Lower Grand River Watershed Progress Report
City of Grand Rapids

Reporting Period: August 1, 2016– July 31, 2017

Prepared by the:

GVMC

Grand Valley Metropolitan Council
Environmental Programs
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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

Table 1 - 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	Michael Lunn
Title	Environmental Services Department Manager
Address	1300 Market Ave SW
City, State, Zip	Grand Rapids, MI 49503
Telephone (with area code)	616-456-3625
Fax (with area code)	616-456-3711
E-mail	mlunn@grcity.us
Stormwater Program Manager	
Name	Carrie Rivette
Title	Stormwater Manager
Address	1300 Market Ave SW
City, State, Zip	Grand Rapids, MI 49503
Telephone (with area code)	616-456-3057
Fax (with area code)	616-456-3711
E-mail	crivette@grcity.us
Stormwater Permit Fee Billing Address	
Name	Michael Lunn
Title	Environmental Services Department Manager
Address	1300 Market Ave SW
City, State, Zip	Grand Rapids, MI 49503
Telephone (with area code)	616-456-3625
Fax (with area code)	616-456-3711
E-mail	mlunn@grcity.us

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. Every participating Municipal Separate Storm Sewer System (MS4) permittee has a representative on at least one committee. 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. LGRW Committee Membership List as of July 31, 2017

Community	Representative	Public Engagement	Stormwater Ordinance (SWOrd)	Technical	Sustainability	Fund Development & Membership	LGROW Executive
Cascade Charter Township	Mr. Steve Peterson	X	X				
East Grand Rapids, City of	Mr. Brian Donovan					X	
East Grand Rapids, City of	Mr. Doug LaFave			X			
Forest Hills Public Schools	Mrs. Lea Sevigny	X					X
Fruitport, Village of	Ms. Marjorie Stonecypher	X					
Georgetown Charter Township	Mr. Rod Weersing	X					
Grand Haven, City of	Ms. Cheryl Davidson	X					
Grand Rapids Charter Township	Mr. Bob Versluys		X				
Grand Rapids, City of	Mr. Mike Lunn			X			
Grand Rapids, City of	Ms. Carrie Rivette	X	X		X	X	X
Grand Rapids, City of	Mr. Michael Staal	X	X		X		

Table 1. LGRW Committee Membership List as of July 31, 2017							
Community	**Representative**	**Public Engagement**	**Stormwater Ordinance (SWOrd)**	**Technical**	**Sustainability**	**Fund Development & Membership**	**LGROW Executive**
Grand Rapids, City of	Mr. Dan Taber			X			
Grandville, City of	Mr. Ken Krombeen		X			X	X
Grandville, City of	Mr. Jay Kwiatkowski	X					
GVSU*	Mr. John Koches			X			X
Hudsonville, City of	Ms. Jill Frielink				X		
KCDC	Mr. Brad Boomstra		X				X
KCDC	Ms. Angie Latvaitis			X			
KCDC	Ms. Lani Brown	X					
KCRC	Mr. Dave Beck	X					
KCRC	Mr. Dave Bennett						
KCRC	Mr. Wayne Harrall		X				
Kent County Health Department*	Mr. Jason Buck			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	Mr. John Gorney	X					
MDEQ*	Ms. Amanda St. Amour	X	X	X			
MDEQ*	Ms. Michelle Storey	X				X	
MDEQ*	Ms. Dana Strouse	X		X			
OCWRC	Mr. Dennis Cole		X				
OCWRC	Ms. Angela Walachovic	X					
OCRC	Mr. Jerry Olman	X					
Plainfield Charter Township	Mr. Rick Solle		X				

Table 1. LGRW Committee Membership List as of July 31, 2017							
Community	**Representative**	**Public Engagement**	**Stormwater Ordinance (SWOrd)**	**Technical**	**Sustainability**	**Fund Development & Membership**	**LGROW Executive**
Plainfield Charter Township	Ms. Mary Trapp-Gunst	X					
Spring Lake, Village of	Ms. Chris Burns	X					
Walker, City of	Mr. Scott Conners		X			X	X
Walker, City of	Ms. Rachell Nagorsen	X	X	X	X		
Wyoming, City of	Mr. Aaron Vis	X	X	X			X
Wyoming, City of	Mr. Myron Erickson		X				

Public Engagement Committee

The Public Engagement Committee met on September 14, 2016, November 9, 2016, January 11, 2017, March 8, 2017, and July 12, 2017 during the reporting period. Agendas and minutes for the meetings are posted to https://www.lgrow.org/public-engagement/?rq=public%20engagement%20committee.

Throughout the reporting period, the group focused on implementation of the updated Public Education Plan (PEP) approved in February of 2013, available here: https://static1.squarespace.com/static/595e6f5a197aeaae91c1bedd/t/5970e200e6f2e1c684643f2a/1500570114000/PEP+Master.pdf.

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. During this reporting period, the group selected messaging and outreach events which focused on the target messages of Personal Watershed Stewardship, Ultimate Stormwater Discharge, Public Reporting of Illicit Discharges, Personal Actions that can Impact the Watershed, and Waste Management. A detailed list of these events and the outreach conducted is provided in Part 3.

SWOrd Committee

The Storm Water Ordinance (SWOrd) Committee met on October 31, 2016, and May 1, 2017 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. Minutes and agendas for the meetings are available at: https://www.lgrow.org/stormwater-ordinance-committee/?rq=stormwater%20ordinance.

The committee finalized templates for the standards manual, model ordinance, 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 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. At this time, permitted MS4 communities have completed customizations to the standards manual.

Technical Committee

The Technical Committee met on October 31, 2016, February 15, 2017, April 19, 2017, and June 21, 2017 during this reporting period. Agendas and minutes from the meetings are available at the following site: https://www.lgrow.org/technical-committee-1/?rq=technical%20comm. In 2016, 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 Committee also finalized 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.

Training

GVMC provides multiple training documents and DVDs for Permittee use. In addition, GVMC has hosted or partnered on several training events during the reporting period including:

- Stormwater Information for Landscapers (brochure, updated)
- REGIS Outfall and Storm Sewer System Mapping In GIS
- Green Infrastructure Tours
- Soil Erosion & Sediment Control 101 Panel Discussion (West Michigan Soil Erosion Control Network)
- Soil Erosion Control Network Field Demonstration Day (West Michigan Soil Erosion Control Network)
- 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

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

Live Training

The Green Infrastructure Tour that was developed for the 2015 West Michigan Green Infrastructure Conference continues to be conducted by LGROW and other partners to educate and train municipal employees and residents about the benefits and challenges of green infrastructure. The following tours were conducted during the reporting period:

September 9, 2016 - Michigan City/Grand Rapids Exchange - Grand Rapids Natural (Green) Infrastructure Tour. Elected Officials and top management from Michigan City, IN, visited Grand Rapids for a Green Infrastructure tour as part of a grant from Alliance for the Great Lakes. The Mayor and City Manager hosted a lunch and held a conversation between the two cities. City Commissioners also attended.

May 10, 2017 – River Rally Green Infrastructure Tour. The field trip began at the Grand Rapids Water Resource Recovery Facility with a tour of the rain garden and Live Wall installations. The next stop was at The Rapid Operation Center to see the green roof, which is an area of the roof that is completely or partially covered with vegetation, reducing energy costs and extends the life of the roof. The next stop was at Joe Taylor Park to see the underground stormwater treatment. On the way to the next stop, the bus drove by the Plainfield Avenue Water Quality Islands and attendees received and explanation of their function. The final tour stop was at Kreiser Pond to see a native landscaped bioswale.

The Michigan Water Environment Association (MWEA) offers two events annually that are widely attended by LGRW MS4 permittees. The first is the Watershed and Stormwater Seminar, offered this year on December 6, 2016. The Seminar is designed for all who have a direct stake in stormwater and watershed management, non-point source pollution, or the modeling of urban stormwater systems. Attendees included: civil and environmental engineers; landscape architects and engineers; scientists; policy makers; local, regional, and state engineering professionals; public works personnel; municipal/township managers; environmental consultants; and, college/university instructors and researchers.

The second event, the Michigan Watershed Summit, was offered on March 29, 2017, which had the following agenda:

- Monitoring of Green Infrastructure Effectiveness
- TMDL Watershed Improvements & Compliance Progress
- Rain Garden University: A Turn-key Solution
- Great Lakes Clean Communities Network
- Creating Climate Resilient Communities
- Riversafe Lakesafe: Homeowner Education

The West Michigan Soil Erosion Control Network (WMSECN) is a professional organization focused on the protection and enhancement of the natural environment by promoting effective soil erosion control. WMSECN hosts regular training and professional development events including field demonstrations, speaker panels, networking events and technical design sessions. On June 15, 2017, WMSECN hosted a Field Day to tour the MDOT M-231 bridge construction.

Attendance at these events is recorded in each MS4's individual training logs (Part 2D).

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 recent sampling events can be viewed as follows:
http://grcity.us/enterprise-services/Environment-Services/Pages/Water-Quality-Index2.aspx

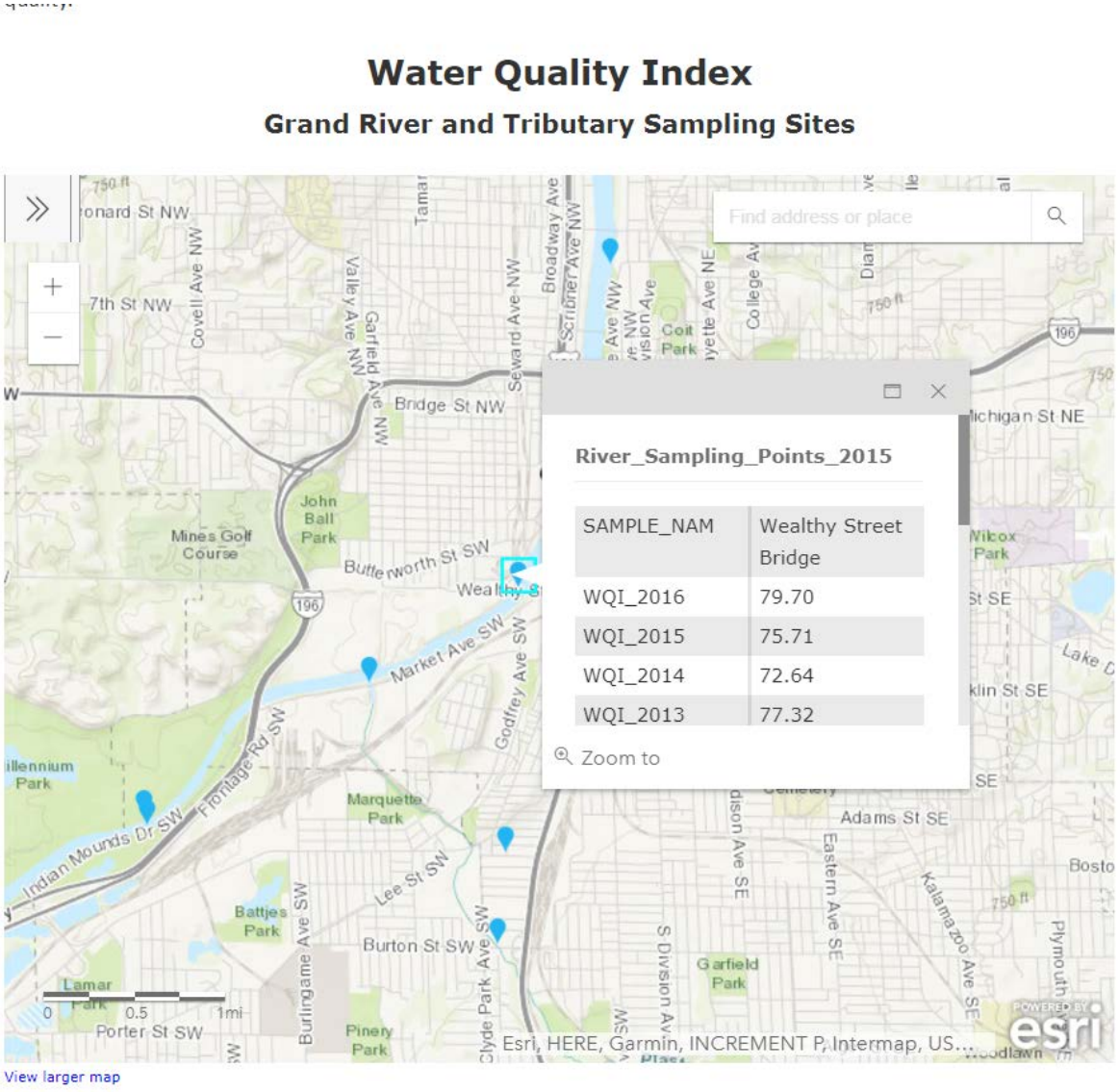


Figure 1. Grand Rapids Water Quality Index Web Interface

Data Repository

The LGROW Technical Committee continued working on the design for a watershed-wide data repository. 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 is now supporting the move from the online version to eREGIS, which will allow for much more customization of the site. 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/.

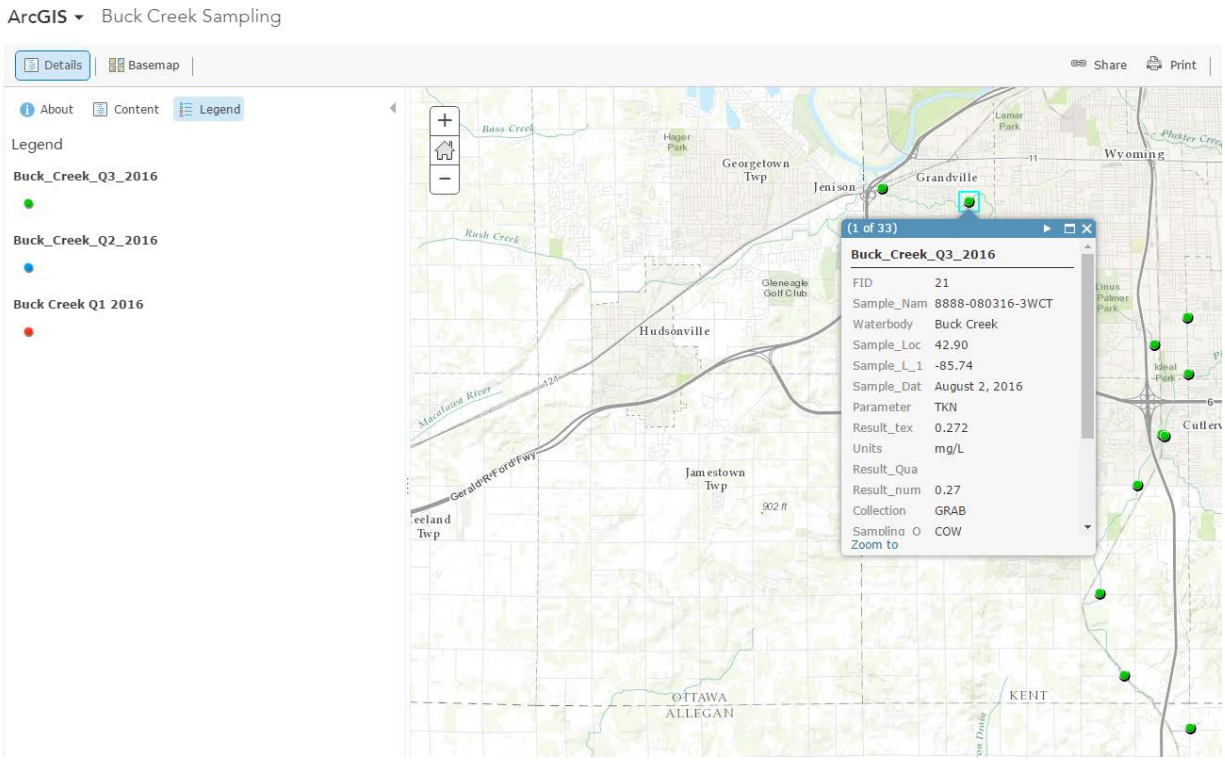


Figure 2. LGROW Data Repository

MDEQ Program Audits

MDEQ is expecting to perform MS4 Program Audits in all MS4 communities within 5 years. GVMC assists communities in preparing for audits, and in addressing any deficiencies identified by MDEQ. During this reporting period, MDEQ did not perform any audits on site for the communities in the Lower Grand River Watershed.

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.

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 new model stormwater ordinance, 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.

GVMC Departments are collaborating on a Single Source Project, which would involve collecting and mapping, via REGIS, updated zoning information from all GVMC members as well as all other communities within Kent County to create one information source for economic developers, transportation planners, and environmental managers. In addition to the zoning maps, transportation information such as traffic counts, congestion, road conditions, and environmental data, such as brownfields, impaired water bodies, and watershed boundaries would be included. This cooperative effort has been discussed as a priority for many years and is now possible, building upon internal GVMC communications between programs and staff. This information will be useful to MS4 permittees in making smart land use decisions. Planners from around the MS4 communities have been meeting to develop a coding system that all zoning categories will be able to fit into, so that a consistent code is used for mapping purposes. The codes are: agriculture, commercial, industrial, mixed use commercial/residential, mixed use commercial/industrial, multi family, office non-retail, open space, rural estate, and single detached.

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 filed demonstrations on BMPs and new technologies in this field.

Table 2. LGRW Part 91 Administration Authority as of July 31, 2017

Community	Part 91 Contact Info		Municipal Enforcing Agency (MEA)	Utilizes CEA			Authorized Public Agencies (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 2A-Summary of Municipal Commitments

LGRW Prioritized Objectives for Permittees from 2011 WMP	Commitment	Timeline	Measures of Effectiveness
Encourage proper septic tank management.	Provide educational brochures to all homeowners with septic systems. Currently there are approximately 257 within the City limits, none of which have storm sewers in the area.	December 2012.	Document that all brochures were sent. Report number of septic tank failures reported.
Actions completed:	67 brochures were sent to homeowners with septic systems. Homeowners on this list included homeowners that had not received brochures since 2015.Please see attached list of septic homeowners and mailing dates.		
Encourage septage ordinance.	Continue to work with the County or the Committee on septic tank issues.	Ongoing.	Number of failed septic systems connected to public sewer. Number of failed septic systems reported to Health Department and number of repairs and permits issued.
Actions completed:	No failed septic systems were reported this year.		
Implement vegetative buffering practices. Restore and protect the stream buffer and canopy.	Continue to enforce environmental features ordinance passed in 2012 requiring a 75-foot buffer protecting rivers, wetlands, streams, water bodies and sensitive environmental receptors. Prepare and adopt tree ordinance for the protection and restoration of the City's canopy.	Continue to implement environmental features buffer. Implement tree ordinance by June 30, 2013.	Report number of sites where buffer ordinance was applied. Adoption of tree ordinance.

LGRW Prioritized Objectives for Permittees from 2011 WMP	Commitment	Timeline	Measures of Effectiveness
Actions completed:	There were 2 sites where the 75-foot setback requirement was administratively lowered to a 50-foot setback. Aquinas Chapel Construction – Allowed for a more natural area to be stabilized and additional detention upstream to be provided on-site. Dorais Septic Construction – Construction of a new septic tank to replace and old septic tank that had potential for failing. The City Commission has adopted an updated tree ordinance on September 22, 2015. All development plans are reviewed for existing and proposed tree canopy conditions, and are leading towards reaching an overall tree canopy goal for the City of 40%.		
Implement MDNR wildlife population management practices.	Continue to install "Don't feed the wildlife signs" where needed. Provide online training for staff.	Ongoing. Provide training by June 2013.	Number of signs – less feeding observed. Number of staff attending training.
Actions completed:	The City's only problematic areas of feeding wildlife are Riverside and Richmond Parks. Signage is installed at these locations. 81 people were trained in person this year, and an additional 82 people were trained online this year.		
Implement sanitary sewer maintenance practices.	Maintain compliance with CMOM (Capacity, Management, Operation & Maintenance) for sanitary sewers in order to prevent seepage to storm sewers.	Ongoing.	Refer to cmom.net. Maintenance items are tracked in an enterprise asset management system.
Actions completed:	CMOM compliance has been maintained.		
Implement Low Impact Development practices.	Continue implementing commitment to LID, as detailed in Green Grand Rapids, a 2012 addendum to our Master Plan.	Ongoing.	Number and type of LID practices utilized at City properties.

LGRW Prioritized Objectives for Permittees from 2011 WMP	Commitment	Timeline	Measures of Effectiveness
Actions completed:	Construction of five (5) City property sites with LID practices were completed this reporting period. These were predominately park facilities that incorporated stormwater detention and infiltration designs to accommodate stormwater management at existing facilities that were redeveloped.		
Implement watershed focused land-use planning.	Continue enforcement of the City's current floodplain ordinance to protect flood plains not regulated by MDEQ. Continue enforcement of the city's current pet waste ordinance. Continue implementing commitment to LID, as detailed in Green Grand Rapids, a 2012 addendum to our Master Plan.	Ongoing.	Number of plans reviewed. Number of offsite LID practices implemented.
Actions completed:	This reporting period, 152 permits were issued for City and private projects. Of the permits issued, 64 were private projects that incorporated LID. Typically, LID is only implemented when impervious surfaces at a site are increased. The LID improvements included: 14 Detention / Retention Basins, 28 with Infiltration Practices, 1 Vegetated Roof, 2 Vegetated Swales, and 11 Water Quality Devices. There were also 13 right-of-way infrastructure projects that incorporated LID practices into the design of the public storm sewer system and street design. Projects incorporated infiltration basins, expanded tree planting systems, infiltration trenches, vegetative bulb outs, and porous pavement.		
Implement proper soil erosion and sedimentation control techniques.	Continue to enforce regulations as a Municipal Enforcing Agency. Train City field staff in SESC. Maintain certifications of Construction Stormwater Operators.	As projects are reviewed. Train a majority of field staff by June 30, 2013. Continue certifications.	Maintain MEA status. Percent of field employees trained. Number of Construction Stormwater Operators.

LGRW Prioritized Objectives for Permittees from 2011 WMP	Commitment	Timeline	Measures of Effectiveness
Actions completed:	Currently, 13 of the 40 required personnel are trained in construction stormwater operator training. During this reporting year, due to a staff realignment, the administrative policy that governs the positions that require the MDEQ construction stormwater operator training was modified to reflect the current positions. In addition to the required positions, we have 15 other staff members that have the construction stormwater operator training. We will continue training staff that are required to have this certification. Our goal for next reporting year is to have 75% of the 40 required personnel to receive this training.		
Implement channel streambank stabilization, bio engineering and erosion control techniques.	Compliance with DEQ permit conditions for any work that occurs within a stream. Flow restriction ordinance for all streams and reduced flow for impaired streams.	Continue to obtain DEQ permits for construction in a stream or channel. Continue to implement flow controls per stormwater ordinance.	Number of projects needing permits and permits obtained. Number of sites limited to reduced discharge.
Actions completed:	The City had three projects that required a MDEQ permit for stream or channel construction this year. Of the LUDS permits issued by the City this reporting year, 22 had flow restrictions to protect all waterways and six had flow restrictions for impaired waterways.		

LGRW Prioritized Objectives for Permittees from 2011 WMP	Commitment	Timeline	Measures of Effectiveness
Implement turf management and proper fertilizer application practices.	Continue to be in compliance with the State of Michigan Public Act 299 of 2010. Staff is trained in proper use of pesticides, herbicides and fertilizers. Contracts for these services contain language requiring proper usage. a. "No clippings of grass or weeds may be left in the street, on the curb, parkways, or sidewalk, but must be properly disposed of by the contractor." b. "All chemicals and materials which are spilled or misapplied to areas other than turf shall be cleaned up immediately. The contractor shall not allow chemicals & other materials to enter storm sewers, catch basins and/or water ways." c. "No chemical of any kind may be discharged into the gutters or sewer system. If granular(s) are used they must be swept or blown clean off all impermeable surfaces."	Ongoing.	Number of staff trained. Number of contracts issued.
Actions completed:	Four City staff members are certified in pesticide application by the state. This certification requires ongoing training, including fertilizer and herbicide application. These employees are responsible for application of pesticides, herbicides, and fertilizers. There were eight landscape maintenance contracts issued this year.		

Part 2B - Stormwater Controls Inspection, Maintenance and Effectiveness

Property Name: City Wide				
Structural Storm Water Control	**Inspection Frequency**	**Maintenance Schedule**	**Inspection and Maintenance Conducted and Location of Log (if applicable)**	**Effectiveness of Control and Support Documentation**
Stormwater Manholes	Complaint Based	N/A	1108 Cleaned 4 manhole replaced 10 manholes repaired Logs are maintained in Cityworks	Identified problems were fixed and pollutants were removed.
Stormwater Catch basins	Complaint Based	Clean 2,500 annually	3,918 cleaned Logs are maintained in Cityworks.	2,462 tons of solids were removed from the stormwater system and kept from the waterways
Discharge Points	Complaint Based	N/A	273 discharge points and backflow preventers were inspected	In 2014, backflow preventers were in installed in Grand Rapids and Walker. All backflow preventers are now inspected annually.
Stormwater Laterals	Complaint Based	N/A	536 feet cleaned 3 laterals repaired 11 laterals replaced Logs are maintained in CityWorks	Identified problems were fixed.
Stormwater Pressurized Mains	Complaint Based	Bi-weekly Inspection visit	Inspections occur once every 3 weeks from May through October and once every 4 weeks from November through April	No failures of a stormwater pumping station during a rain event
Stormwater Lift Stations	Complaint Based	Bi-weekly Inspection visit	All 11 wet wells were cleaned as needed based on inspections.	Annual cleanings appear to be sufficient.
Stormwater Gravity Mains	Complaint Based	N/A	196,634 feet cleaned 3,456 feet were rootsawed and cleared 280 feet were replaced	Identified problems were fixed and pollutants removed
Infiltration Basins (underground)	Complaint Based	10 yr. Inspection cycle	Inspections in CityWorks for 2019 and 2026	The basins appear to function well
Detention Basins	Complaint Based	Maintain & Inspect three times annually	The one pond that is operated by the City was inspected once every 2-8 weeks.	The basin appears to function well

Hydro Separators	Complaint Based	Clean twice year	8 hydroseparator cleanings were performed	With three years of cleaning hydro separators, we have found most separators are functioning fine with 1 cleaning annually. 1 unit will require 2 cleanings annually.
Siphons	Complaint Based	Clean annually	1 siphon cleaning was performed this year	Annual cleanings appear to be appropriate. As construction projects take place, we continue to remove as many siphons as possible.
Creek gates	Complaint Based	Clean annually	16 cleanings were performed 0 creek gates were repaired 29 inspections were performed.	Responding to complaints ensures that the worst areas are addressed more often
Open Ditches	Complaint Based	N/A	750 feet of ditch was cleared and restored along 6 sites	This work was complaint related to neighborhood ditches. Funds were budgeted to address the most problematic areas.

Part 2C – Part 1 - Procedures Status

Types of Properties	O&M Procedure	Location on http://mygrcity.us/collaboration/swppp
PW, W, WW	Concrete Waste Management	BMP Concrete Waste Management.pdf
A, C, D, F, G, L, M, Pk, Po, PW, R, T, V, W, WD, WW	Dumpster Management	BMP Dumpster Management.pdf
Pk, PW, W	Erosion and Sediment Control	BMP Erosion and Sediment Control.pdf
F, G, Po, PW	Fueling Areas	BMP Fueling Areas.pdf
A, F, G, L, M, Pk, Po, PW, T, W, WD, WW	Garbage Storage	BMP Garbage Storage.pdf
D, Pk, PW, W, WD, WW	Material Covering	BMP Material Covering.pdf
D, Pk, PW, W, WD, WW	Outdoor Storage Areas	BMP Outdoor Storage Areas.pdf
Pk, PW, W, WD, WW	Outdoor Storage, Raw Materials	BMP Outdoor Storage, Raw Materials.pdf
PW	Paving and Grinding Operations	BMP Paving and Grinding Operations.pdf
F, M, PW, W, WW	Petroleum and Chemical Storage, Small Quantities	BMP Petroleum and Chemical Storage, Small Q.pdf
F, M, PW, W, WW	Petroleum and Chemical Disposal	BMP Petroleum and Chemical Disposal.pdf
F, M, W, WW	Petroleum and Chemical Handling	BMP Petroleum and Chemical Handling.pdf

Types of Properties	O&M Procedure	Location on http://mygrcity.us/collaboration/swppp
F, W, WW	Petroleum and Chemical storage bulk	BMP Petroleum and Chemical Storage, Bulk.pdf
F, L, M, Pk, Po, PW, W, WW	Salt Application	BMP Salt Application.pdf
PW	Sand and Salt Storage	BMP Sand and Salt Storage.pdf
A, D, F, G, L, M, Pk, Po, PW, W	Solid Waste Management	BMP Solid Waste Management.pdf
A, F, M, Pk, PW, W, WD, WW	Spill Cleanup	BMP Spill Cleanup.pdf
A, F, M, Pk, PW, W, WD, WW	Spill Prevention Control and Cleanup	BMP Spill Prevent_Control.pdf
PW, W	Dust Control	deq-wb-nps-dc_250612_7.pdf
A, D, F, G, M, Pk, PW, W, WD, WW	Equipment Storage and Maintenance Areas	deq-wb-nps-ems_250618_7.pdf
F, L, Pk, Po, PW, R, V, W, WD, WW	Fertilizer Management	deq-wb-nps-fm_250620_7.pdf
F, L, Pk, Po, PW, R, V, W, WD, WW	Lawn Maintenance	deq-wb-nps-lm_250884_7.pdf
D, F, L, Pk, Po, PW, W, WD, WW	Organic Debris Disposal	deq-wb-nps-odd_250887_7.pdf
F, L, Pk, Po, PW, W, WD, WW	Pesticide Management	deq-wb-nps-pm_250893_7.pdf
WW	Stream Bank Stabilization	deq-wb-nps-sbs_250898_7.pdf

Types of Properties	O&M Procedure	Location on http://mygrcity.us/collaboration/swppp
PW, W, WW	Soil Management	deq-wb-nps-sm_250902_7.pdf
WW	Slope, Shoreline, Stabilization	deq-wb-nps-sss_250907_7.pdf
Pk, PW	Street Sweeping	deq-wb-nps-sw_250908_7.pdf
F, L, M, Pk, R, V, WD, WW	Trees, Shrubs and Ground Covers	deq-wb-nps-tsg_250910_7.pdf
PW	Winter Road Management	deq-wb-nps-wrm_250914_7.pdf
Pk	Golf Course Manual	ess-nps-Golf-Course-Manual_209682_7.pdf
Pk, PW	Road Salt Storage	Road Salt Application and Storage.doc

Part 2C – Part 2 – Procedures Status

General operations and maintenance items for Transportation, Parking, Maintenance Garages and O&M Waste Disposal.

(1) controls for reducing or eliminating the discharges of pollutants from streets, roads, highways, parking lots, and maintenance garages;

(a) Streets, roads, highways

a. Street Sweeping – goal is once every 70-90 days (weather dependent).

i. The City has disposed of 2,805 cubic yards of waste from street sweeping this reporting year at a cost of over $46,700. This has prevented approximately 2,560 tons of materials from entering the stormwater system.

b. Salt Application – Drivers are trained with new equipment to utilize salt most cost effectively which minimizes the amount used on the roadways.
c. SESC Program – tracking and construction is controlled via ordinance
d. Vehicle Accident Spills – Fire Department has a policy for cleanup and control in place as submitted with the 2011-2012 annual report.
e. Dust Control - See BMP sheet
f. Snow Removal – See BMP sheet
g. Gravel Road – See BMP sheet
h. Roadside Vegetation – See BMP sheet

(b) Parking lots

a. Every surface parking lot has a check sheet that inlcudes cleaning the curb lines as a daily activity (5 days per week). Larger pieces of trash or debris are removed daily from the lot. Finer materials of grit and gravel are allowed to accumulate until there is a sufficient volume to warrant sweeping. Sweeping the curb lines is done weekly, monthly, or bi-monthly, depending on the inspection, season or activity in the lot.
b. During the winter months, curb line cleaning activity is reduced due to snow accumulation. However, when the snow melts in the spring the curb lines are cleaned as they become accessible. During the fall, falling and blowing leaves require more attention and result in an increased frequency of cleaning curb lines.
c. Parking lots associated with City own buildings are cleaned on an as needed basis. The department responsible for the lot inspects and schedules cleaning.

(c) Maintenance garages

a. The maintenance garage and public works yard, including salt storage, has trained staff. Work has been ongoing to formalize the activities in this area. A SWPPP is being created and implemented to fully document all the procedures and ensure compliance.

(2) procedures for the proper disposal of operation and maintenance waste from the separate storm water drainage system (dredge spoil, accumulated sediments, floatables, and other debris);

(a) dredge spoil, accumulated sediments, floatables, and other debris from the use of City staff and equipment for these activities are dumped on a concrete slab located at the wastewater treatment plant (WWTP). The liquid is discharged to the WWTP and solids disposed of in a type II landfill. The DEQ staff was shown the facility during a June 3, 2011 MS4 Inspection.
(b) Contractors are required as part of their contract to properly dispose of dredge spoil, accumulated sediments, floatables, and other debris in a type II landfill.

(3) ways to ensure that flood management projects assess the impacts on the water quality of the receiving waters and, whenever possible, examine existing water quantity structures for incorporation of additional water quality protection devices or practices.

(a) Green Master Plan Update establishes the baseline for these requirements and is complemented by Zoning and Planning Ordinances.
(b) The Sustainability Plan also includes goals and targets to address water quality.
(c) Phase III of the City's Transformation Plan include Low Impact Design.
(d) Use of Green Infrastructure and Low Impact Design is reviewed and incorporated into all public projects when affordable and appropriate.

Part 2D - Staff and Contractors Training on Pollution Prevention and Good Housekeeping

Training Topic Area	Employee Group to Receive Training	Training Frequency Goal	Potential Training Type
SWPPI Requirements			
Maintenance activities, maintenance schedules, and inspection procedures	Collection System Maintenance Group	Ongoing First 6 months of hire	**Written O&M Procedures** **Office of Water Programs, California State University, Sacramento Operation and Maintenance of Wastewater Collection Systems, Volumes I & 2**
Training completed:	There are 13 Collection System Asset Technicians and 2 crew leaders. 14 of them have taken and passed the CALIFORNAIA STATE UNIVERSITY, SACRAMENTO Operation and Maintenance of Wastewater Collection Systems, Volume I and II. The one without training has been in the department under a month.		
Controls on streets, parking lots, maintenance garages, and storage yards	Public Services, Facilities and Fleet Management, Field Staff and Parking Services	Hire in 2 year cycle	**Online training which may include Powerpoints and/or the following videos** **Storm Watch - Municipal Storm Water Pollution Prevention - DVD from Excal Visual, LLC** **Spills & Skills - Non-Emergency HazMat Spill Response - DVD from Excal Visual, LLC** **Keep An Eye On It! - Environmental Awareness for Gravel Road Maintenance - DVD from SEMCOG & Road Commission for Oakland County**
Training completed:	Training is performed on hire. If deficiencies are noted during the quarterly inspections, responsible parties are trained on the proper techniques.		
Disposal of O&M waste	Collection System Maintenance Group Contractors	Ongoing Contract	**Written O&M Procedures** **Written contract requirements**

Training Topic Area	Employee Group to Receive Training	Training Frequency Goal	Potential Training Type
Training completed:	The Operation and Maintenance of Wastewater Collection Service training noted above includes managing a collection system O&M program, supervising a sewer cleaning program, and complying with the NPDES permit and applicable rules and regulations.		
Water quality protection in flood control projects (detention basins, dams)	Stormwater Management Personnel, Field Staff & Design Personnel	Ongoing	**Training consistent with LID and other training/conferences as they become available**
Training completed:	All stormwater management, design, and field staff have passed the comprehensive soil erosion and sedimentation control exam through the MDEQ. In addition, several field and design staff are trained as construction stormwater operators.		
Controls to reduce discharge of pesticides, herbicides, and fertilizers	Contractors	Ongoing	**Compliance with the State of Michigan Public Act 299 of 2010** **Staff is trained in proper use of pesticides, herbicides and fertilizers** **Contracts for these services contain language requiring proper usage** **a. "No clippings of grass or weeds may be left in the street, on the curb, parkways, or sidewalk, but must be properly disposed of by the contractor."** **b. "All chemicals and materials which are spilled or misapplied to areas other than turf shall be cleaned up immediately. The contractor shall not allow chemicals & other materials to enter storm sewers, catch basins and/or water ways."** **c. "No chemical of any kind may be discharged into the gutters or sewer system. If granular(s) are used they must be swept or blown clean off all impermeable surfaces."**
Training completed:	All contractors involved in landscaping must agree to abide by the requirements above. As noted in Appendix 2-A, staff in charge of pesticide, herbicide and fertilizer application are certified by the State for pesticide application and their training includes herbicide and fertilizer application practices.		

Training Topic Area	Employee Group to Receive Training	Training Frequency Goal	Potential Training Type
Other Topics			
Construction site stormwater runoff	Field Staff Contractors	Preconstruction meeting	**Training may include one or both of the following;** **Ground Control - Storm Water Pollution Prevention for Construction Sites - DVD from Excal Visual, LLC** **LGRW_ContractorTrainingBrochure_2011-09-16.pub**
Training completed:	Stormwater pollution prevention is discussed at each pre-construction meeting for City projects. Contractors, city field staff, and designers are reminded of storm water pollution prevention requirements and that our stormwater system drains directly to the river and must be protected. Contractors are presented with the LGROW brochure "What Every Earth Work Contractor Must Know About Storm Water" at the pre-construction meeting. Site specific stormwater pollution prevention and soil erosion control items are also discussed for each project. A total of 23 pre-construction meetings were attended where these items of soil erosion protection were discussed.		
LID	Stormwater Management Personnel, Field Staff & Design Personnel	Ongoing	**Provide copies of the SEMCOG Low Impact Design manual. Provide opportunities for training and attendance of webinars and other conferences. The following videos are also available for their use;** **Reduce Runoff: Slow It Down, Spread It Out, Soak It In - DVD from USEPA** **RiverSmart Homes: Getting Smart about Runoff - DVD from USEPA** **Building Green: A Success Story in Philadelphia - DVD from USEPA** **After the Storm - DVD from USEPA** **BMP Tour of GVSU Campuses – Walking Tour**

Training Topic Area	Employee Group to Receive Training	Training Frequency Goal	Potential Training Type
Training completed:	In addition to the training noted, two staff members attended the Great Lakes and St. Lawrence Green Infrastructure Conference in Detroit, MI. In addition, one staff member attended the Green Infrastructure Leadership Exchange in Portland Oregon. Since 2015, LID is the default street design in the City, it is discussed in connection with all street reconstructions.		
IDEP	All Employees	Ongoing	**Items will be maintained on City intranet and periodic announcements made. These items will include various brochures and include;** **WaterPollutionReportForm.doc** **Article_City_Employees.doc**
Training completed:	In-person training was given to 81 City staff members, including Streets and Refuse, Engineering, Code Compliance, and the City Attorney's staff. These departments were chosen primarily because their employees are in the field, although City's Attorney's staff requested in-person training. For office staff and new hires, a video of the training session with a registration and quiz was created during this reporting year and was posted online. An additional 82 staff were trained using the online video. In total, 163 were trained in person.		
General Storm Water Education	Top Management	Annually	**"Back to Basics" Storm Water Training – Live Presentations (in 2011 the Six Minimum Control Measures were highlighted)**
Training completed:	Top Management was trained on August 12, 2016.		

Part 2E - Post Construction Controls Activities

Implementation

The City of Grand Rapids Ordinances Ord. No. 2001-26, § 1 of 2001 and Ord. No. 2007-13, § 1 are the Stormwater Ordinances for the City. Post-construction controls for new development contained in the ordinance include:

- Limiting discharge rates to 0.13 cfs/acre for a 25-yr 24-hr storm.
- Limiting discharges to sensitive downstream receptors, including open channel banks susceptible to erosion, to 0.05 cubic feet per second per acre up to the two (2) year rain event.
- Treatment of the first ½" of rain for water quality.

A total of 152 Land Use Development Services permits were issued during this reporting period.

The City of Grand Rapids Ordinances Ord. No. 2012-01, § 1 of 2012 is a zoning ordinance establishing setbacks for rivers, wetlands, streams, water bodies, or other sensitive environmental areas. Incentives for using Low Impact Development are also included in the zoning ordinances.

In addition, the Green Grand Rapids Master Plan Update depicts Grand Rapids' commitment to using Low Impact Development, conserving green space and protecting our waterways.

Of the permits issued, 54 of the sites required and/or implemented LID.

Operation and Maintenance

In 2010, the City had a draft stormwater ordinance that included long term operation and maintenance of post-construction controls. However, when the MS4 permit was withdrawn, the ordinance was not finalized for adoption. Upon receipt of new permit which is not expired, the stormwater ordinance will be revisited.

In preparation for the draft ordinance, however, a method for tracing and inspecting the post construction controls was established. Without the ordinance for authorization, the City cannot enter private property to inspect it. However, all post construction controls are inspected, to the extent they can be, from public rights of way.

In addition, the City's nuisance ordinance can be utilized to inspect controls if a complaint is received by Code Enforcement.

Currently, there are 158 sites in monitor status that are due to be inspected every other year, provided that they can be inspected from public property. Inspections on 89 sites were performed this reporting period.

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

During this reporting period, no enforcement activities were required as a result of post-construction inspections.

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

Under our current ordinance, long-term operation and maintenance agreements are not required.

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

Requiring post development runoff to equal pre-development runoff is an incentive to use properties already developed, as retention/detention costs can be high. When re-using a site that is already developed, stormwater control costs can be minimal, if they are needed at all.

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, 2016, and July 31, 2017.

Public Education Committee

LGRW Stormwater Education 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. The 2016-2017 Public Engagement Committee consists of the following participants:

Table 3. Public Engagement Committee Membership

Agency	Representative
City of Wyoming	Aaron Vis
MDEQ	Amanda St. Amour
GVMC	Andrea Faber
Ottawa Co. Water Resources Commissioner's Office	Angela Walachovic
Ottawa Co. Conservation District	Benjamin Jordan
GVMC	Bonnie Broadwater
Boy Scouts of America	Bridget Knight
City of Grand Rapids	Carrie Rivette
City of Grand Haven	Cheryl Davidson
GVMC	Eileen Boekestein
Trout Unlimited	Jamie Vaughan
City of Hudsonville	Jill Frielink
Groundswell, GVSU	Joanna Allerhand
GVMC	Kristine Bersche
Forest Hills Public Schools	Lea Sevigny*
Plainfield Charter Township	Mary Trapp-Gunst
Kent County Resource Recovery	Megan Kretz
City of Grand Rapids	Michael Staal
MDEQ	Michelle Storey
WMEAC	Ondrea Spychalski
City of Walker	Rachell Nagorsen
GVMC/GVSU	Rajesh Sigdel
The Right Place	Rick Chapla
Georgetown Township	Rod Weersing

Table 3. Public Engagement Committee Membership	
Agency	**Representative**
GVMC	Rachel Foerch
Grand Rapids Public Museum	Stephanie Ogren
GVMC	Wendy Ogilvie
*Chair of Committee	

PEP Implementation in Year 15

This section describes the public education activities implemented by the Permittees in the fifteenth year of PEP implementation, August 1, 2016 through July 31, 2017. The following report is from the updated PEP, which meets 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.

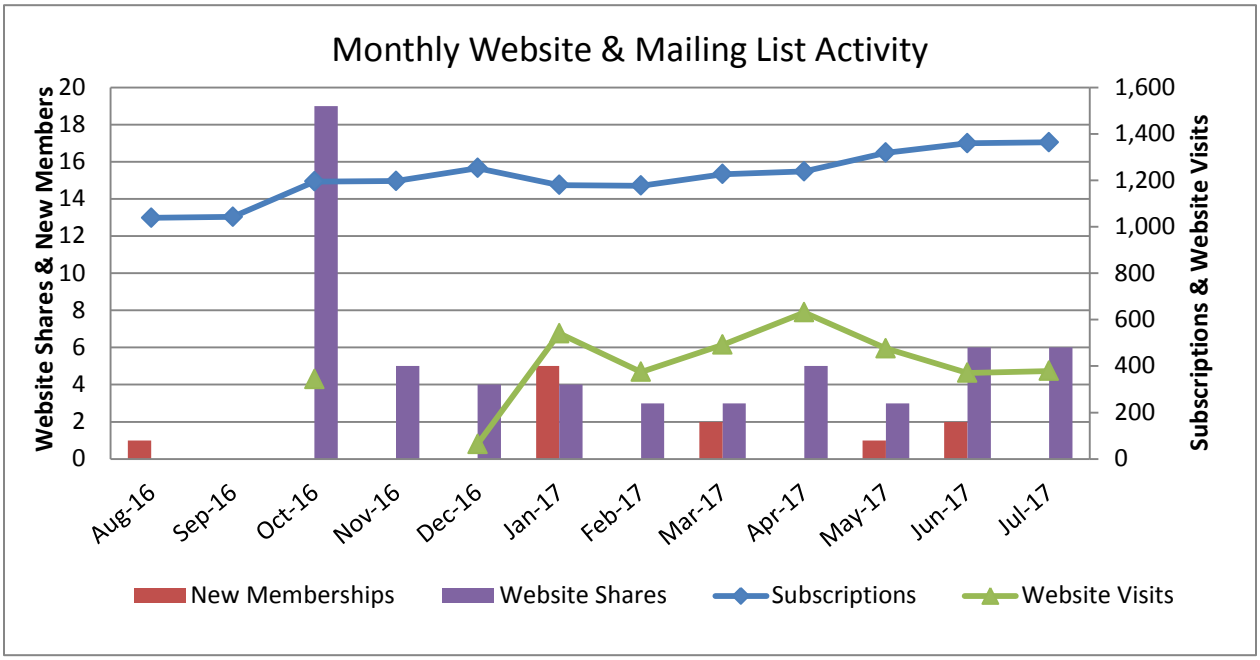
Target Audience: Residents, visitors, and public employees

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:

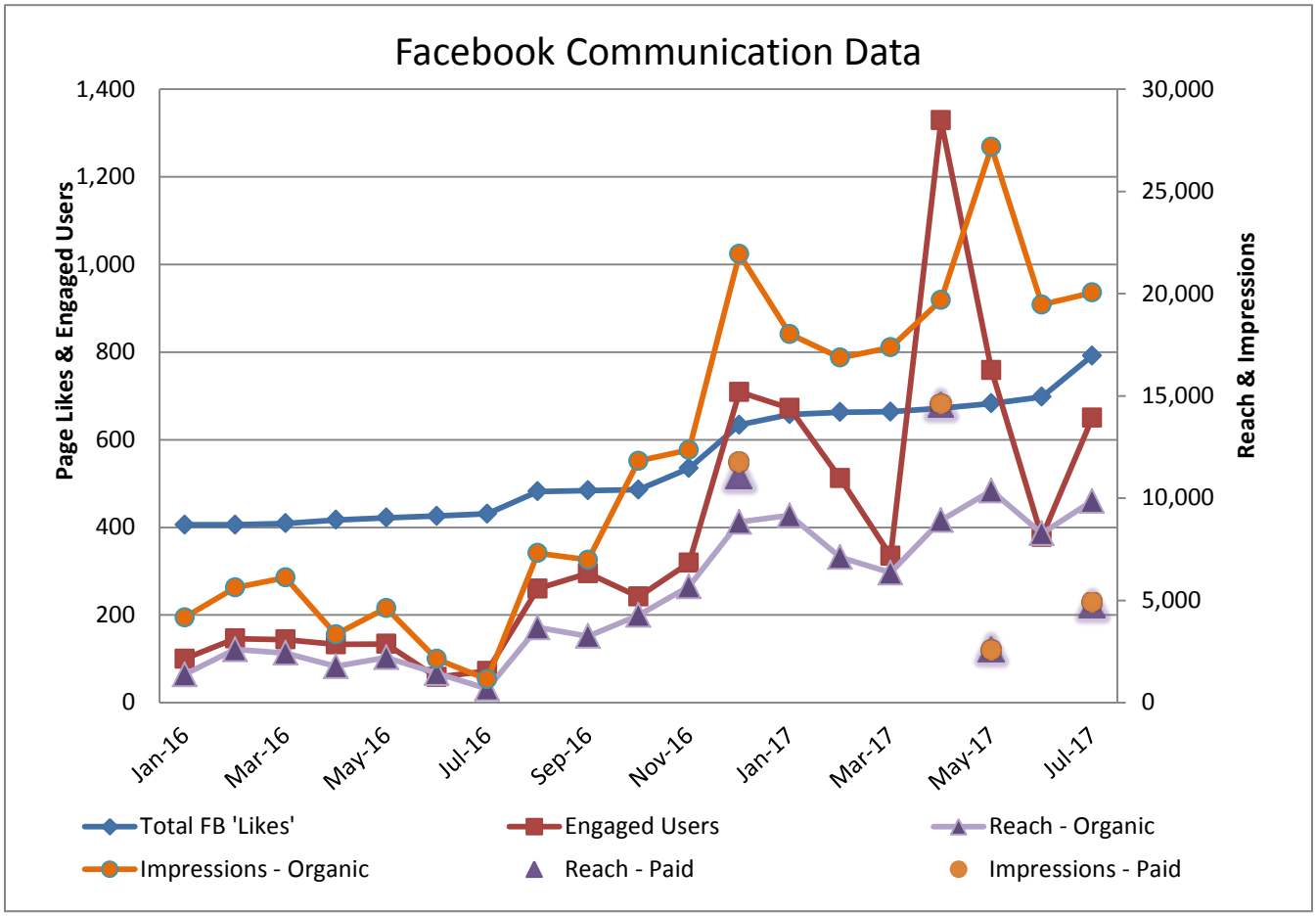
- Permittees' websites link to LGROW's website, www.lgrow.org. The watershed website provides information on non-point source (NPS) pollution, local watershed issues, water science education, and watershed management. Through the reporting period, LGROW's website has been accessed by an average of 408 unique visitors each month. This data is slightly skewed due to website analytics being unavailable for several months of the reporting period and is likely somewhat underreporting website usage. A new website is being launched at the start of the 2017-2018 reporting period, and website traffic is expected to grow considerably over the next year.
- 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. Pages 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 118,737 people. As of the end of the reporting period, the Facebook page reached 792 Likes (up from 430 in 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. A total of 706 posts were created or shared during the reporting period. 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 distributed throughout the reporting period:

  - 180 Paint by number Watershed Maps
  - 50 Keep Your Lakes Great and Your Rivers Grand Magnets
  - 150 Keep Your Lakes Great and Your Rivers Grand vinyl stickers
  - 75 Watershed Temporary Tattoos
  - 245 Troutie Coloring Books
  - 250 Pet Waste Pledges
  - 250 Pet Waste Bag Dispensers
  - 140 Car Wash Pledges
  - 140 Car Wash Shammies

- 400 Reusable Water Bottles
- 50 Reusable Tote Bags
- 150 LGROW Brochures
- 70 Landscaping for Water Quality booklets
- 150 LGROW Gardening Gloves
- 250 LGROW Lip Balms
- 500 LGROW Pens
- 150 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.”

- Through cooperation of staff in permitted MS4 communities, Public Engagement Committee participants, GVMC staff, and other members of LGROW, over 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	5/13/2017
East Grand Rapids, City of	EGR Community Center Anniversary	8/24/2016
	DPW Open House	5/24/2017
	Green Infrastructure Tour w/ GVMC	10/31/2016
Forest Hills Public Schools	Classroom Programming	Ongoing
	Roselle River Festival	9/24/2016
	STEAM Day at John Ball Zoo	6/2/2017
Georgetown Charter Township	Jenison Public Schools Collaboration	Ongoing
	Ottawa County Water Quality Forum	11/21/2016
Grand Haven, City of	Earth Day Festival	4/22/2017
	River Rally	5/9-5/11/2017
	WhiteCaps Game	6/29/2017
	Coast Guard Festival	7/26 - 8/7/2016
	Salmon Festival	9/16-16/2016
Grand Rapids, City of	Home Show	3/2-5/2017
	River City Water Festival	3/23-24/2017
	Party for the Planet	5/6/2017
	River Rally	5/9-5/11/2017
	Water Resource Recovery Facility Tours	Ongoing
Grand Rapids Charter Township	Partner with FHPS	Ongoing
Grandville, City of	Buck Creek Cleanup	8/13/2016
	Mayors Grand River Cleanup	9/10/2016
	Michigan Week Community Event	5/17/2017
Hudsonville, City of	Community Games	7/26/2017
Kent County Drain Commissioner	Ottawa County Water Quality Forum	11/21/2016
Kent County Road Commission	Facility Tours	Ongoing
	DPW Open House	5/17/2017
Kentwood, City of	Touch A Truck	6/21/2017
Ottawa County Administration and Water Resources Commissioner	Ottawa County Water Quality Forum	11/21/2016
Ottawa County Road Commission	Partner with Georgetown Township & Jenison Public Schools	Ongoing
Plainfield Charter Township	Rain Barrel Workshops	8/16/2016

Table 4. LGROW and MS4 Participant Events		
MS4 Community	**Event / Activity**	**Date**
	River City Water Festival	3/23-24/2017
	Earth Day at Blandford	4/22/2017
Sparta, Village of	Nash Creek Cleanup-Planting	8/12/2017
Spring Lake, Village of	Mill Point Park River Cleanup	5/13/2017
	Rain Garden Work Day	6/28/2017
Walker, City of	River City Water Festival	3/23-24/2017
	River Rally	5/9-5/11/2017
	Grand River Spring Forum	5/13/2017
	Rain Garden Workday	5/16/2017
	Indian Mill Creek Cleanup	5/20/2017
	Walker Reading Carnival	6/12/2017
	Grand River Water Festival	6/24/2017
Wyoming, City of	Buck Creek Cleanup	8/20/2016
	GRPM Program	3/15-3/17/2017
	Godwin Elementary Presentation	4/11/2017
	River Rally Presenter	5/9-5/11/2017
	DPW Open House	5/15/2017
	WhiteCaps Game	6/29/2017
	Facility Tours	Ongoing

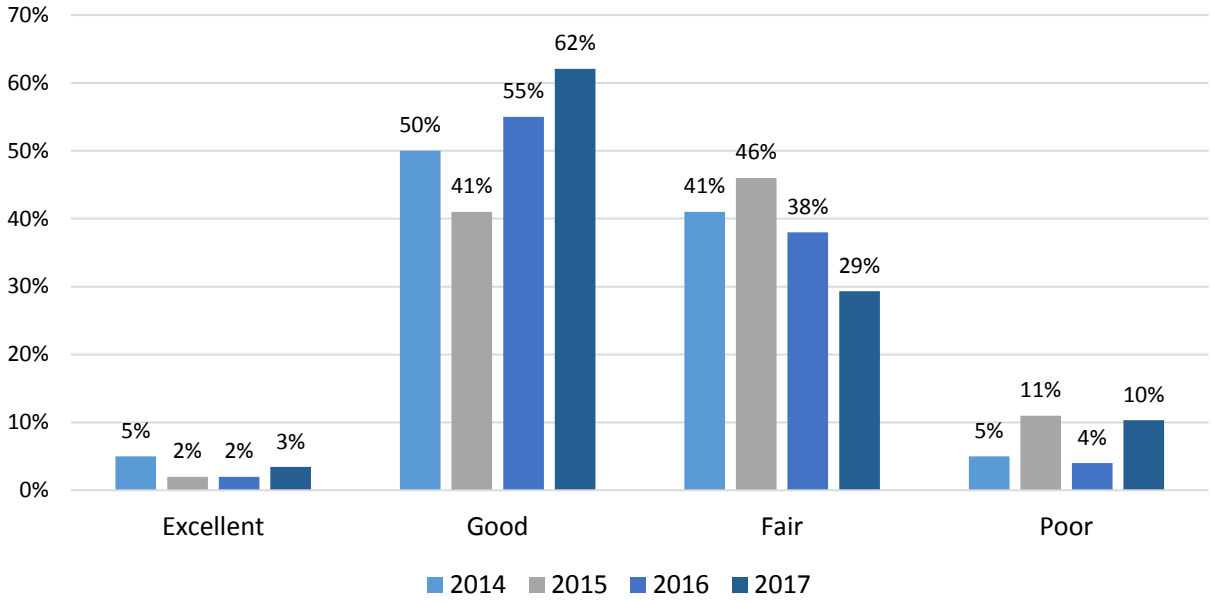
- The Quiet Water Symposium promotes non-motorized outdoor recreation and a shared concern for our Great Lakes environment. The 22nd Annual Symposium was held on March 4th, 2017 and had over 2,600 attendees. LGROW hosted a booth with several watershed displays and distributed information and giveaways focused on storm drain awareness and watershed awareness messaging. 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. This year LGROW promoted car wash pledges, and Wendy Ogilvie (GVMC) and Matt Chapman (Grand Rapids Whitewater) gave a presentation on the Grand River Revitalization and Rapids Restoration project.

- LGROW hosted a table at the Second Annual Conservation Collective on April 22, 2017. 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. This year's Conservation Collective took place at the Earth Day Grand Opening of Blandford Nature Center's new visitor center. LGROW hosted a table with information on the watershed, upcoming LGROW events, and distributed stormwater educational materials. The event was well attended with approximately 200 participants and 12 community organizations.

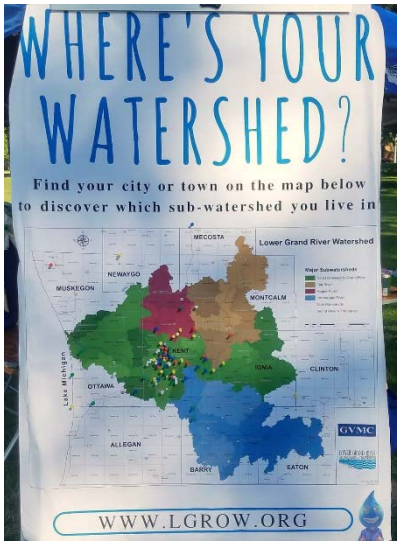
- The 14th Annual Grand River Forum on April 13, 2017, was put on by LGROW at the Wisner Center in Cascade Township. The event offered 118 attendees a regional perspective on emerging issues and accomplishments from around the Watershed. This year's keynote speaker, Steve Chester, Senior Counsel at Miller Canfield, spoke about Environmental and Natural Resource Protection in a Time of Uncertainty. Next, Scott Conners (City of Walker Engineer and LGROW Board Chair) moderated a Panel Discussion on Demystifying the Myth of Grand River Water Quality with panelists Mike Lunn, Environmental Services Department Manager of City of Grand Rapids; Todd Wibright, Clean Water Plant Superintendent of City of Grandville; S. Tutt Gorman, City Manager of City of Portland; and James "Scott" Schoolcraft, Director of Operations of North Kent Sewer Authority. Wendy Ogilvie (GVMC) then gave a presentation on the State of the Watershed, highlighting recent projects and successes. The remainder of the forum focused on emerging watershed issues including presentations by Eileen Boekestein (GVMC) on the use of Story Maps for watershed outreach; Molly Rippke (MDEQ) on the statewide *E. coli* TMDL; Gail Heffner (Calvin College) on the Rainscaping Program; and Melissa Eldridge (Ionia Conservation District) on the Lyons Dam Removal. 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

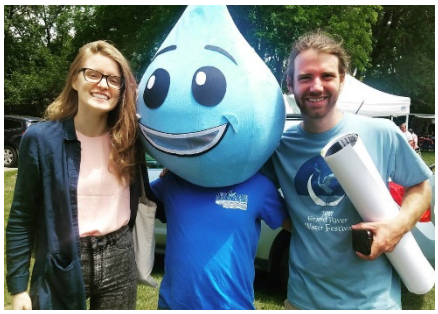
toward and perception of the river. Figure 5 shows an increase in respondents identifying water quality in the Grand River as "Good" rather than "Fair" from 2015 to 2017.

Figure 5. 2017 Survey Results: How would you rate the water quality in the Grand River?



- LGROW sponsored the Grand River Water Festival on June 24, 2017, 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. Volunteers at the LGROW booth helped attendees create native wildflower seed bombs to encourage the use of native plants. The seed bomb station was busy for most of the day and generated significant interest in the upcoming launch of the Rainscaping Program. Landscaping for water quality booklets, gardening gloves, information about the Rainscaping Program and other informational items about stormwater were distributed to participants as well. During the Water Festival, Wendy Ogilvie (GVMC) gave a brief presentation on LGROW and its activities within the watershed, including the status of the Grand River Revitalization and Rapids Restoration project. Visitors to





the LGROW booth identified their location in the watershed by placing a pushpin on the map, and Major Runoff, the Stormwater Mascot, engaged with children and adults.

- LGROW hosted a concourse table at a WhiteCaps game on Thursday, June 29, 2017. GVMC staff and volunteers from 2 MS4 permitted communities helped conduct a public education survey. The survey, developed by the Public Engagement Committee during the 2014-2015 reporting period, consisted of 12 questions and took about 5 minutes to complete. Survey participants received LGROW baseballs as a thank you gift. Approximately 140 surveys were collected the day of the game. The results of this survey are detailed in a later in this section. Participants also identified their location in the watershed using a map. Stormwater educational materials and giveaways were distributed to attendees. The game had an attendance of approximately 4,000.

- LGROW worked with students from 2 schools in the watershed to analyze water quality in points along Indian Mill Creek, Brandywine Creek, Maplewood Lake, and other tributaries to the Grand River using various methods of data collection. Water quality kits were used to measure multiple chemical components, including pH, phosphorus, dissolved oxygen, and nitrates. Other students collected and counted macroinvertebrates using dip nets along stream side, as well as leaf packets that were installed and retrieved six weeks later. Using these methods, students were able to draw conclusions about the health of the surface water and possible impacts through land use practices.

<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

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.

Delivery Method:

- Permittees installed the plastic storm drain markers designed by the Public Engagement Committee. The new drain markers carry the messages "Keep your Lakes Great and your Rivers Grand." Many 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 over 100 drain markers were installed at locations throughout 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 details when and where these displays were used by individual Permittees.

- Ads featuring the message "Only Rain in the Drain" highlighting concepts of "This community maintains separate storm sewers" and "Anything entering a storm drain goes to the Grand River," were run in interior panels in five Harbor Transit busses and trollies between Memorial Day and Labor Day. Ridership during this period is estimated at approximately 25,000 people.

- LGROW was pleased to participate again this year at the River City Water Festival on March 23-24, 2017. Approximately 700 students were in attendance. LGROW hosted a brand new activity this year called "Solutions to Stormwater Pollution" that focused on ultimate stormwater discharge location and potential impacts. Interactive presentations highlighted how common lawn care, snow removal, and pet waste disposal practices influence what enters catch basins, and ultimately the Grand River. Stickers featuring the new storm drain marker design were given out as prizes for participation. Students loved the game and had many great questions about catch basins, storm drains, and water quality.

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.

Delivery Method:

- Permittees distributed copies of the *"Citizen Report Form"* to their residents and staff as detailed in PEP Questionnaires. This form included information on how to report illicit discharges and connections to one's community. Permittees individually customized these brochures for their residents.

Permittee: City of Grand Rapids

- 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.

- Permittees distributed the newsletter article *"Do You Know Where Your Septic System Is?"* to their residents via their webpage, community newsletter, or a link to LGROW.org. This article encourages residents to regularly pump their septic tanks, warning signs of a failing drain field, and the environmental consequences of a failed or improperly maintained septic system.

<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 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.

  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.

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:

- Several communities utilized the pre-recorded 15-30 second educational messages titled "*Water Spots"* on the topic of properly disposing of household hazardous waste to keep it out of the storm drains, as a hold message on their phone systems.

- 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 evets, 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.

- Attendees at the Grand River Water Festival created native seed bombs and received a copy of the booklet "*Landscaping for Water Quality"* and LGROW gardening gloves at the LGROW booth. Booth volunteers discussed the importance of native plantings and their role in water quality with attendees at the Festival.

Evaluation Measures

This section includes a description of the quantitative and qualitative evaluation measures of PEP effectiveness implemented between August 1, 2016, and July 31, 2017.

Permittees completed PEP Questionnaires to provide a quantitative and qualitative evaluation of their individual stormwater education efforts. Based on the input provided by the Permittees, the most popular brochure was the "Household Solution to Water Pollution." In total, materials were distributed at over 50 events (Table 4) and at various locations throughout the watershed. The information collected from the pet waste pledges included the pledger's zip code. Pledge participants' zip codes are shown in Figures 6 and 7. The majority of responses for both pledges were from residents within the watershed. These pledges represent more than an educational outreach effort; these are a commitment to a behavioral change which has an important impact on water quality. This program was very popular, with significant increases in both pet waste and car wash pledges. Pet waste pledges increased from 176 in the 2015-2016 reporting period to 244 collected in the current reporting period- a 39% increase. Car wash pledges increased from 73 in the 2015-2016 reporting period to 159 collected in this reporting period- a 118% increase.

Figure 6. Pet Waste Pledges by Zip Code

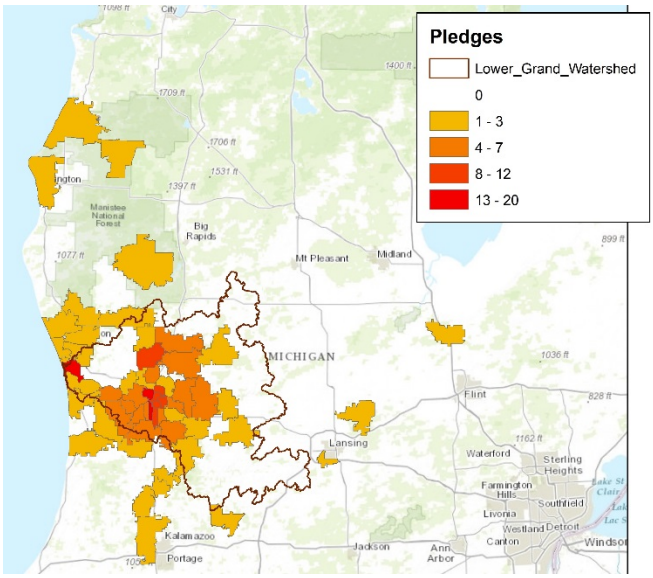
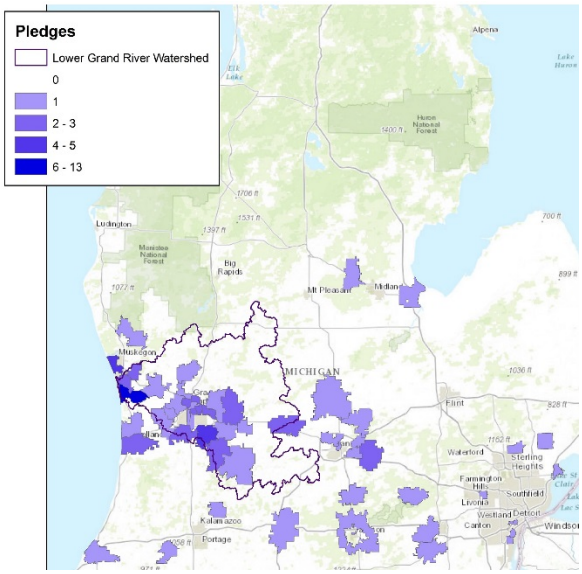


Figure 7. Car Wash Pledges by Zip Code



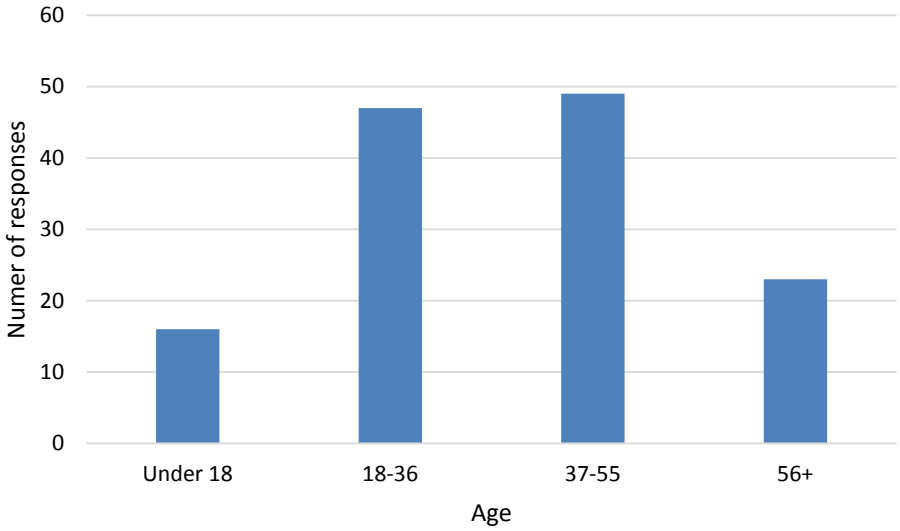
2017 Public Education Survey

During the 2014-2015 reporting period, the Public Engagement Committee developed a 12 question survey to be administered at a WhiteCaps Ballgame during the previous reporting period on August 9, 2015. The survey was designed to gauge the awareness of the public on each of the six objectives

outlined in the approved 2013 PEP. This same survey was administered at another WhiteCaps Ballgame during this reporting period on June 29, 2017. Respondents were asked to provide their zip codes and age to help identify residents of the watershed and connect their location with other available census data. Evaluating the responses has provided insights to help refine and expand future Lower Grand River Watershed educational efforts.

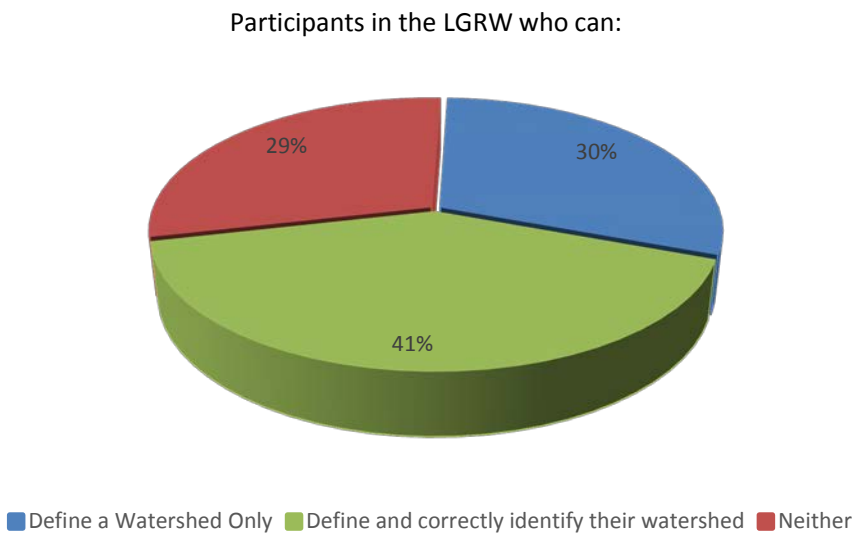
The Lower Grand River Watershed covers over 100,000 square miles encompassing 69 zip codes. LGROW received 137 survey responses from 59 zip codes. Of the responses, 104 participants in 34 zip codes were residents of the Lower Grand River Watershed. Respondent zip codes represented 48% of the land area and approximately 80% of the population of the watershed based on 2010 Census Data. The 18-36 and 37-55 year old ranges were the largest groups of responders comprising, together, 71% of the respondents (Figure 8).

Figure 8. Ages of Survey Participants



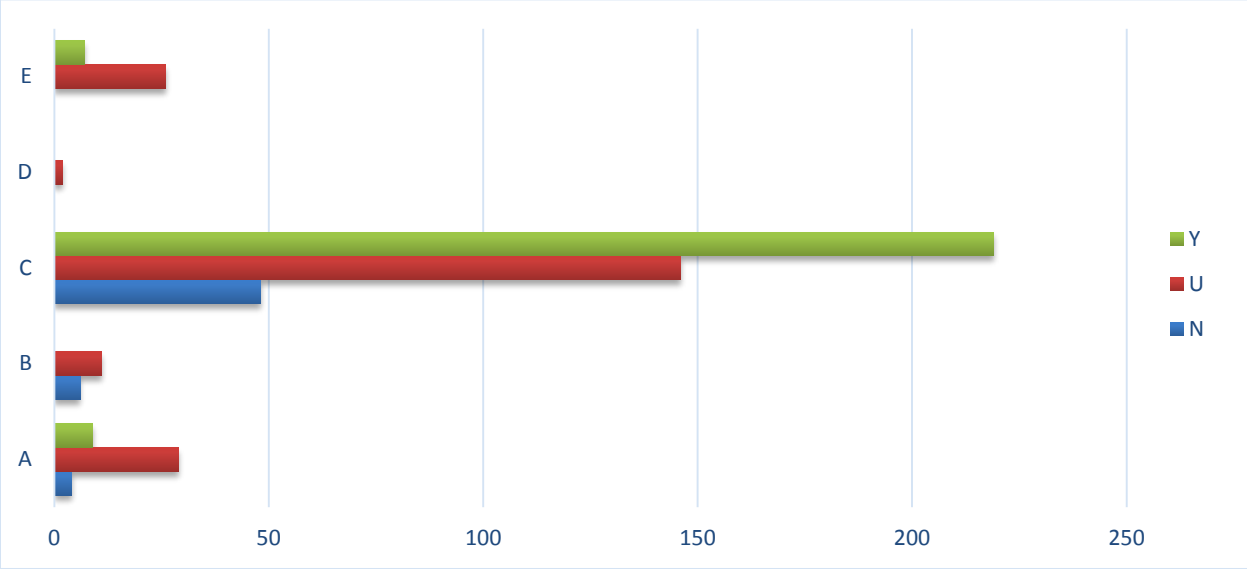
In evaluating PEP Objective 1, personal watershed stewardship, the survey first asked participants to identify the correct definition of a watershed. Of those surveyed who live in the Lower Grand River watershed, 71% of respondents answered correctly. Of those that answered incorrectly, 60% chose a wrong selection and 40% said they did not know the answer. Next, participants were asked if they could identify the watershed in which they lived. Of those who correctly defined a watershed, 41% were able correctly identify their subwatershed. The remainder named a geographic area instead of a watershed. These results exceed the fifth year (2017) milestones approved in the plan of 30% of watershed residents knowing they live in the Lower Grand or one of its subwatersheds.

Figure 9. What is a watershed & which one do you live in?



Survey participants who could correctly define a watershed (letter C in Figure 10) reported performing significantly more actions to protect water quality later in the survey, regardless of whether they knew which watershed they lived in. This highlights the importance of continued education on the basic message of what a watershed is and how personal actions can impact water quality.

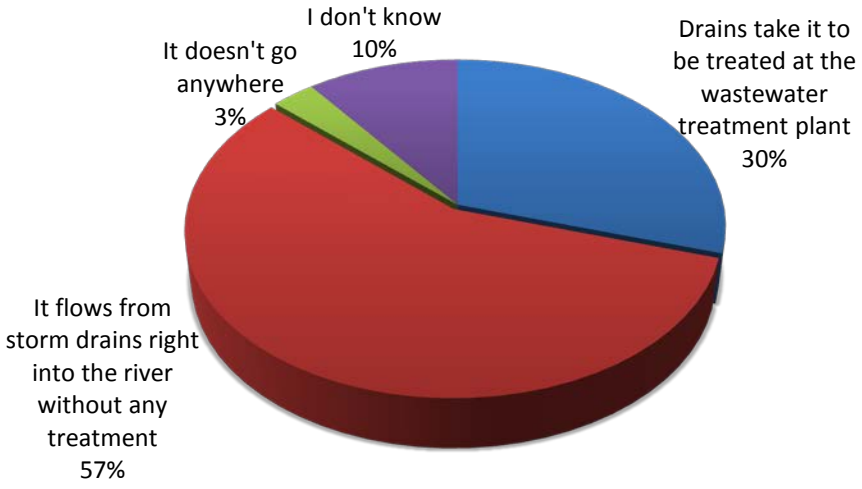
Figure 10. Number of actions to protect water quality based on knowledge of watershed



**Above: Y=Correctly identified watershed they live in, U=Unsure which watershed they live in, N=Incorrectly identified watershed they live in. Letter C represents correct definition of watershed.*

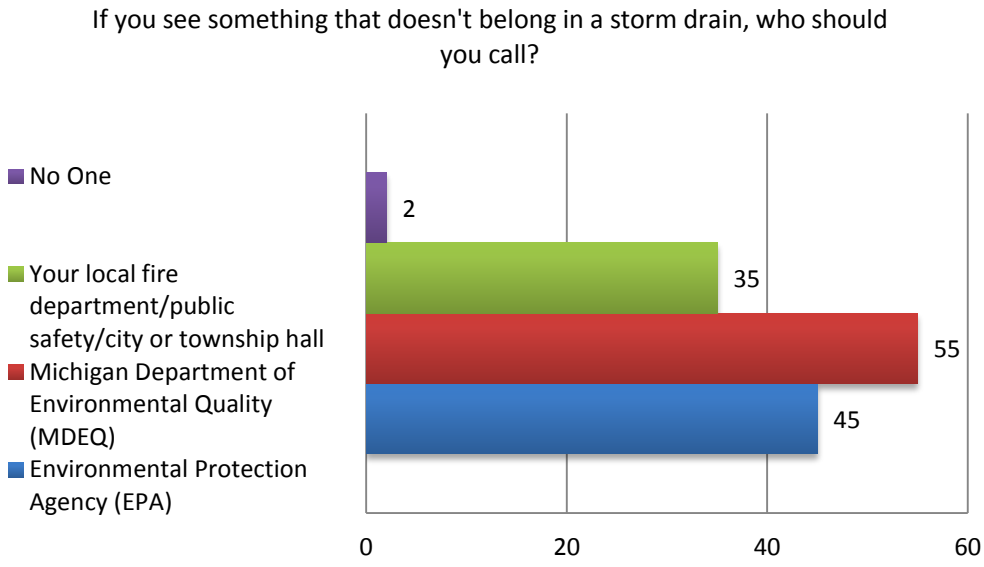
PEP Objective 2 focuses on ultimate stormwater discharge location and potential impacts. Survey participants were asked what happens to the chemicals, trash and oils picked up by water flowing over driveways roads and parking lots (Figure 11). 57% of respondents were aware of where storm water ends its journey, which far exceeds the fifth-year PEP objective of 30%.

Figure 11. Where does stormwater end up?



PEP Objective 3 focuses on the prevention and reporting of illicit discharges and by extension, septic system maintenance. The survey first asked participants how to respond if they witness an illicit discharge occurring (Figure 12).

Figure 12. Reporting Illicit Discharges

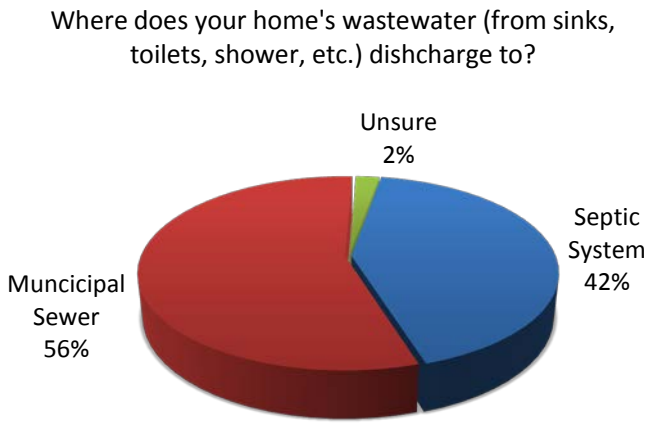


This question was slightly changed from the previous survey, in which all responses except “No One” were considered correct. During this reporting period, we wanted to gauge how many people know the correct level of government at which most illicit discharge reports should occur, not simply whether or not they should report it. More than 98% of respondents did choose to report an illicit discharge, and with both the “Local fire departments/public safety/city or township hall” and “MDEQ” responses considered correct, 66% chose the correct level at which to make the report. Of the respondents who would report, approximately 41% identified MDEQ and 26% identified local officials as the agency to contact, and 33% believed they should contact EPA. These results suggest that future education efforts should continue to focus on how community members can contact the correct authorities, and why they need to be contacted concerning illicit discharges.

The PEP objective identifies an overall 15% increase in illicit discharge reports each year in each community as the fifth-year milestone goal. Because the baseline for many communities was zero reports initially, it is difficult to evaluate if this objective is being effectively met with a 15% increase since an increase in reports may or may not also indicate an increase in illicit discharges. Cumulatively, the reporting MS4s had 28 illicit discharges reported during the 2014-15 reporting period, 61 illicit discharges reported during the 2015-16 reporting period, and 54 reported during the 2016-17 reporting period. This represents a 54% increase in reports from 2015 to 2016, but a 13% decrease in reports from 2016 to 2017. The number of illicit discharges reported in each community varied widely, with about half of the permittees receiving zero reports. Looking at the number on a watershed-wide scale shows a decrease in reporting for illicit discharges during this reporting period compared to last. However enough data has not been collected over time to determine if the number of discharges are decreasing-therefore reporting has decreased, or if reporting has decreased independently of the number of illicit discharges. Regardless, efforts to educate the public about illicit discharges will continue in order to raise awareness and encourage citizen reporting.

The PEP also identifies people with septic systems as a target audience for Objective 3. The focus of the public education initiative is on people who have a septic system and within that group, those who are unsure of what maintenance is necessary. Of survey respondents, just over half are connected to municipal sewer (Figure 13). This is consistent with the state average according to Michigan Municipal League Data.

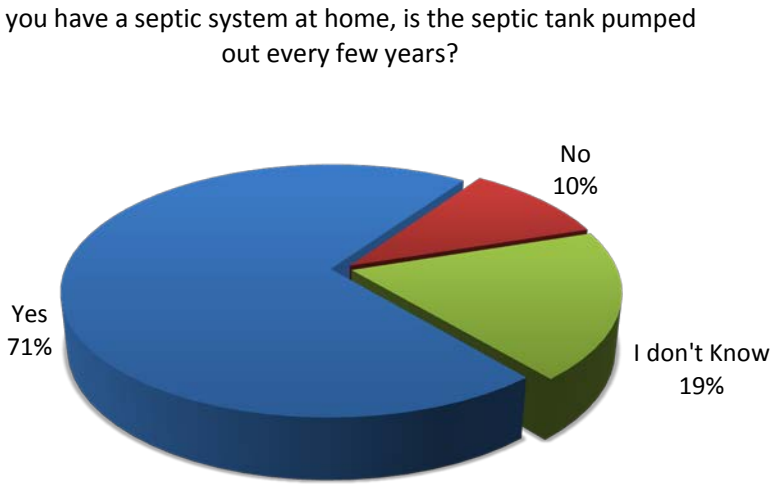
Figure 13. Where is your home's wastewater discharged?



Of those who took the survey, only 2% did not know if they were connected to municipal sewer or a septic system, which is an improvement from the 10% who were unsure during the last survey. However, those who are unsure where their waste is discharged are likely not actively maintaining a septic field if they do have one, so efforts should be continued to educate residents on how to identify whether they have a septic system.

Survey participants who are connected to a septic were next asked if they conduct regular maintenance (Figure 14). Of those, 71% of the responses indicated that they conducted regular septic system maintenance which exceeds the fifth-year PEP Objective of 15%. Only 10% of respondents reported that they do not regularly pump their septic systems and 19% were unsure if regular maintenance was occurring. The DEQ estimates between 10-20% of septic systems in Michigan are improperly functioning or failing. Regular maintenance and inspection play a critical role in identifying and correcting these failing systems. In subsequent years, adding additional messaging about identifying signs of trouble in your septic system in addition to regular maintenance guidelines may help target those who have a failing septic field that could be repaired before it fails completely.

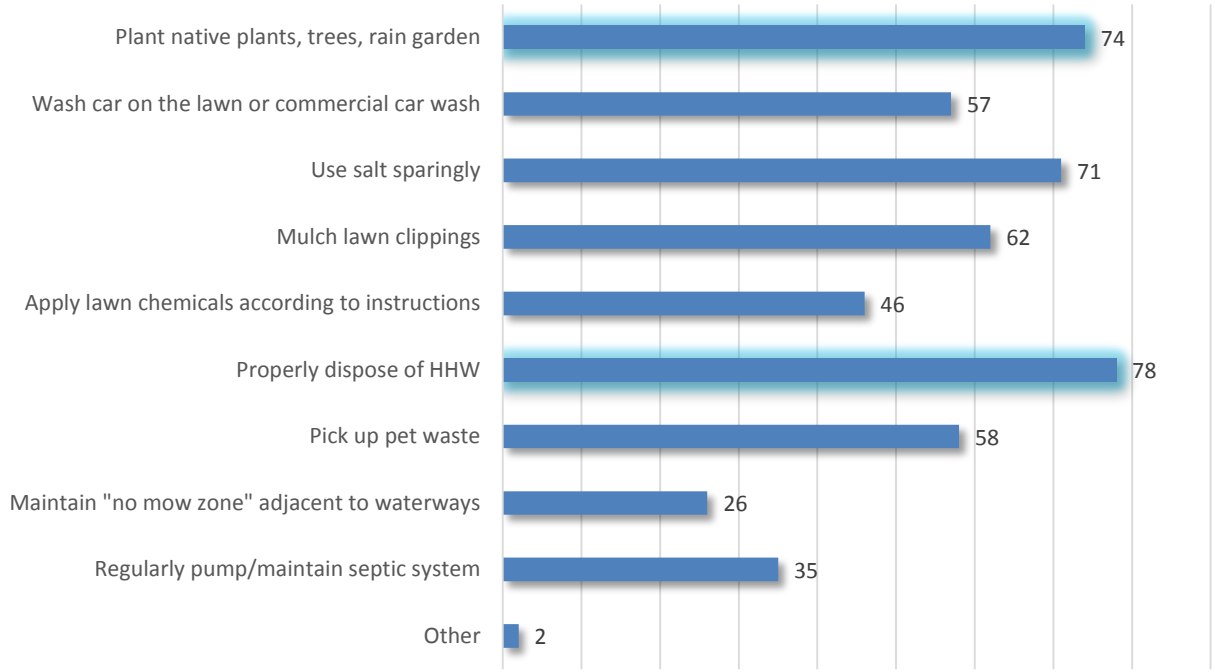
Figure 14. Septic System Maintenance



US Census data estimates that approximately 25% of residences in the Watershed are rental properties. Therefore, a portion of those who responded that they were unsure about septic tank maintenance may be renters who are not responsible for maintaining their own systems.

PEP Objective 4 evaluates personal actions that can impact the watershed. Survey participants were asked to select from a list all items in which they are participating (Figure 15). Of the 137 total responses, only 5 selected "No Actions" from the list. In other words, 96% of the participants could name one or more actions they were taking to protect water quality, which exceeds the fifth-year objective of 85% in the PEP plan. The actions with the highest percentages of respondents participating were proper disposal of household hazardous waste at 57%, and planting native plants, trees, or rain gardens at 54%.

Figure 15. What Actions are you doing to protect Water Quality?



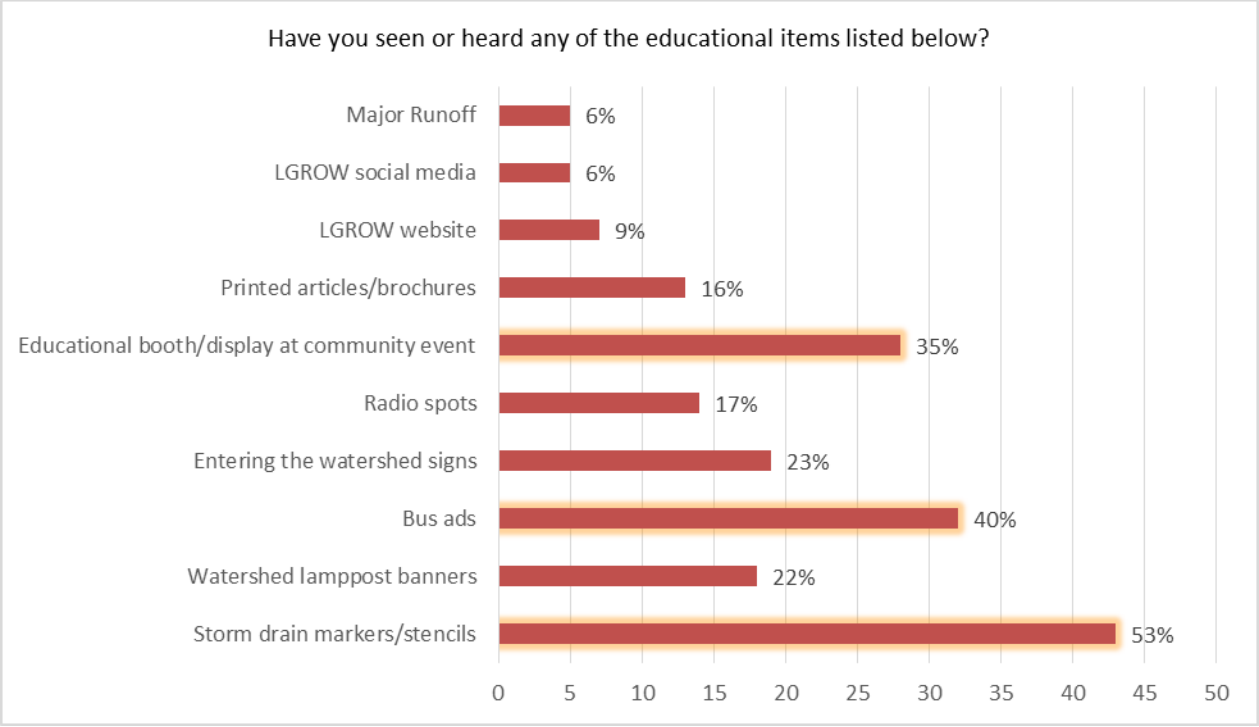
PEP Objective 5 is waste management assistance and sets a 15% increase in the number of watershed residents dropping of HHW during collection events as the fifth-year milestone. In 2015, Kent County switched their household hazardous waste collection from an appointment only system to regularly scheduled hours of operation. During the 2014-15 reporting period, an estimated 3,784 users dropped off household hazardous waste. During the 2015-16 reporting period the number of users climbed to approximately 5,046. Kent County did not track number of users during the 2016-2017 reporting period, and instead tracked poundage, so the total poundage of materials dropped off will serve as an evaluation tool during this reporting period. The 2014-15 reporting period saw 102,064 pounds of household hazardous waste dropped off. During the 2015-2016 reporting year, users dropped off 197,404 pounds of HHW, and this climbed to 241,576 pounds during the 2016-2017 reporting period. This represents a 22% increase in the amount of HHW from the last reporting period to this, and a 130% increase since the drop off program started in the 2014-15 reporting period, both of which exceed the fifth-year PEP objective of 15% increase. We use this program's data as the baseline for measuring increases since this model encourages more participation from Kent County residents. Utilization data for Ottawa County includes many areas outside the Lower Grand River Watershed so it doesn't provide a clear baseline for the permitted community participation within the watershed. Properly disposing of household hazardous waste was also the most frequently selected response to the question: "What are some things you are

doing to protect water quality?" With 57% of respondents selecting this activity, this indicates that that many residents are utilizing this option throughout the watershed, not just Kent County.

PEP Objective 6, management of riparian lands sets a 15% increase in the number of watershed residents surveyed who are planting native plants, stream buffers, rain gardens or shoreline stabilization techniques. Survey responses included 19% maintaining a "no mow" buffer zone, and 54% reporting using native plants and/or planting rain gardens, exceeding the PEP Objective.

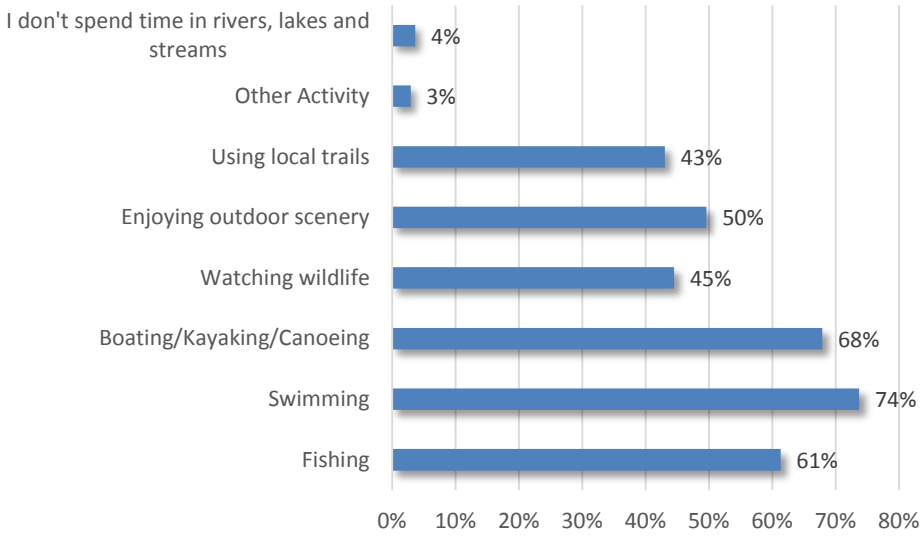
This survey was also an opportunity to evaluate which of the different outreach items/methods were the most memorable, shown in Figure 16. The three most visible outreach tools were the drain markers, bus ads, and educational booths at community events. The website and social media were the least visible. Electronic forms of outreach are becoming increasingly important, and efforts to increase the visibility of digital communication are planned for the next reporting period.

Figure 16. Comparing PEP outreach methods



The final two survey questions asked about the importance of water quality and how participants spent time in rivers, lakes and streams (Figure 17). Responses show that 94% of participants consider protecting clean water to be somewhat or very important and 96% of participants enjoy one or more of the activities listed below.

Figure 17. How do you spend your time in lakes, rivers, and streams?



Based on survey results, the Lower Grand River has exceeded the established evaluation measures for each of the six PEP objectives outlined in the approved 2013 Public Education Plan as shown in Table 5.

Table 5. PEP Objective	Evaluation Measure	
	Meets	Exceeds
1. Personal watershed stewardship		X
2. Ultimate stormwater discharge		X
3. Public reporting of illicit discharges	More information needed	
4. Personal actions impact the watershed		X
5. Waste management assistance		x
6. Management of riparian land		X

2017 Stormwater Public Education Plan (PEP) Questionnaire

Reporting Period of August 1, 2016, to July 31, 2017

Please complete this questionnaire to provide an evaluation of the stormwater education activities you have implemented between **August 1, 2016, and July 31, 2017**. GVMC will include this information, along with watershed-wide measures of effectiveness, in your 2016 Progress Report.
Please return this form to GVMC by August 14, 2017.

Community Name: City of Grand Rapids

Brochures, Flyers, and Give-a-ways

1. Have brochures, flyers, and give-a-ways been distributed?
☒Yes: ☐all ☐in progress
☐No

2. Where did you distribute your brochures, flyers, and give-a-ways?
☒Government office ☐Library ☒Community event ☐Other _____

3. Approximately how many people did you interact with during the distribution of the materials? 500

4. What was the most popular give-a-way from the materials distributed in your community? Sunglasses and pens are always a popular giveaway. The dog bags and Troutie coloring books are very popular as well.

5. What topics are of the 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 pet waste disposal
☐Proper septic system maintenance
☐Household hazardous waste management

Illicit Discharge Reporting

(brochure available at: http://www.lgrow.org/uploads/files/Citizens_Reporting_Brochure_withnote.pdf)

6. How many "Citizens Reporting Brochures" were customized and distributed to your residents? A link to this brochure is posted on the Environmental Services website
Was the "Citizens Reporting Brochure" posted to your city website? ☒Yes, at http://www.grcity.us/enterprise-services/Environmental-Services/Pages/IDEP.aspx (url) ☐No
Please describe any interest, comments, or discussion generated from the brochure: None
How many complaints were received from the general public regarding illicit discharges? 1

Lamppost Banners

7. Did you display your lamppost banners provided to you in 2009- 2013?

☒Yes, at North Park St. (street names/ location) on since 2011 (dates). Please describe any public feedback generated_____

☐No, but we will display our banners at _____ (street names/ location) on _____ (dates)
☐We did not order lamppost banners

Newsletter Articles (available at: http://www.lgrow.org/MS4articles)

8. Did you distribute newsletter articles to your residents?
☒Yes, on _____ (date); Via: ☒print ☒web ☐other
Topic(s): Septic brochures were mailed to homes as noted in Appendix 2A. Other newsletters on various topics are posted to our Facebook page.
☐No, but we will on _____ (date)

9. Please describe any interest, comments, or discussion generated from the articles None

10. If applicable, list the newsletter name or webpage address used to distribute stormwater information to the public https://www.facebook.com/EnvironmentalServicesGR/

11. If applicable, how many residents received your community newsletter? Unknown

12. If applicable, how many total website hits did you receive for your online newsletter articles? We have 1,664 followers on Facebook.

Stormwater Interactive Displays

13. Did you set up the stormwater poster board display?
☐Yes, on _____ (dates) at _____ (location).
☒No, but we set up our own display at the West Michigan Home and Garden Show on March 2-5, 2017

14. Did you use an EnviroScape interactive stormwater model to educate the public on stormwater pollution?
☐Yes, on _____ (dates) at _____ (location); ☒No
Approximately how many people participated in a demonstration? _____

15. Did you use a watershed map with pushpins at an event?
☐Yes, on _____ (dates) at _____ (location); ☒No
Approximately how many participants pinpointed their location in the watershed? _____

16. Did you use the stormwater mural banner & scavenger hunt at an event?
☐Yes, on _____ (dates) at _____ (location); ☒No,
Approximately how many participants completed the scavenger hunt? _____

17. Did you utilize Major Runoff the stormwater mascot at an event?
☒Yes, on March 23-25 (dates) at the River City Water Festival, we were at an event with Major Runoff (location); ☐No
Approximately how many participants interacted with Major Runoff? Several hundred school children were involved in the event.

18. Did you utilize interactive Corn Hole Game Board at an event?
☒Yes, on April 29, 2017 (dates) at Dia Del Nino Event at Cesar Chavez Elementary (location); ☐No
If yes, which game did you host?
☒ Drop toss: Stormwater matching
☐ Match the Macro with their habitat

19. Did you utilize interactive catch basin demos at an event?
☐Yes, on _____ (dates) at _____ (location); ☒No
If yes, which demo(s) did you host?
☐ Pet Waste
☐ Lawn Care

☐ Snow and Ice Removal

Seed Bomb Workshop

20. Did your host a seed bomb workshop?
☐Yes, (approximate number of attendees)
☒No

21. Did you distribute additional educational materials on native plants? ☒Yes ☐No

22. Please describe any interest, comments, or discussion generated from the pledges and the associated giveaway: People are very interested in native plants. Many already seem knowledge about the plants, but don't know where to purchase them.

Pet Waste Pledges

23. Did your community collect pet waste pledges distributed with the public education materials?
☒Yes, 150 (approximate number)
☐No

24. Please describe any interest, comments, or discussion generated from the pledges and the associated giveaway: The pledges are always a popular giveaway, and many parents seem to use it as an opportunity to teach their children about picking up pet waste.

Car Wash Pledges

25. Did your community collect car wash pledges distributed with the public education materials?
☐Yes, (approximate number)
☒No

26. Please describe any interest, comments, or discussion generated from the pledges and the associated giveaway: _____

Storm Drain Awareness Activities

27. Did you implement a storm drain awareness activity between August 1, 2016, and July 31, 2017?
☒Yes, we supplied over 100 drain markers to partners (Plaster Creek Stewards, Private Citizens, and Kent ISD) performing storm drain awareness activities around the City.
☐Yes, we held a storm drain stenciling event on _____ (dates) and stenciled _____ (streets)
☒Yes, we have approximately _____ (no.) pre-marked catch basin backs/grates with the message "No dumping, drains to waterway". All of our new have this marking unless the catch basin is to be installed in a historic area.
☒Yes, we hung door knob flyers on Annchester Ave and Okemos Dr (streets) on Nov. 4 and Nov. 10 (dates)
☐No, but we plan to implement _____ (activities) on _____ (dates)

28. Please describe any interest, comments, or discussion generated from the activities above _____

29. Have you noticed a reduction in storm drain dumping?
☒Yes, if so, please describe _____; ☐No, if so, please describe _____

This year we had six illicit discharges, which is less than the previous year. These results shows that people are more aware of the effects of dumping in a storm drain.

Additional Efforts

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

☒Rain Barrel Workshop The City of Grand Rapids sponsors the WMEAC events which distributed 40 rain barrels to Grand Rapids residents during several events this reporting year.
☒Rain Garden Installation/Workday Date: _4_/_19_/_17_ Number of Attendees: 2 staff presenters
☒River Clean Up (Location):_Grand River_ Date: _9/10/2016___ Number of Attendees: 750__
☒Ottawa County Water Quality Forum 11/21/2016 – **3 attendees**
☒MWEA Watershed & Stormwater Seminar 12/6/2016 2 attendees
☐Quiet Water Symposium 3/4/2017
☒River City Water Festival 3/23-24/2017, **3 staff presenters**
☒MWEA Watershed Summit 3/29/2017, -**3 staff attendees**
☒14th Annual Grand River Spring Forum 5/13/2017, **4 staff attendees**
☒River Rally 5/8-11/2017 – **2 staff presenters and 4 staff volunteers**
☐Grand River Water Festival 6/24/2017
☐ West Michigan WhiteCaps Concourse Table 6/29/2017
☒Other: _East Grand Rapids Rotary Club Presentation_ Date: 8/9/16 Number of Attendees:_2__
☒Other: _ Date: ____ Number of Attendees:__
☒Other: Allendale Rotary Club Presentation_ Date: 8/11/16 Number of Attendees: 1_
☒Other: Michigan City Indiana Officials Tour Date: 9/9/16 Number of Attendees: 4 staff presenters, multiple attendees, including executive level and Commissioners
☒Other: Tremont Green Space Rain Garden Time Date: 9/15/16 Number of Attendees: 2 staff presenters
☒Other: Civil + Structure Engineer Magazine article Date: Sept. 2016 Number of Attendees: 1 article
☒Other: Bridge Magazine Article Date: Sept. 2016 Number of Attendees: 1 article
☒Other: MWEA Matters Magazine Date: Sept 2016 Number of Attendees: 1 article
☒Other: EPA article on Climate Resiliency featuring Grand Rapids Date: Sept. 2016 Number of Attendees:1 article
☒Other: WGVU infomercial on stormwater pollution Date: 10/17/16 Number of Attendees: 1 staff presenter
☒Other: Spring Lake Rotary Club Presentation Date: 10/28/16 Number of Attendees: 2 staff presenters
☒Other: West Michigan Soil Erosion Control Network Date: 12/1/16 Number of Attendees: 5 staff attendees, including a presenter
☒Other: West Michigan Home & Garden Show Date: 3/2-3/5/17 Number of Attendees: 17 staff presenters
☒Other: Dia Del Nino Date: 4/29/17 Number of Attendees: 2 staff presenters
☒Other: Great Lakes Green Infrastructure Conference Date: 5/31-6/2 Number of Attendees: 2 staff attendees including 1 presenter
☒Other: GI Leadership Exchange Date: 5/15-5/17 Number of Attendees: 1 staff presenter
☒Other: Cornerstone GI Tour Date: 4/12/17 Number of Attendees: 2 staff presenters
☒Other: Party for the Planet Date: 5/6/17__Number of Attendees: 1 staff presenter

31. Describe any materials distributed, number of attendees, messages distributed: Please see below_

32. If applicable, please describe any other stormwater public education activities your community implemented beyond the events described above. (Submit any relevant documentation): We also provide the tours of the Water Resource Recovery Facility to children age 8 up to adults. In this reporting year, we have 1089 people attend the tour, which covers both the water resource recovery process and discusses stormwater management and stormwater pollution.

We also have a Stormwater Oversight Commission comprised of 9 private citizens that oversee stormwater asset management and policy recommendations. The Stormwater Oversight Commission annual report is provided in the attachments of this report.

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.

Outfall sampling was conducted for the Village of Fruitport in Muskegon County during the summer of 2016. 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 IDEP activities undertaken on an individual basis are included below. The IDEP activities include dry-weather screening of discharge points (none occurred during this reporting period, excluding the Village of Fruitport and Kentwood Public Schools located in Gaines Township), locating possible sources of contamination, responding to reported incidents, correcting the problems, and preventing new illicit connections.

Community IDEP Activities

Please describe any dry-weather screening conducted during the reporting period and the findings of that screening.
None. This is scheduled for 2018

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.

Sixth @ Front Ave NW

On September 14, 2016, Amanda St. Amour of MDEQ approached Michael Staal before a public education committee meeting and informed him that she had a concern with a directional drilling contractor performing work nearby. She stated that she saw the contractor sweeping slurry into a catch basin. Michael immediately investigated the situation and found clear evidence of the contractor sweeping slurry into the catch basin. Michael informed the contractor that dumping anything other than rain water into a catch basin was a violation of City code. The contractor, RZ Trenching, was informed they had to clean up the rest of the slurry, and that the City would send out a vactor to clean out the catch basin. Michael then called the owner of the company and informed him of the problem. The owner apologized for his crew's action and stated it would not happen again. The contractor was charged for the time and equipment the City spent in cleaning up the illicit discharge.

335 Bridge St. NW

On September 19, 2016 at 2:56 pm, Michael Staal received a call from the Grand Rapids Fire Department dispatch stating they had responded to the scene of diesel fuel spill and an unknown amount of the diesel fuel had made it to the storm sewer. Staff and a vactor truck were immediately sent to the scene with plugs for the storm system. By the time ESD staff arrived on site, the GRFD already had a private emergency spill response team on site who had removed all of the diesel from the catch basin. ESD then tried to determine if any diesel made it out of the catch basin, but the private clean-up crew was uncertain of the liquid level of the catch basin prior to the clean-up. Therefore, our team then checked the outfall and downstream of the outfall. No visible oil sheens were seen on the river. The search was concluded at approximately 3:30 p.m.

2426 Eastern Ave SE

On December 28, 2016, just before 9:30 pm, the fire department called the Water Resource Recovery Facility (WRRF) to report that approximately 10 gallons of gasoline entered a catch basin due to an automobile accident. After contacting Carrie Rivette, the WRRF Supervisor contacted SET Environmental, Plummers and Young's to have the catch basin cleaned out, but none of them were able to come that night. Given that there was no precipitation in the forecast, the gasoline was left in the catch basin until Young's could clean it out the following morning. Carrie contacted Young's and confirmed that they were out the next morning.

741 Richmond St. NW

On February 7, 2017, at approximately 3:30 pm, Carrie Rivette was notified that individuals from our utility field operations group had noticed an abnormally wide sheen running from 741 Richmond St NW, north on McReynolds and into the basin at 1627 McReynolds Ave. When Carrie arrived at approximately 4 pm, a significant sheen was still present. The sheen was traced back to an above ground diesel fuel tank located nearby. It appeared that a spill had been made while fueling. No pooled diesel was noted, but the sheen was heavy. Given the rain and melt that had been occurring, the runoff containing the greatest amount of diesel would have already made it beyond the area in the storm system and the remaining water in the catch basin sump would not have had a recoverable amount of diesel. Carrie called Amanda for concurrence that it was not necessary to call out

emergency crews as most of the diesel had already been washed far downstream. Carrie and Amanda also agreed that cleanup needed to occur at the site. Carrie met with Frank Most of Most Enterprising, owner of 741 Richmond St NW. Most is a landscaping and plowing company and the diesel tank was used for fueling their equipment. Mr. Most was surprised to see the area that fuel had obviously been spilled. He noted that he would follow up with his employees to ensure that they knew leaving spills was not acceptable. Mr. Most agreed to use oil dry to prevent further impact to the stormwater system and clean the spill area. As Carrie left the area, Mr. Most was spreading oil dry across his driveway.

545 Michigan St. NE

On February 10, 2017 at 5:39 pm, Carrie Rivette was notified that a contractor dumped a bucket containing an unknown substance into a catch basin in front of 545 Michigan Ave NE. Given the amount of rain that was being experienced at the time, our basin sumps did not have much capacity and our vactors were working extra hours on other emergencies. As such, she did not call someone in for the cleanup. Inspectors were on site at 7:47 am the next day, February 11, 2017, who met with the contractors. The contractors admitted to dumping a bucket of tile/grout wash water down the basins. Although residual was noted on the basin grate, no signs of residual was noted in the sump. The contractor was informed that nothing could be dumped down the catch basin. A Notice of Violation with accompanying $400 fee was issued.

127 Packard Ave SE

On February 16, 2017, our camera crew was televising a storm sewer on Packard Ave and discovered a potential IDEP; a blackened pipe where a lateral entered the system. Our crew additionally works with sanitary, and suspected that it could be a cross connection. After contacting the homeowner, it was verified that the sanitary lateral at 127 Packard Ave SE was connected to the storm main. Review of as-builts revealed that a combined sewer was constructed in the area in 1926. In 1935, a dedicated sanitary sewer was constructed. For an unknown reason, this lateral was not disconnected from the former combined sewer that had become the storm sewer. Pipe elevations were checked and the lateral was able to gravity flow to the sanitary sewer. As such, our repair crew made the disconnection from storm and connected to the sanitary sewer on February 28.

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.

All known illicit discharges were eliminated.

Please describe actions taken when indications of illicit discharges have been identified, if any.
Please see above.
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)*.
6 illicit discharges were eliminated this year. Only one of the discharges, at 2426 Eastern Ave SE, was quantifiable with a discharge of 10 gallons.
Identify any specific coordination with the health department in response to illicit discharge elimination for failed or failing septic fields.
No failed or failing septic fields were noted this year.
Describe the effectiveness of the program to prevent illicit discharges and the method used to assess effectiveness.
The City has completed five cycles of dry weather monitoring, and all illicit connections that could be identified in this manner have been eliminated. As such, dry weather screening should be discontinued. The periodic monitoring of the Grand River and tributaries has proven effective in identifying illicit discharges and should be continued.

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**
	☐ Yes ☐ No	☐ Yes ☐ No
	☐ Yes ☐ No	☐ Yes ☐ No
	☐ Yes ☐ No	☐ Yes ☐ No
	☐ Yes ☐ No	☐ Yes ☐ No
Comments: The City of Grand Rapids does not have any nested jurisdictions.		

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**:

The Mayors' 13th Annual Grand River Clean-up took place on September 10, 2016, and had nearly 750 participants. Over 14,000 pounds of trash from 40 miles of stream bank along the lower Grand River, Mill Creek, and Plaster Creek were removed.

The City is a partner with the Lower Grand River Organization of Watersheds, Plaster Creek Stewards, WMEAC, Trout Unlimited and others on a Great Lakes Restoration Initiative grant where LID projects are being implemented in three different watersheds while teaching students about LID techniques and stormwater pollution. The City's school partner is the North Park Montessori School and the 4th-6th grade classes will be helping plant a bioswale that will be taking in street runoff.

Please list any other actions your community has conducted to reduce stormwater pollution

- The City continues to provide a rain garden plant nursery for WMEAC.
- Grand Rapids participates in LGROW, GLSLCI, West Michigan Take Back the Meds, and West Michigan Soil Erosion Control Network.
- The Mayor has held 2 Greening Initiative Days where hundreds of volunteers have helped plants trees in multiple areas around the City's neighborhoods.

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

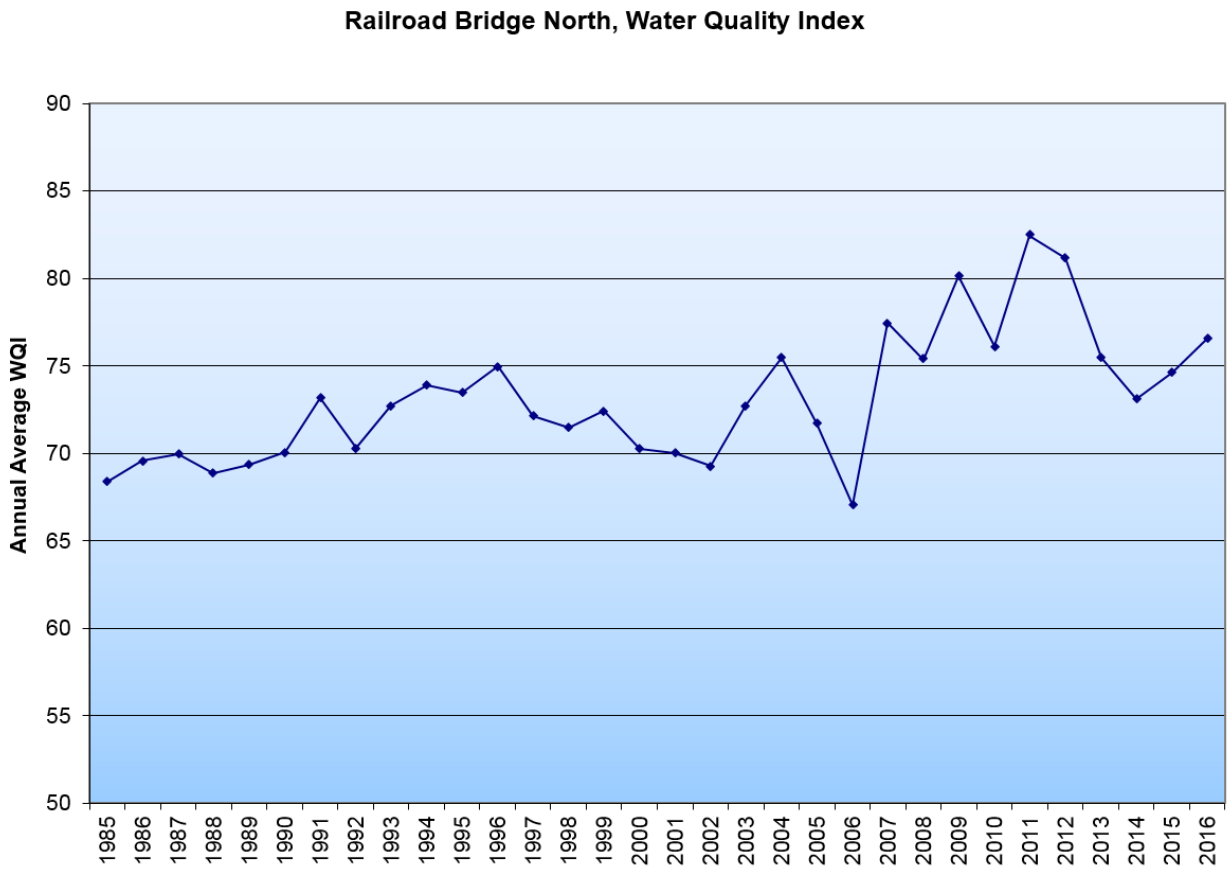
☐ The following revisions to the SWPPI could be considered:

Original SWPPI Section / Subsection	Revision

PART 9 – Special Reporting Requirements

a. Environmental Impacts [40 CFR 122.42(c)(7)]

a. A Grand River Water Quality Index (WQI) of 71-90 indicates good water quality with high diversity of aquatic life and very few limits for recreational use. The WQI graph shows that the Grand River water quality continues to be good downstream of Grand Rapids. Extreme rain events in 2013 and 2014 and sampling within the first 48 hours of a rain event are likely why the WQI has decreased in 2013 and 2014. Grand Rapids has been monitoring the Grand River for forty years and the data is made available to those which request it. This summer, sampling was performed on a monthly basis, with the exception of the month of June, for additional data.



RIVER SURVEY REPORT

DATE: 08/17/2016

CITY OF GRAND RAPIDS EPSD

LOCATIONS	TIME	TEMP	DO	pH	BOD	TSS	FC	EC	CHLORIDE	CON	TP	NH3-N	NO2-N	NO3-N
Grand River														
201601554 Northland Drive Bridge (250120)	08:37	24.4	5.7	7.96	<2.0	20.2	90	155	45	586	0.051	0.11	0.013	0.4
201601555 Wealthy Street Bridge (250090)	09:02	24.6	6.0	7.97	<2.0	31.8	330	291	46	555	0.074	0.11	0.016	0.4
201601556 Railroad Bridge South (250070)	10:36	24.2	7.0	8.00	<2.0	27.4	>1500	816	49	533	0.080	0.12	0.015	0.3
201601557 Railroad Bridge North (250071)	10:26	24.5	6.9	8.05	<2.0	24.0	390	816	48	548	0.068	0.12	0.013	0.3
201601558 M-11, Wilson Avenue (250062)	10:02	24.5	6.9	7.99	<2.0	16.6	1070	488	47	555	0.070	0.12	0.013	0.4
201601559 Eastmanville (250040)	09:24	24.4	6.7	7.94	<2.0	35.8	1290	866	50	543	0.085	0.09	0.020	0.4
Streams														
201601560 Rogue River at West River Drive	08:17	20.3	7.1	8.14	<2.0	16.2	173	649	34	567	0.028	<0.05	0.005	0.5
201601561 Mill Creek at West River Drive	07:38	18.8	7.7	8.35	<2.0	14.4	2100	1050	48	684	0.046	<0.05	0.005	0.7
201601562 Indian Mill Creek at Turner Aven	07:21	18.5	8.4	8.01	<2.0	10.4	2700	1200	78	784	0.042	<0.05	0.003	0.6
201601563 Silver Creek at Crofton/Roy	07:10	20.5	8.8	8.19	<2.0	0.4	8700	>2420	132	892	0.040	<0.05	0.008	1.0
201601564 Plaster 1 at Burton	07:41	22.1	7.3	7.89	2.1	39.2	3000	2420	39	391	0.151	0.08	0.006	<0.1
201601565 Plaster 2 at Market	09:17	22.5	7.2	7.93	2.8	44.0	5400	1730	42	378	0.147	0.06	0.011	0.1
201601566 Buck Creek at Chicago Drive	08:50	22.5	7.2	7.46	2.1	42.0	1400	1550	58	546	0.082	<0.05	0.007	0.2
201601567 Deer Creek	09:32	22.5	8.1	6.40	2.1	14.2	3100	1550	41	650	0.198	0.10	0.032	1.5
201601568 Coldbrook Storm Drain	07:06	22.9	7.7	7.70	<2.0	8.0	3000	1050	120	671	0.055	<0.05	0.002	<0.1

LOCATIONS	Cr	Cu	Fe	Hg	Ni	Ag	Zn	Hard	WQI
Grand River									
201601554 Northland Drive Bridge (250120)	<5	<5	620	<0.2	<5	<5	<10	220	77.8
201601555 Wealthy Street Bridge (250090)	<5	<5	740	<0.2	<5	<5	<10	220	73.1
201601556 Railroad Bridge South (250070)	<5	<5	770	<0.2	<5	<5	<10	200	69.2
201601557 Railroad Bridge North (250071)	<5	<5	360	<0.2	<5	<5	<10	200	74.6
201601558 M-11, Wilson Avenue (250062)	<5	<5	680	<0.2	<5	<5	<10	210	71.2
201601559 Eastmanville (250040)	<5	<5	1100	<0.2	<5	<5	10	210	69.2
Streams									
201601560 Rogue River at West River Drive	<5	<5	460	<0.2	<5	<5	<10	250	76.2
201601561 Mill Creek at West River Drive	<5	<5	450	<0.2	<5	<5	<10	290	65.2
201601562 Indian Mill Creek at Turner Aven	<5	<5	590	<0.2	<5	<5	10	300	66.0
201601563 Silver Creek at Crofton/Roy	<5	<5	180	<0.2	<5	<5	10	260	60.2
201601564 Plaster 1 at Burton	<5	<5	1800	<0.2	<5	<5	20	120	65.0
201601565 Plaster 2 at Market	<5	5	2100	<0.2	<5	<5	20	120	61.4
201601566 Buck Creek at Chicago Drive	<5	5	1500	<0.2	<5	<5	10	200	68.6
201601567 Deer Creek	<5	<5	600	<0.2	<5	<5	<10	270	60.8
201601568 Coldbrook Storm Drain	<5	5	390	<0.2	<5	<5	<10	160	66.7

Miscellaneous Information and Test Descriptions:

Weather conditions: Partly cloudy.

Air Temperature: 24 ºC

Comments:

River Flow: 5270 cfs

Field Technicians: Jim Soper / Charley Dickinson / Brian Frazier Paul Kuklewski

Time samples (hh:mm)
Sample temperature (ºC)
Dissolved oxygen (mg/L)
pH (pH units)
BOD-5 (mg/L)
Total suspended solids (mg/L)
Fecal coliform (#FC/100mL)
E. coli (#EC/100mL)
Chlorides (mg/L)
Conductivity (µS/cm)
Total phosphorous (mg/L)
Ammonia as nitrogen (mg/L)
Nitrites as nitrogen (mg/L)
Nitrates as nitrogen (mg/L)
Total chromium (µg/L)
Total Copper (µg/L)
Total iron (µg/L)
Total mercury (µg/L)
Total nickle (µg/L)
Total silver (µg/L)
Total zinc (µg/L)
Hardness (mg/L CaCO3)
Water Qulatity Index (percent)

Printed: 9/15/2016 11:35:59

RIVER SURVEY REPORT

DATE: 09/14/2016

CITY OF GRAND RAPIDS EPSD

LOCATIONS	TIME	TEMP	DO	pH	BOD	TSS	FC	EC	CHLORIDE	CON	TP	NH3-N	NO2-N	NO3-N
Grand River														
201601703 Northland Drive Bridge (250120)	08:34	21.6	7.4	8.25	<2.0	5.4	50	44	46	674	0.057	<0.05	0.006	0.6
201601704 Wealthy Street Bridge (250090)	09:19	21.2	8.3	8.37	<2.0	5.4	185	162	50	677	0.058	<0.05	0.005	0.6
201601705 Railroad Bridge South (250070)	09:32	20.2	8.0	8.27	<2.0	5.4	290		57	699	0.052	<0.05	0.008	0.6
201601706 Railroad Bridge North (250071)	09:20	20.6	8.2	8.26	<2.0	4.4	260	152	55	700	0.058	0.08	0.018	0.7
201601707 M-11, Wilson Avenue (250062)	09:05	20.6	8.1	8.24	<2.0	4.8	230	161	56	703	0.070	0.07	0.013	0.7
201601708 Eastmanville (250040)	08:27	20.4	8.2	8.17	<2.0	7.0	200	206	61	719	0.069	0.09	0.012	0.6
Streams														
201601709 Rogue River at West River Drive	08:22	17.0	8.9	8.42	<2.0	10.0	260		38	611	0.051	<0.05	0.011	0.8
201601710 Mill Creek at West River Drive	07:40	16.1	9.3	8.47	<2.0	3.0	320		55	724	0.078	<0.05	0.001	0.7
201601711 Indian Mill Creek at Turner Aven	07:25	15.6	8.8	8.19	<2.0	4.8	540		102	955	0.040	<0.05	0.006	0.7
201601712 Silver Creek at Croften/Roy	07:17	18.8	9.0	8.24	<2.0	0.2	710		201	1270	0.029	<0.05	0.005	0.8
201601713 Plaster 1 at Burton	07:30	18.3	7.8	8.06	<2.0	10.4	1010		150	1040	0.061	0.08	0.013	0.4
201601714 Plaster 2 at Market	09:29	18.2	8.9	8.22	<2.0	7.2	690		158	1120	0.050	0.06	0.011	7.8
201601715 Buck Creek at Chicago Drive	07:49	17.6	8.2	8.17	<2.0	3.8	670		146	1140	0.026	<0.05	0.006	0.4
201601716 Deer Creek	08:33	18.5	7.4	8.14	<2.0	12.0	2200		45	751	0.174	0.10	0.043	2.0
201601717 Coldbrook Storm Drain	07:10	20.5	6.9	7.92	<2.0	2.6	3000		161	906	0.048	0.05	0.005	0.2

LOCATIONS	Cr	Cu	Fe	Hg	Ni	Ag	Zn	Hard	WQI
Grand River									
201601703 Northland Drive Bridge (250120)	<5	<5	110	<0.2	<5	<5	<10	280	82.1
201601704 Wealthy Street Bridge (250090)	<5	<5	180	<0.2	<5	<5	<10	280	77.8
201601705 Railroad Bridge South (250070)	<5	<5	240	<0.2	5	<5	<10	280	75.8
201601706 Railroad Bridge North (250071)	<5	<5	180	<0.2	<5	<5	<10	280	76.2
201601707 M-11, Wilson Avenue (250062)	<5	<5	170	<0.2	<5	<5	<10	290	76.5
201601708 Eastmanville (250040)	<5	<5	260	<0.2	<5	<5	<10	280	77.3
Streams									
201601709 Rogue River at West River Drive	<5	<5	280	<0.2	<5	<5	<10	270	74.2
201601710 Mill Creek at West River Drive	<5	<5	140	<0.2	<5	<5	<10	300	73.3
201601711 Indian Mill Creek at Turner Aven	<5	<5	330	<0.2	<5	<5	<10	390	71.1
201601712 Silver Creek at Croften/Roy	<5	<5	<80	<0.2	6	<5	<10	350	69.7
201601713 Plaster 1 at Burton	<5	<5	410	<0.2	<5	<5	30	300	69.1
201601714 Plaster 2 at Market	<5	<5	300	<0.2	<5	<5	20	330	60.4
201601715 Buck Creek at Chicago Drive	<5	<5	310	<0.2	<5	<5	<10	380	70.7
201601716 Deer Creek	<5	<5	550	<0.2	<5	<5	<10	340	62.2
201601717 Coldbrook Storm Drain	<5	<5	180	<0.2	<5	<5	<10	230	64.8

Miscellaneous Information and Test Descriptions:

Weather conditions: Partly cloudy.

Air Temperature: 19 ºC

Comments:

River Flow: 2630 cfs

Field Technicians: Paul Kuklewski / Brian Frazier / Kurt Anderson / Jim Soper

Time samples (hh:mm)
Sample temperature (ºC)
Dissolved oxygen (mg/L)
pH (pH units)
BOD-5 (mg/L)
Total suspended solids (mg/L)
Fecal coliform (#FC/100mL)
E. coli (#EC/100mL)
Chlorides (mg/L)
Conductivity (µS/cm)
Total phosphorous (mg/L)
Ammonia as nitrogen (mg/L)
Nitrites as nitrogen (mg/L)
Nitrates as nitrogen (mg/L)
Total chromium (µg/L)
Total Copper (µg/L)
Total iron (µg/L)
Total mercury (µg/L)
Total nickle (µg/L)
Total silver (µg/L)
Total zinc (µg/L)
Hardness (mg/L CaCO3)
Water Qulatity Index (percent)

Printed: 10/7/2016 17:05:00

RIVER SURVEY REPORT

DATE: 12/14/2016

CITY OF GRAND RAPIDS EPSD

LOCATIONS	TIME	TEMP	DO	pH	BOD	TSS	FC	EC	CHLORIDE	CON	TP	NH3-N	NO2-N	NO3-N
Grand River														
201602322 Northland Drive Bridge (250120)	09:23			9.17	<2.0	2.8	30	30	43	600	0.036	<0.05	0.007	1.0
201602323 Wealthy Street Bridge (250090)	09:57			8.90	<2.0	2.4	25	28	47	233	0.035	<0.05	0.005	1.5
201602324 Railroad Bridge South (250070)	10:23			8.25	<2.0	2.4	40		68	259	0.041	<0.05	0.012	1.1
201602325 Railroad Bridge North (250071)	10:30			8.21	<2.0	2.2	30	28	53	315	0.060	<0.05	0.020	1.1
201602326 M-11, Wilson Avenue (250062)	08:30			9.36	<2.0	3.0	35	27	57	756	0.063	0.05	0.020	0.7
201602327 Eastmanville (250040)	09:32	0.5		8.33	<2.0	3.0	48	32	64	767	0.104	0.10	0.020	1.0
Streams														
201602328 Rogue River at West River Drive	09:00			8.63	<2.0	1.6	36		38	633	0.027	<0.05	0.008	0.9
201602329 Mill Creek at West River Drive	08:11			8.90	<2.0	22.2	9		43	673	0.034	0.06	0.012	1.9
201602330 Indian Mill Creek at Turner Aven	07:52	1.5	12.5	8.20	<2.0	3.6	136		172	1110	0.032	0.06	0.006	0.4
201602331 Silver Creek at Croften/Roy	07:41	10.3	10.4	8.11	<2.0	0.8	136		294	1550	0.035	0.05	0.009	0.7
201602332 Plaster 1 at Burton	07:58	0.4	12.8	8.86	<2.0	2.2	220		522	229	0.041	0.11	0.005	<0.1
201602333 Plaster 2 at Market	10:12			8.83	<2.0	2.4	127		506	926	0.055	0.18	0.008	0.3
201602334 Buck Creek at Chicago Drive	08:54	0.5	12.5	8.35	<2.0	3.4	118		279	1550	0.030	0.07	0.013	<0.1
201602335 Coldbrook Storm Drain	07:37	3.6	12.5	8.44	<2.0	<0.4	310		244	1240	0.063	0.22	0.007	<0.1

LOCATIONS	Cr	Cu	Fe	Hg	Ni	Ag	Zn	Hard	WQI
Grand River									
201602322 Northland Drive Bridge (250120)	<5	<5	220	<0.2	<5	<5	10	300	73.5
201602323 Wealthy Street Bridge (250090)	<5	<5	210	<0.2	<5	<5	20	300	73.9
201602324 Railroad Bridge South (250070)	<5	<5	190	<0.2	<5	<5	10	300	77.5
201602325 Railroad Bridge North (250071)	<5	<5	200	<0.2	<5	<5	20	290	79.4
201602326 M-11, Wilson Avenue (250062)	<5	<5	200	<0.2	<5	<5	10	300	72.7
201602327 Eastmanville (250040)	<5	<5	210	<0.2	<5	<5	10	290	76.7
Streams									
201602328 Rogue River at West River Drive	<5	<5	160	<0.2	<5	<5	10	270	78.0
201602329 Mill Creek at West River Drive	<5	<5	220	<0.2	<5	<5	10	280	76.2
201602330 Indian Mill Creek at Turner Aven	<5	<5	300	<0.2	<5	<5	20	320	77.6
201602331 Silver Creek at Croften/Roy	<5	<5	110	<0.2	5	<5	30	290	68.6
201602332 Plaster 1 at Burton	<5	<5	390	<0.2	<5	<5	20	300	66.7
201602333 Plaster 2 at Market	<5	<5	360	<0.2	<5	<5	20	320	63.5
201602334 Buck Creek at Chicago Drive	<5	<5	400	<0.2	<5	<5	10	340	74.6
201602335 Coldbrook Storm Drain	<5	<5	240	<0.2	<5	<5	20	250	71.4

Miscellaneous Information and Test Descriptions:

Weather conditions: Overcast.

Air Temperature: -8 ºC

Comments: Deer Creek frozen. Missing DO/Temperature readings due to meter giving out-of-range errors due to cold. WQI's estimated.

River Flow: 3950 cfs

Field Technicians: Brian Frazier / Todd Williams / Kurt Anderson / Paul Kuklewski

Time samples (hh:mm)
Sample temperature (ºC)
Dissolved oxygen (mg/L)
pH (pH units)
BOD-5 (mg/L)
Total suspended solids (mg/L)
Fecal coliform (#FC/100mL)
E. coli (#EC/100mL)
Chlorides (mg/L)
Conductivity (µS/cm)
Total phosphorous (mg/L)
Ammonia as nitrogen (mg/L)
Nitrites as nitrogen (mg/L)
Nitrates as nitrogen (mg/L)
Total chromium (µg/L)
Total Copper (µg/L)
Total iron (µg/L)
Total mercury (µg/L)
Total nickle (µg/L)
Total silver (µg/L)
Total zinc (µg/L)
Hardness (mg/L CaCO3)
Water Qulatity Index (percent)

RIVER SURVEY REPORT

DATE: 03/15/2017

CITY OF GRAND RAPIDS EPSD

LOCATIONS	TIME	TEMP	DO	pH	BOD	TSS	FC	EC	CHLORIDE	CON	TP	NH3-N	NO2-N	NO3-N
Grand River														
201700611 Northland Drive Bridge (250120)	9:09	1.2	13.7	8.69	<2.0	3.2	8	17	39	500	0.042	<0.05	0.018	0.8
201700612 Wealthy Street Bridge (250090)	10:21	0.0		9.35	<2.0	3.2	8	4	40	607	0.046	<0.05	0.010	1.0
201700613 Railroad Bridge South (250070)	10:01	1.0	13.2	8.67	<2.0	4.6	12		48	646	0.144	<0.05	0.011	0.1
201700614 Railroad Bridge North (250071)	9:50	0.9	13.2	8.72	<2.0	3.6	12	20	44	630	0.050	<0.05	0.017	1.4
201700615 M-11, Wilson Avenue (250062)	9:30	1.3	13.3	8.80	<2.0	3.4	15	25	45	638	0.048	<0.05	0.013	0.3
201700616 Eastmanville (250040)	8:54	1.7	13.2	8.44	<2.0	4.4	15	20	54	668	0.057	<0.05	0.012	0.5
Streams														
201700617 Rogue River at West River Drive	8:39	0.1		8.58	<2.0	3.0	18		39	393	0.029	<0.05	0.007	0.5
201700618 Mill Creek at West River Drive	8:16	0.1		7.88	<2.0	1.6	9		48	669	0.029	<0.05	0.013	0.4
201700619 Indian Mill Creek at Turner Aven	7:55	1.2	12.3	8.68	<2.0	4.4	118		166	1120	0.028	<0.05	0.009	0.2
201700620 Silver Creek at Croften/Roy	7:25	8.2	10.9	8.34	<2.0	0.6	36		211	1280	0.026	<0.05	0.018	1.8
201700621 Plaster 1 at Burton	7:42	0.4	12.5	8.32	<2.0	2.2	73		454	1960	0.037	<0.05	0.009	<0.1
201700622 Plaster 2 at Market	10:35	0.1	12.2	8.09	<2.0	9.6	136		368	1750	0.068	0.05	0.010	<0.1
201700623 Buck Creek at Chicago Drive	8:04	1.4	12.2	8.30	<2.0	2.4	145		246	1470	0.024	<0.05	0.008	<0.1
201700625 Coldbrook Storm Drain	7:40	3.8	12.6	8.14	2.1	3.4	250		258	1290	0.053	<0.05	0.006	<0.1

LOCATIONS	Cr	Cu	Fe	Hg	Ni	Ag	Zn	Hard	WQI
Grand River									
201700611 Northland Drive Bridge (250120)	<5	<5	340	<0.2	<5	<5	<10	290	84.6
201700612 Wealthy Street Bridge (250090)	<5	<5	320	<0.2	<5	<5	<10	280	74.9
201700613 Railroad Bridge South (250070)	<5	<5	370	<0.2	<5	<5	<10	290	84.6
201700614 Railroad Bridge North (250071)	<5	<5	340	<0.2	<5	<5	<10	290	80.7
201700615 M-11, Wilson Avenue (250062)	<5	<5	340	<0.2	<5	<5	<10	280	83.2
201700616 Eastmanville (250040)	<5	<5	360	<0.2	<5	<5	<10	290	85.3
Streams									
201700617 Rogue River at West River Drive	<5	<5	170	<0.2	<5	<5	<10	290	81.2
201700618 Mill Creek at West River Drive	<5	<5	280	<0.2	<5	<5	<10	320	87.7
201700619 Indian Mill Creek at Turner Aven	<5	<5	390	<0.2	<5	<5	<10	370	75.7
201700620 Silver Creek at Croften/Roy	<5	<5	110	<0.2	6	<5	10	350	73.1
201700621 Plaster 1 at Burton	<5	<5	390	<0.2	<5	<5	50	360	71.7
201700622 Plaster 2 at Market	<5	<5	460	<0.2	<5	<5	40	360	70.0
201700623 Buck Creek at Chicago Drive	<5	<5	410	<0.2	<5	<5	<10	380	74.9
201700625 Coldbrook Storm Drain	<5	<5	300	<0.2	<5	<5	<10	290	71.6

Miscellaneous Information and Test Descriptions:

Weather conditions: Clear/cold.

Air Temperature: -5 ºC

Comments: Deer Creek frozen. Missing DO readings due to meter giving out-of-range errors. WQI's estimated.

River Flow: 5300 cfs

Field Technicians: Jim Soper / Todd Williams / Brian Frazier / Paul Kuklewski

Time samples (hh:mm)
Sample temperature (ºC)
Dissolved oxygen (mg/L)
pH (pH units)
BOD-5 (mg/L)
Total suspended solids (mg/L)
Fecal coliform (#FC/100mL)
E. coli (#EC/100mL)
Chlorides (mg/L)
Conductivity (µS/cm)
Total phosphorous (mg/L)
Ammonia as nitrogen (mg/L)
Nitrites as nitrogen (mg/L)
Nitrates as nitrogen (mg/L)
Total chromium (µg/L)
Total Copper (µg/L)
Total iron (µg/L)
Total mercury (µg/L)
Total nickle (µg/L)
Total silver (µg/L)
Total zinc (µg/L)
Hardness (mg/L CaCO3)
Water Qulatity Index (percent)

Permittee: City of Grand Rapids

QUARTERLY RIVER SURVEY REPORT — DATE: 5/17/2017 — CITY OF GRAND RAPIDS EPSD

River Survey Report

Grand River		Time	Temp	DO	pH	BOD	TSS	FC	EC	Chloride	Cond	TP	NH_3-N	NO_2-N	NO_3-N
201701080	Northland Drive Bridge (250120)	8:23	20.5	9.0	8.51	<2	5.6	15	12	162	608	0.048	<0.05	<0.1	0.47
201701081	Wealthy Street Bridge (250090)	9:24	21.0	9.2	8.58	2.6	11.4	32	27	173	611	0.056	<0.05	<0.1	0.54
201701082	Railroad Bridge South (250070)	11:00	20.1	9.6	8.37	2.5	10.8	67		177	648	0.046	<0.05	<0.1	0.41
201701083	Railroad Bridge North (250071)	10:50	20.2	9.8	8.48	2.6	9.2	197	43	161	630	0.059	<0.05	<0.1	0.96
201701084	M-11, Wilson Avenue (250062)	9:44	20.3	9.3	8.46	2.4	10.2	103	58	171	637	0.059	<0.05	<0.1	0.22
201701085	Eastmanville (250040)	8:56	20.3	9.2	8.44	2.6	11.6	120	37	159	647	0.070	<0.05	<0.1	0.71

Streams		Time	Temp	DO	pH	BOD	TSS	FC	EC	Chloride	Cond	TP	NH_3-N	NO_2-N	NO_3-N
201701086	Rogue River at West River Drive	8:05	19.0	8.3	8.31	<2	4.6	77		169	575	0.031	<0.05	<0.1	0.77
201701087	Mill Creek at West River Drive	7:41	17.7	8.7	8.34	<2	2.6	195		172	650	0.027	<0.05	<0.1	0.69
201701088	Indian Mill Creek at Turner Avenue	7:28	17.7	8.3	8.29	<2	1.6	1180		148	888	0.025	<0.05	<0.1	0.33
201701089	Silver Creek at Croften/Roy	7:24	15.9	9.4	8.26	<2	0.7	115		157	1150	0.042	<0.05	<0.1	1.44
201701090	Plaster 1 at Burton	7:40	18.1	6.6	8.02	<2	3.4	380		109	1200	0.047	0.12	<0.1	0.47
201701091	Plaster 2 at Market	9:37	20.4	7.3	8.03	<2	4.6	760		101	1270	0.052	0.16	<0.1	0.34
201701092	Buck Creek at Chicago Drive	8:06	18.1	7.1	8.09	<2	4.8	150		147	1040	0.030	<0.05	<0.1	<0.1
201701093	Deer Creek	9:09	19.9	5.7	7.94	2.6	6.6	188		113	604	0.107	0.09	<0.1	0.59
201701094	Coldbrook Storm Drain	7:14	20.5	8.5	8.24	<2	2.2	157		120	989	0.053	0.07	<0.1	1.24

Grand River		Cr	Cu	Fe	Hg	Ni	Ag	Zn	Hard	WQI
201701080	Northland Drive Bridge (250120)	<0.005	<0.005	0.29	<0.2	<0.005	<0.005	<0.01	290	81.8
201701081	Wealthy Street Bridge (250090)	<0.005	0.018	0.72	<0.2	<0.005	<0.005	0.02	290	77.3
201701082	Railroad Bridge South (250070)	<0.005	<0.005	0.40	<0.2	<0.005	<0.005	<0.01	290	76.1
201701083	Railroad Bridge North (250071)	<0.005	<0.005	0.34	<0.2	<0.005	<0.005	<0.01	280	71.9
201701084	M-11, Wilson Avenue (250062)	<0.005	<0.005	0.33	<0.2	<0.005	<0.005	<0.01	270	74.9
201701085	Eastmanville (250040)	<0.005	<0.005	0.50	<0.2	<0.005	<0.005	<0.01	290	74.2

Streams		Cr	Cu	Fe	Hg	Ni	Ag	Zn	Hard	WQI
201701086	Rogue River at West River Drive	<0.005	<0.005	0.23	<0.2	<0.005	<0.005	<0.01	270	77.0
201701087	Mill Creek at West River Drive	<0.005	<0.005	0.22	<0.2	<0.005	<0.005	<0.01	290	73.4
201701088	Indian Mill Creek at Turner Avenue	<0.005	<0.005	0.26	<0.2	<0.005	<0.005	<0.01	340	66.9
201701089	Silver Creek at Croften/Roy	<0.005	<0.005	0.11	<0.2	<0.005	<0.005	0.02	330	75.4
201701090	Plaster 1 at Burton	<0.005	<0.005	0.24	<0.2	<0.005	<0.005	0.04	330	70.0
201701091	Plaster 2 at Market	<0.005	<0.005	0.30	<0.2	<0.005	<0.005	0.03	360	70.2
201701092	Buck Creek at Chicago Drive	<0.005	<0.005	0.35	<0.2	<0.005	<0.005	<0.01	350	73.6
201701093	Deer Creek	<0.005	<0.005	0.48	<0.2	<0.005	<0.005	<0.01	260	69.9
201701094	Coldbrook Storm Drain	<0.005	<0.005	0.32	<0.2	<0.005	<0.005	<0.01	260	76.6

Miscellaneous Information

Weather conditions: Sunny

Field Technicians: Paul Kuklewski./Emily Miner
Robert Carlstrom/Todd Williams

Test Descriptions

Time (hh:mm)
Temperature (°C)
DO: Dissolved Oxygen (mg/L)
pH (pH units)
BOD: 5-day Biochemical Oxygen Demand (mg/L)
TSS: Total Suspended Solids (mg/L)
FC: Fecal Coliform (#FC/100ml)
EC: E. coli (#EC/100mL)
Chloride (mg/l)
Conductivity (µS/cm)
TP: Total Phosphorous (mg/L)
NH_3-N: Ammonia as nitrogen (mg/L)
NO_2-N: Nitrite as nitrogen (mg/L)
NO_3-N: Nitrate as nitrogen (mg/L)
Cr: Total Chromium (µg/L)
Cu: Total Copper (µg/L)
Fe: Total Iron (µg/L)
Hg: Total Mercury (µg/L)
Ni: Total Nickel (µg/L)
Ag: Total Silver (µg/L)
Zn: Total Zinc (µg/L)
Hardness (mg/L as $CaCO_3$)
WQI: Water Quality Index (percent)

Permittee: City of Grand Rapids

QUARTERLY RIVER SURVEY REPORT

DATE: 7/13/2017

CITY OF GRAND RAPIDS EPSD

River Survey Report

Grand River		Time	Temp	DO	pH	BOD	TSS	FC	EC	Chloride	Cond	TP	NH_3-N	NO_2-N	NO_3-N
201701416	Northland Drive Bridge (250120)	9:15	24.8	6.7	8.22	<2	4.8	185	88	45	652	0.053	<0.02	<0.1	0.7
201701417	Wealthy Street Bridge (250090)	10:00	24.9	7.8	8.30	<2	7.2	290	179	46	640	0.021	<0.02	<0.1	<0.1
201701418	Railroad Bridge South (250070)	10:07	24.4	7.1	8.39	<2	10.8			56	615	0.054	0.04	<0.1	<0.1
201701419	Railroad Bridge North (250071)	10:01	24.5	7.4	8.39	<2	7.3		866	50	655	0.047	<0.02	<0.1	0.2
201701420	M-11, Wilson Avenue (250062)	8:17	24.2	7.1	8.32	2.1	20.2		3000	52	616	0.050	0.04	<0.1	<0.1
201701421	Eastmanville (250040)	8:58	24.4	7.5	8.41	<2	8.3	670	488	62	697	0.064	<0.02	<0.1	<0.1

Streams		Time	Temp	DO	pH	BOD	TSS	FC	EC	Chloride	Cond	TP	NH_3-N	NO_2-N	NO_3-N
201701422	Rogue River at West River Drive	8:50	20.8	8.0	8.26	<2	9.5	700		39	604	0.019	<0.02	<0.1	0.3
201701423	Mill Creek at West River Drive	8:17	21.1	8.6	8.29	<2	42.4	3900		39	565	0.108	0.04	<0.1	<0.1
201701424	Indian Mill Creek at Turner Avenue	7:50	20.3	7.6	8.01	3.6	103			40	420	0.202	0.12	<0.1	<0.1
201701425	Silver Creek at Croften/Roy	7:53	21.6	7.5	7.83	4.9	14			27	220	0.152	0.1	<0.1	<0.1
201701426	Plaster 1 at Burton	7:39	22.5	6.5	8.08	3.2	54.5			131	792	0.144	0.09	<0.1	<0.1
201701427	Plaster 2 at Market	10:30	22.4	6.9	7.90	4.4	52.8			107	657	0.164	0.12	<0.1	<0.1
201701428	Buck Creek at Chicago Drive	8:28	21.6	6.7	8.08	<2	16.0			78	622	0.061	<0.02	<0.1	<0.1
201701429	Deer Creek	9:07	22.8	6.2	8.20	<2	20.7	1500		40	637	0.122	0.07	<0.1	<0.1
201701430	Coldbrook Storm Drain	7:37	22.3	8.0	8.07	2.4	10.3			124	694	0.083	0.05	<0.1	<0.1

Grand River		Cr	Cu	Fe	Hg	Ni	Ag	Zn	Hard	WQI
201701416	Northland Drive Bridge (250120)	<0.005	<0.005	0.19	<0.2	<0.005	<0.005	<0.01	290	75.7
201701417	Wealthy Street Bridge (250090)	<0.005	<0.005	0.22	<0.2	<0.005	<0.005	<0.01	290	75.3
201701418	Railroad Bridge South (250070)	<0.005	<0.005	0.38	<0.2	<0.005	<0.005	<0.01	260	67.4
201701419	Railroad Bridge North (250071)	<0.005	<0.005	0.23	<0.2	<0.005	<0.005	<0.01	290	67.9
201701420	M-11, Wilson Avenue (250062)	<0.005	0.047	0.60	<0.2	<0.005	<0.005	0.02	260	67.3
201701421	Eastmanville (250040)	<0.005	<0.005	0.23	<0.2	<0.005	<0.005	<0.01	260	70.9

Streams		Cr	Cu	Fe	Hg	Ni	Ag	Zn	Hard	WQI
201701422	Rogue River at West River Drive	<0.005	<0.005	0.31	<0.2	<0.005	<0.005	<0.01	260	70.4
201701423	Mill Creek at West River Drive	<0.005	<0.005	1.40	<0.2	<0.005	<0.005	0.01	250	63.8
201701424	Indian Mill Creek at Turner Avenue	<0.005	0.007	3.60	<0.2	<0.005	<0.005	0.03	170	63.7
201701425	Silver Creek at Croften/Roy	<0.005	<0.005	0.50	<0.2	<0.005	<0.005	0.02	66	65.0
201701426	Plaster 1 at Burton	<0.005	<0.005	1.60	<0.2	<0.005	<0.005	0.03	200	62.6
201701427	Plaster 2 at Market	0.005	0.006	1.90	<0.2	<0.005	<0.005	0.04	180	63.3
201701428	Buck Creek at Chicago Drive	<0.005	<0.005	0.84	<0.2	<0.005	<0.005	<0.01	190	66.0
201701429	Deer Creek	<0.005	<0.005	0.96	<0.2	<0.005	<0.005	<0.01	270	65.6
201701430	Coldbrook Storm Drain	<0.005	<0.005	0.63	<0.2	<0.005	<0.005	0.01	170	66.6

Miscellaneous Information

Weather conditions: Overcast

Field Technicians: Kurt Anderson/Todd Williams
Robert Carlstrom/Brian Fraizer

Test Descriptions

Time (hh:mm)
Temperature (°C)
DO: Dissolved Oxygen (mg/L)
pH (pH units)
BOD: 5-day Biochemical Oxygen Demand (mg/L)
TSS: Total Suspended Solids (mg/L)
FC: Fecal Coliform (#FC/100ml)
EC: E. coli (#EC/100mL)
Chloride (mg/l)
Conductivity (µS/cm)
TP: Total Phosphorous (mg/L)
NH_3-N: Ammonia as nitrogen (mg/L)
NO_2-N: Nitrite as nitrogen (mg/L)
NO_3-N: Nitrate as nitrogen (mg/L)
Cr: Total Chromium (µg/L)
Cu: Total Copper (µg/L)
Fe: Total Iron (µg/L)
Hg: Total Mercury (µg/L)
Ni: Total Nickel (µg/L)
Ag: Total Silver (µg/L)
Zn: Total Zinc (µg/L)
Hardness (mg/L as $CaCO_3$)
WQI: Water Quality Index (percent)

   b. All CSO and SSO occurrences are reported to the DEQ as required in NPDES Permit #MI0026069 when they occur.
   c. Illicit Discharges can be found in Part 4 of the Report.

b. Data and Results [40 CFR 122.42(c)(4)] – see above
c. BMP Changes [40 CFR 122.42(c)(2)]
   a. None.
   b. We have a Draft Stormwater Standards Manual that emphasizes green infrastructure and will be implemented upon revising our City ordinance. A draft ordinance will be submitted within six months of permit approval.

d. Revised Financial Analysis [40 CFR 122.42(c)(3)]
   a. The stormwater program continues to be funded from the City General Fund, Local and Major Streets, Refuse, and Vital Streets Funds. Funding levels have been increased due to low impact development funding through the streets income tax extension. Funds for asset management have also increased. A fiscal analysis of City of Grand Rapids is included as an attachment. The one attached is the most current from September 2016.

e. Annual Budget [40 CFR 122.42(c)(5)]

Activity	FY17 Expenditures	FY18 Budget
Stormwater Management (General Fund)	$217,486.84	$417,126.00
Stormwater Maintenance (Local and Major Streets Funds)	$753,970.14	$1,248,409.00
Street Sweeping (Refuse and Vital Streets Funds)	$887,432.75	$991,429.00

Capital Improvement Plan

KCDC	$45,000
Emergency	$204,712
Oakleigh Ave in Hogadone District	$45,000
Richmond Park Bioswales	$60,000
Richmond Park Daylighting	$320,000

Summary of Enforcement Actions and Inspections

Activity	2016-2017 Reporting Cycle
Stormwater Inspections	2573
Notices of Violations	98
Corrective Action Orders	20

Summary of Street Sweeping

The City has disposed of 2,805 cubic yards of waste from street sweeping this reporting year at a cost of over $46,700. This has prevented almost 2,560 tons of material from entering the stormwater system.

Additional Documents

FY2016 Annual Report
Stormwater Oversight Commission

March 2017

City of Grand Rapids, MI
Environmental Services Department
1300 Market Avenue SW
Grand Rapids, MI 49503

Table of Contents

1. INTRODUCTION

The City of Grand Rapids' Stormwater Oversight Commission (SOC) was established by the City Commission by resolution number 83170 on January 28, 2014. Per the SOC bylaws, the SOC shall:

1. Support and advocate for the goals and objectives established in the 2013 Stormwater Asset Management Plan.

2. Monitor the community's changing stormwater needs and recommend program priorities to address those needs.

3. Be an advisory body of the City.

4. Report on and make recommendations to the City Manager and City Commission on stormwater performance, review expenditures and capital investment strategies.

5. Monitor achievement of stormwater outcomes.

6. Review the City's annual (Stormwater) Progress Report.

7. Make recommendations to the City Manager and City Commission regarding policies.

8. Plan for achieving Stormwater Management Level of Service "C" as provided in the 2013 Stormwater Asset Management Plan.

9. Review, recommend and approve changes to the Stormwater Technical Reference Manual and report all changes to the City Commission and City Manager.

10. Annually review and recommend changes to the established criteria within the 2013 Stormwater Asset Management Plan for facility improvements, land acquisition, capital renovation or development.

11. Annually review the investments of the income tax extension designated for Vital Streets.

12. Advise the Environmental Services Manager regarding the effect of budgetary decisions on the stormwater system and interpretation of policy as needed.

13. Assist the Environmental Services Manager in the evaluation of stormwater programs and facilities and make recommendations for improvements.

Members of the SOC are:

- Elaine Isely – Chairperson 2016
- William Byl – Vice Chairperson 2016
- Jack Barr
- Kristine Bersche
- Duriel Cohen, Sr. (Resigned on August 3, 2015)
- Edgar L. Davis
- Elizabeth Hernandez
- Joshua Lunger
- Randal Meyering

The SOC began meeting in August of 2014. The meetings in 2014 focused on general stormwater education and state and federal regulation governing stormwater. The meetings in 2015 focused on achieving Level of Service "C" in asset management and developing new technical references for future changes to stormwater technical reference manual. The meetings in 2016 have been focused on policy development required for both the Vital Streets plan and the requirements of the upcoming municipal separate storm sewer system (MS4) permit from the Michigan Department of Environmental Quality (MDEQ). In 2016, the Stormwater Oversight Commission served as the Green Infrastructure Work Group for the development of the Vital Streets Plan. The green infrastructure portion of the Vital Streets Plan focused on fitting the green infrastructure best management practice to the Vital Streets Plan street type and mode. Agendas and Minutes for the FY2016 meetings can be found on the SOC website here.

2. STORMWATER PERFORMANCE

2.1 Report

The City's stormwater performance is governed by the Michigan Department of Environmental Quality (MDEQ). The annual progress report for the MS4 program was submitted to the MDEQ in September 2016. This report details the City's stormwater work including but not limited to stormwater public education, stormwater maintenance, and soil erosion sedimentation control permit reviews. The City's 2016 annual report submission was submitted to the MDEQ on September 29, 2016, and as of January 1, 2017 we are still awaiting their response. A copy of the report can be found here.

In this year's report the City of Grand Rapids, with its partners at the Lower Grand River Organization of Watersheds, highlighted its continued excellence with stormwater public education. The City participated in multiple outreach events including the 2016 West Michigan Home & Garden Show, the 2016 River City Water Festival, the 2016 Party for the Planet, and the Think Green Job Fair. In terms of public involvement, the City joined in or led events such as the Mayors' Grand River Clean-up, the Rain Garden planting at Roosevelt Park, and the rain garden maintenance time at the Tremont Greenspace. In addition, City staff led tours of the Water Resource Recovery Facility (WRRF) for over 1,175 people from eight year olds to adults. This tour not only describes all of the processes at the state-of-the-art WRRF, but also explains the importance that each person has on stormwater.

2.2 Recommendations

Given the performance report as stated above, there are no recommendations for the City's stormwater performance at this time.

3. STORMWATER EXPENDITURES

3.1 Report

The SOC reviewed expenditures at the end of FY2016 and also has approved the FY2018 budget submission. Tables 1 and 2 summarize stormwater management and stormwater maintenance budget expenditures. The FY2016 stormwater management budget was $601,596, and 96% or $579,135 of the budget was expended in the fiscal year.

Table 1. FY2016 Stormwater Management Expenditures

	Budget	**Expenditures**	**Percent of Budget**
Stormwater Management	$601,596	$579,135	96%
- Contractual Services	$177,824	$183,235	103%
SESC Permits	$263,698	$260,474	99%

The FY2016 stormwater maintenance budget was $846,876, of which $904,665 was expended in the fiscal year. The expenditures in the contractual services category exceeded the forecasted budget due to the Vital Streets contract and the installation of the real time water quality monitoring unit at Riverside Park, which is detailed below.

Table 2. FY2016 Stormwater Maintenance Expenditures

	Budget	**Expenditures**	**Percent of Budget**
Stormwater Maintenance	$846,876	$904,665	107%
- Personnel	$307,783	$244,203	79%
- Contractual Services	$77,986	$196,379	248%
- Supplies	$29,031	$45,859	158%

In FY2016, the City of Grand Rapids increased the tree canopy by 238 trees, installed 55 infiltration basins, planted 16 rain gardens and bioswales, and removed and re-installed over 775 porous tree grates. These stormwater and green infrastructure investments were funded by both the sewer fund and the vital streets income tax investment. Tables 3 and 4 layout the breakdown of cost for each project type below. There was one sewer fund project in FY2016 that had stormwater and green infrastructure implementation associated with it. Out of the total project cost of $20 million, more than $1.2 million was stormwater and green infrastructure cost and $10.8 million was Vital Streets cost.

Table 3. FY2016 Projects Funded by the Sewer Fund

No	Project Name	Infiltration Practice	Total Stormwater/ Green Infra. Cost	Total Vital Streets Cost	Total Project Cost
1	Eastside Sewer Improvements Program Separation Project Contract No. 28A	Remove 22 trees; plant 65 trees; urban bulbout rain garden; porous pavement	$ 266,550.68	$ 479,000	$ 5,047,000
	TOTAL		**$266,550.68**	**$479,000**	**$5,047,000**

According to the stormwater investment guidelines, approximately $2.1 million was estimated for expenditure on stormwater and green infrastructure in FY2016. According to Table 4, over $1.2 million of that budget was expended. With the initial focus of Vital Streets being resurfacing, the opportunities for implementing green infrastructure are limited. Therefore, the expenditures are only approximately 53% of the budget.

Table 4. FY2016 Projects Funded by the Vital Streets Income Tax Investment

No.	**Project Name**	**Infiltration Practice**	**Total Stormwater/Green Infrastructure Costs**	**Total Vital Streets Cost**	**Total Project Cost**
1	Resurfacing of Kalamazoo Avenue from Fuller Avenue to Hall Street	11 infiltration basins; bioswales	$ 175,293.47	$ 1,364,300	$ 1,658,943
2	Trees Planted with Local Contract - Rotomill/resurfacing and reconstruction - Various Locations	110 trees	$ 37,010.00	$ 37,010	
3	Resurfacing of Plymouth Avenue from Michigan Street to Leonard Street	7 infiltration basins; bioswales	$ 86,037.25	$ 1,181,342	$ 1,676,500
4	Resurfacing of Leonard Street from Alpine Avenue to Turner Avenue	Porous pavers; bioswales; 17 trees; 35 porous tree grates	$ 171,081.38	$ 1,516,320	$ 1,983,307
5	Resurfacing of Eastern Avenue from 28th Street to Burton Street	7 Rain Gardens	$ 43,067.50	$ 1,403,500	$ 2,066,200
6	Resurfacing of Alpine Avenue from Richmond Street to Ann Street	Bioswale; 15 trees	$ 5,598.20	$ 800,098	$ 1,041,800
7	Streetscape Improvements at Various Locations	Removal of 776 tree grates and placement of porous pavement material	$ 371,430.95	-	$ 423,596.20

8	Reconstruction of Taylor Avenue from Grove St. to Sweet St. and Howland Street (Vacated) from Monroe Ave. to Taylor Ave. and Sweet Street from Center Ave. to Plainfield Ave. and Queen Avenue from Sweet St. to Sweet St. Alley	Remove 5 trees; plant 32 trees; porous pavement; rain garden	$ 74,246.78	$ 1,327,200	$ 5,050,600
9	Reconstruction of Cottage Grove Street from Buchanan Avenue to Division Avenue	6 infiltration basins	$ 26,220.00	$ 931,000	$ 950,000
10	Reconstruction of Clancy Avenue from Cedar Street to North Creston Plaza Drive	34 trees	$ 13,823.00	$ 397,000	$ 1,302,000
11	Reconstruction of National Avenue from Lake Michigan Drive to Sibley Street and Straight Avenue from Fulton Street to Lake Michigan Drive	4 infiltration basins	$ 28,980.00	$ 766,200	$ 1,240,000
12	Water Main Replacement in Crescent Street from Barclay Avenue to Lafayette Avenue	4 infiltration basins	$ 17,020.00	$ 61,600	$ 373,400
13	Reconstruction of Oakdale Street from Eastern Avenue to Kalamazoo Avenue	Remove 9 trees; 18 infiltration basins	$ 96,255.00	$ 869,500	$ 2,138,500
14	Michigan Street and Monroe Avenue (Michigan State University - Grand Rapids Research Center)	2 infiltration basins; planter curbs/bioretention	$ 62,859.00	$ 80,000	$ 185,000
15	Reconstruction of Hastings Street Prospect Avenue and Trowbridge Street	3 infiltration basins; 5 trees	$ 17,715.18	$ 99,752	$ 1,460,000
16	Reconstruction of Dorchester Avenue from Hall Street to Oxford Street	Remove 4 trees; bioretention basin; porous pavement	To be completed in Spring 2017		
	TOTAL		$1,226,637.70	$10,834,821	$20,089,846

3.2 Recommendations

The total expenditures for both stormwater management and stormwater maintenance were near the FY2016 budget. The SOC was pleased with the ditch improvements that were successfully executed this year and recommended continued implementation of that work. The SOC also recommended the use of the recently awarded Stormwater, Asset Management, and Wastewater (SAW) grant through the MDEQ for further advancement toward reaching the Level of Service "C" through supplemental televising and cleaning of the stormwater system.

4. CAPITAL INVESTMENT STRATEGY

4.1 Report

The capital investment strategy is to plan to achieve Level of Service "C" as outlined in the 2013 Asset Management and Capital Improvement Plan. Level of Service "C" is defined in Appendix B. FY2016 was a successful year for finishing capital projects.

Three capital projects were completed this year.

- Moerland Dr. NW Stormwater Improvements – A stormwater pipe and outfall were found to be crushed and beyond repair, causing sinkholes in the nearby lawn. 229 feet of 24 inch storm pipe were installed in an easement on Moerland Dr. NW. Once the pipe was installed, the bank and the lawn were restored.
- Fountain St NE & Bostwick Ave NE – 97 feet of 24 inch storm sewer were lined with the Cured-In-Place Pipe (CIPP) lining contract.
- Trowbridge St NE & North Ave NE – 295 feet of 12 inch storm sewer were lined with the CIPP lining contract.

Capital Improvement Funding has been planned out through 2022 to match the investment strategy in the plan, as shown in Tables 5 through 10 below.

Table 5. FY2017 Capital Projects

Drainage Improvements and Emergency Repairs	Capital Reserve Fund	$ 80,000
Kent County Drain Commission Special Assessments	Capital Reserve Fund	$ 45,000
Moerland and Longmeadow Stormwater Improvements	Capital Reserve Fund	$ 117,470
Michigan St - Division to Barclay	Capital Reserve Fund	$ 76,000
Richmond Park Daylighting	Capital Reserve Fund	$ 36,673
CIPP Rehab of Storm Sewers – Various Sites	VSOC Streets	$ 100,000
FY2017 TOTAL		**$ 455,143**

Table 6. FY2018 Capital Projects

Drainage Improvements and Emergency Repairs	Capital Reserve Fund	$ 204,712
Kent County Drain Commission Special Assessments	Capital Reserve Fund	$ 45,000
Oakleigh Ave in Hogadone District - Channelizing and Cleaning	Capital Reserve Fund	$ 45,000
Richmond Park Bioswales	Capital Reserve Fund	$ 60,000
Richmond Park Daylighting	Capital Reserve Fund	$320,000
CIPP Rehab of Storm Sewers – Various Sites	VSOC Streets	$ 100,000
FY2018 TOTAL		**$ 774,712**

Table 7. FY2019 Capital Projects

Drainage Improvements and Emergency Repairs	Capital Reserve Fund	$ 131,489
Kent County Drain Commission Special Assessments	Capital Reserve Fund	$ 45,000
Indian Mill Creek Dredging	Capital Reserve Fund	$ 65,400

Oakleigh Ave in Hogadone District - Channelizing and Cleaning	Capital Reserve Fund	$ 221,850
Coldbrook Drain Rehabilitation - Michigan and Fuller	Capital Reserve Fund	$ 37,500
Shawmut Hills Baseball Diamond and Channel Stormwater Improvements	Capital Reserve Fund	$ 74,300
Capiliano Stormwater Improvements	Capital Reserve Fund	$ 41,400
Richmond Park Bioswales	Capital Reserve Fund	$ 209,347
CIPP Rehab of Storm Sewers – Various Sites	VSOC Streets	$ 100,000
FY2019 TOTAL		**$ 926,286**

Table 8. FY2020 Capital Projects

Indian Mill Creek Dredging	Capital Reserve Fund	$ 370,600
Maplegrove Detention Pond	Capital Reserve Fund	$ 78,300
Plaster Creek Bank Erosion	Capital Reserve Fund	$ 75,975
Coldbrook Drain Rehabilitation - Michigan and Fuller	Capital Reserve Fund	$ 212,500
Drainage Improvements and Emergency Repairs 2020+	Capital Reserve Fund	$ 195,482
Kent County Drain Commissioner Special Assessments 2020+	Capital Reserve Fund	$ 45,000
CIPP Rehab of Storm Sewers – Various Sites	VSOC Streets	$ 100,000
FY2020 TOTAL		**$ 1,077,857**

Table 9. FY2021 Capital Projects

Burton-Breton Branch of Plaster Creek - Channelization and Cleaning	Capital Reserve Fund	$ 37,995
Maplegrove Detention Pond	Capital Reserve Fund	$ 443,700
Plaster Creek Bank Erosion	Capital Reserve Fund	$ 430,525
Drainage Improvements and Emergency Repairs 2020+	Capital Reserve Fund	$ 97,209
Water Quality Improvement from Daylighting Plan	Capital Reserve Fund	$ 75,000
Kent County Drain Commissioner Special Assessments 2020+	Capital Reserve Fund	$ 45,000
CIPP Rehab of Storm Sewers – Various Sites	VSOC Streets	$ 100,000
FY2021 TOTAL		**$ 1,229,429**

Table 10. FY2022 Capital Projects

Burton-Breton Branch of Plaster Creek - Channelization and Cleaning	Capital Reserve Fund	$ 215,305
Burton-Breton Branch of Plaster Creek- Enlargement of Culverts	Capital Reserve Fund	$ 168,000
Drainage Improvements and Emergency Repairs 2020+	Capital Reserve Fund	$ 97,209
Kent County Drain Commissioner Special Assessments 2020+	Capital Reserve Fund	$ 45,000
Water Quality Improvement from Daylighting Plan	Capital Reserve Fund	$ 257,000
Plaster Creek Bank Restoration	Capital Reserve Fund	$ 400,000
Green Implementation	Capital Reserve Fund	$ 198,486
FY2022 TOTAL		**$ 1,381,000**

Projects chosen were prioritized using the 2013 Asset Management and Capital Improvement Plan.

4.2 Recommendations

There are no recommendations regarding Capital Investment Strategy at this time. However, given that all recommended projects from the Capital Improvement Plan have now been scheduled, we will continue to incorporate the Large Scale Green Infrastructure Opportunities report and the Stream Daylighting Opportunities Assessment into the Asset Management and Capital Improvement Plan.

5. STORMWATER TECHINICAL REFERENCE MANUAL

5.1 Changes

The SOC has not yet begun a formal review of the Technical Reference Manual, which will be performed in conjunction with ordinance review for the MS4 permit issuance. However, the SOC has continued to update and provide new technical documents that will provide data and reference for the recommendations to the Stormwater Technical Reference Manual. These updated documents include the *Green Infrastructure Guidance Manual* and *revised Green Infrastructure Fact Sheets*. The new documents include additions to the Green Infrastructure Fact Sheets and the continuing development of the Green Infrastructure Technical Specifications.

The *Green Infrastructure Guidance Manual* is a planning level document that is intended as a starting point for incorporating green infrastructure into a site or within the street right-of-way. The document is targeted toward developers, engineers, and city officials. The guidance manual was updated to include an improved explanation of the design principles and green infrastructure practices siting possibilities to be in line with the Vital Street plan.

The Green Infrastructure Fact Sheets, both new and revised, contain the basic conceptual designs, objectives, and key considerations for multiple types of green infrastructure, including curb extensions, leaching basins, and rain barrels. These fact sheets will be able to provide City leaders and staff a snapshot into a variety of green infrastructure manual practices.

The Green Infrastructure Technical Specifications is a manual currently in process that will be provided to developers and engineers with technical information on how green infrastructure will need to be designed in the City of Grand Rapids. This document is expected to be completed in 2017.

5.2 Recommendations

Once the MDEQ issues the next MS4 permit, recommendations for the Stormwater Technical Reference Manual will be evaluated.

6. RECOMMENDATIONS FOR 2013 STORMWATER ASSET MANAGEMENT AND CAPITAL IMPROVEMENT PLAN

6.1 Facility Improvements

During FY2016, the focus of facility improvements has been on asset management. In order to determine what facilities need improvement, the facilities need to be assessed through cleaning and televising. The 2013 Stormwater Asset Management and Capital Improvement Plan has set the goal to attain Level of Service "C". The SOC has requested monthly updates on progress made on stormwater assets that have been cleaned and/or inspected. Table 11 summarizes the annual cleaning and inspection data for the FY2016.

Table 11. FY2016 Asset Management Data

Asset	FY16 Annual Goal	FY2016 Totals
Storm Main Cleaned (ft)	145,000	33,300
Storm Main Televised (ft)	22,744	26,031
Catch Basins Cleaned (ea)	3,865	3,293

Due to a lack of investment in stormwater infrastructure in the past, the FY2016 totals are only a fraction of the annual goals. The Level of Service "C" annual goal is based on a five year cycle of preventative maintenance. The cleaning and televising portion of the stormwater asset management program started in 2013 after many decades of zero maintenance. Through those years where no preventative maintenance was performed, sediment, debris, and other materials were still collecting in the storm pipes. Therefore, it has taken the vactor trucks much longer to clean several decades of material buildup out of the pipes, as opposed to five years of material buildup. The initial five year cycle of preventative maintenance may take eight years to complete, but once the initial cleaning is complete, the Level of Service "C" goals will be attainable. The maintenance log for other Level of Service "C" criteria was taken from the annual City of Grand Rapids' Lower Grand River Watershed Progress Report submitted to the MDEQ and is attached in Appendix B. Please note that since the MDEQ reporting year and the City of Grand Rapids fiscal year start in different months, some of the numbers in Appendix B will not match this report.

The FY2015 & FY2016 data for stormwater sewer repairs are shown in Table 12. Due to an increase in storm sewer cleanings and inspections, as well as the implementation of the City's 311 customer service center, these values are not comparable to previous years. The lack of past investment led to a lack of preventative maintenance, but now that this maintenance is being performed, the corrective maintenance issues are being identified and reported at a higher frequency. With the implementation of the 311 customer service center, our citizens have better communication with us, and we have been able to address their problems quickly.

Table 12. FY2016 Stormwater Repair Data

Maintenance Type	FY15 Results	FY16 Results
Storm Main Replaced (ft)	94	92.5
Storm Lateral Replaced (ft)	87.5	24
Storm Sewer Lined (ft)	778	392
Storm Manholes Repaired/Replaced (ea)	9	84
Storm Catch Basins Repaired/Replaced (ea)	125	109
Roadside Ditches Shaping/Cleaning (ft)	0	400

In FY2016, City staff maintained eight stormwater pumping stations for use during a major rainfall events. These stations pump stormwater to the river during times where the river level is too high to allow a gravity discharge. All of the lift stations are not designed to be in constant use, but because they are critical infrastructure as they provide flood relief in the system during high river levels, reliable operation is mandatory. In order to maintain these stormwater pump stations, regular maintenance and inspections are necessary. Table 13 shows the type of work orders utilized to properly operate these facilities.

Many of the work orders are for preventative maintenance. Any issues discovered are documented, and new corrective maintenance work orders are created. The corrective maintenance work orders may include troubleshooting pump malfunctions, bearing replacements, alarm diagnostics, and communication checks.

Table 13. FY2016 Stormwater Station Maintenance Data

Work Order Type
Air Filter Inspections/Replacements
Bar Screen Cleaning
Motor Tests (Bi-annual)
Electrical Preventative Maintenance (Annual)
Instrumentation Preventative Maintenance (Annual)
Wet Well Vactor Cleaning
Stormwater Station – Biweekly Inspections
Corrective Maintenance

6.2 Land Acquisition

No land acquisitions were considered during FY2016.

6.3 Capital Renovation or Development

During FY2016, the SOC continued to evaluate multiple ideas for capital development. These ideas included large scale green infrastructure opportunities, stream daylighting opportunities, and river water quality monitoring opportunities. Two of the river water quality monitoring stations were installed during 2016.

The large scale green infrastructure opportunities were developed to help the City cost-effectively incorporate green infrastructure on publicly-owned property. In this study, the focus was on parks, which were prioritized based on potential drainage area to a green infrastructure practice, soil type, and available open space within the park. Both surface and subsurface projects were considered, and costs for the conceptual designs as well as typical operation and maintenance costs were estimated. Coordination with the Parks and Recreation Department through their master planning process has been ongoing.

The stream daylighting opportunities assessment was another project focused on identifying green infrastructure opportunities in the City of Grand Rapids. Available data on enclosed portions of intermittent and permanent watercourses in the city were reviewed to identify and provide a conceptual design and opinion of cost of the locations that were most suited for daylighting. All watercourses that were considered were owned by the City of Grand Rapids, or the Kent County Drain Commissioner and located within the City of Grand Rapids. Public and private sites were considered. This report documents the conditions of the watercourses (enclosed versus open channel drainage), opportunities to daylight water courses, and the costs and benefits associated with specific opportunities.

The river water quality monitoring opportunities were developed as the SOC wanted to know how the Lower Grand River Watershed truly reacts to stormwater. The conceptual strategy for river water quality monitoring was to install eight real time water quality monitoring units on a variety of the stormwater contributors to the Grand River. Two units would be installed on the upstream and downstream ends of the Grand River in the City of Grand Rapids, two units would be installed on rural tributaries, two units would be installed on urban tributaries, and two units would be installed on stormwater outfalls to the Grand River. If this strategy were executed, the City would be able to better focus its efforts on stormwater pollution reductions.

During 2016, two sites, one on the upstream end and one on the downstream end of the Grand River within the City of Grand Rapids have been installed. The upstream site is in a maintenance building in Riverside Park. Environmental Services worked collaboratively with the Parks and Recreation Department to install the unit which pulls water from the Grand River through a horizontal directionally drilled intake line. This building is the most northern City-owned building near the river and will be able to track the Grand River water quality as it enters the city limits. The downstream site is in the Market Avenue Pumping Station. This site will be able track the Grand River water quality as it exits the city limits. This combination of water quality monitoring units will give the SOC a baseline of water quality to see the total impact the City of Grand Rapids has on the Grand River water quality.

6.4 Recommendations

The goal of the 2013 stormwater asset management and capital improvement plan was to reach the Level of Service “C” by 2020 through small step increases in annual asset management goals. As shown in Tables 11 and 12, the FY2016 goals were not achieved in all asset fields, nor was there in an increase in the production of all fields from FY2015 to FY2016.

While the initial stages of cleaning the stormwater systems have been expected to take longer given that much of the system was never previously cleaned, another area identified for not reaching the expected level of

service is the staffing of sewer maintenance. The 2016 Staffing Levels are presented below in Figure 1.

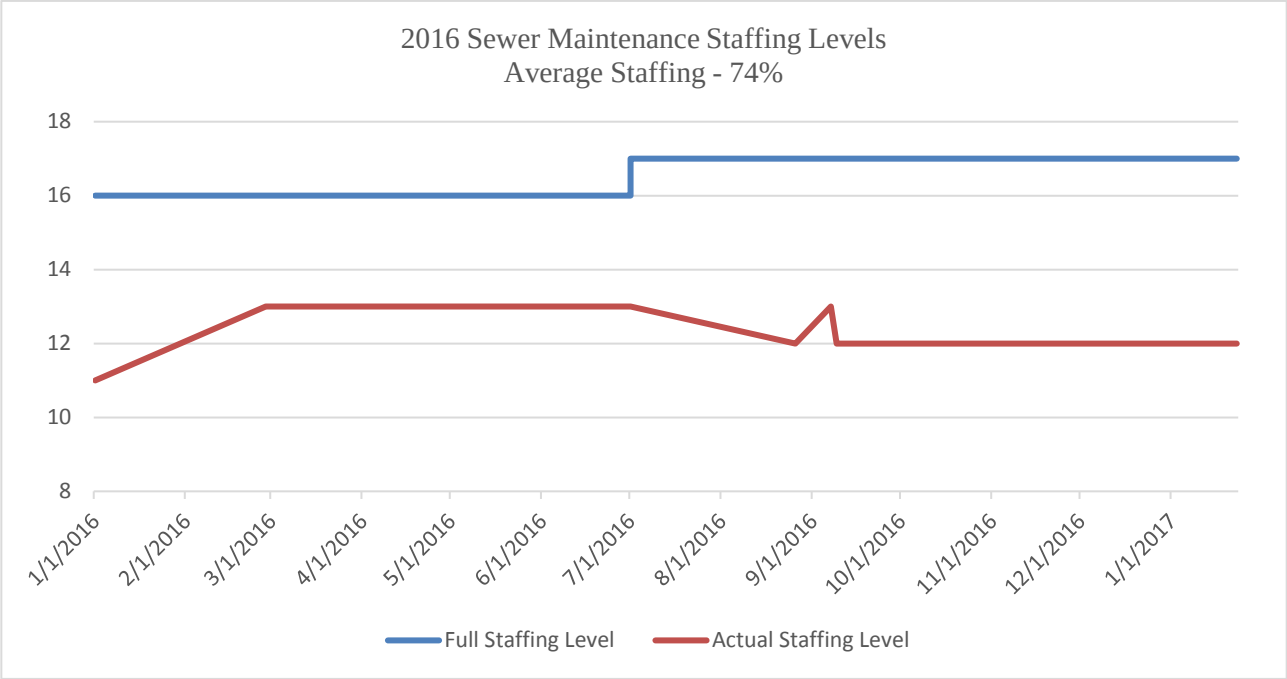


Figure 1. 2016 Sewer Maintenance Staffing Levels

As indicated on the graph, sewer maintenance was under staffed by over 25% in 2016, which is a continuance from previous years. The primary reasons for understaffing are the amount of time it takes for the hiring process and promotions to other departments for higher wages. In addition, incoming candidates are less qualified in the current market and, therefore, training can take longer.

The Stormwater Oversight Commission recommends finding new means to attract and retain qualified professionals to the fill these openings.

7. RECOMMENDATIONS REGARDING STORMWATER POLICY

In March 2015, the permit application for the discharge of storm water to surfaces waters of the state from a municipal separate storm sewer system (MS4) was submitted to the Michigan Department of Environmental Quality. Changes to the stormwater code will be required to address requirements under upcoming MS4 permit. Through FY2016, the SOC evaluated multiple criteria for new stormwater policies in order to meet the upcoming pertaining permit requirement. These criteria include the new rainfall data, the size of the flood control storage, and the stormwater permit threshold.

One of the permit requirements in need of update was the rainfall data. The City currently uses Bulletin 71 data, which was compiled in 1971, but the MDEQ permit is requiring more updated rainfall data to be used. The City of Grand Rapids, through their consultant TetraTech, prepared a report, Hydrologic Design Standards under Future Climate, using multiple forecasting models to predict the size of each threshold storm. These state-of-the-art models predicted how much rainfall may come in 2050 and 2085, although the consultant even stated that some of the rainfall amount may be overestimates. The National Oceanic and Atmospheric Administration's (NOAA) Atlas 14 curve was also considered as it is being widely used in other municipalities in West Michigan. The rainfall curves are listed below in Table 14. The SOC assessed how several of these rainfall curves would affect future development by evaluating multiple sites, and after extensive evaluation, the SOC recommended that the City move forward with the Atlas 14 rainfall curve. The SOC felt that the Atlas 14 rainfall curve best represented the quadruple bottom line decision for the City.

Table 14. Rainfall Curve Data

	Name	2yr 24hr	25yr 24hr	100yr 24hr
Current	Bulletin 71	2.37	4.45	6.15
	NOAA Atlas 14	2.56	4.66	6.27
2050	MIROC5, RCP8.5	2.84	5.16	9.13
	CNRM-CM5, RCP 8.5	3.34	6.09	11.06
	BCC-CSM-1-1, RCP 8.5	2.88	5.45	10.3
	IPSL-CM5B-LR, RCP 4.5	2.86	4.86	8.05
	CNRM-CM5, RCP 4.5	3.17	6.03	11.5
	BCC-CSM-1-1, RCP 4.5	2.69	4.16	6.39
2085	MIROC5, RCP8.5	3.75	7.55	10.91
	CNRM-CM5, RCP 8.5	3.03	6.63	10.93
	BCC-CSM-1-1, RCP 8.5	3.58	6.86	9.56
	IPSL-CM5B-LR, RCP 4.5	2.85	5.64	8.36
	CNRM-CM5, RCP 4.5	3.44	6.62	9.59
	BCC-CSM-1-1, RCP 4.5	2.67	5.79	8.97

The second criteria SOC evaluated was the size of the flood control storage. This requirement details how much water a development would have to retain on site in event of a large storm. Currently, in the City of Grand Rapids, any site within the City is a required to have a 25 year flood control storage, unless the site is in watersheds sensitive to flooding or erosion. If the sites are in Plaster Creek or Coldbrook Creek watersheds, which are sensitive to flooding or erosion, the developments are required to have 100 year

flood control storage. The SOC evaluated this requirement and considered adding Indian Mill Creek watershed and the Lamberton Creek watersheds to the sensitive watershed list. After reviewing the data, the SOC decided to leave the sensitive watershed list unchanged.

Lastly, the SOC reviewed the policy on the threshold for which a stormwater permit is required. Currently, the City code requires all sites that increase the impervious area by 1,000 square feet or more to have a stormwater permit. This code is more restrictive than the required MDEQ requirement of one acre. However, in the City of Grand Rapids, as shown in table 15, only a limited number of sites would fall under that requirement. The SOC reviewed the data and decided that not changing the requirement best fit the quadruple bottom line for the City.

Table 15. 2011-May 2016 LUDS Permits

2011- May 2016 LUDS Permits		
Added Impervious Area (sq.ft.)	Total Sites	Capture %
0	33	100%
<1000	33	93%
1000 to <2,500	36	86%
2500 to <5,000	71	78%
5000 to <7,500	37	63%
7500 to <10,000	26	55%
10000 to <15,000	52	49%
15000 to < 20,000	28	38%
20000+ <1/2 Acre (27,180)	37	32%
1/2 Acre to < 3/4 Acre (32,670)	16	24%
3/4 Acre to < 1 Acre (43,560)	31	21%
1 Acre or greater	67	14%
TOTAL	467	

Once the SOC made the aforementioned recommendations, city staff compiled this information into stormwater standards manual, which will be submitted to the MDEQ as evidence of how the City intends to comply with upcoming MDEQ permit. This stormwater standards manual was submitted to MDEQ in January 2017, and we hope to have a response back from the MDEQ in the next 12-18 months. There is still a substantial amount of work to complete to be in compliance with the upcoming MDEQ MS4 permit. Appendix C below shows the steps that the City has taken to date, and the expected steps needed to take in the future.

Many of the future dates are anticipated dates and based upon guidance from MDEQ. At this time, it is unknown exactly what changes may need to be made until we receive comments back on our permit application. As of January 2017, the City of Grand Rapids has only received preliminary comments on the City's own stormwater practices and not on regulating new construction and reconstruction sites. While we will work on our preferred changes to stormwater code, final recommendations will not be made until we have come to an agreement with the MDEQ on the final requirements.

Appendix A. Level of Service “C” Parameters

Level of Service C

This LOS is intended to allow the City to determine critical infrastructure and identify high priority areas. Refer to Table 4-3. Key elements of this LOS include:

- Funding would increase for O&M to allow for the assessment of the entire collection system greater than 75 years old every 10 years. Funding also assumes performing corrective maintenance where necessary and preventative maintenance on 10 percent of all inspected assets.
- Inspection of 50 percent of culverts annually, along with replacing or renewing the worst 5 percent.
- Inventory and inspection of approximately 4 miles each of open channels and ditches annually with funding for preventative maintenance, and establishing a minimal annual renewal program.
- Inspection of all discharge points every 5 years, with corrective maintenance to repair or replace the top 10 percent worst condition each year. And preventative maintenance on 5 percent of inspected outfalls annually.
- Inspections and routine maintenance on other system assets would be organized so that pertinent data are collected and stored in the GIS database.
- 10 percent of all new capital spending would be directed towards green infrastructure.
- Regulatory spending would be increased to establish a public education program.
- Capital spending would be based on an assumed system replacement every 150 years, with catch basins and laterals assigned a 100 year replacement cycle.

Table 4-3 Level of Service C Definition

Asset	Inspection	Corrective	Preventative	System Renewal
Gravity Mains	PACP CCTV inspect pipes greater than 75 years old over 10-year period.	Replace 15% of assets that have reached end of EEL over 10 years.	Perform rehabilitation to extend EEL for 10% of inspected sewers over 10 years	Replace every 150 years.
MH	Inspectmanholes greater than 75 years old over 10-year period.	Replace 15% of assets that have reached end of EEL over 10 years.	Perform rehabilitation to extend EEL for 10% of inspected sewers over 10 years.	Replace every 150 years.
Laterals	Inpect CB laterals greater than 75 years old over 10-year period.	Replace 15% of assets that have reached end of EEL over 10 years.	Perform rehabilitation to extend EEL for 10% of inspected laterals over 10 years.	Replace every 100 years.
Catch basins	Clean and inspect 25% annually (Approx. 4264). Record and monitor debris levels for cleaning prioritization.	Replace 15% of assets that have reached end of EEL over 10 years.	Perform rehabilitation to extend EEL for 10% of inspected catch basins over 10 years.	Replace every 100 years.
Force Mains	Visual inspection every 2 weeks during pump station inspection. PACP CCTV inspect every 15 years.			Replace every 100 years.
Siphons	Clean and inspect annually.			Replace every 150 years.
Culverts	CCTV/walk/inspect 50% of culverts annually.	Replace/rehabilitate top 5% by POF.		Replace every 150 years.
Open Channel	Walk, inventory and inspect 4 miles of open channel annually.		Remove debris at 1 site per mile inspected.	Restore 7.5% minor, 3% moderate and 1% severe construction for length inspected each year.
Ditches	Inspect 4 miles of roadside ditch annually.			Grade or clean 10% of length inspected.
Discharge Points	Inspect all discharge points every 5 years per MS4 requirements.	Replace top 10% by POF each cycle.	Stabilize bank and erosion control at 5% of assets each cycle.	Replace every 150 years.
Creek gates	Inspect annually, clean as needed. Record and monitor conditions for prioritization.			Costs included with adjacent assets.
Detention Basins	Complete site inspection 3 times annually including routine maintenance.			Facility renovation every 100 years. Includes re-grading, seeding, renew inlet/outlet structures.
Infiltration Basins	Clean and inspect every 5 years.			Replace system every 150 years.
Lift Stations	Inspect facility every 2 weeks. Log inspection data in GIS every 6 months.			Replace pumps every 30 years, structural, mechanical and electrical components replaced every 100 years.
Hydro Separators	Clean and inspect annually. Record debris accumulation for prioritizing cleaning schedule and frequency.			Replace every 150 years.
Green Infrastructure	Inspect and perform recommended maintenance annually.			Invest 10% of all collection system capital renewal costs on GI. GI=+25% increase to construction costs.

Appendix B. Lower Grand River Watershed Progress Report Maintenance Log

Permittee: **City of Grand Rapids**

Appendix 2-B - Storm Water Controls
Inspection, Maintenance and Effectiveness
August 1, 2015 to July 31, 2016

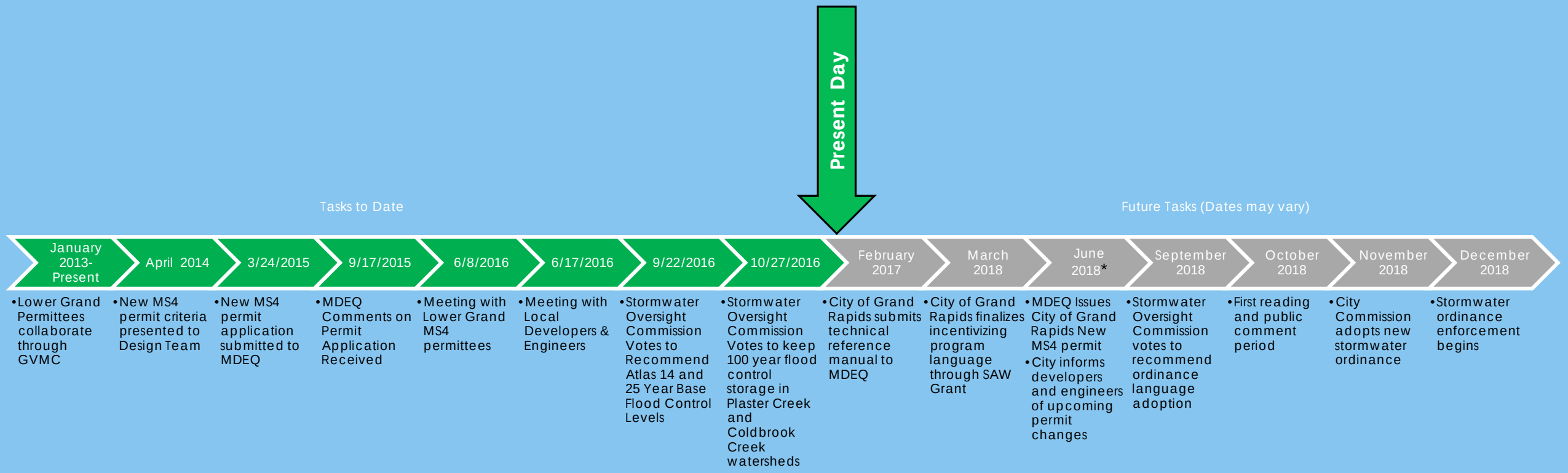
Property Name: City Wide				
Structural Storm Water Control	**Inspection Frequency**	**Maintenance Schedule**	**Inspection and Maintenance Conducted and Location of Log (if applicable)**	**Effectiveness of Control and Support Documentation**
Stormwater Manholes	Complaint Based	N/A	290 Cleaned 1 manhole replaced 6 manholes repaired Logs are maintained in Cityworks	Identified problems were fixed and pollutants were removed.
Stormwater Catch basins	Complaint Based	Clean 2,500 annually	3,488 cleaned Logs are maintained in Cityworks.	2,416 tons of solids were removed from the stormwater system and kept form the waterways
Discharge Points	Complaint Based	N/A	518 discharge points and backflow preventers were inspected	In 2014, backflow preventers were in installed in Grand Rapids and Walker. All backflow preventers are now inspected annually.
Stormwater Laterals	Complaint Based	N/A	1,401 feet cleaned 7 laterals repaired 6 laterals replaced Logs are maintained in CityWorks	Identified problems were fixed.

Stormwater Pressurized Mains	Complaint Based	Bi-weekly Inspection visit	Inspections occur once every 3 weeks from May through October and once every 4 weeks from November through April	No failures of a stormwater pumping station during a rain event
Stormwater Lift Stations	Complaint Based	Bi-weekly Inspection visit	All 11 wet wells were cleaned as needed based on inspections.	Given that the shortest gap between cleanings was two months every 2 to 4 weeks appears to be sufficient.
Stormwater Gravity Mains	Complaint Based	N/A	34,800 feet cleaned 1,673 feet were rootsawed and cleared 26.5 feet were replaced	Identified problems were fixed and pollutants removed
Infiltration Basins (underground)	Complaint Based	10 yr. Inspection cycle	Inspections in CityWorks for 2019 and 2026	The basins appear to function well
Detention Basins	Complaint Based	Maintain & Inspect three times annually	The one pond that is operated by the City was inspected once every 2-8 weeks.	The basin appears to function well
Hydro Separators	Complaint Based	Clean twice year	10 hydroseparator cleanings were performed	With two years of cleaning hydro separators, we have found most separators are functioning fine with 1 cleaning annually. 1 unit will require 2 cleanings annually.

Siphons	Complaint Based	Clean annually	4 siphon cleanings were performed this year	Annual cleanings appear to be appropriate. As construction projects take place, we continue to remove as many siphons as possible.
Creek gates	Complaint Based	Clean annually	58 cleanings were performed 0 creek gates were repaired 26 inspections were performed.	Responding to complaints ensures that the worst areas are addressed more often
Open Ditches	Complaint Based	N/A	400 feet of ditch was cleared and restored along Kendall St. SE	This work was complaint related to neighborhood ditches. Funds were budgeted to address the most problematic areas.

Appendix C. City of Grand Rapids Stormwater Ordinance Timeline

STORMWATER ORDINANCE TIMELINE



*MS4 Permit issuance date is an estimated date as it is dependent on MDEQ review timeline, which is unknown at this time. Once the MS4 permit is issued, Grand Rapids has 6 months to adopt a new stormwater ordinance that meets permit regulations.

Public Outreach Materials Used

Event Title:	Fresh to Flush	Home Show		East Minister Church	Public Tour	Dia del Nino
Date(s):	2/9/17	3/2/17		4/6/17	4/27/17	4/29/17
BROCHURES:						
Adopt a Catch Basin		14	14		1	
Be Stormwater Savvy- Don't let a good drop go bad						
Environmental Tip #1 - Water & Oil Do Not Mix		13	13			
Environmental Tip #2 - Don't Rush to Flush		18				
Environmental Tip #3- No Wipes in the Pipes	20	24				
Environmental Tip #4 - Rain water is not Wastewater		15				
Environmental Tip #5 - Report It! Don't Ignore it.		16				
Environmental Tip #6 - We Never Close		13				
Environmental Tip #7- Maintain the Drain		17				
Environmental Tip #8- Water Conservation		14				
Landscaping for Water Quality	10	86		15	4	
Rain, Rain		2				
Sanitary and Stormwater Sewers						
Stormwater & the Construction Industry						
Troutie Coloring Books (Kent County Drain Commissioner)		122				120
Use Phosphorus-Free Fertilizer		14		15		
Water: Michigan's Most Valuable Resource (MWEA Jobs Booklet)						
Water Tools for Teachers						
WM Take Back the Meds		36		15	2	
Three Decades of Work. A Lifetime of Cleaner Work Brochure	10			15		
Other Brochure 1		1		15	1	16
Other Brochure 2		1		15		5
TOTALS	40	406	27	90	8	141

Event Title:	Fresh to Flush	Home Show		East Minister Church	Public Tour	Dia del Nino
Date(s):	2/9/17	3/2/17		4/6/17	4/27/17	4/29/17
Brochure Name 1		Drug Free Drains		A Fish Story	hazardous waste disposal	
Brochure Name 2		ESD SW Quality Improvements		The Solution to SW Pollution		
GIVEAWAYS:						
ESD Pens		99				
Cell Phone Wallets						
Sticky Notes						
Water Bottles						
Doggie Bag dispenser/pledges		40				11
LGROW Magnet						
Tattoos		1				
311 sticker		9				
Tote Bag						
ESD Sunglasses	70	121				133
ESD Crayons		128				
Other Giveaway 1		31			12	25
Other Giveaway 2		24				
Other Giveaway 3		9				
Other Giveaway 4		4				
Other Giveaway 5		1				
TOTALS	70	467	0	0	12	169

Event Title:	School Presentation			Party for the Planet	Commissioner's Night Out
Date(s):	5/4/17			5/6/17	6/6/17
BROCHURES:					
Adopt a Catch Basin				2	
Be Stormwater Savvy- Don't let a good drop go bad					
Environmental Tip #1 - Water & Oil Do Not Mix					
Environmental Tip #2 - Don't Rush to Flush					
Environmental Tip #3- No Wipes in the Pipes					
Environmental Tip #4 - Rain water is not Wastewater					
Environmental Tip #5 - Report It! Don't Ignore it.					
Environmental Tip #6 - We Never Close					
Environmental Tip #7- Maintain the Drain					
Environmental Tip #8- Water Conservation					
Landscaping for Water Quality				53	4
Rain, Rain				3	
Sanitary and Stormwater Sewers				3	
Stormwater & the Construction Industry					
Troutie Coloring Books (Kent County Drain Commissioner)					
Use Phosphorus-Free Fertilizer				5	
Water: Michigan's Most Valuable Resource (MWEA Jobs Booklet)			1		
Water Tools for Teachers					
WM Take Back the Meds				5	
Three Decades of Work. A Lifetime of Cleaner Work Brochure				2	
Other Brochure 1	1	1	1	10	1
Other Brochure 2	1	25	1	4	2
TOTALS	2	26	3	87	7

Event Title:	School Presentation			Party for the Planet	Commissioner's Night Out
Date(s):	5/4/17			5/6/17	6/6/17
Brochure Name 1	WW treatment: students resource guide	About WW Treatment	ESD Storm Water Quality Improvements	Safe Homes	CSO Trifold brochure
Brochure Name 2	Surface Water: students resource guide	Go with the Flow	3 decades of work: A Lifetime of Cleaner Water	Storm Runoff	H2OMich.org brochures
GIVEAWAYS:					
ESD Pens				75	2
Cell Phone Wallets					
Sticky Notes					
Water Bottles					
Doggie Bag dispenser/pledges				85	
LGROW Magnet					
Tattoos					
311 sticker				4	
Tote Bag					
ESD Sunglasses				152	
ESD Crayons					
Other Giveaway 1				59	
Other Giveaway 2					
Other Giveaway 3					
Other Giveaway 4					
Other Giveaway 5				5	
TOTALS	0	0	0	380	2

Event Title:	Party for the Planet - John Ball Zoo	Forest Hills Northern High School visit	Rain Garden & Plaster Creek Tour	Tour- Mayor's Intern	Unite 4 Insight
Date(s):	5/7/16	5/23/16	6/2/16	7/28/16	8/10/16
BROCHURES:					
Adopt a Catch Basin	3		1		
Be Stormwater Savvy- Don't let a good drop go bad					
Environmental Tip #1 - Water & Oil Do Not Mix		30			
Environmental Tip #2 - Don't Rush to Flush		30			
Environmental Tip #3- No Wipes in the Pipes		30			
Environmental Tip #4 - Rain water is not Wastewater		30			
Environmental Tip #5 - Report It! Don't Ignore it.		30			
Environmental Tip #6 - We Never Close		30			
Environmental Tip #7- Maintain the Drain		30			
Environmental Tip #8- Water Conservation		30			
Landscaping for Water Quality	10		1		
Rain, Rain					
Sanitary and Stormwater Sewers					
Stormwater & the Construction Industry					
Troutie Coloring Books (Kent County Drain Commissioner)	12				
Use Phosphorus-Free Fertilizer					
Water: Michigan's Most Valuable Resource (MWEA Jobs Booklet)					
Water Tools for Teachers					
WM Take Back the Meds					
Three Decades of Work. A Lifetime of Cleaner Work Brochure					
Other Brochure 1			1		1
Other Brochure 2			1		1
TOTALS	25	240	4	0	2

Event Title:	Party for the Planet - John Ball Zoo	Forest Hills Northern High School visit	Rain Garden & Plaster Creek Tour	Tour- Mayor's Intern	Unite 4 Insight
Date(s):	5/7/16	5/23/16	6/2/16	7/28/16	8/10/16
Brochure Name 1			Rain gardens. Why do we need a rain garden		go with the flow
Brochure Name 2			GRWWP rain garden plant species		about WW treatment
GIVEAWAYS:					
ESD Pens			1		
Cell Phone Wallets					
Sticky Notes					
Water Bottles					
Doggie Bag dispenser/pledges	14				
LGROW Magnet					
Tattoos					
311 sticker					
Tote Bag					
ESD Sunglasses					
ESD Crayons					
Other Giveaway 1	45				
Other Giveaway 2					
Other Giveaway 3					
Other Giveaway 4					
Other Giveaway 5	30				
TOTALS	89	0	1	0	0

Event Title:	Utility of the Future Tour	Tremont Rain Garden Neighborhood Maintenance Time	City Hall	Spring Lake Rotary Club
Date(s):	8/22/16	9/15/16	10/27/16	10/28/16
BROCHURES:				
Adopt a Catch Basin				
Be Stormwater Savvy- Don't let a good drop go bad				
Environmental Tip #1 - Water & Oil Do Not Mix				
Environmental Tip #2 - Don't Rush to Flush				
Environmental Tip #3- No Wipes in the Pipes				
Environmental Tip #4 - Rain water is not Wastewater				
Environmental Tip #5 - Report It! Don't Ignore it.				
Environmental Tip #6 - We Never Close				
Environmental Tip #7- Maintain the Drain				
Environmental Tip #8- Water Conservation				
Landscaping for Water Quality	10	1		
Rain, Rain				
Sanitary and Stormwater Sewers				
Stormwater & the Construction Industry				
Troutie Coloring Books (Kent County Drain Commissioner)		25		
Use Phosphorus-Free Fertilizer				
Water: Michigan's Most Valuable Resource (MWEA Jobs Booklet)				
Water Tools for Teachers				
WM Take Back the Meds				
Three Decades of Work. A Lifetime of Cleaner Work Brochure			20	41
Other Brochure 1	13			
Other Brochure 2				
TOTALS	23	26	20	41

Event Title:	Utility of the Future Tour	Tremont Rain Garden Neighborhood Maintenance Time	City Hall	Spring Lake Rotary Club
Date(s):	8/22/16	9/15/16	10/27/16	10/28/16
Brochure Name 1	Go With the Flow (WEF publication)			
Brochure Name 2				
GIVEAWAYS:				
ESD Pens				
Cell Phone Wallets				
Sticky Notes				
Water Bottles				
Doggie Bag dispenser/pledges				
LGROW Magnet				
Tattoos				
311 sticker				
Tote Bag				
ESD Sunglasses				
ESD Crayons		25		
Other Giveaway 1				
Other Giveaway 2				
Other Giveaway 3				
Other Giveaway 4				
Other Giveaway 5				
TOTALS	0	25	0	0

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fb.com/wmeac

The 13th Anniversary Mayors' Grand River Clean Up was an exciting process. Through the support of the Great Lakes Commission and nearly thirty other sponsors, volunteers were able to remove 7 tons of refuse from the banks of the Grand River and its tributaries. We deployed 750 volunteers to 40 miles of riverbank in four cities. 750 volunteers is slightly lower than in previous years – however a very large group of 200+ people who traditionally participate were not able to this year.

Starting from our base at Sixth Street Park in Grand Rapids, we send volunteers to sites in Grand Rapids, Grandville, Plainfield Township, Walker and Wyoming.

The West Michigan Environmental Action Council organized this year's event on behalf of the City of Grand Rapids. Grand Rapids Mayor Rosalynn Bliss, Grandville Mayor Steve Maas, and Walker Mayor Mark Huizenga offered a welcome message to the crowd.

Major sponsors of the event included ADAC, Dean Transportation, Founders Brewing Company, General Motors Component Holdings, Steelcase, Johnson Controls, Spectrum Health, Nutcase Vegan Meats, Open Systems Technology, The City of Wyoming, and Downtown Grand Rapids Inc. Nearly 30 other additional sponsors contributed financial and in-kind support.

Refreshments were provided by Grand Rapids Pizza Delivery, Boardwalk Subs, Coca Cola, and Bartertown Diner.

Additional support included:

- Dean Transportation provided 15 buses
- ADAC Automotive donated gloves
- Recycle Box Bin donated compost/recycling/trash bins
- Grand Rapids Streets and Sanitation Department and American River provided garbage bags
- Grand Rapids Office of Special events Prepared Sixth Street Bridge Park for the event (ensuring clean bathrooms, electricity, fencing and a PA system).

Coverage before, during, and after the event included: Rapid Growth Media, The Shelley Irwin Show, MLive/Grand Rapids Press and WZZM 13.

The following organizations and clubs organized clean up teams: Air and Waste Management Associates of West Michigan, Cummins Sales and Service, Davidson Plyforms, Dominican Sisters, Embody GR, Farmers Insurance Group, Gordon Food Service, Grand Rapids Public Museum, Guaranteed Rate, Nutcase Vegan Meats, Kellogg, Students Leaving a Mark (SLAM), Aquinas College, Calvin College Environmental Stewardship Coalition, Grand Rapids Rowing Association, City of Wyoming, Crossroads Middle School National Jr. Honor Society, CA Frost Middle and High School, Founders Brewing Company, Friends of Buck Creek, Friends of Indian Mill Cree, Girl Scout Troop 4368, GM Component Holdings, Grand Rapids Young Professionals, Grand Valley State University, Grand Rapids Community College, GVSU Geography Club, Johnson Controls, Kendal

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College of Art and Design – Green Council, Spectrum Health Young Professionals, That ONE Team, Urban Fellows Urban League, and West Catholic High School.

New City Employees

First Name	Last Name	Job Title
Hope	Heideman	Air Quality Intern
Kaleigh	Coulson	Financial Assistant II
Jill	Geyer	Stormwater Intern
Nolan	Moblo	Deputy Court Clerk
Katie	Booms	Office Assistant III
Nicholas	Hitchcock	Tree Trimmer I
Dhanya	Menon	Assistant Project Manager
Abram	Bos	Income Tax Specialist I
Josh	Owens	Administrative Aide
Cody	Sikanas	Special Events Aide
Don	Patterson	IT Support Specialist
Roxanne	Sereno	Cashier I
Ben	Lopez	Plant Assistant I
Anne	Faasse	Administrative Aide
Randy	DeYoung	IT Support Specialist
Nick	Verburg	Utility Field Operator I
Ingrid	Scheer	Office Assistant III
Russell	Lewis	Utility Maintenance Mechanic I
Shelby	Weber	Police Recruit
Jean	Vicario	Police Recruit
David	Thompson	Police Recruit
Bernard	Schaefer II	Police Recruit
Javon	Sanders	Police Recruit
Briana	Pierson	Police Recruit
Mariah	Newton	Police Recruit
Kelly	Momber	Police Recruit
Ryan	Johnston	Police Recruit
Kevin	Fleek	Police Recruit
Douglas	Blanchard	Wastewater Plant Operator I
James	Heintz	Journeyman Lineworker
Mark	Vlasman	Utility Field Operator I
Scott	DeMeester	Wastewater Plant Operator I
Matthew	Nielsenn	Wastewater Plant Operator I
Emily	Madsen	Economic Development Assistant
Christian	Borg	Economic Development Coordinator
Brad	Russ	Utility Field Operator I
Jesus	Covarrubias-Ramire	Utility Field Operator I
Rebekah	Giralt-Larromana	311 Customer Service Representative
Grace	Boda	Human Resources Analyst
Vernon	Van Halm	Accountant I
Joshua	Kruger	Tree Trimmer I
Mary	Bolach	Accountant I
Michael	Grenier	Water Filtration Plant Superintendent
Jonathan	Klooster	Economic Development Coordinator
Kara	Wood	Managing Director, Economic Development
Lynn	Heemstra	Administrator

Greg	Roush	Electrician I
Jason	Tibbe	journeyman lineworker
Bailey	Dalton	Administrative Analyst I
Jessica	VanSolkema	Clerk Typist
Angela	Ross	Director of Legal Affairs
Jonathan	Goeke	Recreation Program Technical Supervisor
Douglas	Start	Information Technology Manager
Matthew	Frezza	CSAT
Steven	Kowalski	Elections Assistant
Kaden	Decker	Income Tax Specialist I
Jessica	Swift	Income Tax Specialist I
Sharee	Guyton	Parking Violations Checker
Travis	Grace	Business Office Representative
Jordan	Weber	Facilities Maintenance Supervisor
Andrea	Anderson	Business Office Representative
Cynthia	Koll	Financial Analyst
Kyama	Kitavi	Administrative Analyst I
Dini	Kamal	Engineering Assistant I
Amy	Ewing	Parking Violations Checker
Daniel	Stolcenberg	Building Maintenance Mechanic I
Phuong	Tran	Financial Assistant II
Rob	Scarbrough	Electrician II
Michael	Bonney	Mechanical Inspector I
Travis	Fante	Emergency Communications Operator I
Michael	Reynolds	Income Tax Specialist I
Elizabeth	Ufkes	Public Services Assistant
Elizabeth	Adams	Emergency Communications Operator
Douglas	Card	ECO I
Matt	Heugel	Wastewater Operator 1
James	Kropaczewski	OA IV
Benjamin	Waldrop	Traffic Tech
Jennifer	Kasper	Business Manager
Anel	Guel	Administrative Aide
Max	Turner	Wastewater Plant Operator I
Melissa	Whitaker	Wastewater Plant Operator I
Heidi	Kutzli	Acting HR Analyst

Department	Date
Air Quality	2017-07-18 11:01:05
Police	2017-07-10 11:22:36
Environmental Services	2017-06-13 11:42:34
61st District Court	2017-06-07 12:10:30
City Attorney	2017-06-07 12:09:57
Parks & Recreation	2017-06-07 12:06:50
Engineering	2017-06-07 12:06:17
Income Tax	2017-06-07 12:05:42
Mobile GR	2017-05-22 09:44:10
Special Events	2017-05-22 09:42:35
ESD/WRRF	2017-05-22 09:41:46
Treasurer's	2017-05-22 09:40:52
ESD/WRRF	2017-05-22 09:40:09
Diversity & Inclusion	2017-05-22 09:36:55
ESD/WRRF	2017-05-22 09:35:30
Water/Field Operations	2017-05-08 10:38:57
Engineering	2017-05-01 13:17:18
ESD/WRRF	2017-05-01 13:16:41
Police	2017-04-24 16:51:07
Police	2017-04-24 16:50:38
Police	2017-04-24 16:50:13
Police	2017-04-24 16:49:43
Police	2017-04-24 16:49:13
Police	2017-04-24 16:48:27
Police	2017-04-24 14:39:19
Police	2017-04-24 14:38:47
Police	2017-04-24 14:37:16
Police	2017-04-24 14:36:36
ESD/WRRF	2017-04-17 12:38:59
Traffic Safety	2017-04-17 12:38:21
Water/Field Operations	2017-04-17 12:37:49
ESD/WRRF	2017-04-17 12:37:17
Water/WRRF	2017-04-17 12:36:46
Economic Development	2017-04-10 11:22:15
Economic Development	2017-04-10 09:38:05
Water/Field Operations	2017-04-10 08:31:01
Water/Field Operations	2017-04-10 08:30:02
311	2017-04-10 08:27:53
Human Resources	2017-04-10 08:26:19
City Treasurer	2017-04-10 08:25:37
Parks & Recreation/Forestry	2017-04-10 08:24:23
City Comptroller	2017-04-10 08:19:33
Water/Lake Plant	2017-04-10 08:17:53
Economic Development	2017-04-06 11:59:53
Economic Development	2017-04-06 11:47:11
Our Community's Children	2017-04-04 15:35:40

Water/Lake Plant	2017-04-03 10:56:09
traffic signals	2017-03-09 14:59:39
Parking Services	2017-02-27 12:31:46
61st District Court	2017-02-27 12:29:18
City Attoryen	2017-02-27 11:26:13
Parks & Recreation	2017-02-21 09:20:37
Technology & Change Mgmt	2017-03-13 08:39:04
ESD	2017-02-21 09:17:42
City Clerk	2017-02-21 09:15:58
Income Tax	2017-02-14 08:59:19
Income Tax	2017-02-14 08:58:22
Parking Services	2017-02-14 08:56:59
City Treasurer	2017-02-14 08:55:54
Facilities & Fleet Management	2017-02-14 08:52:42
Parking Services	2017-02-14 08:46:43
City Comptroller	2017-02-14 08:44:35
Economic Development	2017-02-14 08:43:12
Engineering	2017-02-14 08:42:15
Parking Services	2017-02-14 08:41:04
Facilities & Fleet Manangement	2016-12-22 12:52:51
Public Services	2016-12-22 12:51:15
Water/Filtration Plant	2016-12-21 14:51:56
Design & Development/Building Ins	2016-12-21 14:51:15
Police/Communications	2016-12-21 14:50:31
Income Tax	2016-11-07 19:27:19
Public Services	2016-11-07 19:26:19
Grand Rapids Police Department	2016-10-23 14:31:57
Police	2016-10-21 07:01:48
ESD	2016-10-17 14:54:57
Police Department	2016-10-17 10:55:07
LSS	2016-10-14 11:58:01
Parking Services	2016-10-14 09:53:36
Planning	2016-09-26 23:36:51
ESD/WRRF	2016-09-26 23:35:47
ESD/WRRF	2016-09-26 23:31:58
Human Resources	2016-09-26 23:31:02

TABLE 1
KNOWN SEPTIC SYSTEMS

Number	Street	City	Zip Code	Number	Street	City	Zip Code	Date Added	Brochure Sent
1041	28TH ST SE	Grand Rapids, MI	49508					2/18/2014	7/26/2016
823	3 MILE RD NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
829	3 MILE RD NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
1350	3 MILE RD NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
1406	3 MILE RD NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
1512	3 MILE RD NE	Grand Rapids, MI	49505	1029	28TH ST SE	Grand Rapids, MI	49508	4/5/2013	7/21/2017
1516	3 MILE RD NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
1520	3 MILE RD NE	Grand Rapids, MI	49505					4/5/2013	7/21/2017
1560	3 MILE RD NE	Grand Rapids, MI	49505					4/5/2013	7/21/2017
1600	3 MILE RD NE	Grand Rapids, MI	49505					4/4/2014	7/26/2016
1637	3 MILE RD NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
1344	36TH ST SE	Grand Rapids, MI	49508					2/18/2014	7/26/2016
820	4 MILE RD NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
840	4 MILE RD NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
880	4 MILE RD NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
890	4 MILE RD NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
912	4 MILE RD NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
924	4 MILE RD NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
940	4 MILE RD NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1000	4 MILE RD NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1002	4 Mile Rd NE	Grand Rapids, MI	49525					6/3/2013	7/26/2016
1006	4 MILE RD NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1010	4 Mile Rd NE	Grand Rapids, MI	49525					6/3/2013	7/26/2016
1016	4 MILE RD NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1020	4 Mile Rd NE	Grand Rapids, MI	49525					6/3/2013	7/26/2016
1024	4 Mile Rd NE	Grand Rapids, MI	49525					6/3/2013	7/26/2016
1030	4 Mile Rd NE	Grand Rapids, MI	49525					6/3/2013	7/26/2016
1040	4 MILE RD NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1054	4 MILE RD NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1830	4TH ST NW	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1707	8TH ST NW	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1713	8TH ST NW	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1611	ABERDEEN ST NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
2160	ABERDEEN ST NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
2170	ABERDEEN ST NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
745	ALGER ST SW	Grand Rapids, MI	49509					2/18/2014	7/26/2016
749	ALGER ST SW	Grand Rapids, MI	49509					2/18/2014	7/26/2016
3586	AUBURN AVE NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
3161	BAKER PARK DR SE	Grand Rapids, MI	49508					2/18/2014	7/26/2016
3185	BAKER PARK DR SE	Grand Rapids, MI	49508					2/18/2014	7/26/2016
1351	BEECHWOOD ST NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
3540	BRADFORD ST NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
3801	BRETON AVE SE	Grand Rapids, MI	49512					8/1/2013	7/26/2016
1515	BRISTOL AVE NW	Grand Rapids, MI	495044					2/18/2014	7/26/2016
2221	BURTON ST SE	Grand Rapids, MI	49506					2/18/2014	7/26/2016
4440	BURTON ST SW	Grand Rapids, MI	49534					2/18/2014	7/26/2016
1825	CARLTON AVE NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
3108	CHENEY AVE NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
2107	CLOVER DR NW	Grand Rapids, MI	49525					2/18/2014	7/26/2016

TABLE 1
KNOWN SEPTIC SYSTEMS

Number	Street	City	Zip Code	Number	Street	City	Zip Code	Date Added	Brochure Sent
2150	CLOVER DR NW	Grand Rapids, MI	49525					2/18/2014	7/26/2016
2151	CLOVER DR NW	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1017	COTTAGE GROVE ST SE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
20	COVELL AVE SW	Grand Rapids, MI	49525					2/18/2014	7/26/2016
28	COVELL AVE SW	Grand Rapids, MI	49534					2/18/2014	7/26/2016
36	COVELL AVE SW	Grand Rapids, MI	49534	4053	BUCKBRIDGE LANE	Ann Arbor, MI	48103	2/18/2014	7/26/2016
52	COVELL AVE SW	Grand Rapids, MI	49503					2/18/2014	7/26/2016
60	COVELL AVE SW	Grand Rapids, MI	49525					2/18/2014	7/26/2016
102	COVELL AVE SW	Grand Rapids, MI	49508					2/18/2014	7/26/2016
110	COVELL AVE SW	Grand Rapids, MI	49525					2/18/2014	7/26/2016
118	COVELL AVE SW	Grand Rapids, MI	49525					2/18/2014	7/26/2016
126	COVELL AVE SW	Grand Rapids, MI	49504					2/18/2014	7/26/2016
134	COVELL AVE SW	Grand Rapids, MI	49503					2/18/2014	7/26/2016
142	COVELL AVE SW	Grand Rapids, MI	49534					2/18/2014	7/26/2016
3285	DAWES AVE SE	Grand Rapids, MI	49534					2/18/2014	7/26/2016
3290	DAWES AVE SE	Grand Rapids, MI	49504					2/18/2014	7/26/2016
2146	DEAN LAKE AVE NE	Grand Rapids, MI	49503					2/18/2014	7/26/2016
2310	DUCOMA DR NW	Grand Rapids, MI	49505					2/18/2014	7/26/2016
2734	DURHAM AVE NE	Grand Rapids, MI	49534					2/18/2014	7/26/2016
3112	EASTERN AVE SE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
3220	EASTERN AVE SE	Grand Rapids, MI	49534					2/18/2014	7/26/2016
1120	EKHART ST NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
1124	ELMDALE ST NE	Grand Rapids, MI	49525	260	PETTIS AVE NE	Grand Rapids, MI	49301	2/18/2014	7/26/2016
1168	ELMDALE ST NE	Grand Rapids, MI	49525	PO Box 925		Ada, MI	49301	2/18/2014	7/26/2016
1252	ELMDALE ST NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1330	ELMDALE ST NE	Grand Rapids, MI	49508					2/18/2014	7/26/2016
1340	ELMDALE ST NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
827	FAIRVIEW AVE NE	Grand Rapids, MI	49503					2/18/2014	7/26/2016
835	FAIRVIEW AVE NE	Grand Rapids, MI	49503					2/18/2014	7/26/2016
2048	FULLER AVE NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
2820	FULLER AVE NE	Grand Rapids, MI	49504					2/18/2014	7/26/2016
2830	FULLER AVE NE	Grand Rapids, MI	49506					2/18/2014	7/26/2016
2836	FULLER AVE NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
2844	FULLER AVE NE	Grand Rapids, MI	49501					2/18/2014	7/26/2016
2902	FULLER AVE NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
3091	FULTON ST E	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1910	FULTON ST W	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1920	FULTON ST W	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1942	FULTON ST W	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1950	FULTON ST W	Grand Rapids, MI	49505					2/18/2014	7/26/2016
399	GARFIELD AVE SW	Grand Rapids, MI	49504	PO BOX 1808		Grand Rapids, MI	49504	2/18/2014	7/26/2016
180	GREENWICH RD NE	Grand Rapids, MI	49506					2/18/2014	7/26/2016
1757	HANCHETT AVE NW	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1632	IRA AVE NW	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1643	IRA AVE NW	Grand Rapids, MI	49508					2/18/2014	7/26/2016
1720	IRA AVE NW	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1721	IRA AVE NW	Grand Rapids, MI	49504					2/18/2014	7/26/2016
3230	KALAMAZOO AVE SE	Grand Rapids, MI	49505	155	MORNINGSIDE DR SE	Grand Rapids, MI	49506	2/18/2014	7/26/2016
831	KENDALWOOD ST NE	Grand Rapids, MI	49504					2/18/2014	7/26/2016

TABLE 1
KNOWN SEPTIC SYSTEMS

Number	Street	City	Zip Code	Number	Street	City	Zip Code	Date Added	Brochure Sent
901	KENDALWOOD ST NE	Grand Rapids, MI	49504					2/18/2014	7/26/2016
945	KENDALWOOD ST NE	Grand Rapids, MI	49504					2/18/2014	7/26/2016
968	KENDALWOOD ST NE	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1760	KNAPP ST NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
3026	LAKE MICHIGAN DR NW	Grand Rapids, MI	49504					2/18/2014	7/26/2016
3030	LAKE MICHIGAN DR NW	Grand Rapids, MI	49504	1115	ALLISON AVE NW	Grand Rapids, MI	49534	2/18/2014	7/26/2016
3100	LAKE MICHIGAN DR NW	Grand Rapids, MI	49504					2/18/2014	7/26/2016
3134	LAKE MICHIGAN DR NW	Grand Rapids, MI	49505					2/18/2014	7/26/2016
3233	LAKE MICHIGAN DR NW	Grand Rapids, MI	49505	530	AYBERRY POINTE DR NV	Grand Rapids, MI	49534	2/18/2014	7/26/2016
936	LAMBERTON ST NE	Grand Rapids, MI	49506					2/18/2014	7/26/2016
1516	LEONARD ST NE	Grand Rapids, MI	49504					2/18/2014	7/26/2016
2442	LEONARD ST NE	Grand Rapids, MI	49504	3419	SHADY PLACE NE	Grand Rapids, MI	49525	2/18/2014	7/26/2016
2005	LEONARD ST NW	Grand Rapids, MI	49301					2/18/2014	7/26/2016
2221	LEONARD ST NW	Grand Rapids, MI	49506					2/18/2014	7/26/2016
2231	LEONARD ST NW	Grand Rapids, MI	49546					2/18/2014	7/26/2016
2614	LITTLEFIELD DR NE	Grand Rapids, MI	49506					2/18/2014	7/26/2016
2660	LITTLEFIELD DR NE	Grand Rapids, MI	49506					2/18/2014	7/26/2016
2700	LITTLEFIELD DR NE	Grand Rapids, MI	49506					2/18/2014	7/26/2016
2740	LITTLEFIELD DR NE	Grand Rapids, MI	49506					2/18/2014	7/26/2016
2760	LITTLEFIELD DR NE	Grand Rapids, MI	49506					2/18/2014	7/26/2016
1134	MAPLEGROVE DR NW	Grand Rapids, MI	49505					2/18/2014	7/26/2016
11	MARYLAND AVE NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
943	MARYLAND AVE NE	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1135	MARYLAND AVE NE	Grand Rapids, MI	49505					1/2/2014	7/26/2016
1631	MATILDA ST NE	Grand Rapids, MI	49508					2/18/2014	7/26/2016
429	MAYNARD AVE NW	Grand Rapids, MI	49546					2/18/2014	7/26/2016
449	MAYNARD AVE NW	Grand Rapids, MI	49508					2/18/2014	7/26/2016
505	MAYNARD AVE NW	Grand Rapids, MI	49508					2/18/2014	7/26/2016
1962	MICHIGAN ST NE	Grand Rapids, MI	49503	2060	MICHIGAN ST NE	Grand Rapids, MI	49503	2/18/2014	7/26/2016
2725	MIDDLEBORO LN NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1715	MILLBANK ST SE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1805	MILLBANK ST SE	Grand Rapids, MI	49508					2/18/2014	7/26/2016
1813	MILLBANK ST SE	Grand Rapids, MI	49508					2/18/2014	7/26/2016
1230	MONROE AVE NW	Grand Rapids, MI	49505					2/18/2014	7/26/2016
1241	N DORROLL ST NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1313	N DORROLL ST NE	Grand Rapids, MI	49534					2/18/2014	7/26/2016
1048	N PARK ST NE	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1841	OAKLEIGH RD NW	Grand Rapids, MI	49504					2/18/2014	7/26/2016
1062	PARMELEE AVE NW	Grand Rapids, MI	49534					2/18/2014	7/26/2016
1118	PARMELEE AVE NW	Grand Rapids, MI	49534					2/18/2014	7/26/2016
1142	PARMELEE AVE NW	Grand Rapids, MI	49534					2/18/2014	7/26/2016
1757	PERKINS AVE NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
3085	PLAINFIELD AVE NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
4243	PLYMOUTH AVE SE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
847	PROSPECT AVE NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1821	RANCH DR NW	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1706	RICHMOND ST NW	Grand Rapids, MI	49503					2/18/2014	7/26/2016
2988	RICHMOND ST NW	Grand Rapids, MI	49509					2/18/2014	7/26/2016
3339	RICKMAN AVE NE	Grand Rapids, MI	49509					2/18/2014	7/26/2016

TABLE 1
KNOWN SEPTIC SYSTEMS

Number	Street	City	Zip Code	Number	Street	City	Zip Code	Date Added	Brochure Sent
714	RITZEMA CT SW	Grand Rapids, MI	49505					2/18/2014	7/26/2016
3403	SALERNO DR NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
3743	SENORA AVE SE	Grand Rapids, MI	49503					2/18/2014	7/26/2016
3744	SENORA AVE SE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
1155	STOKES ST NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
520	TWIN LAKES DR NE	Grand Rapids, MI	49504					2/18/2014	7/26/2016
524	TWIN LAKES DR NE	Grand Rapids, MI	49525	3033	BANNOCKBURN DR SE	Ada, MI	49301	2/18/2014	7/26/2016
551	TWIN LAKES DR NE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
620	TWIN LAKES DR NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
2861	VINELAND AVE SE	Grand Rapids, MI	49525					2/18/2014	7/26/2016
685	WELLS ST NE	Grand Rapids, MI	49505					2/18/2014	7/26/2016
1617	WILLIS AVE NW	Grand Rapids, MI	49505					2/18/2014	7/26/2016
1632	WILLIS AVE NW	Grand Rapids, MI	49505					2/18/2014	7/26/2016
1632	WILLIS AVE NW	Grand Rapids, MI	49505					2/18/2014	7/26/2016
850	FREEMAN ST SW	Grand Rapids, MI	49503					4/4/2014	7/26/2016
901	FREEMAN ST SW	Grand Rapids, MI	49503					4/4/2014	7/26/2016
760	HUBERT ST NE	Grand Rapids, MI	49503					4/4/2014	7/26/2016
2860	PLAINFIELD AVE NE	Grand Rapids, MI	49505					4/4/2014	7/26/2016
3319	SHADYSIDE DRV NE	Grand Rapids, MI	49525					4/4/2014	7/26/2016
1651	VANDERJAGT DRV NE	Grand Rapids, MI	49525					4/4/2014	7/26/2016
279	EAST BELTLINE AVE NE	Grand Rapids, MI	49506					5/6/2014	7/26/2016
281	EAST BELTLINE AVE NE	Grand Rapids, MI	49506					5/6/2014	7/26/2016
2808	LITTLEFIELD DRV NE	Grand Rapids, MI	49506					5/8/2014	7/26/2016
102	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
105	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
121	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
129	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
130	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
135	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
140	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
149	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
165	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
200	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
225	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
233	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
239	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
240	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
248	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
253	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
264	ALEWA DR NW	Grand Rapids, MI	49504					5/9/2014	7/26/2016
304	ALEWA DR NW	Grand Rapids, MI	49504	This property is owned by 264 Alewa Dr NW				5/9/2014	7/26/2016
2830	PLAINFIELD AVE NE	Grand Rapids, MI	49505					3/25/2015	7/21/2017
2840	PLAINFIELD AVE NE	Grand Rapids, MI	49505					3/25/2015	7/21/2017
2853	PLAINFIELD AVE NE	Grand Rapids, MI	49505					3/25/2015	7/21/2017
2863	PLAINFIELD AVE NE	Grand Rapids, MI	49505					3/25/2015	7/21/2017
2881	PLAINFIELD AVE NE	Grand Rapids, MI	49505					3/25/2015	7/21/2017
2910	PLAINFIELD AVE NE	Grand Rapids, MI	49505					3/25/2015	7/21/2017
1121	BROOKVIEW DRV NE	Grand Rapids, MI	49505					2/1/2016	7/26/2016
710	KENDALWOOD ST NE	Grand Rapids, MI	49504					2/1/2016	7/26/2016

TABLE 1
KNOWN SEPTIC SYSTEMS

Number	Street	City	Zip Code	Number	Street	City	Zip Code	Date Added	Brochure Sent
801	KENDALWOOD ST NE	Grand Rapids, MI	49504					2/1/2016	7/26/2016
1529	BRISTOL AVE NW		49504					Original	7/21/2017
1535	BRISTOL AVE NW		49504					Original	7/21/2017
1723	Dorias Court NE		49525					Original	7/21/2017
1729	Dorias Court NE		49525					Original	7/21/2017
1735	Dorias Court NE		49525					Original	7/21/2017
1742	Dorias Court NE		49525					Original	7/21/2017
3060	Dorias Drive NE		49525					Original	7/21/2017
3101	Dorias Drive NE		49525					Original	7/21/2017
3104	Dorias Drive NE		49525					Original	7/21/2017
3107	Dorias Drive NE		49525					Original	7/21/2017
									7/21/2017

TABLE 1
KNOWN SEPTIC SYSTEMS

Number	Street	City	Zip Code	Number	Street	City	Zip Code	Date Added	Brochure Sent
3110	Dorias Drive NE		49525	14221	Dallas Parkway, Ste 100	Dallas, TX	75254	Original	7/21/2017
3114	Dorias Drive NE		49525					Original	7/21/2017
3115	Dorias Drive NE		49525					Original	7/21/2017
3120	Dorias Drive NE		49525					Original	7/21/2017
3129	Dorias Drive NE		49525					Original	7/21/2017
3135	Dorias Drive NE		49525					Original	7/21/2017
3139	Dorias Drive NE		49525	1345	Monroe Ste 324	Grand Rapids, MI	49505	Original	7/21/2017
3140	Dorias Drive NE		49525					Original	7/21/2017
3143	Dorias Drive NE		49525					Original	7/21/2017
3155	Dorias Drive NE		49525					Original	7/21/2017
3160	Dorias Drive NE		49525					Original	7/21/2017
3167	Dorias Drive NE		49525					Original	7/21/2017
3205	Dorias Drive NE		49525					Original	7/21/2017
3210	Dorias Drive NE		49525					Original	7/21/2017
3215	Dorias Drive NE		49525					Original	7/21/2017
3218	Dorias Drive NE		49525					Original	7/21/2017
3225	Dorias Drive NE		49525					Original	7/21/2017
3226	Dorias Drive NE		49525					Original	7/21/2017
3232	Dorias Drive NE		49525					Original	7/21/2017
3235	Dorias Drive NE		49525					Original	7/21/2017
3240	Dorias Drive NE		49525	1427	Pinecrest	Grand Rapids, MI	49506	Original	7/21/2017
3245	Dorias Drive NE		49525					Original	7/21/2017
3248	Dorias Drive NE		49525					Original	7/21/2017
3255	Dorias Drive NE		49525					Original	7/21/2017
3256	Dorias Drive NE		49525					Original	7/21/2017
3262	Dorias Drive NE		49525					Original	7/21/2017
3265	Dorias Drive NE		49525					Original	7/21/2017
3300	Dorias Drive NE		49525					Original	7/21/2017
3303	Dorias Drive NE		49525	2361	Morse	Columbus, OH	43229	Original	7/21/2017
3308	Dorias Drive NE		49525					Original	7/21/2017
3311	Dorias Drive NE		49525					Original	7/21/2017
3353	Dorias Drive NE		49525					Original	7/21/2017
3400	East Ridge Court NE		49525					Original	7/21/2017
3420	East Ridge Court NE		49525					Original	7/21/2017
3504	East Ridge Court NE		49525					Original	7/21/2017
1761	Garfield Ave NW		49504	1723	Garfield	Grand Rapids, MI	49504	Original	7/21/2017
1801	Garfield Ave NW		49504	2727	Michigan	Grand Rapids, MI	49506	Original	7/21/2017
1644	Lamberton Lake Drive NE		49525					Original	7/21/2017
1651	Vanderjagt Drive NE		49525					Original	7/21/2017
1658	Vanderjagt Drive NE		49525	13862	Lazy Lane	Fort Myers, FL	33905	Original	7/21/2017
1659	Vanderjagt Drive NE		49525	924	Oakleigh Road NW	Grand Rapids, MI	49504	Original	7/21/2017
1661	Lamberton Lake Drive NE		49525	543	Greenwood	Grand Rapids, MI	49506	Original	7/21/2017
3387	Michigan Street NE		49525					Original	7/21/2017
3391	Michigan Street NE		49525	3401	Michigan St NE	Grand Rapids, MI	49525	Original	7/21/2017
3401	Michigan Street NE		49525					Original	7/21/2017
3403	Michigan Street NE		49525					Original	7/21/2017
3407	Michigan Street NE		49525	3400	Eastridge Ct	Grand Rapids, MI	49525	Original	7/21/2017

Water Resource Recovery Facility Tours

Amy Wilstermann	7/11/2017 01:00 PM	Calvin College	Biology Department 1726 Knollcrest Circle, SE Grand Rapids, MI 49546	HS seniors/college freshmen	16
Dean Ritsema	6/5/2017 12:30 PM	Hudsonville Christian Middle School	3925 Van Buren Hudsonville, MI 49426	7th graders (12-13)	50
Dean Ritsema	6/5/2017 10:00 AM	Hudsonville Christian Middle School	3925 Van Buren Hudsonville, MI 49426	7th graders (12-13)	49
Robb Bajema	5/24/2017 04:15 PM	Aquinas College	1607 Robinson Rd. SE Grand Rapids, MI 49506	College	22
Lisa Sokolowski	5/8/2017 05:00 PM	Brownie troop #4621	4117 Blair St. Hudsonville, MI 49426	8-9 yrs old	11
Amy Holubeck	5/4/2017 01:30 PM	Gerald R. Ford Academic Center / GRPS	851 Madison Ave SE Grand Rapids, MI 49507	8th grade	20
David Wunder	5/4/2017 08:00 AM	Calvin College Department of Engineering	1734 Knollcrest Circle SE Grand Rapids, MI 49546	Junior/Senior Civil/Env Engineering Students	15
Rick Gritters	5/3/2017 12:30 PM	Heritage	6340 Autumn Drive Hudsonville, 49426	5th grade	66
Rick Gritters	5/3/2017 10:00 AM	Heritage	6340 Autumn Drive Hudsonville, 49426	5th grade	66
public tour	4/27/2017 06:00 PM	City of GR	1300 market	all public	0
public tour	4/24/2017 01:30 PM	City of GR	1300 market	all public	8
Veronica Peterson	4/21/2017 12:00 AM	Kendall College of Art and Design	1301 West Fulton	19	1
Judith Froot	4/10/2017 02:45 PM	Grand Rapids Community College	226 Botswick Avenue NE, Grand Rapids, M49503	College	36

Eileen Boekestein	4/5/2017 01:45 PM	Cornerstone University	1001 E. Beltline Ave. NE Grand Rapids, MI 40525	College	18
Mary Beth O'Rourke	3/22/2017 06:30 PM	Grand Rapids Community college	143 Bostwick Ave NE Grand Rapids, MI 49503	College	24
Mary Beth O'Rourke	3/22/2017 01:30 PM	Grand Rapids Community college	143 Bostwick Ave NE Grand Rapids, MI 49503	College	24
Ruth Bishop	3/18/2017 12:30 PM	Grand Rapids Community Foundation YES Program	185 Oakes SW, Grand Rapids MI 49503	10th-12th grades	22
Kristen Alford	3/13/2017 03:00 PM	Calvin College	3201 Burton St. SE Grand Rapids, MI 49546	College Undergraduates (mainly 18-22)	18
Kengi Hambrick	3/10/2017 10:00 AM	Michigan Connections Academy	818 Elliott St SW Grand Rapids, MI 49507	9-12 yrs 4-6th graders	8
Kaeta DeHoek	3/3/2017 12:00 PM	KEC Oakleigh	2223 Gordon St NW Grand Rapids, MI 49504	8-13	25
Jordan Dischinger-Smedes	3/2/2017 01:00 PM	Grand River Preparatory High School	650 52nd St. SE Kentwood, MI 49508	11th & 12th Grade	25
Sarah Jelsema	3/1/2017 01:00 PM	West Michigan Homeschool	9280 76th ST SE Alto, MI 49302	2nd-6th grade	45
Ellie Katz	2/25/2017 12:00 PM	Forest Hills Northern Environmental Club	3801 Leonard St. NE Grand Rapids, MI 49525	15-18	10
Robb Bajema	1/26/2017 03:30 PM	Aquinas College	1607 robinson se	college	22
Robb Bajema	1/24/2017 03:30 PM	Aquinas College	1607 robinson se	college	22
Robb Bajema	1/23/2017 03:30 PM	Aquinas College	1607 robinson se	college	22
DAREN WILSON	12/14/2016 09:00 AM	UA LOCAL 174 PLUMBERS AND PIPE FITTERS	1008 O MALLEY DR COOPERSVILLE, MI 49337	21-32 yrs	10

Klara Patrick	12/7/2016 09:20 AM	Northern Trails Forest Hills Public Schools	3777 Leonard NE Grand Rapids, MI 49525	10-11	30
Judith Froot	11/21/2016 02:45 PM	Grand Rapids Community College	226 Bostwick, NE Grand Rapids, MI 49503	college	35
Frank Shamp	11/21/2016 02:00 PM	General Public	132 Mack ST NE	Above 8	1
Judith Froot	11/17/2016 11:15 AM	Grand Rapids Community College	226 Botswick NE Grand Rapids, MI 49503	College	35
Jennifer Cymbola	11/7/2016 03:30 PM	GVSU	2290J Kindschi Hall of Science 1 Campus Dr Allendale, MI 49401	College	25
Jennifer Cymbola	11/7/2016 12:30 PM	GVSU	2290J Kindschi Hall of Science 1 Campus Dr Allendale, MI 49401	College	25
Jennifer Cymbola	11/7/2016 09:30 AM	GVSU	2290J Kindschi Hall of Science 1 Campus Dr Allendale, MI 49401	College	25
Mr. Mitchell Ziomkowski	11/3/2016 01:30 PM	San Juan Diego Academy (6th Grade)	1650 Godfrey SW Wyoming, MI 49509	6th Grade (11-12	24
robb bajema	11/1/2016 03:30 PM	aquinas college	1607 robinson se	college	22
Joe Hesse	10/26/2016 06:30 PM	GRCC	Bostwick Grand Rapids	adult	20
Joe Hesse	10/26/2016 01:30 PM	GRCC	Bostwick Grand Rapids	adult	20
Joe Hesse	10/26/2016 09:30 AM	GRCC	Bostwick Grand Rapids	adult	20
Kate Snow	10/14/2016 02:00 PM	Southeast Side Homeschool Field Trip Group	2219 Godwin Ave SE	varies from toddlers to adults	25

Kristine Bersche	10/13/2016 09:30 AM	Jenison Public School - Pinewood Elementary School	2405 Chippewa Jenison, MI 49428	6th graders	45
Kristine Bersche	10/7/2016 09:30 AM	Grand Rapids Museum School	272 Pearl St NW	6th-8th grade	40
Sandy Buchner	9/24/2016 10:00 AM	public	1300 market sw	various	21
Emily sotherton	9/9/2016 06:15 PM	None	114 carlton ave SE grand rapids mi 46506	22	2
Wairimu Kinyanjui / Simon Chege	8/25/2016 02:00 PM	Sunshine Rehabilitation Center - Kenya.	1918 Kingston DR SE Grand Rapids , MI 49508	over 18	4
Sandy Buchner	8/22/2016 02:00 PM	public	1300 market sw	various	13
Mary Ann Lentz	8/1/2016 10:00 AM	citizen	NA	16 and over-College	2
				TOTAL	1089

MEMORANDUM
CITY OF GRAND RAPIDS

DATE: November 29, 2016

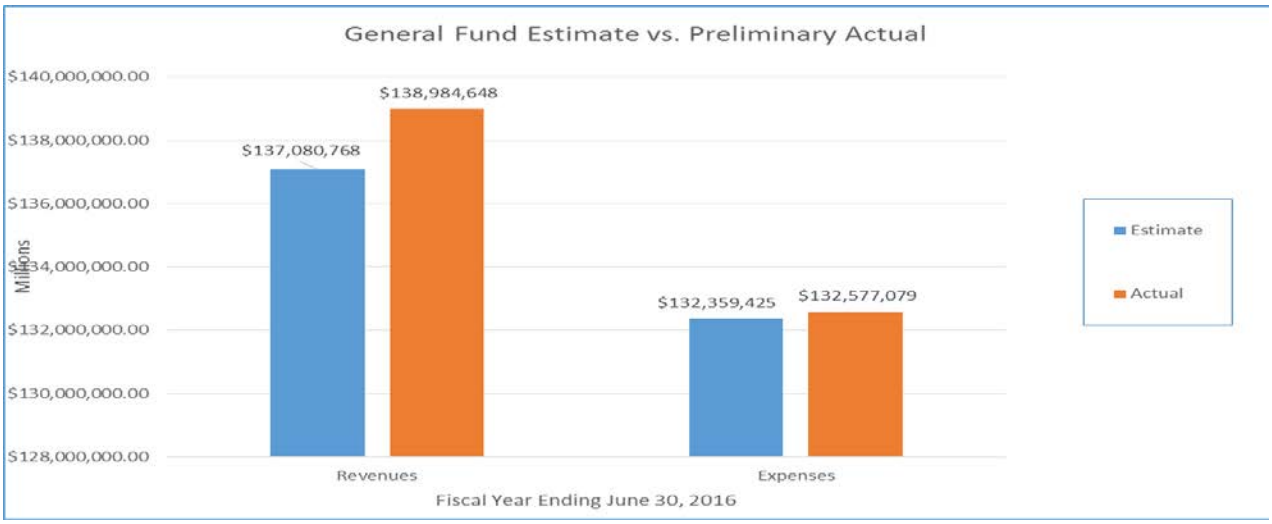
TO: Gregory A Sundstrom, City Manager
Scott Buhrer, Deputy City Manager

FROM: Scott Saindon, Budget Analyst
Keith Heyboer, Budget Analyst
Jeff Dood, Deputy CFO

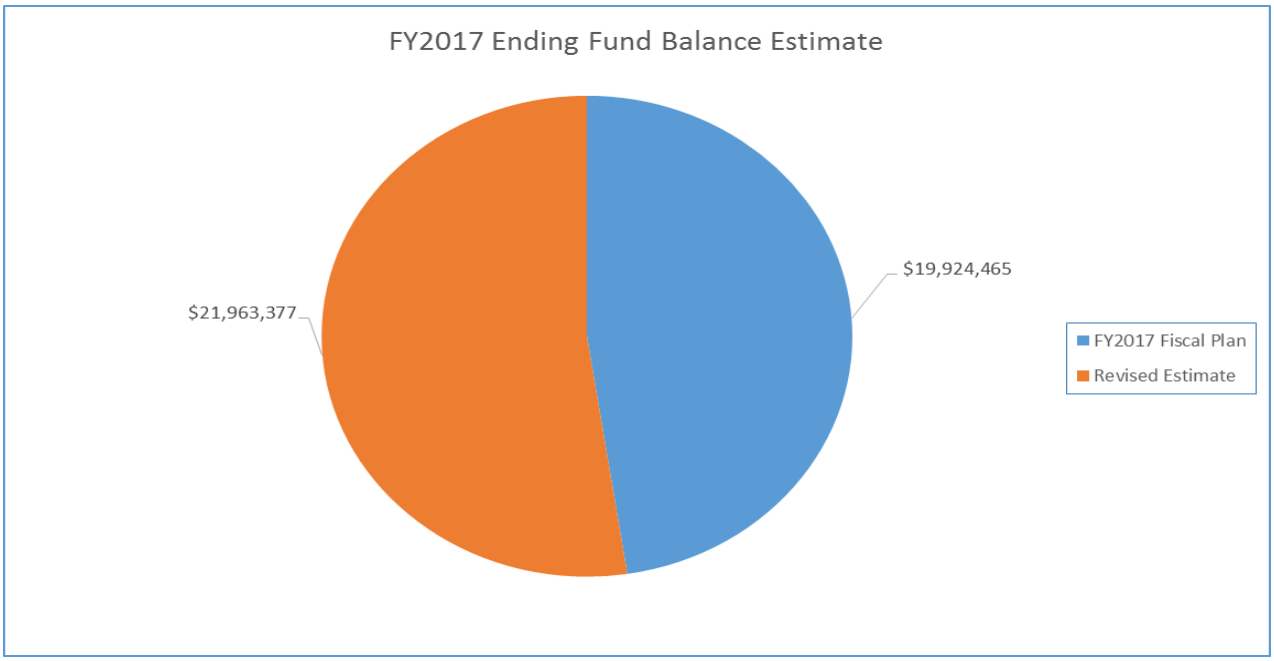
SUBJECT: FY2016 UNAUDITED FINANCIAL RESULTS

General Operating Fund Summary

This financial update was prepared to provide a summary of FY2016 financial results. It is focused primarily, but not exclusively on the General Operating Fund (GOF) and it is intended to aid in the City Commission's understanding of the financial condition of the City and to evaluate our financial capacity. The attached General Fund Statement (Attachment I) reflects the unaudited results for the City's FY2016 GOF. The following charts depict how the GOF finished FY2016 as compared to the estimate in the FY2017 Fiscal Plan:

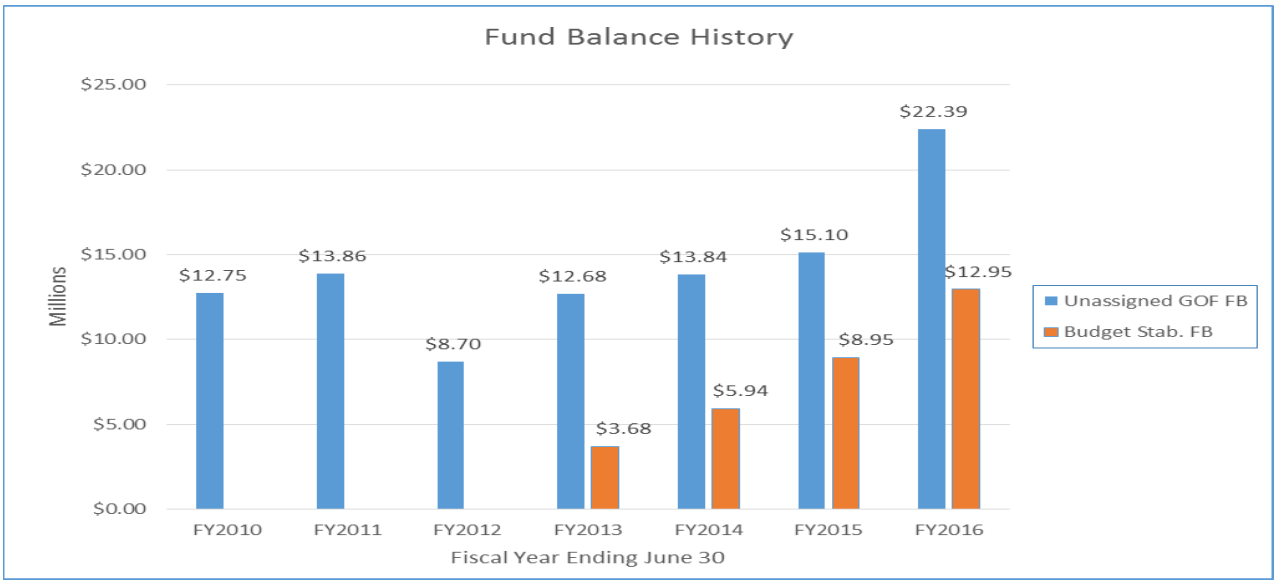


The FY2016 GOF results finished more favorable than the year-end estimates. However, it is important to note that re-appropriations and budget carry forwards totaling $526,276 will negatively impact the revised FY2017 ending fund balance which is still projected to finish nearly $2M above the FY2017 Fiscal Plan as shown below:

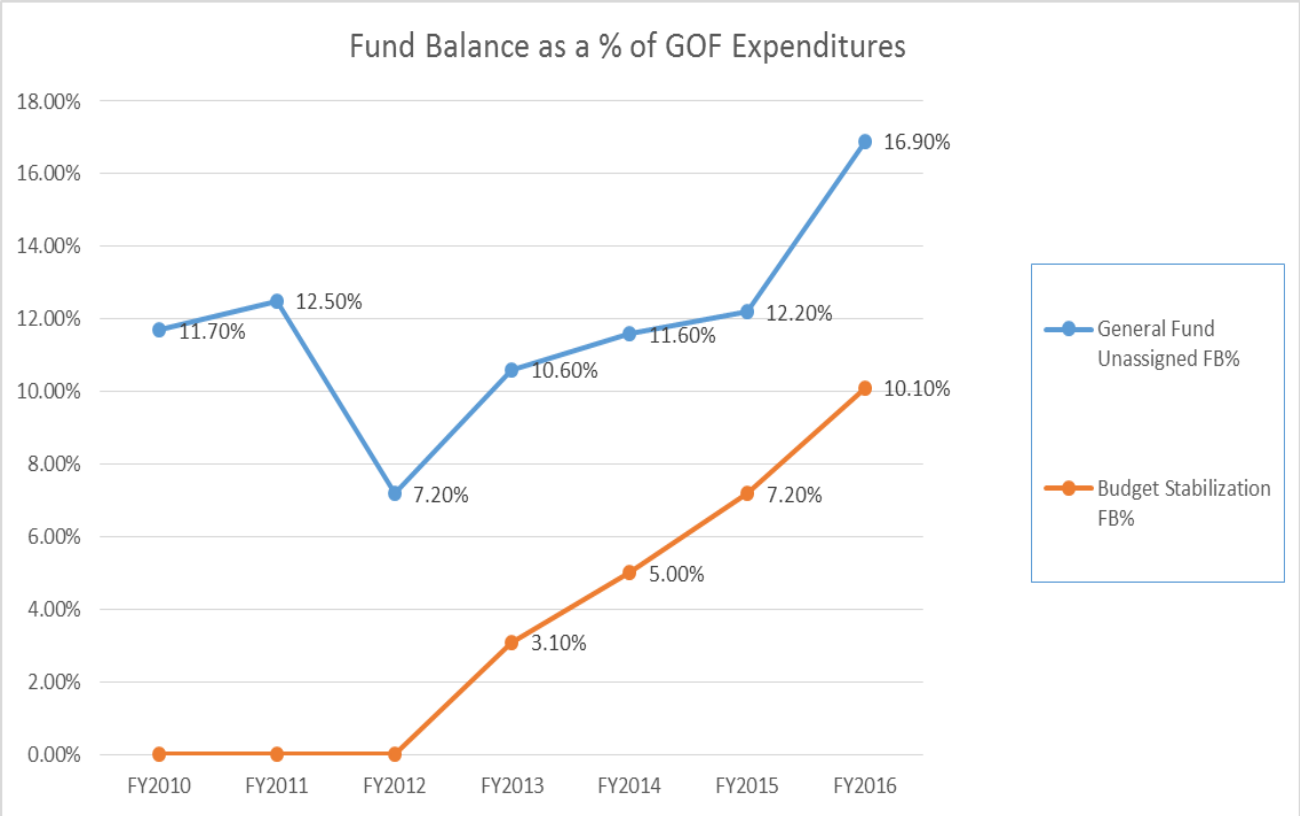


The FY2016 ending unassigned GOF fund balance totaled $22.39 million or 16.9% of unaudited FY2016 GOF expenditures, exceeding our estimate of 15.0% which was primarily related to downward adjustments to encumbrances of just under of $1.1 million (adjusted as part of the annual year-end close process) and better than estimated income tax revenues ($841k). During the conversion to the new financial system, the decision was made to purge all existing encumbrances and only enter valid items into the new A360 system. The new financial system will better track encumbrances going forward. The $1.1 million downward encumbrance adjustment was offset by a $214K increase in the compensated absence liability. The GOF financial results include the transfer of $4,000,000 to the Budget Stabilization Fund bringing the total balance to $12.95 million or 10.1% of unaudited FY2016 GOF expenditures, exactly matching our estimate.

The following table reflects the GOF and Budget Stabilization fund balance history since the transformation plan was implemented:



During the FY2017 budget preparation cycle, the City Commission made a commitment to fully fund the GOF and Budget Stabilization Funds to the policy guidelines (15% in the GOF and 10% in the Budget Stabilization Fund) by approving a budget amendment that transferred a total of $9.2 million from the Transformation Fund to fully fund the reserves. We are happy to report that in FY2016 we have fully met the policy guidelines!



Now that the Budget Stabilization Fund balance has reached 10% of GOF expenditures, the economic cyclical ups and downs in the GOF budget can be mitigated to some extent by investment of the unassigned fund balance in the GOF. If the GOF unassigned balance is forecast to fall below 5%, then major adjustments need to be made. The adjustments necessary to align ongoing expenditures with on-going revenues should be known, achievable and foreseeable before dipping into the Budget Stabilization Fund. Matching on-going revenues with on-going expenses will continue to be a top priority for this organization.

A year ago, we reported that ongoing revenues exceeded ongoing expenditures by $103,603. Although the FY2016 financial results are positive, if you remove one time revenues and one-time expenses, *ongoing* expenditures are exceeding *ongoing* revenues by just over $1.3 million. See page 10 for details.

<u>Accounting Methods</u>

There are two distinct bases for reporting financial information in the City. The first method, called Generally Accepted Accounting Principles (GAAP), is used in the Comprehensive Annual Financial Report (CAFR) to show the final accounting results each year. The focus of GAAP reporting is “Total Resources” as shown by “Fund

Balance." The Governmental Accounting Standard Board's (GASB) Statement No. 54 describes the relevant categories of Fund Balance as (1) non-spendable, (2) restricted, (3) committed, (4) assigned and (5) unassigned. The CAFR is audited and reviewed for adherence to GAAP principles before becoming final.

The second method of reporting financial information is the Budgetary Basis, which is used in the Fiscal Plan. Budgetary Basis focuses on the portion of Fund Balance that is available to spend, and we use the term "Spendable Equity" as the focus of this type of reporting. Spendable Equity equates to category #5 of the GAAP Fund Balance, "Unassigned."

Attachment II provides the reconciliation between these two reporting methods and unless otherwise noted, the remainder of this report will focus on the Budgetary Basis of accounting.

Revenues

Income and Property Taxes

Total income tax revenue for all funds ended FY2016 at $88,170,474. This result was $230,676 greater than the Estimate of $87,939,798 or 0.26%. Income tax revenue continues to be the largest revenue category for the General Operating Fund.

Here is a summary of only the GOF tax revenue category:

GOF Tax Revenues

	Estimate	Actual	Variance
Income Taxes	$ 71,632,758	$ 72,474,550	$ 841,792
Property Taxes	$ 11,254,714	$ 11,672,606	$ 417,892
Property Tax Admin Fee	$ 1,760,000	$ 1,838,375	$ 78,375
Total Taxes	$ 84,647,472	$ 85,985,531	$ 1,338,059

FY2016 income tax revenue was estimated to grow 7.0% over FY2015 results. The FY2016 actual growth in cash receipts was 7.63% over FY2015. After the year end adjustment for the provision for refunds, revenue increased 7.57% year over year. This adjustment is required to estimate the amount of income tax receipts from estimated payments and projected withholdings that will be refunded when the taxpayer files their income tax return. The following table illustrates total income tax receipts and the corresponding allocations.

CITY OF GRAND RAPIDS
INCOME TAX DEPARTMENT
NET INCOME TAX RECEIPTS CUMULATIVE TO DATE FY 2016 to FY 2015
(100% OF INCOME TAX RECEIPTS LESS REFUNDS PLUS PENALTY AND INTEREST)

FY2016 FUND SPLITS

WEEK	WEEK ENDING		YR TO DATE	YR TO DATE	YR TO DATE	YR TO DATE	GOF	CAPRES	TRANS	VITAL STREETS
	FY 2015	FY 2016	FY 2015	FY 2016	DIFFERENCE	%	**81.467%**	**4.333%**	**0.867%**	**13.333%**
52	8/5/2015	8/3/2016	82,110,572.79	88,379,013.08	6,268,440.29	7.63%	71,999,730.59	3,829,462.64	766,246.04	11,783,573.81
*	Year End ADJ to Refunds		(142,116.00)	(208,539.00)	(66,423.00)	46.74%	471,743.00	27,753.00	55,155.00	(763,190.00)
53	FY 2015 Total Tax Revenue		81,968,456.79	88,170,474.08	6,202,017.29	7.57%	72,471,473.59	3,857,215.64	821,401.04	11,020,383.81

Income tax receipt trends is one of the most important factors in assessing our future year's projections. Based on the growth of the FY2016 actual receipts, we continue to believe our FY2017 projections of 4.4% over the FY2016 estimate are appropriate. FY2018 growth is forecasted to be 3.3% annually and FY2019-2021 growth is conservatively forecasted at 2.5% annually per year.

In FY2016, the General Operating Fund experienced both: 1) organic growth in total income tax receipts/revenue; as well as 2) an increase from the reallocation of income tax revenue from the Transformation Fund.

The combined GOF property tax revenue and administration fee revenue for FY2016 was $13,510,981 which was $496,267 more than the budget of $13,014,714.

Licenses & Permits

Licenses & Permits finished FY2016 $356,370 below our estimate of $3,196,351. Revenues in this category primarily consist of cable consent fees, Clerk's office licensing fees and Community Design and Development and Land Use fees.

Intergovernmental Revenues

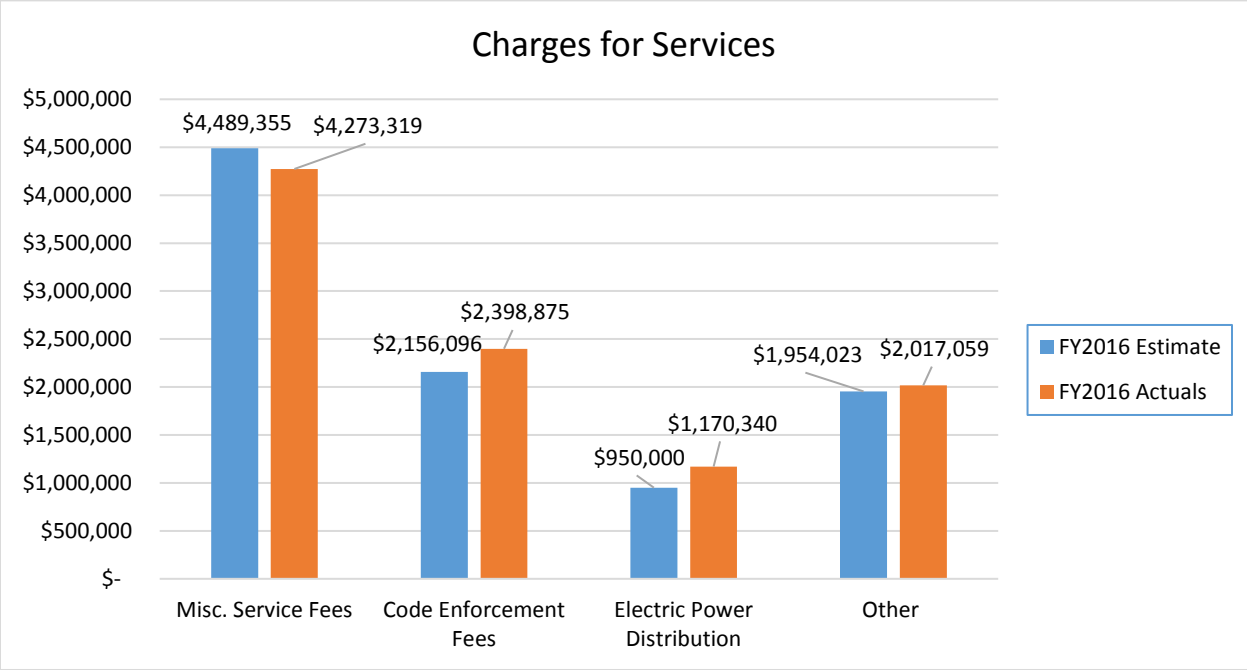
This revenue category is primarily made up of the Constitutional portion of State Shared Revenues (which is funded by the State of Michigan from State Sales and Use Taxes). It also includes the State's payments for Fire Protection of State-Owned Buildings and Liquor License revenue. The FY2016 Actuals for State Shared Revenues total $17,639,033 which is $16,489 more than the Estimate of $17,622,544. For FY2017 and beyond 50% of the City's share of County, Village, Township, Revenue Sharing (CVTRS) will also be place into the GOF.

Charges for Services

Actual FY2016 Charges for Services were $ 9,859,593 which was $310,119 more than the Estimate of $9,549,474.

This broad category of service fees would be far too numerous to list here; however, all of the categories are listed in Appendix A of the Final Fiscal Plan FY2017-FY2021 starting on page 257.

Several of the larger segments of this category are listed below:



Fines and Forfeitures

Actual Fines & Forfeitures revenue of $2,115,302 was $93,302 more than the Estimate of $2,022,000. Parking fines make up the largest portion of this revenue category.

Interest and Rents

Interest and Rents were estimated at $561,011. Actual interest income totaled $633,743 which is $72,732 more than anticipated. The City has been actively investing excess funds with professional money managers and has begun investing significant amounts of liquid cash which is anticipated to increase the liquidity of the investments and improve investment earnings further in the future.

Other Revenue

Actual Other Revenue of $994,870 was $71,408 more than the Estimate of $923,462.

Other Financing Sources

Other Financing Sources (Contributions from Other Funds) were estimated at $18,558,454 and FY2016 Actuals came in at $18,916,595 which was $358,141 more than anticipated.

Some of the larger actual FY2016 revenue transfers *into* the General Operating Fund include:

- From the Transformation Fund: $9,200,000 to fully fund the GOF and Budget Stabilization fund to policy limits.

- From various city funds: $5,229,196 for support services, (i.e. A-87 cost allocation).

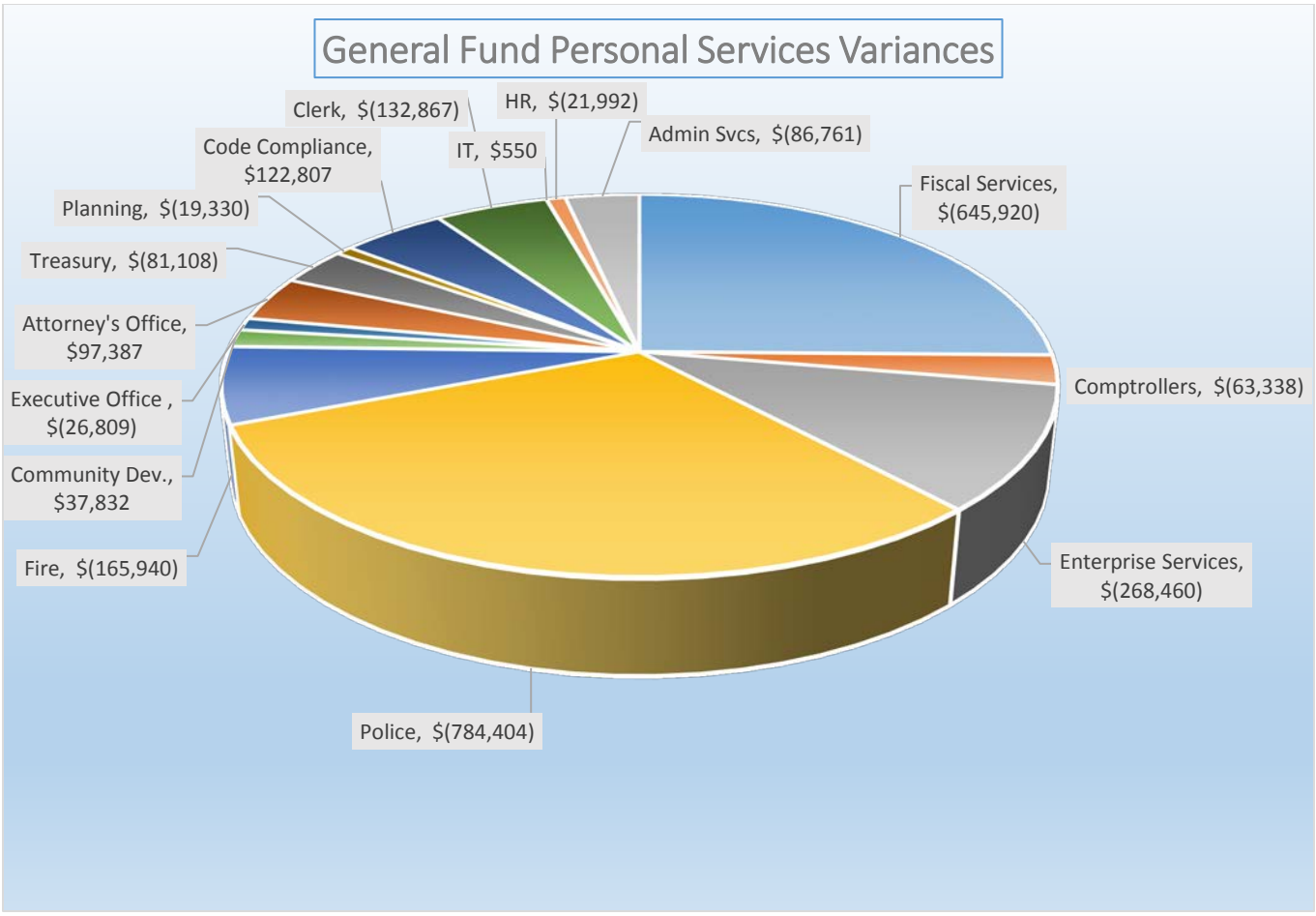
- $1,368,688 in support from the Community Development Department from Code Compliance operations.

Expenditures

FY2016 Actual expenditures (budgetary basis) were $132,577,079 which is $217,654 or 0.2% less than the Estimate of $132,359,425. Differences occurring in the major categories are discussed in the following paragraphs.

Personal Services

Personal services, comprised of wages and benefits, ended the fiscal year at $82,057,554 which is $2,038,353 less than the Estimate of $84,095,907. We use the appropriation lapse to anticipate the amount of authorized spending that will go unused. Position vacancies comprise a majority of the appropriation lapse but other expenditure categories also factor into the computation (i.e., contractual services, supplies, etc.). The lapse lessens the variance between departmental year-end estimates and the actual results – especially personal services. The following chart summarizes the differences between the FY2016 Estimate and the unaudited FY2016 Actuals on a Budgetary Basis:

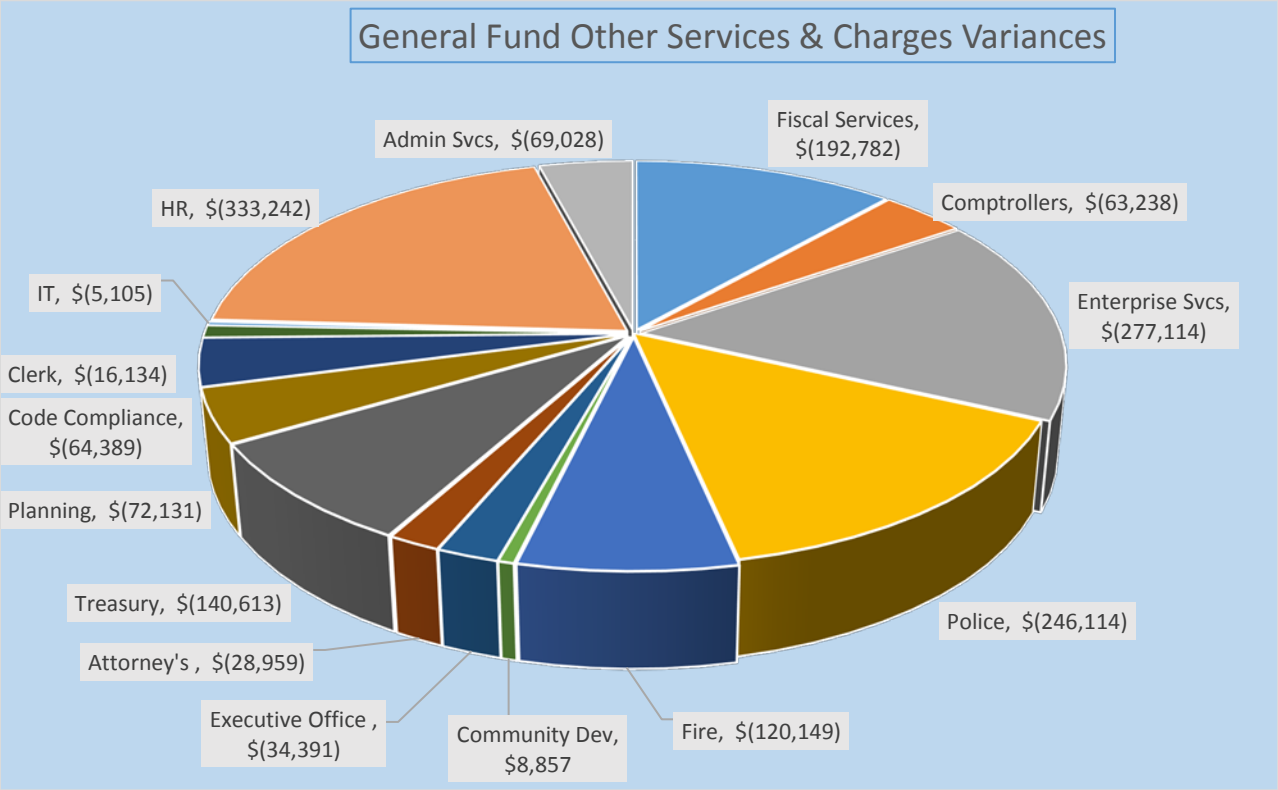


Supplies

Supply costs were $1,728,231 at fiscal year-end compared to the Estimate of $1,810,002. The under Estimate amount of $81,771 was 4.5% less than had been anticipated. Again this year, departments kept a close watch of their supply expenditures. The Fiscal Services Department, Comptroller Dept., and Enterprise Services achieved the greatest departmental savings by being under Estimate by $81,245, $22,681 and $54,625 respectively. The Police Department was over their supply budget by $85,162. The remaining departments collectively were over and under their estimates by lesser amounts, netting out at $8,382 under budget.

Other Services and Charges

Actual other services and charges at fiscal year-end were $21,132,408 which was $1,654,533 or 7.3% under the Estimate of $22,786,941. Similar to how vacant positions produce appropriation lapse in the personal services category, unspent budgetary authority results in savings (lapse) in this category. The following chart summarizes the differences between the FY2016 Estimate and the Unaudited FY2016 Actuals on a Budgetary Basis:



General Operating Fund Capital Outlay

GOF Capital outlay (which does not include Capital Improvement Fund outlays) actuals ended the fiscal year at $462,800 which was $159,251 or 25.6% under the Estimate of $622,051. The Clerk's Office was over budget by $59,913 the Fire Department was under budget by $106,232, the Fiscal Services Department was under budget by $44,853 and the Police Department was under budget by $61,755 accounting for the majority of this difference with the remaining departments over and under their Estimates by a net under of $6,324.

Transfers Out

Actual final fiscal year end transfers out of $26,871,730 were over the Estimate of $26,221,541 by $650,189, with $492,094 attributable to General Administration, and the remaining $158,095 to the other departments collectively.

Expenditure Summary

The following summarizes the differences between the FY2016 Estimate and the Unaudited FY2016 Actuals on a Budgetary Basis:

Appropriation Lapse (Negative Budget Spending Authority)		$3,500,000
Add Actuals Greater Than Estimate or Subtract (Actuals Less Than Estimate):		
Personal Services	($2,038,353)	
Supplies	(81,771)	
Other Services and Charges	(1,654,533)	
Capital Outlay	(159,251)	
Debt Service	1,373	
Transfers Out	650,189	(3,282,346)
Net of lapse minus actuals over (under) estimate:		$217,654
Total FY2016 Estimated Expenditures		132,359,425
Total FY2016 Actuals		$132,577,079

Sustainability

Often times, in municipal governments, one-time or limited duration sources of revenues are used to offset excess spending or fill temporary gaps in revenue streams to continue to be able to provide services expected from constituents. While this is not the norm, the City has also used these tools in the past. Our Transformation Plan is designed to match ongoing revenues to ongoing expenditures on a going forward basis. Therefore it is important that we continuously monitor the balance between our ongoing revenues and our ongoing expenditures. The Lean principle of Plan-Do-Check-Act applied during our transformation will allow our organization to make necessary adjustments as we continue on our transformation journey. The following table illustrates the impact of one-time adjustments on the change in spendable equity in FY2016.

City of Grand Rapids, Michigan General Operating Fund (GFGEN101) Analysis of Operating Results for the year ended June 30, 2016		
Actual Change in Spendable Equity	$	6,407,569
Subtract Temporary and/or One-Time Revenues:		
Principal Payment from Parking Ramp	$	(1,475,000)
Interest Income from Parking Ramp	$	(225,400)
Subtract Transformation Fund Support:		
GOF & BSF Fund Balance	$	(9,200,000)
Police (10 Officers)	$	-
Fire	$	-
Subtract Grant Support:		
SAFER Grant (17 Firefighters)	$	(824,722)
Add Temporary and/or One-Time Expenses:		
Transfer Out to Budget Stabilization Fund (BSF)	$	4,000,000
Net Temporary and/or One-Time Adjustments:	$	(7,725,122)
Net Excess of Ongoing Expenditures over Ongoing Revenues:		**$ (1,317,553)**

As you can see, on-going expenditures exceed on-going revenues by $1.32 million. As discussed previously, management is currently developing tactics which will work to bring on-going revenues and on-going expenses into alignment.

Policy Revisions/Budget Considerations

On February 11, 2014, the City Commission approved amending City Commission Policy No. 700-06 to modify the City's practice of accounting for the Economic Vitality Incentive Program (EVIP) revenues in the Transformation Fund by redirecting one-half of the EVIP revenues to the Capital Reserve Fund for Sustainable Asset Management strategies as well as increasing the capital set-aside from 4% to 5% of base City income tax collections. This policy was first implemented in the FY2015 Fiscal Plan and continues going forward.

In June of 2014, the Michigan legislature established the City, Village, and Township Revenue Sharing (CVTRS) program which is a simplified version of the EVIP Program. CVTRS is effective for the City's fiscal years beginning in FY2015. These revenues were allocated in the same manner as the EVIP revenues – 50% to the Transformation Fund and 50% to the Capital Reserve Fund. For FY2016 and beyond, to continue the support of police and firefighters upon the expiration of the temporary income tax, it was determined to move the remaining 50% of the CVTRS allocation to the GOF, and to support the Transformation Fund with 1% of base income tax receipts. The 1% of base

income tax receipts has since been moved to the GOF beginning in FY2017 in anticipation of closing the Transformation Fund by the end of FY2018.

With the passage of the Parks Millage and the Income Tax Extension for Vital Streets, additional allocations of General Fund support will be required. The Parks Millage guidelines call for continuing the Maintenance of Effort support previously provided to the Parks Fund, increased or decreased by the percentage change of overall expenditures in the GOF. The Income Tax Extension calls for $13 million of GOF support for Vital Streets over the next fifteen years. The promises contained in both measures will be carefully monitored to ensure full compliance and information regarding these programs will be included in future Fiscal Plans.

Other FY2016 Highlights

Refuse Fund Update

A review of the fiscal year end June 30, 2016 unaudited financial results, reveals that the City of Grand Rapids Refuse Fund finished the fiscal year with a positive fund balance of $2,590,413. *The FY2015 surplus fund balance of $314,209 occurred two years earlier than what was proposed to the State of Michigan as part of the Deficit Elimination Plan filed in December 2013*. The operations of the Refuse Fund continue to be closely monitored and adjustments and refinements made to streamline operations. The FY2017 Fiscal Plan calls for the Transformation Fund loan made for start-up operations to begin to be paid back in FY2018 and by all accounts the Fund operating results continue to support this assumption. The transformation of the Refuse Fund has been remarkable and the hard work of all involved should be commended.

Transformation Fund

In FY2016 plans were developed to close the Transformation Fund by FY2018. The first steps of closure were taken in FY2016 with the transfer to the GOF and Budget Stabilization Fund to bring reserves to their policy levels. The Fund was designed with a five-year life to coincide with the temporary income tax increase in 2010. It has served the city very well; it enabled the organization to focus on services and know that the City was willing and able to fund improvements. Over the next two years, the Transformation Fund will spend down its final assets. All this is being done to prepare us for the next five years and to focus on reducing future expenses to ensure our long-term sustainability.

As outlined in the Transformation Fund Statement (Attachment III) in FY2016, actual Transformation Fund revenues were $1,117,514 exceeding estimates by $213,074. Revenues were comprised of income taxes, investment income, and interest on the Refuse Fund loan.

The Supplemental City Income Tax that has been used to fund Police Officers, Firefighters and to make other transformational investments ended on June 30, 2015. However, approximately $10.5 million remains in fund balance at of the end of FY2016 in the Transformation Fund *primarily due to delays in projects earmarked for investment*. The projected fund balance, exclusive of funding that is earmarked for particular projects is approximately $5.5 million at the end of FY2017 and zero at the end of FY2018. Proposed transformational projects continue in development following the investment approach outlined when the Transformation Fund was originally established, and several

projects have been identified for future consideration including Crime Prevention Strategies, Community Crime Prevention Initiatives, River Corridor Activation and Operational Transformation and Sustainable Asset Management projects.

FY2016, investments included:

Investment Description	*Investment Amount*
Public Safety-Police and Fire Personnel	$1,269,552
Public Library Sustainability	$477,493
Evaluation of City Owned Properties	$350,000
Parks Master Plan	$350,000
Automated External Defibrillators (AED's)	$52,000
Indian Trails Golf Course	$2,752,000
Classification Study	$250,000
Transfer to Budget Stabilization Fund	$4,000,000
Transfer to General Operating Fund	$5,200,000
Total FY2016 Investments	**$14,701,045**

Expenditures exceeded revenues by $13,583,370, which reduced Fund Balance from $24,042,691 at the end of FY2015 to $10,459,321 at the end of FY2016. This reduction was planned for and is consistent with the FY2017 budgetary objective to wind up and close out the Transformation Fund.

Vital Streets

Substantial investment occurred in FY2016 and continues in FY2017 towards the work of the Vital Streets investment Plan. The City Commission approved innovative advance investment in streets and sidewalks that accelerated preventative maintenance and rehabilitation of our streets. To date, three bond issues totaling $50 million were issued to advance construct many projects to improve streets along the degradation curve before their condition deteriorated too far that they would require a complete reconstruction; ultimately saving money.

Overall, the City's plan calls for $22 million of annual investment to bring the streets to 70% good and fair condition by the end of the 15-year millage. In 2015, the State approved additional investment in streets by increasing fuel taxes and future State General Operating Fund contributions. Eventually, if fully funded, this will meet the investment requirements of our Vital Streets plan.

FY2016 was the first year where income from the 15 year temporary income tax increase was collected – this amounted to just over $11M. Additional revenues included $112K in investment income, $950K from the General Fund and $16K in interest revenue from Sidewalk Fund loans. The tax will be saved in sufficient amounts to pay-back the bonds and Vital Streets work will be programmed to align future tax receipts and other funding sources so work can continue throughout the term of the tax millage.

FY2016 Vital Streets expenditures totaled nearly $26M including: sidewalk repair funding of $1,862,984; debt service of $341,704; paying agent fees of $229,105;

sidewalk repair loan of $465,000; preventative maintenance-force account of $442,372 (Major/Local Street Funds) and capital outlays in excess of $22.5M.

Over 50 miles of streets received preventative maintenance during the 2014 construction season and another 53 miles were addressed in 2015. Another 77 miles of streets are planned for preventative maintenance and rehabilitation during the 2016 construction season. This aggressive approach, coupled with other asset management treatments, has made a noticeable difference in the condition of our streets.

Financial Management System (FMS)

A Transformation Investment for $4.575 million was approved for the FMS Project in FY2015. In partnership with Kent and Genesee Counties and the Michigan Municipal Services Authority (MMSA) CGI was selected as the vendor to implement CGI Advantage360, a cloud based multi-tenant FMS software solution. Work began in April 2015 and the project has progressed since go-live occurred for Performance Budgeting in October 2015 and Finance in May of 2016. Human Resources/Payroll/Timekeeping is anticipating a January 2017 go-live date.

The project continues to be on schedule and remains below budget. User groups are now being formed to evaluate system performance and investigate whether adjustments should be made to the system configuration to improve and optimize performance. While there have been, and continue to be issues with the FMS implementation, the joint teams of city resources and CGI support are working to alleviate the problem areas and create enhancements and efficiencies to make the system work for the City. Optimization of the system will continue over the next several years as the City fully embraces a true ERP solution.

Parks

Similar to streets, park investments continued in earnest in FY2016 thanks to the Parks Millage that was passed in November 2013. The City developed six more park projects, making improvements to Dickinson Buffer, Douglas, Mary Waters, Camelot, Campau, and Mulick parks. These improvements were established from community engagement and the building blocks of asset management that began in 2014. Planned park investment totals $3.8 million in FY2016 and $3.9 million in FY2017 and includes rehabilitation of park shelters, equipment and facilities.

The Parks Funds finished FY2016 with a combined net income of $1,876,954 bringing ending fund balance to $1,339,996. FY2016 revenue included $3,964,261 in receipts from the parks millage. Millage revenue exceeded the estimate by $14,908 and the budget by $132,660. The Parks Operating Fund received a Maintenance of Effort (MOE) subsidy from the GOF in the amount of $5,414,222 as well as an additional $350,000 for Emerald Ash Borer tree removal and replacement. The Parks Millage Fund is on schedule to begin repayment of the GOF loan received in FY2016.

Conclusions and Observations

Overall, the City's financial condition continues to show slow and steady improvement. This was accomplished by the hard work of City leaders and employees and through strong citizen engagement. Our progress is being led by a Transformational Plan with the end goal of creating a Sustainable City Platform. The Plan is built upon three distinct pillars; Sustainable Operations, Sustainable Asset Management, and Continuous Improvement and Innovation.

The FY2017 Fiscal Plan was built upon continuing the mission of our Transformation Plan. Over the last several years, the citizens of Grand Rapids overwhelmingly have supported our transformational efforts as indicated by the passage of the Parks and Recreation Millage and the Income Tax Extension approval for Vital Streets and Sidewalks. These two measures, along with our continuing focus on improving efficiencies in our operations, maintaining discipline and restraint in our spending, and devoting operating Cap Space (transformation savings) to the Public Theme under Phase II, will allow us to meet our sustainability goals.

While the City's financial reserves are the healthiest in recent history, there are still headwinds facing us. Substantial increases in pension costs in FY2017, bargaining agreement changes and other increased expenses are forecast to create operating deficits by FY2019. The cost of defined benefit pension and other legacy defined benefits are very sensitive to investment earnings. Unless our investment gains for pensions return to a long term average in excess of 7% (5% for retiree health) then the City will continue to experience budget pressure from employee benefit costs.

Proposal A will continue to depress taxable values thereby limiting increases in property taxes. Additional focus has been placed on affordable housing and revitalizing neighborhoods. Over the next several budget cycles, strategies will be developed to once again bring on-going revenues in line with on-going expenses. The FY2018 Fiscal Plan will begin to lay this framework. Fully funding reserves to policy limits in FY2016 will allow the City time and flexibility to implement the budget balancing strategies. While there is work to do, the City ended FY2016 in a very positive financial condition, primarily due to one-time transfers from the Transformation Fund.

Although final results were better than expected, adjusting for the one-time revenues and expenditures we realize that the ongoing sustainable revenues to support existing service levels and existing staffing levels were less than the ongoing, expenditures by approximately $1.32M during FY2016.

The City must continue with our Transformation Plan so that we may become sustainable in all areas of operation. There needs to be a conscious effort to continue to maintain the operational budgetary discipline of revenues exceeding expenditures created by increasing efficiencies, paying continued careful attention to total compensation and through all of the successes achieved by strictly following the City's Transformation Plan.

In looking ahead at FY2017, significant economic uncertainties remain. Near zero interest rates continue, depressed economic news from some of the world's largest economies continue to surface, and the income gap continues to grow. The City's fiscal

plan is delicately balanced. Most importantly, we must continue to exhibit restraint with regards to new initiatives and when new services are deemed essential, we need to pair such changes in services with cuts in other areas. Any minor variations in results from the forecast will need to be rapidly addressed to remain sustainable for future generations.

In summary, as part of our Plan-Do-Check–Act Lean Principles all options must continue to be on the table in the coming weeks, months, and years. Transformational change, although daunting at times, must be pursued methodically and without reservation. Sound judgement and careful action are critical for successfully navigating these challenging times and maintaining the City's financially sustainable future on an ongoing basis.

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Grand Rapids MI - FMS
GENERAL OPERATING FUND (1010)
STATEMENT OF OPERATIONS

ATTACHMENT I

	ACTUAL 2015	ADOPTED 2016	AMENDED 2016	2016 Fiscal Year Estimate	ACTUAL 2016 (Unaudited)	ADOPTED 2017	REVISED 2017	REVISED 2018 FORECAST	REVISED 2019 FORECAST	REVISED 2020 FORECAST	REVISED 2021 FORECAST
REVENUE											
401-Taxes											
Income	67,582,177	68,847,115	71,579,533	71,632,758	72,474,550	74,754,064	74,754,064	77,220,948	79,151,471	81,130,259	83,158,515
Property	13,027,220	13,053,939	13,053,939	13,014,714	13,510,981	13,441,075	13,441,075	13,547,290	13,653,709	13,735,232	13,821,293
450-Licenses & Permits	551,214	620,145	620,145	3,196,351	2,839,981	3,328,105	3,328,105	3,593,723	3,893,868	4,205,253	4,545,285
501-Federal Grants	153,075	0	0	0	38,105	0	0	0	0	0	0
539-State Grants	14,886,815	18,495,629	18,495,629	17,622,544	17,600,928	18,209,669	18,209,669	18,298,590	18,389,198	18,482,496	18,573,729
600-Charges for Services	11,661,345	11,521,420	11,539,311	9,549,474	9,859,593	9,477,183	9,477,183	9,646,908	9,831,415	9,960,829	10,136,204
655-Fines & Forfeitures	2,076,833	2,019,400	2,019,400	2,022,000	2,115,302	2,047,000	2,047,000	2,047,500	2,053,000	2,053,500	2,054,000
664-Investment Income & Rentals	488,609	561,011	561,011	561,011	633,743	396,588	396,588	491,420	530,453	580,384	645,849
671-Other Revenues	877,207	882,842	932,842	923,462	994,870	802,493	802,493	802,333	802,835	921,000	765,978
695-Other Financing Sources	12,171,267	7,987,192	8,237,192	7,883,454	8,241,595	7,669,021	7,669,021	7,568,680	8,179,130	8,294,901	8,456,943
695 Transformation Fund	0	0	9,200,000	9,200,000	9,200,000	1,300,000	1,300,000	1,384,637	0	0	0
695 Principal Payment Rec'd on Gov't Center Ramp	1,420,000	1,475,000	1,475,000	1,475,000	1,475,000	1,535,000	1,535,000	1,595,000	1,030,000	0	0
GENERAL FUND OPERATING Total Revenue	***124,895,762***	***125,463,693***	***137,714,002***	***137,080,768***	***138,984,648***	***132,960,198***	***132,960,198***	***136,197,029***	***137,515,079***	***139,363,854***	***142,157,796***
EXPENDITURES											
GENERAL FUND OPERATING (GFGEN)											
701-Personal Services	79,494,309	83,812,107	83,827,107	84,095,907	82,057,554	87,383,972	87,383,972	89,258,126	92,207,447	93,182,155	94,135,456
751-Supplies	2,075,466	2,163,605	2,163,605	1,810,002	1,728,231	2,019,133	2,019,133	2,093,410	2,090,510	2,177,511	2,158,827
800-Other Services and Charges	20,534,957	21,608,789	22,309,998	22,786,941	21,132,408	23,475,292	23,475,292	23,933,924	24,718,678	25,442,951	26,088,931
970-Capital Outlays	657,460	491,616	635,116	622,051	462,800	919,328	919,328	932,399	930,651	940,858	949,596
990-Debt Service	328,741	322,983	322,983	322,983	324,357	112,662	112,662	58,318	56,872	60,258	60,258
995-Other Financing	15,612,860	12,764,127	12,749,127	11,010,533	16,157,508	14,581,202	14,581,202	15,232,306	15,996,805	16,479,316	16,796,162
995 Appropriation Lapse	0	(3,500,000)	(3,500,000)	0	0	(3,500,000)	(3,500,000)	(3,500,000)	(3,500,000)	(3,500,000)	(3,500,000)
995 Contingent Appropriation		1,000,000	3,732,418	1,000,000	0	1,178,482	1,178,482	1,189,082	1,201,082	1,211,997	1,214,064
995 Parks Subsidy (Maintenance of Effort)	5,266,593	5,411,008	5,411,008	5,411,008	5,414,222	5,738,676	5,738,676	5,873,285	6,074,549	6,178,283	6,264,396
995 Vital Streets		950,000	950,000	950,000	950,000	950,000	950,000	900,000	850,000	850,000	850,000
995 Emerald Ash Borer Tree Removal and Replacement		350,000	350,000	350,000	350,000	0	0	0	0	0	0
995 Budget Stabilization Fund		0	4,000,000	4,000,000	4,000,000						
Carryforwards and Reappropriations							526,276				
GENERAL FUND OPERATING Total Expenditures	***123,970,386***	***125,374,235***	***132,951,362***	***132,359,425***	***132,577,079***	***132,858,747***	***133,385,023***	***135,970,850***	***140,626,594***	***143,023,329***	***145,017,690***
GF OPERATING REV OVER/(UNDER) EXPENDITURES	925,376	89,458	4,762,640	4,721,343	6,407,569	101,451	(424,825)	226,179	(3,111,515)	(3,659,475)	(2,859,894)
Beginning Fund Balance	13,840,518	15,101,671	15,101,671	15,101,671	15,101,671	19,823,014	22,388,202	21,963,377	22,189,556	19,078,041	15,418,566
Net Change to Receivables/Payables	335,777	0	0	0	878,962	0	0	0	0	0	0
Ending Fund Balance	**15,101,671**	**15,191,129**	**19,864,311**	**19,823,014**	**22,388,202**	**19,924,465**	**21,963,377**	**22,189,556**	**19,078,041**	**15,418,566**	**12,558,672**
	12.2%	12.1%	14.9%	15.0%	16.9%	15.0%	16.5%	16.3%	13.6%	10.8%	8.7%
Assigned to Operations - 15% of Total Spending	18,595,558	18,806,135	19,942,704	19,853,914	19,886,562	19,928,812	20,007,753	20,395,628	21,093,989	21,453,499	21,752,654
Unassigned Fund Balance	(3,493,887)	(3,615,006)	(78,393)	(30,899)	2,501,640	(4,347)	1,955,624	1,793,929	(2,015,948)	(6,034,933)	(9,193,981)
Total	15,101,671	15,191,129	19,864,311	19,823,014	22,388,202	19,924,465	21,963,377	22,189,556	19,078,041	15,418,566	12,558,672
Unassigned Fund Balance as a % of Total Expenditures	-2.8%	-2.9%	-0.1%	0.0%	1.9%	0.0%	1.5%	1.3%	-1.4%	-4.2%	-6.3%

City of Grand Rapids, Michigan

Attachment II

General Operating Fund (GFGEN101)

Summary of Operations

for the year ended June 30, 2016

	Amended Budget	Budget Estimate	Actual (unaudited) [1]
Revenue - (GAAP Basis)	$ 136,239,002	$135,605,768	$ 137,509,648
Expenditures - (GAAP Basis)	$ 128,951,362	$128,359,425	$ 128,577,079
Excess of Revenue over Expenditures (GAAP Basis)	$ 7,287,640	$ 7,246,343	$ 8,932,569
Adjustments to Budgetary Basis			
Add: Principal payment from Parking Services for Government Ramp	$ 1,475,000	$ 1,475,000	$ 1,475,000
Excess of Revenue over Expenditures (Budgetary Basis)	$ 8,762,640	$ 8,721,343	$ 10,407,569
Other items affecting Spendable Equity:			
Less: Transfer to Budget Stabilization Fund	$ (4,000,000)	$ (4,000,000)	$ (4,000,000)
FY2016 Change in Spendable Equity	$ 4,762,640	$ 4,721,343	$ 6,407,569
Spendable Equity as of 6/30/2015	$ 15,101,671	$ 15,101,671	$ 15,101,671
Decrease in Reserve for Encumbrances	$ -	$ -	$ 1,092,997
Increase in Compensated Absences Liability	$ -	$ -	$ (214,035)
Spendable Equity as of 6/30/2016	**$ 19,864,311**	**$ 19,823,014**	**$ 22,388,202**
Spendable Equity as a % of Expenditures	14.94%	14.98%	16.89%

[1] As of November 14, 2016

The pertinent adjustments include the Parking Ramp payments toward loan principal that are now available to be spent, as well as the change in Accrued Vacation and Sick Leave liability that should be reserved and should not be considered available to spend. These adjustments result in an *FY2016 Ending Budgetary Fund Balance (Spendable Equity) of $22,388,202 or 16.89% of actual FY2016 total expenditures* . The FY2017 Fiscal Plan had anticipated an FY2016 fund balance of $19,823,014 on a Budgetary basis, resulting in a projected year end General Operating Fund (GOF) fund balance level of 15.0%. Therefore, **the FY2016 actual results are $2,565,188 more favorable than projected.**

Report ID : GR-PB-BUD-1001

Attachment III

Grand Rapids MI - FMS
TRANSFORMATION FUND (2300)
STATEMENT OF OPERATIONS

	FY2016 Amended Budget	FY2016 Actual (Unaudited)	FY2017 Revised Adopted	FY2018 Revised Forecast	2011-2016 Total Actual
REVENUES					
SUPPLEMENTAL INCOME TAX (2300)					
Taxes-Temporary Five Year Income Tax	$ -	$ -	$ -	$ -	$ 48,801,447
Income Tax - 1%	869,174	821,414	-	-	821,414
Intergovernmental Revenues (EVIP / Revenue Sharing)	-	-	-	-	17,243,475
Interest And Rents	90,754	238,500	194,488	20,200	647,434
Loan Repayment from Refuse Fund	57,600	57,600	55,950	522,200	707,800
SUPPLEMENTAL INCOME TAX Total Revenue	***1,017,528***	***1,117,514***	***250,438***	***542,400***	***68,221,569***
EXPENDITURES					
SUPPLEMENTAL INCOME TAX (2300)					
Transfers Out					
Approved For:					
Support for Ten Community Police Officers	-	-	-	-	5,328,532
Support for Fifteen Firefighters	-	-	-	-	3,352,166
Support for 17 Firefighters after SAFER One	**824,722**	**824,722**	-	-	4,405,061
Business Planning for City Cemeteries	-	-	-	-	15,000
Business Planning for Indian Trails Golf Course	-	-	-	-	20,000
Fire Dept. - Fire Squad Vehicles	-	-	-	-	928,026
Joint Police and Fire Study	-	**(161)**	-	-	68,839
Fee Study	-	-	-	-	50,000
Curbside Refuse Collection Carts	-	-	-	-	2,400,000
3-1-1 Customer Service	-	-	-	-	398,954
Stormwater Asset Management Plan	-	-	-	-	334,082
Fire Apparatus Fuel Efficiency Initiative	-	-	-	-	75,550
Police Dept. Automated License Plate Recognition System	-	-	-	-	104,616
Fire Dept. FEMA Grant Match - Prevention Grant	-	-	-	-	100,808
Community Development Services Study	-	-	-	-	20,000
Transfers to General Operating Fund	-	-	-	-	13,732,259
Street Lighting Audit	-	-	-	-	500,000
Fire Dept. - Apparatus Plan Reset	-	-	-	-	4,397,225
Defined Contribution Pension Conversion Payment	-	-	-	-	1,766,291
Public Library Sustainability	**477,493**	**477,493**	**592,823**	632,809	615,633
Crime Prevention Strategies - Ten COPS Grant Police Officers	**444,830**	**444,830**	**583,822**	1,044,833	946,083
Body Cameras and Digital Evidence Management Program	-	-	-	-	674,124
Financial Management System (FMS)	-	-	-	-	4,575,000
Evaluation of City-Owned Properties - 201 Market	**350,000**	**350,000**	-	-	350,000
Parks Master Plan	**350,000**	**350,000**	-	-	350,000
Automated External Defibrillators (AED's)	**52,000**	**52,000**	-	-	52,000
Indian Trails Golf Course	**2,752,000**	**2,752,000**	-	-	2,752,000
Classification Study	**250,000**	**250,000**	-	-	250,000
Recommended in FY2017 Preliminary Fiscal Plan:					
Transfer to Budget Stabilization Fund	**4,000,000**	**4,000,000**	-	-	4,000,000
Transfer to General Operating Fund	**5,200,000**	**5,200,000**	**1,300,000**	1,384,637	5,200,000
Reserved For:					
Crime Prevention Strategies*	200,000	-	200,000	200,000	-
Community Crime Prevention Initiatives*	50,000	-	50,000	50,000	-
Cemetery Trust*	-	-	-	-	-
Cemetery Deferred Capital*	3,500,000	-	-	-	-
Street Lighting Retofit*	7,000,000	-	-	-	-
Photovoltaics and Distributed Solar Energy*	250,000	-	-	-	-
River Corridor Activation*	2,500,000		2,500,000	2,500,000	-
Available For:					
Operational Transformation and Sustainable Asset Management*	-	-	-	213,235	-
SUPPLEMENTAL INCOME TAX Total Requested Expenditures	**28,201,045**	**14,700,884**	**5,226,645**	**6,025,514**	**57,762,249**
SUPPLEMENTAL INCOME TAX NET INCOME (LOSS)	**(27,183,517)**	**(13,583,370)**	**(4,976,207)**	**(5,483,114)**	**10,459,321**
Fund Balance - Beginning of Year	24,042,691	24,042,691	10,459,321	5,483,114	-
Fund Balance - End of Year	**(3,140,826)**	**10,459,321**	**5,483,114**	**0**	**10,459,321**

*Illustrative - projects under development, subject to review and approval process