	40032580	11585	Unknown	10	40				3	2	1	3
	40032585	29876	Unknown	10	27				3	2	1	3
	40032586	46776	concrete	10	54				3	2	1	3
	40032587	1889	concrete	10	51				3	2	1	3
	40032589	7403	concrete lined	12	49				3	2	1	3
	40032590	44297	RCP CL-III	12	14			2005	1	1	1	1
	40032592	1890	RCP CL-III	12	140			2005	1	1	1	1
	40032593	31694	Unknown	10	51				3	2	1	3
	40032594	9375	Unknown	12	90				3	2	1	3
	40032717	3496	Unknown	0	15				3	2	1	3
	40032718	94727	Unknown	0	26			1987	3	2	1	3
	40032802	3807	Unknown	0	22				3	2	1	3
	40032813	36201	Unknown	0	18				3	2	1	3
	40033094	33121	Unknown	10	36			1971	4	3	1	4
	40033142	45432	Unknown	10	17			1984	3	2	1	3
	40033161	34402	Unknown	0	3			1956	3	2	1	3
	40033206	5406	Unknown	12	50			1929	4	3	1	4
	40033268	42397	Unknown	15	88	MH4-1313	MH4-1313		3	2	2	6
	40033378	41312	Unknown	12	17			1956	4	3	1	4
	40033379	64110	Unknown	12	307	MH3-1138	MH3-1138	1970	4	3	1	4
	40033419	23863	concrete	10	27				3	2	1	3
	40033476	95406	Unknown	10	24			1956	4	3	1	4
	40033599	45289	Unknown	0	19			1965	3	2	1	3
	40033653	47719	Unknown	0	45				3	2	1	3
	40033672	94667	Unknown	12	136	MH2-569	MH2-569		3	2	1	3
	40033685	26786	Unknown	10	39				3	2	1	3
	40033765	43819	Unknown	12	23				3	2	1	3
	40033825	69196	Unknown	12	179	MH2-377	MH2-377		3	2	1	3
	40033842	61101	Unknown	24	321	MH2-696	MH2-696		3	2	4	12
	40033876	17253	Unknown	12	22			1927	4	3	1	4
	40033934	37155	Unknown	0	8				3	2	1	3
	40033945	1338	Unknown	12	63			1927	4	3	1	4
	40033969	54937	concrete	48	64	MH1-118	MH1-118		3	2	5	15
	40033973	4187	Unknown	0	8			1956	3	2	1	3
	40034042	41267	Unknown	0	24				3	2	1	3
	40034067	21577	Unknown	12	81			1967	4	3	1	4
	40034186	56985	Unknown	0	6				3	2	1	3
	40034285	41172	concrete	15	104	MH1-55	MH1-55		3	2	2	6
	40034295	24232	Unknown	0	51			1934	3	2	1	3
Conlon Ave	40034320		Reinforced Concrete Pipe	15	272	MH3-1050	MH3-1030	1956	3	2	3	9
	40034481	95411	Unknown	12	32			1934	4	3	1	4
	40034511	39546	concrete	10	54	MH1-10	MH1-10		3	2	1	3
	40034534	22067	Unknown	10	27			1984	3	2	1	3
	40034535	65622	Unknown	36	160	MH4-1554	MH4-1554		3	2	5	15
	40034553	38755	Unknown	0	14				3	2	1	3
	40034563	26604	Unknown	12	182				3	2	1	3

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	40034601	87137	Unknown	12	54			1997	2	1	1	2
	40034651	67680	concrete	42	186	MH2-369	MH2-369		3	2	5	15
	40034673	7279	Unknown	36	260			1934	4	3	5	**20**
	40034726	22319	Unknown	10	44				3	2	1	3
	40034753	47950	Unknown	30	60	MH4-1507	MH4-1507	1938	4	3	5	**20**
	40034809	87127	Unknown	0	15	MH2-549	MH2-549		3	2	1	3
	40034872	56138	concrete	10	16				3	2	1	3
	40034911	35139	Unknown	27	184	MH4-1417	MH4-1417		3	2	5	15
	40034939	54941	Unknown	12	39	MH4-1541	MH4-1541		3	2	1	3
	40034948	31535	Unknown	27	224	MH3-1257	MH3-1257	1971	4	3	5	**20**
	40034982	65191	Unknown	12	553	MH5-1700	MH5-1700	1929	4	3	1	4
	40035012	89961	Unknown	0	3				3	2	1	3
	40035014	12172	Unknown	10	26				3	2	1	3
Conlon Ave	40035034		Reinforced Concrete Pipe	15	28	MH3-947	MH3-949	1964	3	2	3	9
	40035134	31753	Unknown	10	16			1963	4	3	1	4
	40035202	50988	Unknown	48	167	MH4-1484	MH4-1484	1998	2	1	5	10
	40035210	39806	Unknown	0	39				3	2	1	3
	40035252	61356	Unknown	12	361	MH4-1574	MH4-1574	1929	4	3	1	4
	40035255	13617	Unknown	10	22			1956	4	3	1	4
	40035292	28083	concrete	0	67	MH5-1711	MH5-1711		3	2	1	3
	40035461	71931	Unknown	0	14				3	2	1	3
	40035511	30595	Unknown	0	30			1934	3	2	1	3
	40035513	87315	Unknown	0	46			1934	3	2	1	3
	40035540	56552	Unknown	12	32			1999	2	1	1	2
	40035606	54091	Unknown	15	348	MH5-1987	MH5-1987		3	2	2	6
	40035614	48506	Unknown	0	17				3	2	1	3
	40035704	27165	Unknown	10	45			1983	3	2	1	3
	40035709	45824	Unknown	12.80000019	19				3	2	2	6
	40035774	554	Unknown	21	98			1957	4	3	4	16
	40035810	14203	Unknown	0	28				3	2	1	3
	40035831	49612	Unknown	12	29				3	2	1	3
	40035867	4012	Unknown	10	36			1963	4	3	1	4
	40035870	38931	Unknown	0	20				3	2	1	3
	40035950	34762	Unknown	10	25			1983	3	2	1	3
	40036001	92566	Unknown	12	154	MH2-620	MH2-620	1998	2	1	1	2
	40036010	19416	tile	12	49			1934	4	3	1	4
	40036179	29849	Unknown	0	33			1937	3	2	1	3
Manhattan Ln	40036252		Reinforced Concrete Pipe	24	291	MH2-466	MH2-2037	1965	4	3	3	12
Maplewood Dr	40036326		Reinforced Concrete Pipe	12	175	MH3-1000	MH3-999	1934	4	3	3	12
	40036403	44901	Unknown	54	266	MH2-713	MH2-713	1956	4	3	5	**20**
	40036453	25631	Unknown	12	140				3	2	1	3
	40036630	38308	Unknown	18	178	MH1-281	MH1-281	1997	2	1	3	6
	40036633	68379	Unknown	21	23				3	2	4	12
	40036661	30094	Unknown	21	68	MH5-1777	MH5-1777	1982	3	2	4	12
	40036694	70761	Unknown	12	38	MH3-1123	MH3-1123	1965	4	3	1	4
Reeds Lake Blvd	40036763		Reinforced Concrete Pipe	36	40	MH2-319	40154133		3	2	3	9
	40036790	24339	concrete	18	20			1998	1	1	3	3
	40036873	60124	Unknown	0	15				3	2	1	3
	40036888	64498	Unknown	0	82				3	2	1	3
	40036970	26972	Unknown	18	407			1928	4	3	3	12
	40037009	32689	Unknown	12	14			1985	3	2	1	3
	40037023	12478	Unknown	10	7				3	2	1	3
	40037031	90178	Unknown	12	106	MH2-486	MH2-486		3	2	1	3
	40037064	69616	Unknown	27	74				3	2	5	15
	40037125	190921	Unknown	15	269	MH2-711	MH2-711	2016	1	1	2	2
	40037143	27936	Unknown	0	30			1934	3	2	1	3
Richards Dr	40037234		Reinforced Concrete Pipe	12	188	MH3-1016	MH3-1015	1929	3	2	3	9
	40037342	62072	Unknown	12	178	MH2-308	MH2-308	1929	4	3	1	4
	40037364	16761	Unknown	12	29			2016	1	1	1	1
	40037376	24914	Unknown	0	117				3	2	1	3
	40037440	64551	Unknown	12	175	MH4-1385	MH4-1385		3	2	1	3
	40037614	8401	Unknown	12	165			1946	4	3	1	4
	40037621	36899	Unknown	10	27			1963	4	3	1	4
	40037624	16261	Unknown	12	23				3	2	1	3
	40037650	66673	Unknown	0	3			1980	3	2	1	3
Shopping Center Dr	40037694		Reinforced Concrete Pipe	36	280	MH1-211	MH1-261	1957	3	2	3	9
	40037702	52485	clay	10	99	MH1-173	MH1-173	1933	4	3	1	4
	40037708	95214	concrete	12	45			1956	4	3	1	4
	40037732	17404	concrete	12	305				3	2	1	3
	40037741	59618	Unknown	15	121	MH4-1461	MH4-1461		3	2	2	6
	40037818	57668	Unknown	36	82	MH3-1083	MH3-1083	1997	2	1	5	10
	40037823	21356	concrete	12	227				3	2	1	3
	40037869	7166	tile	12	9			1983	3	2	1	3
	40037888	26215	Unknown	10	34			1971	4	3	1	4
	40037910	46374	Unknown	0	32				3	2	1	3
	40037934	29231	Unknown	12	9			1934	4	3	1	4
	40037968	40825	Unknown	0	22			1929	3	2	1	3
	40037986	24026	Unknown	10	17				3	2	1	3
	40038103	22683	Unknown	15	23			1939	4	3	2	8
Lake Dr	40038207		Reinforced Concrete Pipe	12	273	MH3-899	MH3-897	1971	3	2	3	9
	40038281	94995	Unknown	6	71				3	2	1	3
	40038325	14849	Unknown	0	45				3	2	1	3
Hall St	40038385		Reinforced Concrete Pipe	12	201	MH3-801	MH3-802	1934	3	2	3	9
	40038433	55974	Unknown	27	64	MH5-1778	MH5-1778	1987	3	2	5	15
	40038450	54180	Unknown	0	10				3	2	1	3
	40038543	91802	Unknown	24	68	MH1-128	MH1-128		3	2	4	12
	40038574	58311	Unknown	12	103	MH3-1122	MH3-1122	1965	4	3	1	4
	40038584	551	concrete	12	350				3	2	1	3
	40038622	60234	ductile iron	12	20			1956	4	3	1	4
	40038628	7838	Unknown	10	41				3	2	1	3
	40038629	15847	RCP CL-III	12	14			2005	1	1	1	1
	40038631	2233	concrete	10	11			1971	3	2	1	3
	40038650	56128	Unknown	12	54	MH5-1760	MH5-1760	1928	4	3	1	4
	40038669	48518	Unknown	12	24				3	2	1	3
	40038737	55681	Unknown	10	18				3	2	1	3
	40038818	95417	Unknown	12	37			1934	4	3	1	4
	40038820	43465	Unknown	0	28			1934	3	2	1	3
	40038837	53206	Unknown	10	66				3	2	1	3
	40038917	63031	Unknown	10	11			1965	4	3	1	4
	40038928	92537	concrete	12	26				3	2	1	3
	40038934	95213	Unknown	0	22				3	2	1	3
	40038984	54362	Unknown	12	183	MH2-396	MH2-396	1967	4	3	1	4
	40039034	16529	Unknown	12	45			1942	4	3	1	4
	40039089	95017	Unknown	27.5	13			1998	2	1	5	10
	40039115	30253	Unknown	0	20			1929	3	2	1	3
	40039135	66263	Unknown	0	43	MH3-846	MH3-846	1934	3	2	1	3
	40039138	76565	Unknown	15	14			1998	2	1	2	4
	40039203	67276	Unknown	0	27				3	2	1	3
	40039222	30972	Unknown	10	33			1937	4	3	1	4
	40039248	70685	RCP C-76	36	312	MH5-1879	MH5-1879	1983	2	1	5	10
	40039420	14010	ductile iron	12	67				3	2	1	3
	40039510	16218	Unknown	6	37				3	2	1	3

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	40039552	57486	concrete	18	242	MH3-987	MH3-987	1934	2	1	2	4
	40039588	8908	Unknown	12	356			1967	4	3	1	4
	40039615	95025	Unknown	0	16				3	2	1	3
	40039625	72890	Unknown	0	8				3	2	1	3
	40039632	55495	Unknown	12	17				3	2	1	3
	40039636	56212	PVC	4	105			1998	1	1	1	1
	40039771	26601	Unknown	10	33			1970	4	3	1	4
	40039787	70165	Unknown	0	34				3	2	1	3
	40039853	94839	Unknown	0	63	MH3-798	MH3-798	1934	3	2	1	3
	40039901	28245	Unknown	0	73				3	2	1	3
	40039904	41517	Unknown	10	15			1983	3	2	1	3
	40039992	54731	Unknown	30	143	MH4-1506	MH4-1506		3	2	5	15
	40040028	89886	Unknown	0	18			1934	3	2	1	3
	40040066	29625	Unknown	12	12			1933	4	3	1	4
	40040091	73437	Unknown	0	36				3	2	1	3
	40040106	43705	Unknown	6	25			1997	2	1	1	2
	40040139	38756	Unknown	0	18				3	2	1	3
	40040214	31020	Unknown	15	245				3	2	2	6
	40040286	37875	Unknown	0	28			1934	3	2	1	3
	40040356	43166	Unknown	8	24				3	2	1	3
	40040386	88781	Unknown	0	13	MH2-550	MH2-550	1934	3	2	1	3
	40040467	65063	Unknown	10	20			1965	4	3	1	4
	40040507	47732	Unknown	12	36				3	2	1	3
	40040517	67377	Unknown	15	33	MH5-1988	MH5-1988	1956	4	3	2	8
Reeds Lake Blvd	40040535		Reinforced Concrete Pipe	36	162	MH2-321	MH2-319		3	2	3	9
	40040582	55414	Unknown	0	30	MH2-393	MH2-393		3	2	1	3
	40040595	17463	RCP C-76	48	358			1983	2	1	5	10
Breton Rd	40040624		Reinforced Concrete Pipe	12	28	MH5-1919	MH2-704	1939	3	2	3	9
	40040655	32764	clay	12	331	MH5-1837	MH5-1837	1937	4	3	1	4
	40040702	10850	concrete	12	198				3	2	1	3
	40040758	93118	Unknown	0	28				3	2	1	3
	40040801	6471	Unknown	12	155				2	1	1	2
	40040818	44894	Unknown	15	249	MH5-1906	MH5-1906	1997	2	1	2	4
	40040856	19766	clay	12	284			1934	4	3	1	4
	40041010	61002	Unknown	0	20				3	2	1	3
	40041011	61315	tile	12	29			1928	4	3	1	4
	40041109	67478	Unknown	0	16				3	2	1	3
Beechwood Dr	40041131		Reinforced Concrete Pipe	18	63	MH3-853	MH3-854	1968	3	2	3	9
	40041179	89684	Unknown	0	30			1934	3	2	1	3
	40041200	56632	Unknown	0	28				3	2	1	3
	40041214	33671	Concrete	24	340				3	2	4	12
	40041223	26367	Unknown	12	22			1984	3	2	1	3
	40041290	40290	Unknown	12	14			1929	4	3	1	4
	40041308	505	Unknown	0	13				3	2	1	3
	40041404	64210	Unknown	10	34			1984	3	2	1	3
	40041504	46841	Unknown	12	17			1989	3	2	1	3
	40041529	59072	Unknown	12	202	MH3-1190	MH3-1190		3	2	1	3
Wealthy St	40041552		Polypropylene	12		MH1-239	MH1-239A		2	1	1	2
El Centro Blvd	40041556		Reinforced Concrete Pipe	12	175	MH2-318	MH2-319	1929	4	3	3	12
	40041627	6609	Unknown	30	235			1934	4	3	5	**20**
	40041635	94730	Unknown	10	49			1985	3	2	1	3
	40041639	92529	Unknown	12	262	MH3-929	MH3-929	1969	4	3	1	4
	40041736	70554	Unknown	0	14				3	2	1	3
	40041796	13198	clay	12	48			1927	4	3	1	4
Breton Rd	40041849		Reinforced Concrete Pipe	12	174	MH2-705	MH2-706	1939	3	2	3	9
	40041913	32061	Unknown	0	28				3	2	1	3
Manhattan Ln	40041956		Reinforced Concrete Pipe	12	139	CB2-471	MH2-472	1998	5	4	3	15
	40041958	58089	Unknown	10	74			1983	3	2	1	3
	40041975	67976	Unknown	0	19				3	2	1	3
	40041986	7678	Unknown	0	9			1987	3	2	1	3
	40042091	33687	Unknown	0	50				3	2	1	3
	40042101	68043	Concrete	12	246	MH4-1437	MH4-1437		3	2	1	3
	40042103	95217	Unknown	0	4				3	2	1	3
	40042124	1713	RCP CL-IV	42	15			1998	1	1	5	5
	40042160	66196	Unknown	30	245	MH4-1499	MH4-1499	1934	4	3	5	**20**
	40042161	5882	Unknown	10	33			1965	4	3	1	4
	40042236	58513	Unknown	0	33			1965	3	2	1	3
	40042316	59359	Unknown	12	227	MH3-1191	MH3-1191		3	2	1	3
	40042393	8091	Unknown	12	312			1928	4	3	1	4
	40042410	44062	Unknown	0	24				3	2	1	3
	40042434	45044	Unknown	0	19				3	2	1	3
	40042484	781	Unknown	12	343			1969	4	3	1	4
	40042607	21883	Unknown	12	30			1927	4	3	1	4
	40042634	69473	Unknown	12	377	MH4-1455	MH4-1455		3	2	1	3
	40042636	17927	Unknown	12	154				3	2	1	3
Hall St	40042641		Reinforced Concrete Pipe	24	26	MH2-658	MH2-661	1989	1	1	3	3
	40042642	47753	Unknown	0	26				3	2	1	3
	40042675	56643	Unknown	18	8			1997	2	1	3	6
Beechwood Dr	40042701		Reinforced Concrete Pipe	18	125	MH3-854	MH3-855	1968	3	2	3	9
	40042713	5030	Unknown	0	10				3	2	1	3
	40042823	55615	Unknown	12	359	MH3-1283	MH3-1283	1997	2	1	1	2
	40042836	55340	Unknown	12	16			1934	4	3	1	4
Beechwood Dr	40042844		Reinforced Concrete Pipe	18	145	MH3-851	MH3-852	1938	3	2	3	9
Maplewood Dr	40042856		Reinforced Concrete Pipe	30	334	MH3-945	MH3-948	1928	3	2	3	9
	40042868	22811	concrete	12	77				3	2	1	3
	40042893	65407	Unknown	10	15				3	2	1	3
	40042911	18542	Unknown	12	138			1928	4	3	3	12
	40042942	11958	Unknown	0	20			1983	3	2	1	3
	40042947	56641	Unknown	36	275	MH4-1560	MH4-1560	1928	4	3	5	**20**
	40042963	1002	RCP CL-III	12	342			2005	1	1	1	1
	40042964	73077	PVC	24	9			2005	1	1	4	4
	40042966	528	RCP CL-III	6	39			2005	1	1	1	1
	40043004	63048	Unknown	18	11			1998	2	1	3	6
	40043008	54205	Unknown	12	7				3	2	1	3
	40043055	41715	concrete	12	51	MH5-1855	MH5-1855	1929	4	3	1	4
	40043068	14068	ductile iron	12	49			1956	4	3	1	4
	40043072	32377	concrete	24	314			1925	4	3	4	16
	40043177	2392	Unknown	18	161			1997	2	1	3	6
	40043264	59756	Unknown	0	45				3	2	1	3
	40043311	95229	Unknown	0	17				3	2	1	3
	40043358	15186	Unknown	12	346			1934	4	3	1	4
	40043371	71073	Unknown	12	49	MH4-1692	MH4-1692		3	2	1	3
	40043432	29600	Unknown	0	33				3	2	1	3
	40043492	94742	Unknown	0	23				3	2	1	3
	40043530	14157	Unknown	10	272			1942	4	3	1	4
	40043532	23411	Unknown	12	53			1933	4	3	1	4
	40043534	62161	Unknown	6	102				3	2	1	3
	40043575	65614	concrete	36	297	MH5-1975	MH5-1975		3	2	5	15
	40043709	11909	Unknown	12	265			1929	4	3	1	4
Lake Dr	40043734		Reinforced Concrete Pipe	12	397	MH3-903	MH3-900	1971	5	4	3	15
	40043758	10226	Unknown	0	21			1956	3	2	1	3
	40043772	42575	concrete	12	329	MH1-67	MH1-67	1980	2	1	1	2

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Storm Sewer System Assets	FacilityID	Contract ID	Material	Size_IN	Length_FT	UpstreamMH	DownstreamMH	YrInstalled	Condition	Probability of Failure	Consequence of Failure	BusinessRisk
	40043784	50521	Concrete	18	32	MH3-1243	MH3-1243	1989	2	1	3	6
	40043809	31697	concrete	12	95			1987	2	1	1	2
	40043861	30860	Unknown	12	5				3	2	1	3
	40043895	9522	Unknown	10	34			1939	4	3	1	4
	40043911	92596	concrete	10	36				3	2	1	3
	40044016	43981	Unknown	0	30			1986	3	2	1	3
	40044062	15483	Unknown	12	22			1931	4	3	1	4
	40044068	33804	Unknown	12	11				3	2	1	3
	40044122	50611	concrete	15	8				3	2	2	6
	40044125	65779	Unknown	12	20			1982	3	2	1	3
	40044127	64036	Unknown	15	246	MH4-1354	MH4-1354		3	2	2	6
	40044132	11122	Unknown	12	14			1928	4	3	1	4
	40044135	23012	Unknown	54	249			1998	2	1	5	10
	40044136	54155	PVC	4	95	MH3-1283	MH3-1283	1998	1	1	1	1
	40044137	62387	concrete	21	92				3	2	4	12
	40044140	31198	Unknown	0	24			1986	3	2	1	3
	40044163	38585	Unknown	18	14			1998	2	1	3	6
	40044169	73648	Unknown	0	30				3	2	1	3
	40044350	23894	Unknown	0	24				3	2	1	3
	40044434	5034	Unknown	0	33				3	2	1	3
	40044475	65925	Unknown	12	43				3	2	1	3
	40044493	22222	Unknown	10	20			1969	4	3	1	4
	40044509	37537	Concrete lined	15	335	MH1-32	MH1-32	1917	2	1	2	4
Andover Ln	40044518		Reinforced Concrete Pipe	21	25	MH3-1235	MH3-1230	1989	3	2	3	9
	40044631	38085	Unknown	27	174	MH4-1417	MH4-1417		3	2	5	15
	40044711	43309	Unknown	0	18			1934	3	2	1	3
	40044836	95011	Unknown	0	46				3	2	1	3
	40044908	7171	Unknown	0	43				3	2	1	3
	40044914	56945	Unknown	12	12			1956	4	3	1	4
	40044962	64805	Unknown	0	43			1986	3	2	1	3
	40044988	64272	concrete	10	130	MH1-11	MH1-11		3	2	1	3
	40045011	43017	Unknown	0	26				3	2	1	3
	40045018	25250	Unknown	12	18			1985	3	2	1	3
	40045085	146	concrete	12	373			1927	4	3	1	4
	40045093	70572	Unknown	12	224	MH3-1001	MH3-1001	1934	2	2	1	4
Hall St	40045145		Reinforced Concrete Pipe	12	5	MH3-798	MH2-638		3	2	3	9
	40045189	23668	Concrete lined	12	316			1965	4	3	1	4
	40045203	45888	concrete	12	436	MH5-1795	MH5-1795	1927	4	3	1	4
	40045288	90250	Unknown	12	47			1934	4	3	1	4
	40045330	48841	Unknown	12	300			1971	4	3	1	4
	40045431	89469	cmp	36	27			1985	4	3	5	**20**
	40045492	72994	Unknown	0	26			1989	3	2	1	3
	40045519	46562	RCP C-76	10	20			1983	2	1	1	2
	40045520	58831	RCP CL-IV	36	177	MH4-1681	MH4-1681	1998	1	1	5	5
	40045544	33117	Unknown	8	48				3	2	1	3
	40045613	5494	Unknown	10	13			1989	3	2	1	3
	40045634	92946	Unknown	0	15	MH2-568	MH2-568		3	2	1	3
	40045647	30080	Unknown	12	27			1928	4	3	1	4
	40045670	59345	Unknown	10	18				3	2	1	3
Breton Rd	40045690		Reinforced Concrete Pipe	12	75	MH5-1920	MH5-1919	1939	5	4	3	15
	40045702	74333	ductile iron	12	50				3	2	1	3
	40045709	88758	Unknown	0	23				3	2	1	3
	40045722	12877	Unknown	10	26			1963	4	3	1	4
Lake Grove Ave	40045738		Reinforced Concrete Pipe	12	319	MH3-1023	MH3-1022	1929	5	4	3	15
Andover Rd	40045813		Reinforced Concrete Pipe	12	29	MH3-1179	MH3-1178	1963	1	1	3	3
	40045851	5033	Unknown	0	14				3	2	1	3
Breton Rd	40045858		Reinforced Concrete Pipe	24	249	MH2-693	MH2-694	1928	3	2	3	9
	40045872	20806	concrete	12	37			1986	2	1	1	2
	40045923	35357	Unknown	10	41			1980	3	2	1	3
Priceton Blvd	40045954		Reinforced Concrete Pipe	12	243	MH2-607	MH2-606	1969	3	2	3	9
	40046037	40546	concrete	30	72	MH1-291	MH1-291	1983	2	1	5	10
	40046099	8655	Unknown	0	18			1934	3	2	1	3
	40046180	41062	Unknown	12	37			2000	2	1	1	2
	40046236	21029	Unknown	12	368			1997	2	1	1	2
	40046250	70227	Unknown	12	21				3	2	1	3
Hall St	40046301		Reinforced Concrete Pipe	12	210	MH2-685	MH2-689	1929	5	3	3	12
	40046469	44293	Unknown	12	17			1928	4	3	1	4
	40046533	37102	Unknown	0	37			1969	3	2	1	3
	40046583	72740	Unknown	54	8			1998	2	1	5	10
Boston St	40046699		Reinforced Concrete Pipe	12	351	MH3-1110	MH3-1107		4	3	3	12
	40046763	93012	Unknown	0	80	MH4-1599	MH4-1599		3	2	1	3
	40046771	31874	Unknown	10	48				3	2	1	3
	40046775	7834	RCP CL-III	12	14			2005	1	1	1	1
	40046779	3166	Unknown	10	57			1980	3	2	1	3
	40046780	90175	Unknown	0	30				3	2	1	3
Breton Rd	40046797		Reinforced Concrete Pipe	24	280	MH2-694	MH2-696	1928	3	2	3	9
	40046883	71042	Unknown	10	7			1969	4	3	1	4
	40046902	35535	concrete	18	267			1917	4	3	3	12
	40046991	51988	Unknown	42	81	MH4-1634	MH4-1634	1998	2	1	5	10
	40047079	5093	Unknown	10	11			1956	4	3	1	4
	40047116	40180	Unknown	0	24				3	2	1	3
	40047205	43579	Unknown	18	23			1997	2	1	3	6
	40047212	45994	concrete	0	63	MH5-1868	MH5-1868		3	2	1	3
	40047326	6879	Unknown	12	64			1963	4	3	1	4
	40047403	66255	Unknown	30	30			1997	2	1	5	10
	40047406	9073	Non-RCP	27	178			1987	2	1	5	10
	40047447	32669	csp	12	17			1998	1	1	1	1
	40047503	31181	Unknown	0	31				3	2	1	3
	40047505	64076	Unknown	0	40	MH3-1022	MH3-1022	1929	3	2	1	3
	40047524	89946	Unknown	0	13				3	2	1	3
	40047541	95433	Unknown	0	66			1934	3	2	1	3
Boston St	40047614		Reinforced Concrete Pipe	12	183	MH3-1100	MH3-1099		5	4	3	15
	40047647	8472	Concrete	12	130				3	2	1	3
Woodlawn Ave	40047672		Reinforced Concrete Pipe	12	164	MH3-1170	MH3-1169	1967	3	2	3	9
	40047693	65011	Unknown	12	44			1934	4	3	1	4
	40047739	28261	Unknown	12	44			1985	3	2	1	3
Ridgewood Dr	40047743		Reinforced Concrete Pipe	12	328	MH3-1157	MH3-1154	1970	3	2	3	9
	40047792	19819	Unknown	36	300			1934	4	3	5	**20**
Hall St	40047973		Reinforced Concrete Pipe	12	214	MH2-549	MH2-538	1929	3	2	3	9
	40048003	67865	Unknown	0	27				3	2	1	3
	40048034	35697	Unknown	12	24				3	2	1	3
	40048069	59725	Unknown	42	139	MH2-384	MH2-384		3	2	5	15
	40048270	94723	Unknown	0	24				3	2	1	3
	40048312	95216	Unknown	0	24			1934	3	2	1	3
	40048412	49370	Unknown	24	160			1997	2	1	4	8
Manhattan Ln	40048464		Reinforced Concrete Pipe	8	4	CB2-471	MH2-469	1998	1	1	3	3
	40048518	26813	Unknown	18	4				3	2	3	9
	40048569	37843	Unknown	12	6				3	2	1	3
	40048633	297	clay	8	45			1934	4	3	1	4
	40048642	7429	Unknown	12	30				3	2	1	3
	40048686	64440	Unknown	0	20			1929	3	2	1	3
	40048724	55048	Concrete	27	182	MH4-1370	MH4-1370		3	2	5	15

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Storm Sewer System Assets	FacilityID	Contract ID	Material	Size_IN	Length_FT	UpstreamMH	DownstreamMH	YrInstalled	Condition	Probability of Failure	Consequence of Failure	BusinessRisk
	40048731	28611	clay	12	285			1934	4	3	1	4
	40048793	94579	Unknown	0	24				3	2	1	3
	40048882	34527	tile	10	44			1983	3	2	1	3
	40048917	14449	Unknown	0	28				3	2	1	3
	40048986	69109	Unknown	0	21				3	2	1	3
Oakwood Dr	40049042		Reinforced Concrete Pipe	12	10	MH3-963	NJ-400360	1956	2	1	3	6
	40049059	9433	concrete	12	247				3	2	1	3
	40049135	34373	Unknown	10	36				3	2	1	3
	40049322	2442	Unknown	12	162			1965	4	3	1	4
	40049332	28997	Unknown	12	144				3	2	1	3
	40049403	38417	Unknown	6	58				3	2	1	3
	40049433	62351	Unknown	10	28			1984	3	2	1	3
Argentina Dr	40049482		Reinforced Concrete Pipe	12	139	MH5-1927	MH5-1928		3	2	3	9
Ridgewood Ave	40049487		Reinforced Concrete Pipe	12	133	MH3-1151	MH3-1152	1970	3	2	3	9
	40049535	64194	Unknown	22	206	MH1-20	MH1-20	1917	4	3	4	16
	40049585	18696	Unknown	36	256			1997	2	1	5	10
	40049593	42789	Unknown	12	11				3	2	1	3
	40049595	39603	Unknown	12	241			1990	3	2	1	3
	40049639	41717	Unknown	12	183	MH3-1050	MH3-1050	1930	4	3	1	4
	40049647	61675	clay	8	31			1934	4	3	1	4
Hall St	40049672		Reinforced Concrete Pipe	12	117	MH2-523	MH2-525		3	2	3	9
	40049683	64720	Unknown	12	221	MH2-406	MH2-406		3	2	1	3
	40049742	78350	Unknown	10	12				3	2	1	3
	40049763	4924	Unknown	10	54				3	2	1	3
Hampshire Blvd	40049789		Reinforced Concrete Pipe	12	286	MH3-1182	\MH3-1179	1963	3	2	3	9
	40049797	43391	Unknown	0	31				3	2	1	3
	40049824	5926	concrete	12	16			1989	2	1	1	2
	40049843	64690	Unknown	0	6				3	2	1	3
	40049851	61374	PVC	4	100			1998	1	1	1	1
Albert Dr	40049902		Reinforced Concrete Pipe	12	360	MH3-1049	MH3-1050	1930	4	3	3	12
Lake Dr	40049918		Polypropylene	30		MH3-870_MH3	MH3-871		1	1	5	5
	40049992	25208	concrete	22	290				3	2	4	12
	40050027	63503	Unknown	42	14			1998	2	1	5	10
	40050056	65344	Unknown	36	240	MH4-1491	MH4-1491	1934	4	3	5	**20**
	40050082	47304	Unknown	12	29				3	2	1	3
	40050098	3716	Unknown	0	32				3	2	1	3
	40050130	32751	Unknown	0	21			1971	3	2	1	3
	40050134	27865	Unknown	24	29			1997	2	1	4	8
	40050135	72015	PVC	4	107	MH3-1078	MH3-1078	1998	1	1	1	1
	40050197	29611	Unknown	10	30				3	2	1	3
	40050199	8880	Unknown	0	23			1965	3	2	1	3
	40050215	95427	Unknown	15	241	MH2-519	MH2-519		3	2	2	6
	40050234	93672	Unknown	10	67	MH1-264	MH1-264	1934	4	3	1	4
	40050280	35426	Unknown	27	147			1971	4	3	5	**20**
	40050362	87973	cpp	12	24			1934	4	3	1	4
	40050397	19162	Unknown	12	292			1928	4	3	1	4
	40050463	94724	Unknown	10	38				3	2	1	3
	40050518	14942	Unknown	10	36			1969	4	3	1	4
	40050560	28019	Unknown	0	39				3	2	1	3
	40050575	18404	Unknown	18	36			1989	3	2	3	9
	40050667	1450	concrete	36	247				3	2	5	15
	40050679	26540	Unknown	12	20			1999	2	1	1	2
	40050844	90174	Unknown	0	12				3	2	1	3
Manhattan Ln	40050918		Reinforced Concrete Pipe	12	270	MH2-469	MH2-466	1965	3	2	3	9
	40050945	79058	Unknown	12	23				3	2	1	3
	40050976	70404	Unknown	0	10				3	2	1	3
	40050979	92023	Unknown	27	110	MH1-138	MH1-138		3	2	5	15
	40051064	45642	concrete	42	257	MH2-364	MH2-364		3	2	5	15
	40051066	60792	tile	12	16			1929	4	3	1	4
	40051073	23096	Unknown	12	258			1965	4	3	1	4
	40051112	5175	Unknown	0	13				3	2	1	3
	40051129	18133	Unknown	42	11			1998	2	1	5	10
	40051166	4556	Unknown	12	11			1989	3	2	1	3
	40051171	12547	Unknown	0	27				3	2	1	3
	40051194	90169	Unknown	12	78	MH2-488	MH2-488		3	2	1	3
	40051202	46884	Unknown	0	18				3	2	1	3
	40051207	66532	Unknown	0	42				3	2	1	3
	40051314	87126	concrete	15	34			1934	4	3	2	8
	40051331	46305	Unknown	0	46				3	2	1	3
	40051403	25272	Unknown	12	7				3	2	1	3
	40051471	28503	Unknown	10	60				3	2	1	3
	40051472	35503	concrete	10	51			1971	3	2	1	3
	40051473	2245	RCP CL-III	12	14			2005	1	1	1	1
	40051480	89959	Unknown	10	30			1922	4	3	1	4
	40051486	14537	Unknown	12	46				3	2	1	3
	40051558	22108	tile	12	26			1934	4	3	1	4
	40051586	50656	tile	12	22			1928	4	3	1	4
	40051699	5035	Unknown	50.70000076	38				3	2	5	15
	40051701	14649	Unknown	12	29			1999	2	1	1	2
	40051712	12336	Unknown	0	10			1934	3	2	1	3
	40051812	33069	Unknown	10	30			1980	3	2	1	3
	40051852	63753	Unknown	12	141	MH4-1340	MH4-1340		3	2	1	3
	40051906	61135	Unknown	0	39				3	2	1	3
	40051907	89463	Unknown	48	53	MH1-128	MH1-128	1985	3	2	5	15
	40052060	89969	Unknown	0	12				3	2	1	3
	40052088	31022	concrete	12	247			1927	4	3	1	4
	40052103	56245	Unknown	0	41				3	2	1	3
	40052109	54845	Unknown	0	24				3	2	1	3
	40052110	48849	Unknown	0	8				3	2	1	3
	40052139	55952	Unknown	0	30				3	2	1	3
	40052167	35354	Unknown	12	33			1982	3	2	1	3
	40052314	89473	Unknown	12	60	MH1-133	MH1-133		3	2	1	3
	40052318	34300	Unknown	66	61			1956	4	3	5	**20**
	40052327	5416	concrete	15	157			1980	2	1	2	4
	40052350	68852	Unknown	66	526	MH2-665	MH2-665	1956	4	3	5	**20**
East Grand Rapids Fire Dept	40052446		Reinforced Concrete Pipe	10	106	MH2-758	MH2-756	1997	3	2	3	9
	40052470	47239	Unknown	0	8				3	2	1	3
Beechwood Dr	40052509		Reinforced Concrete Pipe	18	68	MH3-852	MH3-853	1968	3	2	3	9
	40052654	94739	Unknown	10	51	MH1-231	MH1-231	1987	3	2	1	3
	40052655	35351	Unknown	12	43			1929	4	3	1	4
	40052658	36232	Unknown	12	52			1929	4	3	1	4
Ross Ct	40052723		Reinforced Concrete Pipe	10	35	MH5-1895	MH5-1894	1934	3	2	3	9
	40052758	95019	Unknown	0	14				3	2	1	3
Maplewood Dr	40052804		Reinforced Concrete Pipe	12	339	MH3-1154	MH3-1141	1970	3	2	3	9
	40052893	62521	Unknown	12	220	MH3-1081	MH3-1081		3	2	1	3
	40052894	39404	PVC	4	100			1998	1	1	1	1
	40053030	27699	concrete	10	498			1917	4	3	1	4
	40053042	77702	Unknown	10	301	MH5-1909	MH5-1909	1923	4	3	1	4
	40053044	34852	concrete	10	26				3	2	1	3
	40053126	37266	Unknown	10	9				3	2	1	3
	40053128	87977	Unknown	12	56	MH3-808	MH3-808	1997	2	1	1	2

For manholes, put "MH ##" for facility ID. Manhole materials are "Concrete" or "Block". material column choices are shown in the drop-down list. If an asset material is not listed, manually enter it, and

Storm Sewer System Assets	FacilityID	Contract ID	Material	Size_IN	Length_FT	UpstreamMH	DownstreamMH	YrInstalled	Condition	Probability of Failure	Consequence of Failure	BusinessRisk
	40053129	43616	Unknown	24	71				3	2	4	12
	40053135	10185	concrete	27	145				3	2	5	15
	40053137	68940	Unknown	0	35	MH5-1902	MH5-1902		3	2	1	3
	40053145	55244	Unknown	12	17	MH4-1646	MH4-1646	1984	3	2	1	3
	40053173	17367	Unknown	42	190				3	2	5	15
	40053230	62197	Unknown	12	95				3	2	1	3
	40053247	60429	Unknown	0	58				3	2	1	3
Richards Dr	40053285		Reinforced Concrete Pipe	12	255	MH3-1031	MH3-1030	1929	4	3	3	12
	40053400	94663	Unknown	0	7				3	2	1	3
	40053450	11573	Unknown	12	226			1928	4	3	1	4
	40053485	72715	Unknown	12	11	MH4-1664	MH4-1664	1998	2	1	1	2
	40053514	9246	Unknown	6	24				3	2	1	3
	40053519	58673	Unknown	12	66	MH2-340	MH2-340		3	2	1	3
	40053596	51092	concrete	15	38	MH1-292	MH1-292	1983	2	1	2	4
	40053753	24835	Unknown	66	484			1956	4	3	5	**20**
Hall St	40053765		Reinforced Concrete Pipe	12	20	MH3-803	MH3-802		3	2	3	9
	40053835	25914	Unknown	0	13			1965	3	2	1	3
	40053848	455	Concrete	12	244			1928	4	3	1	4
	40053856	7251	Unknown	0	27				3	2	1	3
	40053864	64510	Unknown	10	17				3	2	1	3
	40053868	17660	Unknown	0	23				3	2	1	3
	40053911	64930	Unknown	12	50	MH4-1507	MH4-1507		3	2	1	3
	40053953	10194	Unknown	12	26				3	2	1	3
Maplewood Dr	40054011		Reinforced Concrete Pipe	12	172	MH3-1015	MH3-1000	1934	4	3	3	12
	40054013	36087	Unknown	36	131			1997	2	1	5	10
	40054016	178	Unknown	0	4			1987	3	2	1	3
	40054038	34121	Unknown	12	147			1931	2	1	1	2
Lake Grove Ave	40054092		Reinforced Concrete Pipe	12	277	MH3-1067	MH3-1019	1934	2	2	2	4
	40054298	38072	Unknown	12	19			1927	4	3	1	4
	40054394	13846	Unknown	18	10			1989	3	2	3	9
	40054413	36656	Concrete lined	12	365			1959	4	3	1	4
	40054474	31934	Unknown	60	63			1998	2	1	5	10
	40054548	28190	Unknown	12	9				3	2	1	3
	40054551	48006	Unknown	18	95	MH2-345	MH2-345		3	2	3	9
	40054556	60116	tile	12	40			1929	4	3	1	4
	40054579	41813	Unknown	10	21			1933	4	3	1	4
	40054583	72938	PVC	15	1			2005	1	1	2	2
	40054633	9637	Unknown	0	16			1967	3	2	1	3
	40054644	48175	Unknown	12	305	MH4-1388	MH4-1388	1965	4	3	1	4
	40054672	70045	Unknown	24	132	MH2-347	MH2-347		3	2	4	12
	40054695	10217	PVC	4	95			1998	1	1	1	1
	40054696	31041	Unknown	12	17			1999	2	1	1	2
	40054864	8920	concrete	10	17				3	2	1	3
	40055026	44809	concrete	48	56				3	2	5	15
	40055029	21301	Unknown	0	25			1969	3	2	1	3
	40055143	89191	Unknown	10	313	MH5-1899	MH5-1899	1997	2	1	1	2
	40055171	39057	Unknown	10	31			1970	4	3	1	4
	40055201	56609	Unknown	0	7				3	2	1	3
	40055260	13207	Unknown	0	12			1933	3	2	1	3
	40055313	79829	Unknown	12	213	MH5-1907	MH5-1907	1929	4	3	1	4
Lakeside Dr	40055324		Polypropylene	30	383	MH1-275	CB1-284		5		5	**25**
	40055420	61440	Unknown	0	29				3	2	1	3
	40055431	13536	Unknown	12	184				3	2	1	3
	40055449	57187	Unknown	0	27				3	2	1	3
	40055461	24463	Unknown	0	18			1956	3	2	1	3
	40055498	75639	Unknown	54	14	MH4-1543	MH4-1543	1998	2	1	5	10
	40055499	44893	Unknown	0	6				3	2	1	3
	40055501	48855	Unknown	12	34				3	2	1	3
	40055510	58148	Unknown	0	43				3	2	1	3
	40055538	94844	Unknown	12	423	MH3-925	MH3-925	1928	4	3	1	4
	40055610	9070	concrete	12	47			1956	4	3	1	4
	40055647	69186	Unknown	12	259	MH3-1058	MH3-1058	1930	4	3	1	4
	40055679	95199	Unknown	15	74	MH2-575	MH2-575		3	2	2	6
	40055703	6887	Unknown	0	23				3	2	1	3
	40055743	55953	Unknown	0	33				3	2	1	3
	40055761	69177	Unknown	30	19			1997	2	1	5	10
	40055776	60007	Unknown	12	63				3	2	1	3
	40055812	92530	Unknown	0	37			1934	3	2	1	3
	40055820	34466	Unknown	12	31				3	2	1	3
Darby Ave	40055835		Reinforced Concrete Pipe	21	231	MH2-598	MH2-601		3	2	3	9
	40055917	94676	Unknown	0	3				3	2	1	3
	40055938	37992	Unknown	0	43			1956	3	2	1	3
	40056055	62552	Unknown	0	67	MH2-393	MH2-393		3	2	1	3
	40056103	20621	Unknown	0	42				3	2	1	3
	40056172	27735	PVC	4	95			1998	1	1	1	1
	40056217	48750	Unknown	12	22			1984	3	2	1	3
	40056221	70725	Unknown	36	108			1997	2	1	5	10
	40056241	51552	Unknown	0	47				3	2	1	3
	40056247	57757	Unknown	10	28	MH4-1676	MH4-1676	1984	3	2	1	3
	40056248	88140	concrete	12	11			1934	4	3	1	4
	40056250	1688	Unknown	0	10			1963	3	2	1	3
	40056308	8685	Unknown	10	36			1997	2	1	1	2
Lake Grove Ave	40056338		Reinforced Concrete Pipe	12	252	MH3-1096	MH3-1067	1931	2	2	2	9
	40056418	53182	Unknown	10	32			1963	4	3	1	4
	40056463	1089	tile	12	60			1927	4	3	1	4
	40056485	21168	Unknown	18	30			1997	2	1	3	6
	40056498	38437	Unknown	0	16				3	2	1	3
	40056559	55751	Unknown	0	7			1933	3	2	1	3
	40056727	29705	Unknown	12	149				3	2	1	3
	40056782	233	Unknown	0	11				3	2	1	3
Maplewood Dr	40056798		Reinforced Concrete Pipe	15	182	MH3-942	MH3-943	1928	4	2	3	12
	40056819	93570	Unknown	18	190	MH1-117	MH1-117		3	2	3	9
	40056837	94582	Unknown	12	48				3	2	1	3
Manhattan Rd	40056879		Reinforced Concrete Pipe	24	203	MH2-450	40154141	1989	3	2	3	9
	40056980	94722	Unknown	8	51	MH1-271	MH1-271		3	2	1	3
	40057025	64496	Unknown	12	22			1982	3	2	1	3
	40057063	33705	Unknown	18	10			1998	2	1	3	6
	40057108	50211	Unknown	12	36			1928	4	3	1	4
	40057173	89953	Unknown	0	11				3	2	1	3
	40057186	16828	Unknown	10	24			1931	4	3	1	4
	40057225	50118	Unknown	18	19	MH4-1682	MH4-1682	1998	2	1	3	6
Manhattan Ln	40057232		Reinforced Concrete Pipe	24	82	CB2-463	MH2-464	1998	3	2	3	9
	40057238	95204	Unknown	0	30				3	2	1	3
	40057274	89955	Concrete	15	173	MH2-492	MH2-492		3	2	2	6
	40057292	59848	Unknown	6	45	MH5-1894	MH5-1894	1997	2	1	1	2
	40057302	39889	tile	10	46			1953	4	3	1	4
	40057320	31994	Unknown	0	29				3	2	1	3
	40057349	12751	ductile iron	10	11				3	2	1	3
	40057392	63997	concrete	0	52	MH5-1711	MH5-1711		3	2	1	3
	40057434	94825	Unknown	0	33				3	2	1	3
	40057544	42252	concrete	15	436			1980	2	1	2	4
	40057566	88756	Unknown	0	8			1934	3	2	1	3

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Storm Sewer System Assets	FacilityID	Contract ID	Material	Size_IN	Length_FT	UpstreamMH	DownstreamMH	YrInstalled	Condition	Probability of Failure	Consequence of Failure	BusinessRisk
	40057597	36083	concrete	12	236				3	2	1	3
	40057726	18494	concrete	48	35				3	2	5	15
	40057950	95212	Unknown	0	9	MH2-564	MH2-564		3	2	1	3
	40057953	49033	Unknown	0	8				3	2	1	3
	40057955	94725	Unknown	12	13			2005	1	1	1	1
	40058049	22480	Unknown	54	300			1956	4	3	5	**20**
	40058167	47829	Unknown	8	225	MH1-180	MH1-180		3	2	1	3
	40058343	79565	Unknown	12	30			1928	4	3	1	4
	40058348	85692	Unknown	0	13			1934	3	2	1	3
Bonnell Ave	40058426		Reinforced Concrete Pipe	12	195	MH2-478	MH2-474		4	3	3	12
	40058428	44338	Unknown	10	31			1969	4	3	1	4
	40058449	46316	Unknown	12	17			1928	4	3	1	4
	40058464	45900	Unknown	12	27				3	2	1	3
	40058534	60241	Unknown	36	9	MH4-1502	MH4-1502		3	2	5	15
	40058556	98703	concrete	15	9			1983	2	1	2	4
	40058586	91820	Unknown	12	9			1985	3	2	1	3
	40058599	92008	Unknown	15	544	MH2-740	MH2-740	2016	1	1	2	2
	40058603	61981	Unknown	10	20			1983	3	2	1	3
	40058614	3320	Unknown	0	17				3	2	1	3
	40058635	59109	Unknown	0	19			1965	3	2	1	3
	40058673	1490	ductile iron	15	173				3	2	2	6
	40058691	39772	Unknown	0	13			1956	3	2	1	3
	40058718	9858	Unknown	10	67			1983	3	2	1	3
Lakeside Dr	40058721		Polypropylene	30	87	CB2-755	MH2-756		4		5	**20**
	40058763	32002	Unknown	12	41			1970	4	3	1	4
Andover Ln	40058775		Reinforced Concrete Pipe	24	320	MH3-1230	MH3-1221		3	2	3	9
	40058807	23470	Unknown	0	12			1929	3	2	1	3
	40058833	19071	Unknown	10	29			1922	4	3	1	4
	40058863	25962	Unknown	0	46				3	2	1	3
	40058908	19987	Unknown	6	38			1997	2	1	1	2
	40058965	2197	Unknown	12	48			1929	4	3	1	4
	40059088	10564	Unknown	12	14			1929	4	3	1	4
	40059102	2653	Unknown	10	26			1983	3	2	1	3
	40059158	42736	Unknown	0	11				3	2	1	3
	40059160	30594	Unknown	10	61			1963	4	3	1	4
	40059178	8688	Unknown	12	286			1929	4	3	1	4
	40059222	1999	PVC	4	105			1998	1	1	1	1
	40059278	95434	Unknown	0	38	MH3-1022	MH3-1022	1929	3	2	1	3
Breton Rd	40059299		Reinforced Concrete Pipe	12	249	MH2-704	MH2-705	1939	4	3	3	12
	40059350	69884	Unknown	0	65			1969	3	2	1	3
	40059432	46943	Unknown	10	25			1931	4	3	1	4
	40059433	45123	Unknown	48	38				3	2	5	15
	40059465	49732	Unknown	0	23				3	2	1	3
	40059621	69667	Unknown	10	15			1965	4	3	1	4
	40059631	37377	Unknown	0	40				3	2	1	3
	40059676	47631	Unknown	0	15				3	2	1	3
	40059690	7640	Unknown	10	27			1965	4	3	1	4
Maplewood Dr	40059712		Reinforced Concrete Pipe	15	2	MH3-946	MH3-947	1964	1	1	3	3
	40059775	42490	Unknown	0	39				3	2	1	3
	40059803	37681	Unknown	12	41			1997	2	1	1	2
	40059845	7729	Unknown	12	157			1929	4	3	1	4
	40059896	32332	Unknown	0	29				3	2	1	3
	40060006	27670	Unknown	0	31				3	2	1	3
	40060010	19381	Unknown	0	15			1965	3	2	1	3
	40060052	3479	Unknown	15	8			1998	2	1	2	4
	40060054	17834	Unknown	36	137			1929	4	3	5	**20**
	40060055	40018	Unknown	12	140			1928	4	3	1	4
	40060077	24996	Unknown	12	340			1929	4	3	1	4
	40060256	24709	concrete	15	150			1980	2	1	2	4
	40060266	48663	Unknown	12	12			1989	3	2	1	3
	40060294	9506	Unknown	0	32			1971	3	2	1	3
	40060304	22778	Unknown	0	22				3	2	1	3
	40060376	18058	Unknown	0	20				3	2	1	3
	40060424	42197	Unknown	0	47			1929	3	2	1	3
	40060438	6098	Unknown	12	21			1982	3	2	1	3
	40060458	88761	concrete	12	52			1934	4	3	1	4
	40060479	32035	concrete	12	34			1956	4	3	1	4
Hall St	40060486		Reinforced Concrete Pipe	12	231	MH2-525	MH2-531		3	2	3	9
	40060608	11924	Unknown	10	16			1963	4	3	1	4
	40060632	21540	PVC	60	102			2005	1	1	5	5
	40060633	30113	PVC	48	6			2005	1	1	5	5
	40060655	60040	Unknown	12	338	MH5-1891	MH5-1891	1934	4	3	1	4
	40060661	20529	Unknown	20	152				3	2	4	12
	40060711	52043	Unknown	0	23				3	2	1	3
	40060729	62758	Unknown	10	63	MH2-439	MH2-439	1979	4	3	1	4
Conlon Ave	40060746		Reinforced Concrete Pipe	60	391	MH3-962	MH3-968	1956	3	2	3	9
	40060778	68782	Unknown	0	28				3	2	1	3
	40060795	95201	Unknown	0	27				3	2	1	3
	40060852	40299	Unknown	10	55				3	2	1	3
	40060854	28909	Unknown	6	17				3	2	1	3
	40060875	89954	Unknown	12	19			1998	2	1	1	2
	40061003	27147	RCP C-76	42	48			1998	1	1	5	5
	40061004	94581	concrete	10	13			1987	2	1	1	2
	40061026	32772	Unknown	18	92			1956	4	3	3	12
	40061042	41726	Unknown	10	44				3	2	1	3
	40061082	66182	Unknown	0	15			1928	3	2	1	3
	40061144	90252	Unknown	12	48			1934	4	3	1	4
	40061275	90249	Unknown	12	43			1934	4	3	1	4
	40061305	26354	tile	12	419			1927	4	3	1	4
	40061337	94584	concrete	18	330	MH1-218	MH1-218	1992	2	1	3	6
	40061412	41633	Unknown	18	169				3	2	3	9
	40061453	1084	cpp	48	302			1998	1	1	5	5
	40061523	60780	Unknown	12	263	MH2-427	MH2-427	1929	4	3	1	4
	40061573	94836	Unknown	0	12				3	2	1	3
	40061663	62531	Unknown	48	40			1998	2	1	5	10
	40061712	66183	Unknown	8	38	MH1-170	MH1-170	1933	4	3	1	4
	40061715	63195	Unknown	0	7			1983	3	2	1	3
	40061786	54025	Unknown	30	178	MH3-993	MH3-993	1937	4	3	5	**20**
	40061857	55281	Unknown	0	24				3	2	1	3
	40061922	50948	RCP	12	24			2004	1	1	1	1
	40061923	33672	Unknown	12	180				2	1	1	2
	40061952	43020	Unknown	12	38			1997	2	1	1	2
	40061953	94829	Unknown	10	9				3	2	1	3
	40062070	37913	Unknown	10	11				3	2	1	3
	40062085	69333	Unknown	6	35				3	2	1	3
	40062094	55606	concrete	12	48			1982	2	1	1	2
	40062203	23823	concrete	24	84				3	2	4	12
	40062222	33154	Unknown	12	25			1934	4	3	1	4
	40062265	63052	Unknown	12	114	MH3-908	MH3-908	1928	4	3	1	4
	40062275	23308	concrete	0	31				3	2	1	3
	40062286	10327	Unknown	10	8			1970	4	3	1	4
	40062411	24288	Unknown	12	21			1984	3	2	1	3

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Storm Sewer System Assets	FacilityID	Contract ID	Material	Size_IN	Length_FT	UpstreamMH	DownstreamMH	YrInstalled	Condition	Probability of Failure	Consequence of Failure	BusinessRisk
	40062443	68981	Unknown	10	25			1967	4	3	1	4
	40062461	68133	Unknown	12	333	MH3-1141	MH3-1141		3	2	1	3
	40062509	65019	Unknown	10	35				3	2	1	3
Beechwood Dr	40062589		Reinforced Concrete Pipe	12	50	MH3-878	MH3-883	1997	5	4	3	15
	40062597	42230	Unknown	18	8			1998	2	1	3	6
	40062658	93115	Unknown	12	423	MH3-919	MH3-919	1928	4	3	1	4
	40062673	28837	Unknown	18	327				3	2	3	9
	40062768	89678	Unknown	0	2			1934	3	2	1	3
	40062840	29403	clay	12	333			1946	4	3	1	4
	40062858	12132	Unknown	12	198			1930	4	3	1	4
	40062905	40459	Unknown	0	23				3	2	1	3
	40062910	36140	Unknown	0	23				3	2	1	3
Manhattan Ln	40062959		Reinforced Concrete Pipe	24	244	MH2-464	MH2-466	1965	3	2	3	9
	40062995	29851	Unknown	18	377			1934	4	3	3	12
	40063004	42806	concrete	10	310			1929	4	3	1	4
	40063039	48439	concrete	10	30				3	2	1	3
	40063040	36900	Unknown	12	30			1963	4	3	1	4
	40063187	438	Unknown	10	20			1967	4	3	1	4
	40063188	92935	Unknown	12	141	MH2-641	MH2-641	1929	4	3	1	4
	40063213	58746	Unknown	0	77			1969	3	2	1	3
	40063222	18131	cpp	10	40				3	2	1	3
	40063236	73821	Non-RCP	12	123			1971	3	2	1	3
	40063267	34765	Unknown	12	204				3	2	1	3
	40063319	21353	Unknown	6	29			1997	2	1	1	2
	40063343	46763	concrete	12	81				3	2	1	3
	40063412	67284	Unknown	0	20			1965	3	2	1	3
	40063413	45904	concrete	10	99			1937	4	3	1	4
	40063441	94733	Unknown	10	62				3	2	1	3
	40063445	6036	concrete	10	44				3	2	1	3
	40063458	62147	ductile iron	12	358	MH3-969	MH3-969		2	1	1	2
	40063489	49901	concrete	10	33				3	2	1	3
	40063531	34772	concrete	15	32			1983	2	1	2	4
	40063551	58159	Unknown	12	49			1962	4	3	1	4
	40063570	79705	Unknown	0	36				3	2	1	3
	40063613	91897	Concrete	12	31			1975	3	2	1	3
	40063688	57306	Unknown	12	47			1934	4	3	1	4
	40063701	27432	Unknown	10	44			1970	4	3	1	4
	40063750	39684	Unknown	10	42			1963	4	3	1	4
	40063785	49019	Unknown	0	21				3	2	1	3
Darby Ave	40063790		Reinforced Concrete Pipe	12	191	MH2-567	MH2-584		3	2	3	9
	40063927	1377	Unknown	48	319			1998	2	1	5	10
	40063929	23433	concrete lined	15	376			1917	2	1	2	4
	40063946	82494	Clay	8	62				3	2	1	3
	40063975	60514	cpp	15	216	MH2-743	MH2-743		3	2	2	6
	40064019	78960	Unknown	10	43				3	2	1	3
	40064140	37746	Unknown	0	27			1987	3	2	1	3
	40064172	25134	Unknown	0	36			1967	3	2	1	3
	40064225	24055	concrete	12	103			1927	4	3	1	4
	40064240	41692	Unknown	12	24				3	2	1	3
	40064257	61574	concrete	12	97			1927	4	3	1	4
	40064306	4154	Unknown	12	266			1999	2	1	1	2
	40064315	87978	Unknown	0	26			1934	3	2	1	3
	40064323	65014	Unknown	0	15				3	2	1	3
	40064342	24733	Unknown	12	38				3	2	1	3
	40064398	46656	Unknown	10	39			1971	4	3	1	4
	40064414	2268	concrete	12	82				3	2	1	3
	40064522	98709	Unknown	10	9			1983	3	2	1	3
	40064559	53428	Unknown	0	7				3	2	1	3
	40064582	52383	RCP C-76	48	81			1983	2	1	5	10
	40064608	98705	Unknown	12	54	MH1-293	MH1-293	1983	3	2	1	3
	40064669	56436	Unknown	10	15			1984	3	2	1	3
	40064678	34012	Unknown	10	21				3	2	1	3
	40064681	93112	Unknown	10	52			1996	2	1	1	2
	40064693	51941	Unknown	12	284	MH4-1619	MH4-1619	1929	4	3	1	4
	40064716	50434	Concrete	12	16				3	2	1	3
	40064756	27643	concrete	18	251			1929	4	3	3	12
	40064831	9585	Unknown	15	84				3	2	2	6
	40064915	95420	Unknown	0	7				3	2	1	3
	40064980	61299	Unknown	0	27			1980	3	2	1	3
	40065001	46472	Clay	10	127			1933	4	3	1	4
	40065086	89967	Unknown	0	22				3	2	1	3
	40065089	95423	Unknown	12	150	MH2-516	MH2-516		3	2	1	3
	40065103	93149	Unknown	0	3				3	2	1	3
	40065170	41102	Unknown	6	48				3	2	1	3
Boston St	40065181		Reinforced Concrete Pipe	12	327	MH3-1113	MH3-1110		3	2	3	9
	40065387	29800	Unknown	0	47				3	2	1	3
	40065444	24402	Unknown	0	13				3	2	1	3
	40065452	63406	Unknown	12	16			1999	2	1	1	2
	40065478	53373	concrete	12	80			1929	4	3	1	4
	40065549	6201	Unknown	10	13			1970	4	3	1	4
	40065583	68942	Unknown	36	19	MH4-1572	MH4-1572	1929	4	3	5	**20**
	40065593	20640	Unknown	0	16				3	2	1	3
	40065613	43747	Unknown	36	234			1928	4	3	5	**20**
	40065614	53059	Concrete	18	248			1989	2	1	3	6
	40065633	62401	Unknown	0	35			1929	3	2	1	3
	40065634	44126	Unknown	12	17				3	2	1	3
	40065684	55990	Unknown	12	39	MH3-1099	MH3-1099	1931	4	3	1	4
Andover Rd	40065720		Reinforced Concrete Pipe	12	248	MH3-1041	MH3-1036	1963	4	3	3	12
	40065739	69052	Unknown	36	208	MH2-391	MH2-391		3	2	5	15
	40065748	94830	Unknown	12	27			1934	4	3	1	4
	40065751	43094	Unknown	30	303			1971	4	3	5	**20**
Lakeside Dr	40065791		Reinforced Concrete Pipe	30	41	CB1-284	CB2-755	1997	1	1	3	3
	40065896	27783	Unknown	10	328				3	2	1	3
Beechwood Dr	40065907		Reinforced Concrete Pipe	18	167	MH3-855	MH3-869	1968	3	2	3	9
	40065961	14607	Unknown	0	46				3	2	1	3
	40065965	6955	tile	12	10			1928	4	3	1	4
	40065984	61949	Unknown	12	31				3	2	1	3
	40066004	12119	Unknown	0	32				3	2	1	3
	40066023	41083	Concrete	10	29				3	2	1	3
	40066086	88765	concrete	10	23			1934	4	3	1	4
	40066139	51929	Unknown	12	261				2	1	1	2
	40066241	67372	Unknown	12	12				3	2	1	3
	40066324	31924	Unknown	12	8			1984	3	2	1	3
	40066458	52813	concrete	10	58				3	2	1	3
	40066488	15406	Unknown	12	223			1990	3	2	1	3
	40066509	45655	Unknown	0	44			1997	3	2	1	3
	40066542	46107	Unknown	0	27				3	2	1	3
	40066548	68439	Unknown	0	20				3	2	1	3
	40066559	3511	Unknown	0	21			1963	3	2	1	3
	40066597	55496	Unknown	24	33	MH1-207	MH1-207	1989	3	2	4	12
	40066601	62557	Unknown	0	19				3	2	1	3
	40066692	49298	Unknown	0	32				3	2	1	3

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	40066700	89964	Unknown	0	22				3	2	1	3
	40066754	55005	Unknown	21	431	MH5-1785	MH5-1785	1982	3	2	4	12
	40066769	74746	Unknown	0	14				3	2	1	3
	40066774	94996	Unknown	0	59				3	2	1	3
	40066808	43343	Unknown	12	30			1984	3	2	1	3
	40066869	14	Unknown	12	16			1956	4	3	1	4
	40067082	38296	PVC	12	161			2005	1	1	1	1
	40067083	42889	Unknown	12	26			1999	2	1	1	2
	40067085	42549	Unknown	12	23			1998	2	1	1	2
	40067086	24572	PVC	12	38			2005	1	1	1	1
	40067126	45940	Unknown	12	38				3	2	1	3
	40067151	8780	RCP C-76	10	42			1965	3	2	1	3
	40067158	73741	Unknown	10	13			1965	4	3	1	4
	40067237	20666	Unknown	0	28			1937	3	2	1	3
	40067328	38972	Unknown	12	40			1997	2	1	1	2
	40067335	25761	Unknown	10	8				3	2	1	3
Kenesaw Dr	40067457		Reinforced Concrete Pipe	12	143	MH2-680	MH2-685	1929	4	3	3	12
	40067496	15910	Unknown	15	118				3	2	2	6
	40067551	24333	Unknown	0	50				3	2	1	3
	40067569	24159	Unknown	15	18			1939	4	3	2	8
Shopping Center Dr	40067601		Reinforced Concrete Pipe	36	126	MH1-262	MH1-263	1957	2	1	3	6
	40067631	18362	Unknown	12	136			1963	4	3	1	4
	40067643	19423	Unknown	12	19			1928	4	3	1	4
	40067701	62775	concrete	27	158	MH1-2006	MH1-2006	1917	4	3	5	**20**
	40067730	18998	Concrete	18	147			1965	3	2	3	9
	40067777	31100	Unknown	0	39				3	2	1	3
Indian Trl	40067854		Reinforced Concrete Pipe	12	140	MH2-741	MH2-742		4	3	3	12
Reeds Lake Blvd	40067939		Reinforced Concrete Pipe	42	286	MH2-327	MH2-321		3	2	3	9
	40067957	49246	Unknown	6	44				3	2	1	3
	40067990	50899	Unknown	10	44			1984	3	2	1	3
	40068008	44506	clay	10	37				3	2	1	3
	40068016	9505	Unknown	0	23				3	2	1	3
	40068084	53267	Unknown	12	227				3	2	1	3
	40068179	12118	Unknown	8	163			1933	4	3	1	4
	40068198	27639	Unknown	12	9			1998	2	1	1	2
	40068211	91899	Concrete	12	23			1975	3	2	1	3
	40068257	4290	ductile iron	10	48			1956	4	3	1	4
	40068266	35555	clay	12	51			1927	4	3	1	4
	40068312	65885	RCP C-76	10	8			1983	2	1	1	2
	40068329	88763	concrete	12	73			1934	4	3	1	4
	40068341	22392	Unknown	0	15			1998	3	2	1	3
	40068445	51273	Unknown	10	39				3	2	1	3
	40068448	6290	Unknown	12	142			1929	4	3	1	4
	40068451	56912	Unknown	10	28				3	2	1	3
	40068457	33306	Unknown	8	5			1997	2	1	1	2
	40068482	60055	Unknown	18	187	MH3-999	MH3-999	1937	4	3	3	12
	40068487	5495	Unknown	10	20				3	2	1	3
	40068498	503	Unknown	10	17			1969	4	3	1	4
	40068531	92551	Unknown	18	24	MH2-507	MH2-507		3	2	3	9
	40068591	16327	Unknown	12	166			1967	4	3	1	4
	40068712	24697	Unknown	0	10				3	2	1	3
	40068728	25637	Unknown	12	34			1963	4	3	1	4
	40068771	61589	Unknown	36	366	MH2-386	MH2-386		3	2	5	15
	40068784	8278	Unknown	54	309			1956	4	3	5	**20**
	40068966	89284	Unknown	0	12				3	2	1	3
	40069023	62382	Unknown	12	97			1928	4	3	1	4
Boston St	40069068		Reinforced Concrete Pipe	12	231	MH3-1101	MH3-1100		4	3	3	12
	40069095	90177	Unknown	0	29	MH2-498	MH2-498		3	2	1	3
	40069154	13519	Unknown	10	95				3	2	1	3
	40069156	53970	Unknown	12	158				3	2	1	3
	40069157	44501	Unknown	10	45				3	2	1	3
Andover Rd	40069177		Reinforced Concrete Pipe	12	119	MH3-1177	MH3-1176	1963	4	3	3	12
	40069218	7796	Unknown	12	152				3	2	1	3
	40069304	50360	Unknown	12	273			1928	4	3	1	4
	40069306	68639	Unknown	18	12			1997	2	1	3	6
	40069326	98706	concrete	15	19			1983	2	1	2	4
	40069380	62812	Unknown	0	22				3	2	1	3
	40069434	42524	Unknown	12	35			1927	4	3	1	4
	40069589	939	Unknown	12	15			1985	3	2	1	3
	40069653	46967	Unknown	0	93				3	2	1	3
	40069661	66223	Unknown	12	59			1928	4	3	1	4
	40069662	64625	PVC	4	95			1998	1	1	1	1
Bellclaire Ave	40069704		Reinforced Concrete Pipe	12	45	MH2-734	40154147	1939	5	4	3	15
	40069828	64692	Unknown	0	19			1969	3	2	1	3
	40069926	2887	Unknown	12	21			1937	4	3	1	4
	40069940	35107	RCP C-76	12	32			1965	3	2	1	3
	40069964	59286	Unknown	0	57				3	2	1	3
	40069977	70577	Unknown	12	13				3	2	1	3
	40069983	24824	Unknown	8	399				3	2	1	3
	40070087	56231	Unknown	12	25			1985	3	2	1	3
	40070110	95227	Unknown	6	23				3	2	1	3
	40070129	35825	Unknown	36	77			1997	2	1	5	10
	40070159	52532	Unknown	12	286			1934	4	3	1	4
	40070302	47483	Unknown	12	39				3	2	1	3
	40070316	52466	concrete	12	159				3	2	1	3
	40070367	52604	Unknown	27	162				3	2	5	15
Manhattan Ln	40070424		Reinforced Concrete Pipe	8	2	NJ-400422	MH2-466	1965	3	2	3	9
	40070449	48833	Unknown	0	23				3	2	1	3
	40070452	14037	Unknown	0	74				3	2	1	3
	40070468	36221	concrete	12	213				3	2	1	3
	40070492	5745	Unknown	0	28				3	2	1	3
	40070493	2694	concrete	48	234			1998	1	1	5	5
Lake Dr	40070520		Reinforced Concrete Pipe	12	120	MH3-904	MH3-903	1971	3	2	3	9
Wealthy St	40070533		Reinforced Concrete Pipe	12	10	NJ-400163	MH1-232		3	2	3	9
	40070640	45507	PVC	4	110			1998	1	1	1	1
	40070647	33050	concrete	12	75			1958	3	2	1	3
	40070671	58007	concrete	20	194	MH1-17	MH1-17	1917	4	3	4	16
	40070689	34582	concrete	12	184			1928	4	3	1	4
Hall St	40070693		Reinforced Concrete Pipe	12	7	MH2-538	MH2-531	1929	3	2	3	9
	40070707	23820	Unknown	10	9			1963	4	3	1	4
	40070758	56127	concrete	36	127			1929	4	3	5	**20**
	40070794	27328	Unknown	12	33			1970	4	3	1	4
	40070857	59866	Unknown	0	9				3	2	1	3
	40070890	7641	Unknown	10	10			1963	4	3	1	4
	40070896	22017	Unknown	0	18				3	2	1	3
	40070920	64862	Unknown	10	32	MH3-1091	MH3-1091	1997	2	1	1	2
	40070955	24540	Unknown	10	14				3	2	1	3
	40070975	57593	concrete	12	43				3	2	1	3
	40070997	45012	Unknown	0	16			1934	3	2	1	3
	40071001	94817	Unknown	12	137	MH3-799	MH3-799		3	2	1	3
	40071027	61865	Unknown	12	344	MH5-1791	MH5-1791	1929	4	3	1	4
	40071159	34084	Unknown	0	25				3	2	1	3

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	40071198	26578	Non-RCP	12	97			1969	3	2	1	3
	40071231	58474	Unknown	12	285	MH1-24	MH1-24		3	2	1	3
	40071248	9611	RCP C-76	24	179			1983	2	1	4	8
Shopping Center Dr	40071287		Reinforced Concrete Pipe	24	155	MH1-208	MH1-211	1989	3	2	3	9
Keneberry Way	40071307		Reinforced Concrete Pipe	12	6	MH2-674	MH2-677	1934	4	3	3	12
	40071402	29898	Unknown	0	21				3	2	1	3
	40071440	43736	Unknown	8	17			1997	2	1	1	2
	40071479	18898	concrete	12	40				3	2	1	3
Beechwood Dr	40071496		Reinforced Concrete Pipe	18	162	MH3-848	MH3-851	1968	3	2	3	9
	40071500	12987	concrete	10	55			1937	4	3	1	4
	40071617	66101	Unknown	10	22			1967	4	3	1	4
	40071618	59989	Unknown	0	89	MH3-1078	MH3-1078		3	2	1	3
East grand Rapids Fire Dept	40071669		Polypropylene	30	31	MH2-757	40155785		1	1	5	5
	40071670	38393	Unknown	18	12			1998	2	1	3	6
Lake Grove Ave	40071752		Reinforced Concrete Pipe	12	327	MH3-1001	MH3-1019	1934	2	2	2	4
	40071783	34368	Unknown	0	41			1929	3	2	1	3
	40071795	42637	Unknown	18	93			1956	4	3	3	12
	40071797	59290	clay	12	51			1927	4	3	1	4
	40071808	27033	Unknown	10	8				3	2	1	3
	40071814	49989	Unknown	0	4			1980	3	2	1	3
	40071925	11036	Non-RCP	27	293			1987	2	1	5	10
	40071933	16246	Unknown	12	56			1989	3	2	1	3
	40071935	21723	Unknown	10	26				3	2	1	3
	40071955	3502	concrete	24	112				3	2	4	12
Beechwood Dr	40071978		Reinforced Concrete Pipe	30	102	MH3-876	MH3-877	1997	3	2	3	9
	40071987	39996	Unknown	12	29			1928	4	3	1	4
	40071995	6061	tile	12	26			1934	4	3	1	4
Andover Ln	40072016		Reinforced Concrete Pipe	18	114	MH3-1241	MH3-1240	1989	3	2	3	9
	40072021	50618	PVC	4	95			1998	1	1	1	1
	40072024	33327	Unknown	10	10				3	2	1	3
	40072031	92967	Unknown	0	15				3	2	1	3
Hall St	40072033		Reinforced Concrete Pipe	24	243	MH2-692	MH2-693	1928	3	2	3	9
	40072041	66502	Unknown	10	21			1984	3	2	1	3
	40072115	70596	Unknown	0	8				3	2	1	3
	40072185	90247	Unknown	12	43			1934	4	3	1	4
	40072230	41686	Unknown	12	150			1946	4	3	1	4
	40072372	64769	Unknown	10	36			1962	4	3	1	4
	40072403	36064	Unknown	12	278			1929	4	3	1	4
	40072405	66693	Unknown	0	6				3	2	1	3
	40072444	56628	Unknown	12	24			1928	4	3	1	4
	40072465	37813	concrete	12	46				3	2	1	3
Richards Dr	40072477		Reinforced Concrete Pipe	12	111	MH3-1035	MH3-1034	1929	5	4	3	15
	40072478	69084	Unknown	12	140	MH4-1542	MH4-1542		3	2	1	3
	40072496	40136	Unknown	12	106			1989	3	2	1	3
	40072530	48742	Unknown	54	13			1998	2	1	5	10
Richards Dr	40072533		Reinforced Concrete Pipe	12	17	MH3-1036	MH3-1035	1963	3	2	3	9
	40072540	17497	Unknown	10	35				3	2	1	3
	40072610	18392	Unknown	30	170			1965	4	3	5	**20**
	40072752	48946	Unknown	0	9				3	2	1	3
	40072759	29191	Unknown	10	26			1931	4	3	1	4
	40072799	19462	Unknown	12	21				3	2	1	3
	40072831	10412	Unknown	10	40			1963	4	3	1	4
	40072881	32182	Unknown	0	10			1987	3	2	1	3
	40072882	30543	Unknown	12	346			1929	4	3	1	4
	40072915	47438	Unknown	10	40				3	2	1	3
	40072945	90172	Unknown	0	36				3	2	1	3
	40072958	95036	Unknown	0	53				3	2	1	3
	40072982	28806	Unknown	10	17			1967	4	3	1	4
	40073073	3747	Unknown	12	29			1989	3	2	1	3
	40073098	25498	Unknown	0	20			1969	3	2	1	3
	40073108	7193	Unknown	0	24			1969	3	2	1	3
	40073224	12496	Unknown	0	11			1934	3	2	1	3
	40073254	40029	Unknown	24	83			1934	4	3	4	16
	40073258	2579	Unknown	0	10				3	2	1	3
	40073266	62777	Unknown	0	23				3	2	1	3
	40073286	53839	Unknown	12	50				3	2	1	3
	40073317	63807	Unknown	0	34				3	2	1	3
Manhattan Rd	40073334		Reinforced Concrete Pipe	12	100	MH2-453	MH2-450		3	2	3	9
	40073387	54874	Unknown	0	7			1983	3	2	1	3
	40073413	4352	Unknown	10	40			1931	4	3	1	4
	40073490	72769	Unknown	6	73				3	2	1	3
	40073518	62295	Unknown	0	28				3	2	1	3
	40073538	61310	Unknown	0	10			1969	3	2	1	3
	40073573	95205	Unknown	0	26				3	2	1	3
	40073590	39414	Unknown	15	59			2000	2	1	2	4
	40073678	20634	Unknown	48	33			1930	4	3	5	**20**
	40073688	46217	Unknown	10	17			1956	4	3	1	4
Edgemere Dr	40073772		Reinforced Concrete Pipe	18	35	MH1-157	MH1-158	1954	4	3	3	12
	40073783	25445	Unknown	10	25			1965	4	3	1	4
Manhattan Rd	40073916		Reinforced Concrete Pipe	12	316	MH2-459	MH2-456		3	2	3	9
	40073994	95008	Unknown	10	33			1996	2	1	1	2
	40073995	6765	concrete	48	239			1929	4	3	5	**20**
	40074031	11330	Unknown	0	37				3	2	1	3
	40074105	10567	Unknown	12	56			1963	4	3	1	4
	40074221	46692	Unknown	12	12			1985	3	2	1	3
	40074282	21651	Unknown	12	243			1962	4	3	1	4
	40074332	43177	Unknown	10	23				3	2	1	3
	40074359	72807	Unknown	12	195	MH4-1471	MH4-1471	1928	4	3	1	4
	40074377	5637	Unknown	12	29				3	2	1	3
	40074388	71607	Unknown	0	22			1929	3	2	1	3
	40074450	40584	Unknown	0	19				3	2	1	3
	40074512	94720	concrete	10	33	MH1-2026	MH1-2026	1987	2	1	1	2
	40074544	61791	tile	12	19			1934	4	3	1	4
	40074676	43573	RCP C-76	12	174			1971	2	1	1	2
	40074826	56259	Unknown	12	31			1982	3	2	1	3
	40074992	58001	Unknown	0	33				3	2	1	3
	40075056	67555	Unknown	0	21			1929	3	2	1	3
	40075076	50188	Unknown	0	10				3	2	1	3
	40075088	10477	Unknown	12	143			1956	4	3	1	4
	40075141	72144	Unknown	0	18			1937	3	2	1	3
	40075142	40342	RCP CL-IV	42	174			1998	1	1	5	5
	40075197	13275	Unknown	30	81			1929	4	3	5	**20**
	40075236	58340	Unknown	0	24				3	2	1	3
	40075274	54152	Unknown	0	64				3	2	1	3
	40075366	37034	RCP CL-IV	24	28			1997	2	1	4	8
	40075374	4656	Unknown	0	36				3	2	1	3
Andover Rd	40075407		Reinforced Concrete Pipe	12	126	MH3-1176	MH3-1118	1963	3	2	3	9
	40075492	16755	Unknown	0	22				3	2	1	3
	40075516	26938	Unknown	0	44			1956	3	2	1	3
	40075527	11750	Unknown	10	29				3	2	1	3
	40075528	63574	concrete	12	39				3	2	1	3
	40075530	71773	concrete	12	18				3	2	1	3

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	40075757	38956	Unknown	12	28			2016	1	1	1	1
	40075816	41957	Unknown	18	11			1998	2	1	3	6
	40075858	9662	Unknown	0	65				3	2	1	3
	40075859	1882	Unknown	12	43			1928	4	3	1	4
	40075982	53048	Unknown	12	19				3	2	1	3
Conlon Dr	40076038		Reinforced Concrete Pipe	12	185	MH2-630	MH2-633	1998	3	2	3	9
	40076073	89683	Unknown	10	51			1934	4	3	1	4
	40076182	69359	Unknown	0	24			1929	3	2	1	3
	40076206	3327	Unknown	0	32			1929	3	2	1	3
	40076225	93119	Unknown	12	42			1934	4	3	1	4
	40076244	9314	Unknown	0	11				3	2	1	3
	40076270	62341	Unknown	18	31	MH5-1914	MH5-1914	1997	2	1	3	6
	40076286	92540	Unknown	0	26				3	2	1	3
Bonnell Ave	40076296		Reinforced Concrete Pipe	12	213	MH2-481	MH2-478		3	2	3	9
	40076482	33208	Unknown	12	44			1937	4	3	1	4
Manhattan Rd	40076491		Reinforced Concrete Pipe	12	73	MH2-454	MH2-453		3	2	3	9
	40076502	57465	Unknown	0	22			1956	3	2	1	3
	40076577	24939	Unknown	10	74				3	2	1	3
	40076651	31486	Unknown	12	145			1963	4	3	1	4
Northshire	40076696		Reinforced Concrete Pipe	12	89	MH3-823	40154155	1987	3	2	3	9
	40076713	55079	Unknown	10	31			1984	3	2	1	3
	40076767	51469	Unknown	12	42			1929	4	3	1	4
	40076802	94735	Unknown	10	10				3	2	1	3
	40076901	47624	Unknown	12	12			1928	4	3	1	4
	40076907	11259	Unknown	10	20			1983	3	2	1	3
	40077061	31405	Unknown	0	101				3	2	1	3
	40077134	53984	Unknown	12	82			1923	4	3	1	4
	40077187	89285	concrete	30	162	MH1-113	MH1-113		3	2	5	15
	40077292	26243	Unknown	12	377			1963	4	3	1	4
	40077307	10474	Unknown	0	38			1997	3	2	1	3
	40077472	72303	PVC	4	95			1998	1	1	1	1
	40077525	95200	Unknown	0	54			1934	3	2	1	3
Bellclaire Ave	40077557		Reinforced Concrete Pipe	12	121	MH2-731	MH2-733	1939	5	4	3	15
	40077632	52464	concrete	12	56			1937	4	3	1	4
	40077663	43640	Unknown	12	7			1937	4	3	1	4
Lake Grove Ave	40077684		Reinforced Concrete Pipe	43	441	MH3-892	MH2-661	1956	4	3	3	12
	40077688	16333	Unknown	12	56			1928	4	3	1	4
	40077741	64029	Unknown	0	28				3	2	1	3
	40077748	24636	Unknown	12	311			1934	4	3	1	4
	40077752	67856	Unknown	0	14			1986	3	2	1	3
	40077790	50404	Unknown	12	58			1933	4	3	1	4
	40077816	10319	Unknown	0	27			1967	3	2	1	3
	40077817	16542	Unknown	12	54			1982	3	2	1	3
	40077885	63856	Unknown	0	25			1971	3	2	1	3
	40077972	5036	Unknown	10	54				3	2	1	3
	40077974	39059	Unknown	10	24			1984	3	2	1	3
	40077976	25863	PVC	12	183			2005	1	1	1	1
	40077993	62440	Unknown	0	24				3	2	1	3
	40078044	93113	Unknown	12	29			1934	4	3	1	4
	40078141	7377	Unknown	12	29				3	2	1	3
	40078183	27470	Unknown	12	250				2	1	1	2
	40078244	92528	Unknown	0	29				3	2	1	3
	40078352	2552	Unknown	10	9				3	2	1	3
	40078375	59890	Unknown	12	63			1934	4	3	1	4
	40078383	4743	Unknown	18	10			1998	2	1	3	6
	40078434	69262	Unknown	18	208	MH3-992	MH3-992	1928	4	3	3	12
	40078461	77609	Unknown	10	56				3	2	1	3
	40078531	73737	Concrete	12	13				3	2	1	3
	40078558	2269	Unknown	18	128				3	2	3	9
Breton Rd	40078638		Reinforced Concrete Pipe	12	174	MH2-698	MH2-696	1939	3	2	3	9
Manhattan Rd	40078680		Reinforced Concrete Pipe	12	73	MH2-455	MH2-454		3	2	3	9
	40078691	419	Unknown	0	34				3	2	1	3
	40078721	92531	Unknown	0	26	MH2-644	MH2-644		3	2	1	3
	40078724	46526	Unknown	12	11			1984	3	2	1	3
	40078749	88759	pvc	12	45			1934	4	3	1	4
	40078832	2485	Unknown	36	167			1997	2	1	5	10
	40078844	29641	Unknown	0	12				3	2	1	3
	40078866	24912	Unknown	0	13				3	2	1	3
	40078886	10605	Unknown	12	29				3	2	1	3
	40078982	69468	Unknown	10	64			1979	4	3	1	4
	40079010	3583	concrete	10	35				3	2	1	3
Croswell Ave	40079085		Reinforced Concrete Pipe	12	214	MH1-2029	MH1-2025	1987	5	4	3	15
	40079223	4321	concrete	48	210				3	2	5	15
	40079309	19561	concrete	18	46			1954	4	3	3	12
	40079359	13041	Unknown	36	32				3	2	5	15
	40079373	10120	Unknown	10	40			1931	4	3	1	4
	40079401	66403	Unknown	6	29				3	2	1	3
	40079430	53732	Unknown	10	14				3	2	1	3
Hall St	40079509		Reinforced Concrete Pipe	12	133	MH2-543	MH2-538		3	2	3	9
	40079564	49272	Unknown	10	27			1970	4	3	1	4
	40079572	73090	Unknown	36	112	MH4-1664	MH4-1664	1928	4	3	5	**20**
Conlon Ave	40079604		Reinforced Concrete Pipe	60	306	MH3-968	MH3-970		3	2	3	9
	40079645	53717	Concrete	36	240			1963	3	2	5	15
	40079668	54818	Concrete	24	332				3	2	4	12
	40079675	18583	Unknown	24	265				3	2	4	12
Southshire	40079693		Reinforced Concrete Pipe	12	111	MH3-2038	MH3-836		3	2	3	9
	40079714	31733	Unknown	10	43			1971	4	3	1	4
	40079767	92957	Unknown	12	145	MH2-641	MH2-641	1929	4	3	1	4
	40079797	63481	Unknown	0	98				3	2	1	3
	40079814	89652	Unknown	54	41	MH1-127	MH1-127		3	2	5	15
	40079852	57311	Unknown	0	14				3	2	1	3
	40079957	44823	Unknown	0	10				3	2	1	3
	40080010	25982	Unknown	12	116			1967	4	3	1	4
Lake Dr	40080012		Polypropylene	30		MH3-871	MH3-876		1	1	5	5
	40080016	7860	Unknown	42	461			1998	2	1	5	10
	40080031	39690	Unknown	0	21				3	2	1	3
	40080166	37865	Concrete	12	183			1934	4	3	1	4
	40080219	51777	Unknown	12	248				3	2	1	3
	40080226	68582	Unknown	6	19				3	2	1	3
Albert Dr	40080227		Reinforced Concrete Pipe	12	48	MH3-1070	MH3-1071		5	4	3	15
	40080244	70691	Unknown	10	33	MH4-1676	MH4-1676	1984	3	2	1	3
	40080293	55074	Unknown	10	30				3	2	1	3
	40080297	22652	Unknown	12	28			1963	4	3	1	4
	40080341	89949	Concrete	15	249	MH2-491	MH2-491		3	2	2	6
	40080452	774	Unknown	12	152				3	2	1	3
	40080466	24187	tile	12	24			1929	4	3	1	4
	40080520	62001	Concrete	54	5			1998	1	1	5	5
	40080560	48979	Unknown	54	8			1998	2	1	5	10
	40080581	73597	Unknown	12	200	MH3-982	MH3-982	1934	4	3	1	4
	40080715	32833	Unknown	8	27			1923	4	3	1	4
	40080788	90186	concrete	10	51	MH2-493	MH2-493		3	2	1	3
	40080795	89948	Unknown	12	8	MH2-616	MH2-616	1998	2	1	1	2

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	40080849	13625	Unknown	12	65			1928	4	3	1	4
	40080852	61832	concrete	10	232			1929	4	3	1	4
	40080863	88782	Unknown	12	166			1929	4	3	1	4
	40080993	20432	Unknown	10	36			1962	4	3	1	4
Conlon Dr	40081016		Reinforced Concrete Pipe	12	32	MH2-644	MH2-642		3	2	3	9
	40081018	62942	Unknown	12	174			1930	4	3	1	4
	40081038	50939	tile	12	264			1927	4	3	1	4
	40081042	67055	Unknown	10	22			1984	3	2	1	3
	40081071	98654	Unknown	0	30				3	2	1	3
	40081164	31338	Unknown	10	17			1965	4	3	1	4
	40081185	51911	Unknown	0	96				3	2	1	3
	40081204	61636	Unknown	10	32			1969	4	3	1	4
	40081267	29408	Unknown	12	285			1928	4	3	1	4
	40081432	55468	Unknown	30	35			1997	2	1	5	10
	40081433	51153	Unknown	18	50			1998	2	1	3	6
	40081509	12581	Unknown	10	15			1937	4	3	1	4
	40081534	22271	Unknown	0	24			1933	3	2	1	3
	40081536	58074	Unknown	10	25			1969	4	3	1	4
	40081539	13145	Concrete	15	245			1980	2	1	2	4
	40081571	25359	Unknown	0	22			1929	3	2	1	3
	40081637	37466	Unknown	12	199				3	2	1	3
	40081666	27504	Unknown	12	141				3	2	1	3
	40081722	26895	tile	12	29			1928	4	3	1	4
Richards Dr	40081756		Reinforced Concrete Pipe	12	153	MH3-1015	MH3-1014		4	3	3	12
	40081766	43839	Unknown	0	108				3	2	1	3
	40081786	50884	Unknown	0	87				3	2	1	3
	40081787	44327	Unknown	12	48			1965	4	3	1	4
	40081868	16654	Unknown	10	79			1965	4	3	1	4
	40082076	8654	Unknown	12	34				3	2	1	3
	40082136	69077	Ductile Iron	12	200	MH3-962	MH3-962		3	2	1	3
Santa Monica Dr	40082180		Reinforced Concrete Pipe	12	5	MH2-702	MH2-700		3	2	3	9
	40082250	31305	RCP C-76	48	387			1983	2	1	5	10
	40082253	50697	RCP C-76	10	40			1983	2	1	1	2
	40082254	12363	Unknown	24	195				3	2	4	12
	40082257	9551	RCP CL-IV	42	262			1998	1	1	5	5
	40082332	89890	Unknown	10	8			1934	4	3	1	4
	40082371	11742	Unknown	24	178			1998	2	1	4	8
	40082407	22491	Unknown	18	15			1998	2	1	3	6
	40082408	6140	Unknown	24	95				3	2	4	12
	40082585	61569	RCP C-76	30	183			1983	2	1	5	10
	40082595	89963	Unknown	0	9				3	2	1	3
	40082662	21904	Unknown	12	474				3	2	1	3
	40082711	25029	Unknown	0	28				3	2	1	3
	40156701	3957	RCP CL-III	24	70			2005	1	1	4	4
	40208263	90253	Unknown	6	191	MH4-1418	MH4-1418	2008	1	1	1	1
	40208306	79962	Unknown	0	75				3	2	1	3
	40208307	79119	Unknown	0	8				3	2	1	3
	40208314	78141	Unknown	0	111				3	2	1	3
	40208320	79818	Unknown	12	20			1928	4	3	1	4
	40208395	74994	Unknown	0	73				3	2	1	3
	40208396	77398	Unknown	0	18				3	2	1	3
	40208397	79825	Unknown	0	38				3	2	1	3
	40210352	78352	PVC	6	209	MH2-531	MH2-531	2008	1	1	1	1
	40210356	78948	PVC	6	122			2008	1	1	1	1
	40210360	77601	PVC	6	190			2008	1	1	1	1
	40213723	82457	PVC	8	17	MH1-51	MH1-51	2010	1	1	1	1
	40221657	30165	Unknown	24	18			2010	1	1	4	4
	40221662	47963	RCP CL-V	12	26			2010	1	1	1	1
	40221663	26814	RCP CL-II	12	12			2010	1	1	1	1
	40221667	26840	RCP CL-V	12	27			2010	1	1	1	1
	40221668	46137	RCP CL-V	12	13			2010	1	1	1	1
	40221671	46694	RCP CL-II	12	25			2010	1	1	1	1
	40221672	46339	RCP CL-II	12	20			2010	1	1	1	1
	40221681	47994	Unknown	12	9			2010	1	1	1	1
	40221682	46695	Unknown	12	19			2010	1	1	1	1
	40221685	42834	Unknown	12	97			2010	1	1	1	1
	40221687	47975	Unknown	12	199			2010	1	1	1	1
	40221692	41899	Unknown	12	6			2010	1	1	1	1
	40221699	46128	Unknown	12	20			2010	1	1	1	1
	40221896	41889	Unknown	0	24				3	2	1	3
	40221897	46337	Unknown	0	15				3	2	1	3
	40221898	26834	Clay	0	20				**3**	2	1	3
	40221901	48179	RCP CL-V	12	28			2011	1	1	1	1
	40221902	46357	Unknown	12	15			2011	1	1	1	1
	40221904	26839	RCP CL-V	12	54			2011	1	1	1	1
	40223502	91346	Concrete	24	154	MH3-817	MH3-817		3	2	4	12
Hall St	40223503		Reinforced Concrete Pipe	12	230	MH2-474	MH2-535		4	3	3	12
	40223504	87306	Clay	24	93				3	2	4	12
	40225253	91182	Clay	18	289	MH1-211	MH1-211		3	2	3	9
	40225266	91183	Ductile Iron	12	71				3	2	1	3
	40225275	91630	Ductile Iron	12	47			2009	1	1	1	1
	40225889	91903	CPP	12	8			2012	1	1	1	1
	40225890	91904	CPP	12	22			2012	1	1	1	1
Bonnell Ave	40225892		Polypropylene	12		MH2-609	MH2-612		3	2	1	3
	40225905	91184	Concrete	10	82	MH2-497	MH2-497		3	2	1	3
	40225906	91185	Unknown	0	27				3	2	1	3
	40225909	91357	Unknown	0	49				3	2	1	3
	40225912	91358	Unknown	0	45	MH2-575	MH2-575		3	2	1	3
	40225915	91359	Unknown	0	49	MH2-572	MH2-572		3	2	1	3
	40227393	95949	PVC	4	42			2012	1	1	1	1
	40227399	95950	PVC	6	23				3	2	1	3
	40227401	95951	PVC	4	97			2011	1	1	1	1
	40227402	95952	PVC	4	25			2011	1	1	1	1
	40227405	95953	PVC	4	7				3	2	1	3
	40227408	95955	PVC	4	44			2011	1	1	1	1
	40228265	95751	Unknown	24	15				3	2	4	12
	40228266	92215	Unknown	12	87	MH3-817	MH3-817		3	2	1	3
	40228283	96862	Unknown	0	49			2013	3	2	1	3
	40228348	89405	CPP	4	24			2013	1	1	1	1
	40228349	89406	CPP	4	13			2013	1	1	1	1
	40228350	89407	CPP	4	28			2013	1	1	1	1
	40228765	96900	PVC	3	33			2013	1	1	1	1
	40229561	90329	Unknown	12	60				3	2	1	3
	40229706	90525	CPP	8	33				3	2	1	3
	40229707	90526	CPP	8	28				3	2	1	3
	40229710	90527	CPP	8	88				3	2	1	3
	40229711	90528	CPP	8	240	MH2-442	MH2-442		3	2	1	3
	40229728	97914	HDPE	4	84	MH5-1865	MH5-1865	2013	1	1	1	1
	40229729	90529	HDPE	4	143			2013	1	1	1	1
	40230153	89674	Ductile Iron	30	12	MH1-129	MH1-129	2012	1	1	5	5
	40230154	89675	Ductile Iron	30	13	MH1-131	MH1-131	2012	1	1	5	5
	40230165	98377	Concrete	12	149			2004	1	1	1	1

For manholes, put "MH ##" for facility ID. Manhole materials are "Concrete" or "Block". material column choices are shown in the drop-down list. If an asset material is not listed, manually enter it, and

Storm Sewer System Assets	FacilityID	Contract ID	Material	Size_IN	Length_FT	UpstreamMH	DownstreamMH	YrInstalled	Condition	Probability of Failure	Consequence of Failure	BusinessRisk
	40230166	89899	Unknown	6	135			2004	2	1	1	2
	40230217	93679	Unknown	36	268			2004	2	1	5	10
	40230223	93680	Perforated Plastic	36	104	MH1-91	MH1-91	2004	2	1	5	10
	40230369	93994	Concrete	12	29				3	2	1	3
	40230387	93689	Unknown	0	115	MH1-251	MH1-251		3	2	1	3
	40230390	93690	Unknown	0	202				3	2	1	3
	40230391	93691	Unknown	0	168				3	2	1	3
	40230392	93692	Unknown	0	28				3	2	1	3
	40230393	93693	Unknown	0	35				3	2	1	3
	40230394	93694	Unknown	0	124	MH1-255	MH1-255		3	2	1	3
	40230395	93695	Unknown	0	200	MH2-772	MH2-772		3	2	1	3
	40230396	93696	Unknown	0	76	MH1-255	MH1-255		3	2	1	3
	40230397	93697	Unknown	0	5				3	2	1	3
	40230398	93698	Unknown	0	4				3	2	1	3
	40230399	93699	Unknown	0	10				3	2	1	3
	40230400	93700	Unknown	0	5				3	2	1	3
	40230402	93701	Unknown	0	135	MH2-772	MH2-772		3	2	1	3
	40230403	93702	Unknown	0	105				3	2	1	3
	40230404	93703	Unknown	0	197				3	2	1	3
	40230405	93705	Unknown	0	33				3	2	1	3
	40230406	93706	Unknown	0	64				3	2	1	3
	40230416	93707	Unknown	0	18				3	2	1	3
	40230585	95131	CPP	12	42			2005	1	1	1	1
	40230586	95132	CPP	12	50			2005	1	1	1	1
	40230592	94945	Unknown	12	73	MH1-270	MH1-270	2005	1	1	1	1
	40230652	94946	Unknown	12	62				3	2	1	3
	40230653	94947	Unknown	12	62				3	2	1	3
Wealthy St	40230658		Polypropylene	12		MH1-248	MH1-249		4	3	1	4
	40230659	94949	CPP	12	47			2005	1	1	1	1
	40230660	94950	Unknown	8	18				3	2	1	3
	40230661	94951	Perforated Plastic	4	28			2005	1	1	1	1
	40230662	94953	Perforated Plastic	4	327	MH1-249	MH1-249	2005	1	1	1	1
	40230663	95082	Perforated Plastic	4	300	MH1-239	MH1-239	2005	1	1	1	1
	40230862	95083	Perforated Plastic	4	685	MH1-243	MH1-243	2005	1	1	1	1
	40230863	95084	Perforated Plastic	4	51			2005	1	1	1	1
	40230864	95085	Perforated Plastic	4	24			2005	1	1	1	1
	40230899	95087	CPP	12	27			2005	1	1	1	1
	40230942	95088	CPP	8	80			2005	1	1	1	1
Wealthy St	40230950		Polypropylene	12		CB1-241	CB1-240		3	2	1	3
	40230982	94366	Perforated Plastic	4	25			2005	1	1	1	1
	40230999	94367	Perforated Plastic	4	350	MH1-243	MH1-243	2005	1	1	1	1
	40231015	94368	CPP	12	30			2005	1	1	1	1
	40231055	94369	Perforated Plastic	4	14			2005	1	1	1	1
	40231056	94370	Perforated Plastic	4	239	MH1-2026	MH1-2026	2005	1	1	1	1
	40231057	94371	Perforated Plastic	4	184	MH1-2025	MH1-2025	2005	1	1	1	1
	40231058	94372	Perforated Plastic	4	332	MH1-218	MH1-218	2005	1	1	1	1
	40231075	94373	CPP	12	75			2005	1	1	1	1
	40231076	94374	PVC	3	42			2005	1	1	1	1
	40231078	94375	CPP	12	54	MH1-226	MH1-226	2005	1	1	1	1
	40231080	94376	CPP	6	29			2005	1	1	1	1
	40231100	94377	Perforated Plastic	4	145			2005	1	1	1	1
	40231110	94378	Perforated Plastic	4	37			2005	1	1	1	1
	40231131	97234	CPP	8	53			2005	1	1	1	1
	40231135	94379	CPP	8	22			2005	1	1	1	1
	40231147	97246	CPP	0	26				3	2	1	3
	40231158	94560	Perforated Plastic	4	34			2005	1	1	1	1
	40231170	94561	Perforated Plastic	4	260	MH1-218	MH1-218	2005	1	1	1	1
	40232587	93995	Concrete	12	23				3	2	1	3
	40232592	93996	Concrete	12	334				3	2	1	3
	40232593	93997	Concrete	12	21				3	2	1	3
	40232594	93998	Concrete	12	351	MH1-91	MH1-91		3	2	1	3
	40232600	93999	Concrete	12	47				3	2	1	3
	40232601	94000	Unknown	0	27				3	2	1	3
	40232705	92726	PVC	3	76			2013	1	1	1	1
	40232733	92727	Concrete	12	21			2013	1	1	1	1
	40232805	92749	Clay	10	105				3	2	1	3
	40232806	92750	Clay	12	30				3	2	1	3
	40232807	92751	Unknown	0	5				3	2	1	3
	40233572	91775	PVC	0	79			2013	3	2	1	3
	40233752	113928	pvc	6	35				3	2	1	3
	40233753	113929	Concrete	12	143				3	2	1	3
	40246947	181946	Unknown	0	313	MH5-1899	MH5-1899		3	2	1	3
	40261248	189706	Unknown	0	31				3	2	1	3
	40261252	189708	Unknown	0	32				3	2	1	3
	40261253	189709	Unknown	0	28				3	2	1	3
	40261254	189710	clay	6	28				3	2	1	3
	40261255	189711	clay	6	5	MH1-44	MH1-44		3	2	1	3
	40261256	189712	Unknown	0	60	MH1-33	MH1-33		3	2	1	3
	40261259	189714	Unknown	12	50	MH1-33	MH1-33		3	2	1	3
	40261261	189715	Unknown	0	29	MH1-34	MH1-34		3	2	1	3
	40261262	189716	Ductile Iron	12	510	MH1-45	MH1-45		3	2	1	3
	40261302	190923	Unknown	12	30			2016	1	1	1	1
	40261303	190924	Unknown	12	9			2016	1	1	1	1
	40261305	190926	Unknown	12	28			2016	1	1	1	1
	40261311	191321	Ductile Iron	8	57	MH2-666	MH2-666	2016	1	1	1	1
	40261312	191322	Unknown	12	35	MH2-666	MH2-666	2016	1	1	1	1
	40261315	191324	Unknown	12	29	MH2-666	MH2-666	2016	1	1	1	1
	40261316	191325	Ductile Iron	8	87			2016	1	1	1	1
	40261321	191326	Unknown	12	30			2016	1	1	1	1

APPENDIX C

For manholes, put "MH ##" for facility ID. Manhole materials are "Concrete" or "Block". material column choices are shown in the drop-down list. If an asset material is not listed, manually enter it, and

Storm Sewer System Assets	FacilityID	Contract ID	Material	Size_IN	Length_FT	UpstreamMH	DownstreamMH	YrInstalled	Condition	Probability of Failure	Consequence of Failure	BusinessRisk
	40000448	49152	Unknown	54	208	MH2-752	MH2-752	1956	4	3	5	**20**
	40002884	1371	RCP C-76	66	269			1956	4	3	5	**20**
	40003047	57577	concrete	48	147	MH5-1866	MH5-1866	1929	4	3	5	**20**
	40004135	94734	concrete	27	436	MH2-771	MH2-771	1934	4	3	5	**20**
	40004354	1459	Unknown	36	570			1934	4	3	5	**20**
	40005256	29388	ductile iron	24	159	MH4-1656	MH4-1656	1928	4	3	4	16
Lake Dr	40005257		Polypropylene	30	200	MH3-873	MH3-870		4	3	5	**20**
	40006272	46561	Unknown	30	181	MH4-1470	MH4-1470	1928	4	3	5	**20**
	40007228	9494	Unknown	36	161	MH4-1553	MH4-1553	1928	4	3	5	**20**
	40010807	21281	Unknown	30	180	MH3-994	MH3-994	1937	4	3	5	**20**
	40011052	7494	Unknown	30	101			1934	4	3	5	**20**
	40012682	67644	Unknown	27	54	MH3-951	MH3-951	1956	4	3	5	**20**
	40013061	22439	Concrete	36	184	MH4-1638	MH4-1638	1934	4	3	5	**20**
	40014749	94717	Concrete	24	407	MH1-272	MH1-272	1934	4	3	4	16
	40015238	11372	Unknown	27	184			1971	4	3	5	**20**
	40016440	35032	Unknown	24	340	MH1-275	MH1-275	1934	4	3	4	16
	40016441	72119	Unknown	30	97	MH4-1509	MH4-1509	1928	4	3	5	**20**
	40017203	30965	Unknown	36	30	MH4-1470	MH4-1470	1938	4	3	5	**20**
	40018019	48923	Unknown	36	245	MH4-1483	MH4-1483	1934	4	3	5	**20**
	40018083	34418	Concrete	48	262	MH5-1865	MH5-1865	1929	4	3	5	**20**
	40019791	16524	Unknown	21	50	MH4-1304	MH4-1304	1957	4	3	4	16
	40020352	36451	Unknown	36	304	MH4-1641	MH4-1641	1928	4	3	5	**20**
	40020353	8372	Unknown	36	92			1938	4	3	5	**20**
	40023210	20235	ductile iron	36	151	MH4-1645	MH4-1645	1928	4	3	5	**20**
	40024238	72842	Unknown	66	618	MH2-670	MH2-670	1956	4	3	5	**20**
	40025968	18789	Concrete	36	185			1928	4	3	5	**20**
	40028191	61060	Unknown	30	136	MH4-1498	MH4-1498	1934	4	3	5	**20**
	40029029	94585	Concrete	27	424	MH2-772	MH2-772	1934	4	3	5	**20**
	40031279	9428	Unknown	36	203			1938	4	3	5	**20**
	40034673	7279	Unknown	36	260			1934	4	3	5	**20**
	40034753	47950	Unknown	30	60	MH4-1507	MH4-1507	1938	4	3	5	**20**
	40034948	31535	Unknown	27	224	MH3-1257	MH3-1257	1971	4	3	5	**20**
	40035774	554	Unknown	21	98			1957	4	3	4	16
	40036403	44901	Unknown	54	266	MH2-713	MH2-713	1956	4	3	5	**20**
	40041627	6609	Unknown	30	235			1934	4	3	5	**20**
	40042160	66196	Unknown	30	245	MH4-1499	MH4-1499	1934	4	3	5	**20**
	40042947	56641	Unknown	36	275	MH4-1560	MH4-1560	1928	4	3	5	**20**
	40043072	32377	concrete	24	314			1925	4	3	4	16
	40045431	89469	cmp	36	27			1985	4	3	5	**20**
	40047792	19819	Unknown	36	300			1934	4	3	5	**20**
	40049535	64194	Unknown	22	206	MH1-20	MH1-20	1917	4	3	4	16
	40050056	65344	Unknown	36	240	MH4-1491	MH4-1491	1934	4	3	5	**20**
	40050280	35426	Unknown	27	147			1971	4	3	5	**20**
	40052318	34300	Unknown	66	61			1956	4	3	5	**20**
	40052350	68852	Unknown	66	526	MH2-665	MH2-665	1956	4	3	5	**20**
	40053753	24835	Unknown	66	484			1956	4	3	5	**20**
Lakeside Dr	40055324		Polypropylene	30	383	MH1-275	CB1-284		5		5	**25**
	40058049	22480	Unknown	54	300			1956	4	3	5	**20**
Lakeside Dr	40058721		Polypropylene	30	87	CB2-755	MH2-756		4		5	**20**
	40060054	17834	Unknown	36	137			1929	4	3	5	**20**
	40061786	54025	Unknown	30	178	MH3-993	MH3-993	1937	4	3	5	**20**
	40065583	68942	Unknown	36	19	MH4-1572	MH4-1572	1929	4	3	5	**20**
	40065613	43747	Unknown	36	234			1928	4	3	5	**20**
	40065751	43094	Unknown	30	303			1971	4	3	5	**20**
	40067701	62775	concrete	27	158	MH1-2006	MH1-2006	1917	4	3	5	**20**
	40068784	8278	Unknown	54	309			1956	4	3	5	**20**
	40070671	58007	concrete	20	194	MH1-17	MH1-17	1917	4	3	4	16
	40070758	56127	concrete	36	127			1929	4	3	5	**20**
	40072610	18392	Unknown	30	170			1965	4	3	5	**20**
	40073254	40029	Unknown	24	83			1934	4	3	4	16
	40073678	20634	Unknown	48	33			1930	4	3	5	**20**
	40073995	6765	concrete	48	239			1929	4	3	5	**20**
	40075197	13275	Unknown	30	81			1929	4	3	5	**20**
	40079572	73090	Unknown	36	112	MH4-1664	MH4-1664	1928	4	3	5	**20**

APPENDIX D

Streets CIP $1,500,000 Average Annual Target

Fiscal Year	Federal/Major/Local	Paser Rating	Street Section(s)	Estimate	
FY 2017-2018	Federal/Major	3	Lake Drive-Hall to Woodcliff	$270,000	Advance Construct Spring 2017
	Federal/Major	3	Wealthy-Lakeside to Lovett	$50,000	Summer 2017 with CIPP watermain
	Major	3,4	RLB-Pioneer Club to Manhattan	$111,000	
	Major	2,3	Argentina-Breton to Pinecrest	$123,000	with watermain
	Local	3	Boston-Andover to Conlon	$65,000	with watermain
	Local	3	Floral-Argentina to San Jose	$53,000	
	Local	3	Andover Ln-Berwyk to end	$26,000	
	Local	3	York-Berwyk-Richards	$85,000	
	Local	3	Estelle/Eastlawn-Englewood to Audobon	$54,000	
	Local	3	Whitfield-Englewood to end	$35,000	
	Local	2	Ogden-Argentina to Lake	$48,000	
	Local	3	Maxwell-Argentina to Lake	$65,000	
	Local	3	Arundel-Berwyk to Conlon	$230,000	
			Storm Sewer	$80,000	
			Sidewalks	$200,000	
				$1,495,000	**Total**

Fiscal Year	Federal/Major/Local	Paser Rating	Street Section(s)	Estimate	
FY 2018-2019	Federal/Major	3	Breton-Hall to Lake	$194,000	Summer 2018
			*local construction: $169,000		
			federal construction: $680,800		
			*engineering: $25,000		
	Major	3,4	Elmwood-Lake to Breton	$239,000	
	Major	3	San Jose-San Lu Rae-Argentina	$73,000	
	Local	3,4	Woodcliff Circle-Hall to Lake	$170,000	
	Local	3	Oakwood-Breton to Woodcliff	$291,000	
	Local	3	Indian Trail-Bellclaire to end	$60,000	
	Local	3	Brighton-Exeter to Boston	$74,000	
	Local	3	Pinecrest-Burchard to Hall	$62,000	
	Local	3	San Juan Dr/El Dorado-Argentina to Santa Cruz	$70,000	
	Local	3	Santa Monica-Breton-Kenesaw	$38,000	
			Storm Sewer	$80,000	
			Sidewalks	$200,000	
				$1,551,000	**Total**

Fiscal Year	Federal/Major/Local	Paser Rating	Street Section(s)	Estimate	
FY 2019-2020	Federal/Major	3	Franklin-Plymouth to WCL	$250,000	
	Federal/Major	3	Lakeside Dr-Wealthy to Lake	$190,000	
	Major	3,4	Argentina-Pinecrest to Plymouth	$180,000	
	Local	3	Kenesaw-Keneberry Way-Hall to El Dorado	$70,000	
	Local	3	Pioneer Club-RLB to Manhattan	$80,000	
	Local	3	Lenox-Hall to Anderson	$36,000	
	Local	3,4	Hodenpyl-Rexford to RLB	$94,000	
	Local	3	Woodcliff-Maplewood to SCL	$53,000	
	Local	3	Cardinal-Lake to end	$43,000	
	Local	4	Tenway-Oxford to Englewood	$55,000	
	Local	3	Eastwood-Hall to Lake	$99,000	
	Local	3	Gracewood-RLB to Lakewood	$70,000	
			Storm Sewer	$80,000	
			Sidewalks	$200,000	
				$1,500,000	**Total**

City of East Grand Rapids
750 Lakeside Dr. SE, East Grand Rapids MI 49506 – www.eastgr.org
Mr. Doug La Fave, Assistant City Manager – (616)940-4817
SAW Grant # 1150-01

Summary of Stormwater Asset Management Plan

The City of East Grand Rapids SAW Grant included asset inventory, condition assessment, criticality rating, and business risk determination of the stormwater collection system. The total grant amount was $402,900 of which the City paid for 10% with a local match. The 10% match was accounted for through in kind activities. Overall, the system was in "good health" and the City successfully collects and discharges stormwater within the City limits. The City maintains adequate staffing to appropriately maintain the system. The City currently budget is adequate to maintain the system and continue to perform modest capital upgrades to continue to improve the system.

Asset Inventory

The major task in the SAW Grant was reviewing and updating an inventory of the City's assets and rating their condition. Below is a summary of the collection ratings.

Stormwater Collection System Inventory

The asset management spreadsheet for the stormwater collections system includes the gravity collection system and hydrodynamic separators. The spreadsheet was created with the use of GIS as-built records, and coordination with the DPW Staff. The condition rating of the collection infrastructure was done by a person with PACP/MACP certification. The ratings were done through a small percentage of televising of the most critical assets and interpolation of rating based on similar size and age. The collection system was rated on a scale of 1 to 5, with a rating of 1 being Excellent Condition and 5 being the Asset is Unserviceable.

Criticality of Assets

The rating of "Criticality" demonstrates how important the asset is to maintain a functioning system, and what would be the consequence of a failure of that asset. The performance rating for the consequence of failure is determined with consideration for social safety, economic and financial implications, and environmental impacts that would be affected if the asset were to fail. The assets were rated on a 1 to 5 scale based on criteria from MDEQ SAW Grant guidance. The criticality of the asset was multiplied by the condition to create a business risk ranging from 1-25.

Level of Service Determination

The East Grand Rapids Staff and Engineers had multiple discussions about the Level of Service Below is a summary of the Level of Service for the East Grand Rapids System:

1. THE PROTECTION OF PUBLIC HEALTH AND THE ENVIRONMENT
2. MAINTAIN A SUSTAINABLE SYSTEM

Capital Improvement Plan

Several assets that have been flagged for improvement based on that condition or business risk will be scheduled to be improved. While the storm sewer functions properly at this time, capital improvements will proactively ensure collection continues to operate and maintain at a reliable level for the City.

Summary of Major Collection Systems Capital Improvements Projects

- Clean and Televise Collection System Lines (10% per year)
- CIPP Line Sewers based on hotspot map priority
- Replace gravity sewers and catch basins in critical areas (if street project planned)

List of Major Assets:

Collection System

- 12”-66” Gravity Piping
- Approximately 1,500 Catch Basins
- 5-Hydrodynamic Separators

MOORE & BRUGGINK, INC.

engineering clean water

Storm Sewer
Asset Management Plan
City of East Grand Rapids

Prepared for:

City of East Grand Rapids
Kent County, Michigan

Report by:

Moore & Bruggink Consulting Engineers
Grand Rapids, Michigan
170144.01
October 2017

Table of Contents

Table of Appendixes

List of Tables

Executive Summary

The State of Michigan provides grants through the Stormwater, Asset Management, and Wastewater program (SAW) for the development of plans to identify and manage assets in a community's system. The ultimate goal of the SAW program is to improve the water quality and public health in the state of Michigan. The City of East Grand Rapids ("City") recognized the advantages of having a plan for managing assets, and the positive fiscal and service impacts for end users. The City of East Grand Rapids successfully applied for a SAW grant to facilitate the implementation of an asset management plan for the storm sewer infrastructure system. This grant helped relieve the City of the costs associated with gathering asset information and rating the system.

The City should be applauded for their past and current maintenance and capital activities that have been conducted on the system. Overall, the system was in "good health" and the City successfully collects and discharges stormwater from their community. The City maintains adequate staffing to appropriately manage and maintain the stormwater assets.

To begin the asset management plan, a mission statement was developed to help guide the tasks and ensure that the plan accomplished the goals of the City.

1.1 Mission Statement

The City of East Grand Rapids Storm Sewer Asset Management Plan will evaluate the criticality, risk, level of service and costs for the repair of storm sewer system assets as the basis for an operationally sustainable replacement and improvement program.

Through the condition and risk assessment of the assets, and development of maintenance and capital projects to meet the desired level of service, the asset management plan was formulated. What resulted are several maintenance and capital projects that were programmed into the City's five-year budgeting plan.

Background

Municipal stormwater systems are made of individual physical components that age and deteriorate over time. These physical components are known as assets. Currently, the evaluation of risk and consequence of failure is how capital project priority is managed, and is primarily based on the age of the asset due to limited information. The intent is to transition this planning system from an age-based system (preventative) to a condition-based system (predictive) as additional investigation and assessment information is collected. *Asset management* is a proactive way to plan for and distribute costs of asset replacement. In order to best manage these assets, owners must understand each component in such a way that they can be ranked according to a set of sensible parameters. Typically, these attributes include evaluations of useful life, current condition, probability of failure, and criticality. Once valuation of each asset is determined, a plan to manage can be put into practice using an analytical approach to replace the most critical items.

The City also operates and maintains the storm collection system within the City limits of East Grand Rapids. The collection system consists of gravity storm sewer piping (and manholes) of varying age and materials, ranging in size from 6" to 66" diameter and first flush hydrodynamic separators.

The storm sewers were designed and evaluated for a 10-year storm event. Localized flooding may still occur in areas, even where the assets are properly sized and in good condition, during a storm event that exceeds the 10-year storm event.

The general scope of the asset management plan consists of several major items:

- Develop a desired Level of Service (LOS) for the assets/infrastructure;
- Inventory and Assessment of the existing assets:
    - Remaining useful life,
    - Condition,
    - Probability of Failure, and
    - Consequence of Failure;

- Calculation of Business Risk; and
- Determination of Maintenance and Capital items necessary to meet the desired level of service based on the Useful Life and Business Risk.

Following the completion of these items, a Maintenance and Capital Improvement Plan was developed, which provides an additional level of detail for projects and activities required to meet the level of service identified in this report.

Methodology

The following section explains the approach used to develop the Level of Service, as well as inventory, categorize, and rate the assets for the Asset Management Plan and the Capital Improvements Plan. A modified version of the MDEQ SAW spreadsheet was used to inventory and rate the assets.

3.1 Level of Service

Prior to rating all the assets in East Grand Rapid's system, a Level of Service ("LOS") was developed. A major factor in the quality of community life is the quality of the community's facilities, services, and amenities. Level of Service is a measure of the amount and/or quality of the assets/services that the public facility must provide to meet that community's basic needs and expectations. It defines the way in which the utility owners, manager, and operators want the system to perform over the long term, and sets measures to review achievement of those goals. The Level of Service is critical to achieving the needs of the City. Time was spent to develop the following level of service definitions and measures:

3.1.1 The Protection of Public Health and the Environment

- Manage and operate storm sewer infrastructure to ensure a healthy community and prevent degradation of environmental resources.
- PARAMETERS
    - Operate the storm sewer system in accordance with best practices.
    - Maintain employee preparedness for system operation.

3.1.2 Maintain a Sustainable System

- Develop and support long-term, operationally-sustainable strategies for asset management, budgetary requirements, and rate structures.

- PARAMETERS
    - Implement and maintain an asset management plan to regularly appraise storm system infrastructure.
    - Asset management plan development and review.

3.2 Staffing Considerations

An asset management plan will not be successful if the proper number of personnel are not in place to carry out the elements of the plan to maintain desired level of service. The staffing level will need to provide adequate staff to carry out the operation, maintenance, and repair of the system, and the budgets will need to be in place to support this staff.

3.2.1 General

The Stormwater Collection system is gravity operated, yet requires diligent operational attention. Routine servicing is required for maintenance and preventive maintenance purposes.

3.2.2 Manpower Requirements

Currently East Grand Rapids has fifteen personnel on staff that are responsible for the concurrent operations and maintenance of sanitary and stormwaters systems. In East Grand Rapids, all operators are cross trained to perform multiple job functions, including maintenance and operations of sanitary sewer, storm sewer, and water service. There are four crew leaders and eleven laborers that are qualified to perform the work. There is an on-call schedule so that at least one crew is available 24 hours a day, 365 days a year to respond to any emergencies that may occur.

It has been proven that the current staffing level is adequate to operate and maintain the storm sewer and all the other systems, and no changes are necessary at this time. The City will continue to evaluate the staffing levels, and make changes as appropriate in the future.

3.3 Asset Inventory

The first step to developing an asset management program is creating an inventory of all items within the system. An organized inventory will incorporate all assets in a format that will allow rapid determination of items in need of improvements or replacement. The assets for a stormwater treatment system can be divided into two groups: treatment assets such as storm separators, and collection system assets. An Atlas Map of the collection system can be found in **Appendix B**, detailing the storm sewer by pipe sizes and location. East Grand Rapids also uses a regional GIS service (REGIS), and can utilize this service to dial in on specific pipes, manholes, materials of construction, etc., all with unique identifying numbers.

3.3.1 Collection System Inventory

The asset management spreadsheet for the collections system contains all the sanitary sewer assets within the East Grand Rapids system. The spreadsheet was created with the use of GIS as-built records, and coordination with the DPW Staff. Due to the number of sewer pipe assets, the pipe segments were grouped together by runs of pipes separated by two manholes.

A complete list of the inventories of the collection system assets can be found in **Appendix C**.

3.4 Useful Life

Each asset is assigned an estimated life span. These assigned values were developed through industry experience, technical literature, and staff experience. Based on the installation dates collected for the assets, the installed age was subtracted from the estimated life span to determine the remaining estimated life of each asset. Eight years was chosen based on a five-year capital planning cycle so that as the AMP is updated, these items will flag for inclusion in the budget prior to them being at or past the end of useful life. The flagged items were included in the evaluation of what to put into the proposed Maintenance and Capital Improvement Plan. Useful life values for assets are shown in the calculations spreadsheets in **Appendix C**.

3.5 Asset Condition Rating

Once all assets in a system are cataloged, each asset is given a rating based on condition. Ratings are set on a 1 to 5 scale, as shown below in Table 1. The storm system ratings are based upon separate criteria based on the specific type of equipment, for instance, piping versus a mechanical element. Condition rating values for assets are shown in the calculations spreadsheets in **Appendix C**.

3.5.1 Collection System Assets

The condition rating of the collection infrastructure was done by a person certified through the National Association of Sewer Service Companies in Pipeline and Manhole Assessment Certification Program. These ratings were then translated to the condition rating described in Table 1 below to be consistent. The rating is dependent upon the condition of the asset as well as the percentage of the asset in a given condition. If only a small portion of the pipe is in poor condition, that section can be repaired. However, if the majority of the pipe is in poor condition, major construction may be needed for repair or replacement. The condition ratings for sewer pipe were determined using information obtained from a percentage of sewer televising as part of the SAW grant program and extrapolated to pipes of similar age, size and material. All the assets in the system are in operational condition. The assets with poor rating are still functioning as designed even with the significant deterioration.

Table 1 – Condition Rating Legend

CONDITION RATING	DESCRIPTION
5	Asset Unserviceable – Over 50% of asset requires replacement
4	Significant deterioration – significant renewal/upgrade required (20-40%)
3	Moderate deterioration – Significant maintenance required (10-20%)
2	Minor Deterioration – Minor maintenance required (5%)
1	New or Excellent Condition – Only normal maintenance required

3.6 Asset Probability of Failure Rating

The Probability of Failure (POF) is closely related to the condition rating, but can vary from the condition rating depending on the asset in question. For instance, an asset may be in poor condition, but is rarely run as a third level "backup," so the probability of it failing will be low. Probability of Failure values for assets are shown in the calculations spreadsheets in **Appendix C**.

Table 2 – Probability of Failure Rating Legend

POF RATING	DESCRIPTION
5	Imminent – Likely to occur in the life of the item
4	Probable – Will occur several times in the life of an item
3	Occasional – Likely to occur sometime in the life of an item
2	Remote – Unlikely but possible to occur in the life of an item
1	Improbable – So unlikely, it can be assumed occurrence may not be experienced

3.7 Asset Criticality Rating

The rating of "Criticality" demonstrates how important the asset is to maintain a functioning system, and what would be the consequence of a failure of that asset. The assets are rated on a 1 to 5 scale based on criteria from Table 3 below. Criticality Rating values for assets are shown in the calculations spreadsheets in **Appendix C**.

Table 3 – Criticality Rating Legend

PERFORMANCE RATING	DESCRIPTION
5	Catastrophic disruption
4	Major disruption
3	Moderate disruption
2	Minor disruption
1	Insignificant disruption

The performance rating for the consequence of failure is determined with consideration for social safety, economic and financial implications, and environmental impacts that would be affected if the asset were to fail.

3.8 Measure of Risk

The Measure of Risk ("MOR") or "Business Risk" is an analytic of both the likelihood of an asset to fail, and the severity of the failure to impact operations. The metric is calculated by multiplying the greater rating of either asset condition or probability of failure, by the criticality.

Condition OR Probability of Failure x Criticality = Measure of Risk

It was decided to use the greater value of Condition or Probability of Failure, as that would be a more accurate (and also conservative) estimate of the true MOR. The spreadsheets found in **Appendix C** show the calculations of MOR, and flag the asset if the value is equal to or greater than a baseline value of 16. This baseline value was decided upon to ensure the assets could meet the desired level of service. The spreadsheets are living documents that should be periodically updated and adjusted in order to maintain their usefulness. The baseline value for business risk can be adjusted as part of the updates to the documents as needed or if the Level of Service would change in the future.

3.9 Determine Appropriate Action

The calculations used to determine if an action is necessary to the asset consider both the Measure of Risk and the Useful Life of the asset. The primary justification for action uses the MOR (business risk), and compares the calculated value to a control value of 16 determined through discussions of risk with City staff of what would meet the desired Level of Service. A flag under this condition will tag the item for an **Improvement**. The secondary justification looks at the asset's remaining useful life. Otherwise, if no "flags" are obtained with these calculations, a **No Action** is returned.

Once the assets were flagged due to a useful life of less than 8 years, or a business risk of 16 or greater, then through meetings with the DPW, the appropriate action was determined to

ensure the desired level of service. A description of the two possible actions for each asset are described below:

- **No Action**. This is the appropriate action for all items that were not flagged. The assets are in good operating condition and are the lowest risk of affecting storm sewer collections and conveyance. Some assets that were flagged based on the parameters above were also re-tagged for "No Action" if that was deemed appropriate, and a note was put to document why. (This was not common.)
- **Improvement**. This was the action assigned to items with a large business risk. Usually, the business risk was high due to the consequence of failure of the item, and therefore a capital project was sometimes necessary to improve or eliminate the risk to within acceptable levels.

These criteria are based on standardized best practices that were established by other municipalities, and were designed to meet regulatory requirements, goals for renewal, and operations and maintenance. A summary showing only the "flagged" assets is detailed in **Appendix C**.

While calculations can provide a general idea of improvement and replacement need, intangible factors should be applied according to the City's core values and desired level of service. This set of objectives includes the protection of public health and the environment and maintaining a sustainable system. In some cases where one project area is included in a capital improvement project, fiscal responsibility dictates that it may become cost effective to address assets that have fallen outside the boundaries of the formulas as well.

3.10 Evaluation and Input into Maintenance and Capital Planning

The flagged items from the Asset Management Plan were considered one by one as to how to proceed, and whether the item was a capital planning item or a maintenance item to be taken care of by the DPW staff. Maintenance items were sometimes grouped together as capital items if the dollar value was high enough to warrant bidding, or if it made sense from a

planning perspective to group as a "project." The conclusions of the meetings and evaluations and the resulting spending plan for capital and maintenance items are discussed in the next chapter.

Capital Improvements Plan

This section identifies capital projects for assessment, design and construction. A recommended capital improvement plan has been developed that best reflects the findings of the asset management plan. For the purposes of this report, the five-year budget, or "Capital Plan," includes any maintenance items for capital projects projected for the next five fiscal years. The tentative Five-Year Capital Plan can be found in **Appendix D**. As time proceeds and the asset management plan is updated, additional capital improvement plans will be needed that incorporate assets as they reach their end of life. Adjusting the LOS parameters will have an effect on what assets are incorporated into the capital improvements plans.

4.1 Storm Sewer System

A percentage of the storm sewer system was televised to rate the assets in the opening phase of the asset management plan. The information was extrapolated to rate the entire storm system based on age, pipe material, and proximity to water bodies. As the asset management plan is continued and used to plan capital improvement projects for the storm sewer system, more televising should be completed. The list below details major projects that were added or updated in the five-year capital plan.

4.1.1 Summary of Major Collection Systems Capital Improvements Projects

- Clean and Televise Storm Sewer System Lines (10% per year).
- CIPP Storm Sewer lines based on hotspot map
- Replace storm sewers and catch basins in critical areas (if street project planned).

4.2 Total Annual Capital Costs

The aggregate costs associated with the proposed Capital Improvement Plan are shown in Table 4 below.

Table 4 – Total Annual Capital Costs

FISCAL YEAR	IMPROVEMENTS TOTAL
2017-2018	$80,000
2018-2019	$80,000
2019-2020	$80,000
2020-2021	$80,000

The budgeted line items that make up the yearly totals are show in the Five-Year Capital Plan in **Appendix D.** The above capital projects are funded through the East Grand Rapids municipal street fund. If more capital projects are needed then more money is available from other municipal funds to pay for the stormwater projects. The capital project will differ in each year depending on the problem areas and road projects each year.

Conclusions and Recommendations

Now that the asset management program is developed, it offers a powerful tool for managing City assets and developing cost budgets for future work. Infrastructure asset management is best accomplished when comprehensive inventory and assessment information is known.

From a big picture perspective, a fundamental recommendation is to start proactively managing the systems. Asset management is a continuous improvement process. As assets are added or modified and as additional information is obtained, the spreadsheet should be updated. Maintaining up-to-date information is crucial to successfully managing the Storm Sewer systems.

The next steps should include:

- Continuously update and improve the dataset of information. This includes the inventory and assessment information for the various assets stored in the spreadsheet.
- Periodically review the Level of Service to ensure that it meets the most up-to-date desires of the system "owners."
- As additional information is collected, periodically review and update the spreadsheet parameters. The parameters include: the weights and values assigned to the probability of failure and condition variables; unit price cost information; and planned project areas.
- Prepare and update financial budgets.

Continuation of Asset Management Plan

The largest portion of an extended capital improvement plan will include renewal of existing assets through projects that have yet to be defined. To effectively determine which assets require renewal, a comprehensive assessment program is required. Considering a large percentage of the system should be in acceptable condition, money spent on inspection can be a very good investment. For a relatively low cost, a significant number of assets can be inspected to enable making decisions on whether to rehabilitate or replace assets, or in many cases do nothing.

Information obtained from the assessment program should be incorporated into the spreadsheet to identify assets with the highest probability and consequence of failure. This will provide a ranking of assets that require attention, and then renewal projects may be identified. Accumulation of CCTV inspection data will also assist in identifying trends in the data regarding asset condition as a function of age, material, and general geographic locations.

6.1 Annual Inspections Assignments

The validation parameters are set so assets with greater than 16 MOR would be scheduled for improvement and those with less than eight years of Useful Life are to be scheduled for improvement. These validation parameters should be reviewed to ensure that the assets are meeting the desired level of service, and should be changed if necessary. Annual inspections should be completed on those assets with eight years or less of Useful Life, have an unknown age or are between 11 and 15 MOR. This schedule will help to ensure that as asset ratings change over time, the asset management plan will continually adjust and place assets with high risk factors into categories that will require review and possible capital planning considerations.

6.2 Planning Work Following Assessments

Some recommended factors to use in determining a prioritization for construction projects include:

- Assets that are at or near failure.
- Assets that are critical to operation, such as trunk sewers.

- Assets found within sensitive areas such as business districts or areas of environmental concern.
- Coordination with other infrastructure projects.

During detailed design, projects should be assembled by grouping together similar types of work. For example, initiating a sewer rehabilitation program to line pipes and restore structures along the collection system separately from replacement projects which would require open cut construction. Other factors to consider would be general location of the proposed repairs to confine the project to specific geographic areas in order to minimize disruption to businesses and residents.

Once the oldest parts and unknown age assets of the system are assessed, there will be a gradual reduction in major defects, until the types of problems found shift from structural issues in old and poorly constructed sewers to maintenance issues. Pipe and manhole assets that are not in failure mode can usually be repaired or improved using trenchless techniques such as cleaning, root removals, and lining to significantly extend the expected life of a storm sewer, which should then be recorded in the spreadsheet so a work history can be followed for each asset. This allows tracking of which pipes were renewed, and also helps to identify recurring problems so that more or less frequent inspections can be made.

6.3 Planning after Year 10

After the 10-year inspection period, the results of the assessment program should be evaluated to determine where to focus the remaining asset investigation. Potential options for beyond Year 10 of the capital improvement plan include:

- Begin inspection of assets less than 50-years old.
- Re-inspect assets greater than 50-years old that were not renewed during the previous assessment cycle.
- Establish a frequent cleaning and inspection program for assets.

2017 Focus Group Report for the NPDES MS4 Public Education Plan in the Lower Grand River Watershed

December 2017

Grand Valley Metropolitan Council

GVMC

Introduction

A focus group was held on December 18, 2017 as part of the compliance activities associated with the National Pollution Discharge Elimination System (NPDES) Stormwater Regulations watershed-based permit for communities in the Lower Grand River Watershed (LGRW). The focus group served as an evaluation tool for the LGRW Public Education Plan (PEP), an integral part of the NPDES Municipal Separate Storm Sewer System (MS4) permit. In 2003, twenty three entities made up of county, city, village, township, university, and local school districts collaborated under the guidance of Grand Valley Metropolitan Council (GVMC) to apply for a watershed-based stormwater permits. The Lower Grand River Organization of Watersheds (LGROW) was officially formed as an agency of GVMC in 2009 to coordinate the implementation of the permits and provide basin-wide oversight, conduct watershed-wide initiatives, and prioritize water quality concerns.

The PEP was created for the participating communities in Kent, Ottawa, and Muskegon Counties and is intended to educate the public on stormwater pollution reduction. Successful implementation of the PEP will form partnerships with agencies and organizations that have existing programs and use educational materials and strategies familiar and relevant to the area residents. LGROW is the mechanism used to promote PEP programs and materials.

The unique purpose of the public education portion of the NPDES MS4 Stormwater Regulations is to increase the awareness of watershed residents that their everyday activities can contribute pollutants to their community's water resources. Most citizens recognize the recreational and aesthetic benefits they receive from water, and also recognize that water quality degradation is a serious concern in the Great Lakes Region. Most people, however, have not made the connection that significant pollution is generated from their normal everyday actions, and not simply from large commercial and industrial sources.

The advantage of this regional watershed-based initiative is the cooperation and resource sharing that is developed between the participating communities. Implementing a successful PEP takes funding and preparation time that one community may find impossible to do alone. However, when coordination develops between many communities in the watershed, these resources can be shared, and a larger audience can be reached at a lesser cost per contributing community. Since the overall aim is to encourage pollution prevention by coordinating a regional effort, it makes sense to pool all available resources and delegate tasks to the communities that will be the most efficient at accomplishing their responsibilities.

The last focus group held to evaluate the PEP was in 2009 at Fishbeck, Thompson, Carr & Huber (FTC&H) in Grand Rapids. The purpose of the focus group was to determine changes in the awareness, education, and behavior of the public as a result of stormwater education efforts in 2008 and 2009. Results of that session were used by GVMC and the LGROW Public Engagement Committee to further enhance the goals, objectives, and deliverables of the MS4 program.

The 2017 focus group was held at the offices of GVMC with the purpose to determine changes in the awareness, education, and behavior of the public as a result of stormwater education efforts since 2009.

In this report the results of the focus group will be evaluated, and recommendations given by participants will be used to edit and update the current LGRW MS4 PEP.

Methods

Focus group participants were nominated by local units of government that maintain MS4 permits. Each participating local unit of government was asked to submit two potential participants that meet the following criteria:

1. The nominees must live in Kent or Ottawa Counties, specifically in the Lower Grand River Watershed, preferably in the community they are representing
2. The individuals do not manage or have direct involvement with your community's MS4 Permit
3. The nominees have had the potential to encounter LGROW deliverables (examples: events, educational outreach, brochures or fliers, LGROW website or Facebook page)

GVMC staff administered the 1.5 hour long focus group session on December 18, 2017. Twelve invited individuals were present, representing Kent and Ottawa Counties. Eleven of the 23 municipalities that GVMC works with regarding MS4 permits were represented. There was a diverse demographic represented among the group.

Focus Group Dialogue

All participants were asked to fill out the following questionnaire before discussion began:

Table 1 – Questionnaire
1. Name?
2. Affiliation or workplace?
3. What community (city, township, or village) do you live in?
4. What local parks do you most often go to?
5. What community do you work in?
6. What is the zip code where you live?

The results of this questionnaire indicated that all twelve participants live in the Lower Grand River Watershed and subwatersheds of the Lower Grand (Plaster Creek, Lower Rogue, Indian Mill Creek, and Spring Lake). Half of the participants worked for the municipality that they were representing for the focus group, although only one of those six work directly to manage their municipality's MS4 permit.

Discussion began with introductions of everyone present and an ice breaker question. The conversation followed six dialogue questions led by GVMC. The dialogue questions were as follows:

Table 2 – 2017 Dialogue Questions
1. What do you know about LGROW?
2. What LGROW information have you seen, heard, or read?
3. Did the message (that you have seen, heard, or read) influence you? If so, how?
4. Have you seen any stormwater or pollution prevention messaging at your workplace? Who was the message from? (LGROW, employer, other org.)
5. How could LGROW project deliverables be improved?
6. Where and how do you get information on community activities?

Question #1: What do you know about LGROW?

In all correspondence with participants prior to the focus group, the words 'Lower Grand River Organization of Watersheds' were not used. This was in order to determine the reach of the organization. When asked what they knew about LGROW, participants could not specifically spell out what LGROW stands for, but did display knowledge of watershed concepts and understand that the organization had something to do with watershed protection. One participant identified LGROW as the Lower Grand River Association of Watersheds and correctly described it as "a watershed partner for the larger area." Once told what LGROW stood for, participants were able to identify events and projects that LGROW partners and participates in, such as the Mayor's Grand River Cleanup (led by the West Michigan Environmental Action Council, WMEAC), Basin Buddy program and Stormwater Oversight Commission (City of Grand Rapids), MS4 permit management (GVMC/LGROW) and pet waste pledges (LGROW).

After topics for Question #1 were exhausted, GVMC staff explained the purpose of this focus group as it relates to the MS4 permitting process and explained the history of LGROW.

Question #2: What LGROW information have you seen, heard, or read?

The purpose of this question was to learn which materials LGROW had successfully administered to the communities. Some participants mentioned school activities, rain barrel workshops, and tours/events at breweries. Others described activities that their individual communities completed as part of MS4 compliance, including displays at city hall, e-newsletters, no dumping signs on catch basins, and touch-a-truck events where the DPW conducts outreach. Representatives from Grand Haven discussed their community's work with schools focusing on source water protection and recognized materials with LGROW's older "Keep it Pure: Yours to Protect" messaging. One participant was familiar with the LGROW Spring Forum and encouraged others to attend.

Participants wondered if LGROW ran a Master Rain Gardener program and asked about LGROW's connection to WMEAC and to Plaster Creek Stewards. The only LGROW-specific information that participants were able to relay was storm drain markers and pet waste signs.

Discussion for this question also raised participant concerns regarding combined sewer overflow (CSO) that reaches the Lower Grand River from upstream communities and its local effects. Participants also questioned if there would be opportunity for LGROW to do outreach concerning PFAS drinking water contamination.

All participants received re-usable LGROW tote bags that contained LGROW promotional and public outreach materials. GVMC staff also presented a power point presentation that contained pictures of other LGROW materials that were used in the past, materials that could not fit into the tote bags (ex: storm drain stencils), and pictures from events or festivals that LGROW has been present at.

Question #3: Did the message (that you have seen, heard, or read) influence you? If so, how?

The discussion regarding Question #3 didn't focus on how the stormwater messages changed behavior in participants, but instead focused on the content of messages. Participants did indicate that they had seen 'Entering the [Lower Grand River] Watershed' signs, but discussion did not cover how that information affected their behavior. Most participants agreed that placing these signs at watershed boundaries is better than only along the stream, but one participant thought the signs were not useful because people ignore them on busy streets.

Storm drain markings were discussed at length, and the general group consensus was that storm drain markers are good to have. However, the way that the storm drains are marked can affect the purpose of the marking. For example, the group seemed to be in agreement that the circular LGROW drain markers are hard to read, and therefore the message they are trying to convey (no dumping, drains to local waterway), gets lost. Also, if all drain markers are in English, and they are used in a neighborhood that isn't predominately native English speakers, the message gets lost. Excellent points were made by focus group participants asking about LGROW's outreach in different languages, and approaching citizen perspectives from different cultural point of views. If someone is from a culture where it is common practice to dump things down the storm drain, they may need different educational messages than those who understand how local stormwater infrastructure works.

Question #4: Have you seen any stormwater or pollution prevention messaging at your workplace? Who was the message from (LGROW, employer, other org.)?

One participant shared that unless you are working for a DPW directly with the stormwater permit, one would not receive official stormwater training. However, in that community, there is stormwater education provided to employees, especially if their daily job encounters stormwater management best management practices (BMPs). The general consensus from the focus group was that participants hadn't seen much information about stormwater in their workplace, or couldn't specifically recall any stormwater messaging at work.

Question #5: How could LGROW project deliverables be improved?

Participants offered helpful and realistic ways for deliverables to be achieved, how to improve messaging and improved methods of outreach. One suggestion was to connect watershed education with drinking water quality. Citizens are often more concerned with the quality of drinking water than surface water and stormwater runoff. If a connection between stormwater and drinking water can be made, citizens may become more invested in stormwater messaging.

There were many ideas about the methods used to reach people. The general consensus was that LGROW needs a broader reach and more people need to be aware of stormwater messaging. Participants mentioned that they would like to see messages on billboards, on physical print materials such as newspapers or magazines, and/or in promotional videos that offer watershed education messaging.

New audiences and topics for outreach were also suggested, including educating residents of apartment complexes on their current impacts as well as how they can manage future properties, and educating owners of LEED buildings on maintenance of their green infrastructure.

One participant mentioned that communication with local governments is crucial. For example, LGROW has been encouraging people to wash their car on their grass (or at a commercial car wash) in order to avoid runoff polluted with soap and automobile fluids entering the storm sewer system through storm drains. However, it was mentioned that it is against some city codes to park your vehicle on the lawn and residents can get ticketed.

Question #6: Where and how do you get information on community activities?

Many participants received community information from the internet. Internet and social media sites mentioned included: Facebook, Instagram, Nextdoor, municipal websites, Experience Grand Rapids website, and Eventbrite.

Other sources include community newsletter and mailers, water bill mailers, and word of mouth. It was mentioned that word of mouth is extremely important in communities where people do not have access to the internet or smart phones. Also, participants expressed that it isn't enough to tell people about the watershed or stormwater pollution prevention, you also need to tell them why they should care about information you are presenting.

Other Discussion

GVMC staff asked for other suggestions for new LGROW promotional materials and giveaways that would help promote stormwater messaging. New ideas from the focus group participants included: phone accessories such as PopSockets, water bottle stickers to get free water refills (similar to a program Art Prize has used in Grand Rapids), conducting storm drain marking events with private neighborhood associations who would not otherwise have their drains marked by a municipality, pencils for kids at schools, politicians spreading the word when they go door-to-door during campaign season, and attending farmers markets to partner with farmers who could hand out information on LGROW's behalf.

Results

This focus group ended up being a very educational experience for its participants while providing valuable feedback on LGROW outreach activities. The mixed demographic of participants and the number of MS4 communities participating provided a fairly diverse view of LGROW's reach into the watershed, and participants shared many ideas to improve LGROW messaging.

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New Target Audiences

- *Municipal employees*
- *Adults through schoolchildren*
- *People living in apartment complexes*
- *LEED certified building owners*
- *Farmers*

Much of the focus group time was spent explaining to participants what LGROW does and why, instead of gaining insight on how to improve specific LGROW messages and materials. The fact that many of the participants were employees of municipalities participating in the MS4 program suggests that LGROW may need to emphasize improvement of outreach to these communities in order to extend our reach into the wider watershed community. Since these communities are meant to be assisting in spreading LGROW's stormwater messaging and materials, it is important that their employees understand LGROW's work. More stormwater messaging needs to be available to municipality employees regarding that municipality's stormwater permit and program. Focus group participants were not opposed to learning more about their municipality's program, instead they seemed genuinely interested to know more about it and seemed willing to share that information with others. LGROW needs to find a more effective way for municipalities to share stormwater program information with municipality employees.

Frequently, LGROW focuses its attention on educating school children. It was suggested that information could be given to children at school for them to take home to their parents. Adults may become more invested in the messaging if it comes to them from their children. One participant suggested that LGROW spends a lot of time educating children, and should focus on targeting its messages to adults. An effective way to reach many adults at one time would be to expand messaging to apartment complexes. After this comment was made, other participants agreed, and suggested that private home associations, or subdivisions be brought into the loop in order to reach many adults who have a vested interest in the watershed, but aren't receiving messaging from another source. Other target audiences suggested were the owners of local LEED certified buildings. It is a good idea to reach out to these owners because they may need education on how to maintain their green infrastructure (GI).

Reworking Messages

- *Translating materials in to the language of the neighborhood*
- *Address 'why' citizens need to know the message presented*
- *Simplify messages*

Participants stressed the importance of materials being available in the language of citizens that LGROW is wishing to serve. There is a large Hispanic population in West Michigan, and in order to reach those people, materials in Spanish should be available. It is also important to take into consideration cultural values because many people may not understand how their local stormwater infrastructure works. While educating people on how the storm sewer works, focus group participants also mentioned that it

is important to explain to people why LGROW messages are important and how stormwater affects their everyday life. Messages should also be simple, in order to ensure understanding and avoid confusion.

Delivery Mechanisms

- *Placement of watershed information (placement of 'Entering the Watershed' signs, more signs for GI)*
- *Tours of municipalities and events at breweries*
- *Word of mouth*
- *Presence at festivals*
- *Advertising in churches in the watershed*

There was excellent discussion by the group about ways that they would like to receive more information regarding stormwater messaging, and the places where they thought that messaging would be well received in the watershed.

'You are now entering the [Lower Grand River] Watershed' signs were deemed helpful by participants. Only one participant expressed that these signs are not helpful to citizens, because if you drive past them frequently in your neighborhood, you quickly become immune and ignore them. There was discussion about the placement of the watershed signs, and the group seemed to agree that it is helpful to have the signs placed at watershed boundaries, not directly at river or stream crossings. However, it was suggested that if signs were placed along bike or walking trails, there would be an opportunity for people to stop and read the sign and any other information provided with it. It is not practical for a driver of a car or passenger to read the whole sign while driving by. It was suggested that LGROW consider placing more signs in parks with watershed information, where interested parties will stop and read. Participants also noted that you might reach more people if you have a sign on a roadside versus a trail based on how busy that road or trail is.

Participants noticed that stormwater education is often given during facilities tours at municipalities, and that is a good place to get information to a captive audience. Also, many people have an interest in local breweries, so events or messaging promoted at breweries would also be successful.

Word of mouth is extremely helpful in communities for people who do not have internet access or smartphones. It was suggested that LGROW find a community leader and use them to spread educational messages.

Attending festivals is another mechanism that was suggested during the focus group, and advertising events or stormwater messaging in churches was also mentioned. Festivals and churches usually contain many local leaders, and this would be a great way to get active community members involved.

Key take-aways for LGROW from the focus group are summarized in the following table:

How LGROW messages can be improved	
New Target Audiences	• *Municipal employees* • *Adults through schoolchildren* • *People living in apartment complexes* • *LEED certified building owners* • *Farmers*
Reworking Messages	• *Translating materials in to the language of the neighborhood* • *Address 'why' citizens need to know the message presented* • *Simplify messages*
Delivery Mechanisms	• *Placement of watershed information (placement of 'Entering the Watershed' signs, more signs for GI)* • *Tours of municipalities and events at breweries* • *Word of mouth* • *Presence at festivals* • *Advertising in churches in the watershed*

Future Action Steps

Using the information provided from the focus group, the PEP for the LGRW communities can be edited to better serve the public. The challenges, successes, and recommendations communicated in this report will be evaluated to modify the PEP as needed. The updated PEP will result in a more effective public outreach campaign to reduce stormwater pollution and raise MS4 awareness during the next permit cycle.

Photos


LGROW Stormwater
Outreach Materials
LOWER GRAND RIVER
ORGANIZATION OF WATERSHEDS


Drain Markers & Door Hangers