



Lower Grand River Watershed  
Progress Report

# FOREST HILLS PUBLIC SCHOOLS

Reporting Period: August 1, 2018 - July 31, 2019

PREPARED BY THE

**GVMC**

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## List of Abbreviations/Acronyms

|        |   |
|--------|---|
| AWRI   | Annis Water Resources Institute   |
| BMP    | Best Management Practice  |
| CoC    | Certificate of Coverage   |
| DPW    | Department of Public Works  |
| EGLE   | Michigan Department of Environment, Great Lakes, and Energy (Prior to April 7, 2019, this Agency was known as MDEQ) |
| 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  |
| 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 MS4 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 Environment, Great Lakes, and Energy (EGLE) 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

| <b>Contact Information for Michigan Department of Environment, Great Lakes and Energy (EGLE):</b> |                        |
|---|------------------------|
| Please provide current contact information for EGLE to use regarding stormwater issues.           |                        |
| <b>Permit Application Contact</b>   |                        |
| Name  | Ron Boezwinkle         |
| Title   | Director of Operations |
| Address   | 150 Alta Dale SE       |
| City, State, Zip  | Ada, MI, 49301         |
| Telephone (with area code)  | 616.493.8780           |
| Fax (with area code)  | 616.493.8788           |
| E-mail  | rboezeinkle@fhps.net   |
| <b>Stormwater Program Manager</b>   |                        |
| Name  | Ron Boezwinkle         |
| Title   | Director of Operations |
| Address   | 150 Alta Dale SE       |
| City, State, Zip  | Ada, MI, 49301         |
| Telephone (with area code)  | 616.493.8780           |
| Fax (with area code)  | 616.493.8788           |
| E-mail  | rboezeinkle@fhps.net   |
| <b>Stormwater Permit Fee Billing Address</b>  |                        |
| Name  | Ron Boezwinkle         |
| Title   | Director of Operations |
| Address   | 150 Alta Dale SE       |
| City, State, Zip  | Ada, MI, 49301         |
| Telephone (with area code)  | 616.493.8780           |
| Fax (with area code)  | 616.493.8788           |
| E-mail  | rboezeinkle@fhps.net   |

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

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

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

The list of committee members who have served on the committees during this reporting period are indicated in Table 1 below. Members denoted with an asterisk are not MS4 permitted representatives.

| <b>Community</b>              | <b>Representative</b> | <b>Public Engagement</b> | <b>Stormwater Ordinance (SWOrd)</b> | <b>Technical</b> | <b>Sustainability</b> | <b>Fund Development &amp; Membership</b> | <b>LGROW Executive</b> |
|-------------------------------|-----------------------|--------------------------|-------------------------------------|------------------|-----------------------|--|------------------------|
| Cascade Charter Township      | Steve Peterson        |                          |                                     |                  |                       |  |                        |
| East Grand Rapids, City of    | Doug LaFave           |                          |                                     |                  |                       |  |                        |
| Forest Hills Public Schools   | Ron Boezwinkle        |                          |                                     |                  |                       |  |                        |
| Fruitport, Village of         | Justin Clish          |                          |                                     |                  |                       |  |                        |
| Georgetown Charter Township   | Rod Weersing          | X                        |                                     |                  |                       |  |                        |
| Grand Haven, City of          | Cheryl Davidson       | X                        |                                     |                  |                       |  |                        |
| Grand Rapids Charter Township | Bob Versluys          |                          |                                     |                  |                       |  |                        |
| Grand Rapids, City of         | Carrie Rivette        | X                        | X                                   | X                | X                     | X  | X                      |

**Table 1. LGROW Committee Membership List as of July 31, 2019**

| <b>Community</b>               | <b>Representative</b> | <b>Public Engagement</b> | <b>Stormwater Ordinance (SWOrd)</b> | <b>Technical</b> | <b>Sustainability</b> | <b>Fund Development &amp; Membership</b> | <b>LGROW Executive</b> |
|--------------------------------|-----------------------|--------------------------|-------------------------------------|------------------|-----------------------|--|------------------------|
| Grand Rapids, City of          | Michael Staal         | X                        |                                     |                  |                       |  |                        |
| Grand Rapids, City of          | Dan Taber             |                          |                                     | X                |                       |  |                        |
| Grandville, City of            | Ken Krombeen          |                          | X                                   |                  |                       | X  | X                      |
| Grandville, City of            | Todd Wibright         |                          |                                     | X                |                       |  |                        |
| Grandville, City of            | Matt Butts            |                          | X                                   |                  |                       |  |                        |
| GVSU*                          | Shannon Sullivan      |                          |                                     |                  |                       |  |                        |
| Hudsonville, City of           | Jill Frielink         | X                        |                                     |                  |                       |  |                        |
| KCDC                           | Brad Boomstra         |                          | X                                   |                  |                       |  |                        |
| KCDC                           | Angie Latvaitis       |                          | X                                   | X                |                       |  |                        |
| KCRC                           | Bruce Schutte         | X                        |                                     |                  |                       |  |                        |
| KCRC                           | Andrew Reinhardt      | X                        |                                     |                  |                       |  |                        |
| Kent County Health Department* | Brendan Earl          | X                        |                                     |                  |                       |  |                        |
| Kent County Resource Recovery* | Isaac Thaler          | X                        |                                     |                  |                       |  |                        |
| Kentwood, City of              | Jim Beke              |                          | X                                   | X                |                       |  |                        |
| Kentwood, City of              | Dan Vanderheide       |                          | X                                   |                  |                       |  |                        |
| Kentwood, City of              | Kelsey Sloan          | X                        |                                     | X                |                       |  |                        |
| EGLE*                          | Amanda St. Amour      | X                        |                                     |                  |                       |  |                        |
| EGLE*                          | Michelle Storey       | X                        |                                     |                  |                       | X  |                        |
| EGLE*                          | Dana Strouse          | X                        |                                     | X                |                       |  |                        |
| OCWRC                          | Dennis Cole           | X                        |                                     |                  |                       |  |                        |
| OCRC                           | Jerry Olman           | X                        |                                     |                  |                       |  |                        |
| Plainfield Charter Township    | Rick Solle            |                          | X                                   |                  |                       |  |                        |

**Table 1. LGROW Committee Membership List as of July 31, 2019**

| <b>Community</b>            | <b>Representative</b> | <b>Public Engagement</b> | <b>Stormwater Ordinance (SWOrd)</b> | <b>Technical</b> | <b>Sustainability</b> | <b>Fund Development &amp; Membership</b> | <b>LGROW Executive</b> |
|-----------------------------|-----------------------|--------------------------|-------------------------------------|------------------|-----------------------|--|------------------------|
| Plainfield Charter Township | Mary Trapp-Gunst      | X                        |                                     |                  |                       |  |                        |
|                             |                       |                          |                                     |                  |                       |  |                        |
| Spring Lake, Village of     | Chris Burns           |                          |                                     |                  |                       |  |                        |
|                             |                       |                          |                                     |                  |                       |  |                        |
| Walker, City of             | Scott Connors         |                          | X                                   |                  |                       | X  | X                      |
| Walker, City of             | Rachell Nagorsen      | X                        | X                                   | X                | X                     |  | X                      |
|                             |                       |                          |                                     |                  |                       |  |                        |
| Wyoming, City of            | Aaron Vis             | X                        |                                     | X                |                       |  | X                      |
| Wyoming, City of            | Myron Erickson        |                          | X                                   |                  |                       |  |                        |
|                             |                       |                          |                                     |                  |                       |  |                        |

### **Public Engagement Committee**

The Public Engagement Committee met on September 12, 2018, October 10, 2018, November 14, 2018, January 9, 2019, February 13, 2019, and May 8, 2019 during the reporting period. Agendas and minutes for the meetings are posted to <https://www.lgrow.org/public-engagement>. Throughout the reporting period, the group focused on implementation of the Public Education Plan (PEP) approved in February of 2013, available here: <https://www.lgrow.org/ms4information>.

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



### **SWOrd Committee**

The Storm Water Ordinance (SWOrd) Committee met on September 26, 2018, November 28, 2018 and May 29, 2019 during the reporting period. Meetings were focused on follow up items related to the LGRW alternative approach, the model ordinance, the standards manual, maintenance agreements, and the stormwater design spreadsheet for MS4 permittees to utilize in their implementation of the new post-construction stormwater control requirements outlined in the 2016 NPDES Permit Application.

The committee finalized templates for the standards manual, the standards manual BMP design criteria appendix, and the LGROW Design Spreadsheet. The standards manual follows the steps outlined in the flow chart submitted with the permit applications for the design, review, and permitting of sites with post construction controls. The standards manual was developed in tandem with a LGROW Design Spreadsheet to assist site designers and reviewers to ensure site designs meet all the regulatory criteria outlined in the permit. The development of maintenance agreements per the stormwater post-construction controls is ongoing, and will continue through the next reporting period.

The manual and Design Spreadsheet tools are also designed to ensure that the alternative approach is only utilized when all other green infrastructure practices have been considered, but are not feasible, due to site constraints as defined in the flow chart. Since this work began in 2015, much of this reporting period was spent editing, revising and finalizing the permit application documents to accurately reflect how each community implements their MS4 program, accounting for new stormwater regulations under the next MS4 permit.

### **Technical Committee**

The Technical Committee met on August 15, 2018, October 31, 2018, December 19, 2018, April 17, 2019, and June 19, 2019 during this reporting period. Agendas and minutes from the meetings are available at the following site: <https://www.lgrow.org/technical-committee>. During the reporting period, the committee members focused on the development of the LGROW Data Repository, which will serve as a resource for the sharing and viewing of water quality data collected throughout the watershed. The Data Repository can be accessed here: <https://www.lgrow.org/data-repository/>

The Committee also continued work on the watershed monitoring manual to guide the collection, processing, and storage of data in the Lower Grand River Watershed and the Lower Grand River Total Maximum Daily Load (TMDL) monitoring, as required by the MS4 permit. The committee is coordinating the TMDL monitoring in the stream reaches identified in the MS4 Permit application letters. GVMC has hired LimnoTech to complete watershed modeling for TMDL requirements, and to update the TMDL

Implementation Plan. The Technical Committee has been involved in the work that LimnoTech is completing. At the October 2018 meeting, the committee enjoyed a Green Infrastructure tour around the City of Grand Rapids. IDEP outfall screening was also a focus of the Technical Committee, since most MS4's in the watershed were completed this work during the summer of 2018. A presentation at the April meeting was given by a representative from Encompass, LLC regarding water quality monitoring in the Grand River for the river restoration project, and a presentation from LinmoTech was given at the June meeting regarding watershed modeling for upcoming MS4 permit requirements.

### **Sustainability Committee**

The Sustainability Committee met on August 6, 2018, October 1, 2018, December 3, 2018, February 11, 2019, and June 3, 2019 during this reporting period. Agendas and minutes from the meetings are available at the following site: <https://www.lgrow.org/sustainability-committee>. During the reporting period, the committee members focused on three main topics: Sustainable Agriculture, Natural Connections, and the Grand River Water Trail. Sustainable agriculture is addressed through members participating and offering planning assistance for the USDA Regional Conservation Partnership Program grant activities in the Indian Mill Creek and Rogue River watersheds. The members also discussed current efforts of concerned citizens to highlight the importance of preserving farmland in Kent County. LGROW's Natural Connections Map was updated by creating a StoryMap that included regional and site specific green infrastructure practices being implemented in the MS4 communities. The planning of the Grand River Water Trail is supported by the members through reviewing the trail development plans that have been produced by the Upper Grand River Watershed Alliance and MGROW. Members are strategizing about how to fund a trail development plan for the Lower Grand River and submitting an application to the State to have it designated as a State Water Trail.

### **Fund Development & Membership Committee**

The Fund Development & Membership Committee did not meet in 2018 or 2019. The Committee Chair discussed possible restructuring of the committee at the Board Meetings. The goals of the Committee are being revised to better reflect the current state of LGROW's membership structure.

### **Board of Directors and Executive Committee Meetings**

LGROW's Board of Directors held meetings on December 6, 2018, and April 30, 2019. The semi-annual meetings are a chance for the Board to discuss the progress and participation of members in LGROW's Committees and the overall challenges and successes of LGROW's initiatives.

The Executive Committee of the Board continued to meet once a month, as much as possible, to assist in guiding LGROW's efforts and ensuring that projects and programs aligned with LGROW's Strategic Plan.

## **Training**

GVMC provides multiple training documents and DVDs for Permittee use. Documents are available at: <https://www.lgrow.org/ms4information>. Training materials, including newsletter articles for communities to provide to residents, can be found on the LGROW website, and are available upon request by MS4 communities. In addition, GVMC has hosted or partnered on several training events during the reporting period including:

- 16<sup>th</sup> Annual Grand River Spring Forum
  - Held on May 17, 2019 at Blandford Nature Center
- Stormwater General Awareness, Watershed Awareness, IDEP, and P2GH for:
  - Ottawa County Road Commission
    - September 19, 2018 at Grand Haven Garage
    - September 25, 2018 at Holland Garage
  - Ottawa County Road Commission, Ottawa County Water Resources Commission, Village of Spring Lake, Georgetown Township
    - March 1, 2019 at Hemlock Nature Center
  - Hudsonville and Georgetown Township
    - March 20, 2019 at Hudsonville City Hall
  - Grand Haven, Ferrysburg, and the Village of Fruitport
    - April 10, 2019 at Grand Haven DPW
  - Rockford
    - May 13, 2019 at Rockford DPW
  - Sparta
    - May 13, 2019 Village of Sparta offices
- Lunch and Learn
  - Offered at GVMC on June 19, 2019 hosted by Contech Engineered Solutions

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

Forest Hills Public Schools  
 Lower Grand River Watershed  
 2018-2019 MS4 Progress Report

**Newsletters**

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



Thank you for attending the 16th Annual Grand River Spring Forum!

Attached to this electronic newsletter, you will find an informational brochure about ways to prevent pollution during the summer, and a green cleaning newsletter article. Please post and/or distribute to your employees and community as you see fit.

**SPRING FORUM**

The 16th Annual Spring Forum was held on May 17, 2019 at Blandford Nature Center. There were a record-setting 350 attendees, including students and teachers from 4 schools in the watershed that participated in the first-ever Student Forum and Poster Session.

Keynote speaker, Dr. Don Carpenter, spoke about removing the barriers to green infrastructure implementation. LGROW committee updates were reported, and exciting 'Shed Talks' covered Rainscaping, the RCPP program, community engagement, and the new Adopt a Drain program. Attendees had the option of attending different green infrastructure walking tours after lunch.

Without your continued support of LGROW's programs, our work would not be possible. We would like to extend our gratitude to the 2019 Spring Forum sponsors, that made this wonderful event happen. If you, or anyone you know, would be interested in sponsoring or presenting at next year's Spring Forum, please let us know.

More information can be found on the LGROW website

**LUNCH & LEARN  
 STORMWATER BMPs**

Representatives from Contech Engineered Solutions LLC (<https://www.conteches.com>) will be at GVMC on Wednesday June 19 from 11:30 am - 1:00 pm, holding a lunch and learn to inform us about their company's products that help manage stormwater. There will be discussion about how these products can help your community meet the water quality and quantity requirements under the new MS4 permit. Please RSVP to Cara at [cara.decker@gvmc.org](mailto:cara.decker@gvmc.org) so we can get an accurate headcount.



Following the Lunch and Learn at 1:00 pm, the LGROW Technical Committee will welcome representatives from LimnoTech to present the watershed modeling they have been completing in regards to new TMDL requirements under the upcoming MS4 permit.



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**MS4 UPDATE**

Information for MS4 Permittees in the Lower Grand River Watershed



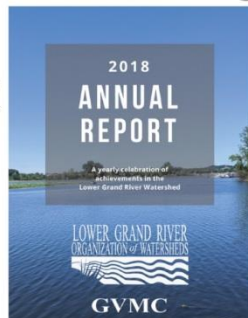
The Lower Grand River Organization of Watersheds (LGROW) participated in the World of Winter festival in Grand Rapids in February

**2018 LGROW Annual Report**

The 2018 LGROW annual report can be accessed electronically through LGROW's website at [www.lgrow.org](http://www.lgrow.org). The annual report highlights events, projects, and grant work from the past year. It is a celebration of the organization's success. It also sets goals for 2019 that are in alignment with the three long-term goals that are outlined in LGROW's strategic plan:

- #1: Healthy Watersheds
- #2: Engaged Community
- #3: Robust Organization

Please share and distribute this annual report. We are proud of what we have accomplished in the past year, and are excited to continue to expand our programs with your support!



**MS4 Upcoming Events**

Please Click Each Event For More Information

**August 15th, 1-2:30 Pm**  
**LGROW Technical Committee Meeting**  
 Location: GVMC

**August 23rd, 1-4 Pm**  
**Green Infrastructure Seminar**  
 Location: City Flats Hotel, Holland

**August 24th, 8 Am-12 Pm**  
**Farm Conservation Practices Bus Tour**  
 Location: Schwallier's Country Basket

**September 6th, 4-6 Pm**  
**Citizen Science Workshop**  
 Location: Blandford Nature Center

**September 8th, 8:30 Am-1Pm**  
**Mayor's Grand River Cleanup**  
 Location: 6th Street Park, Grand Rapids

**September 12th, 2-3:30 Pm**  
**LGROW Public Engagement Committee Meeting**  
 Location: GVMC

**September 13th, 4:30-6:30 Pm**  
**Watershed Jamboree**  
 Location: Richmond Park Shelter





## Monitoring

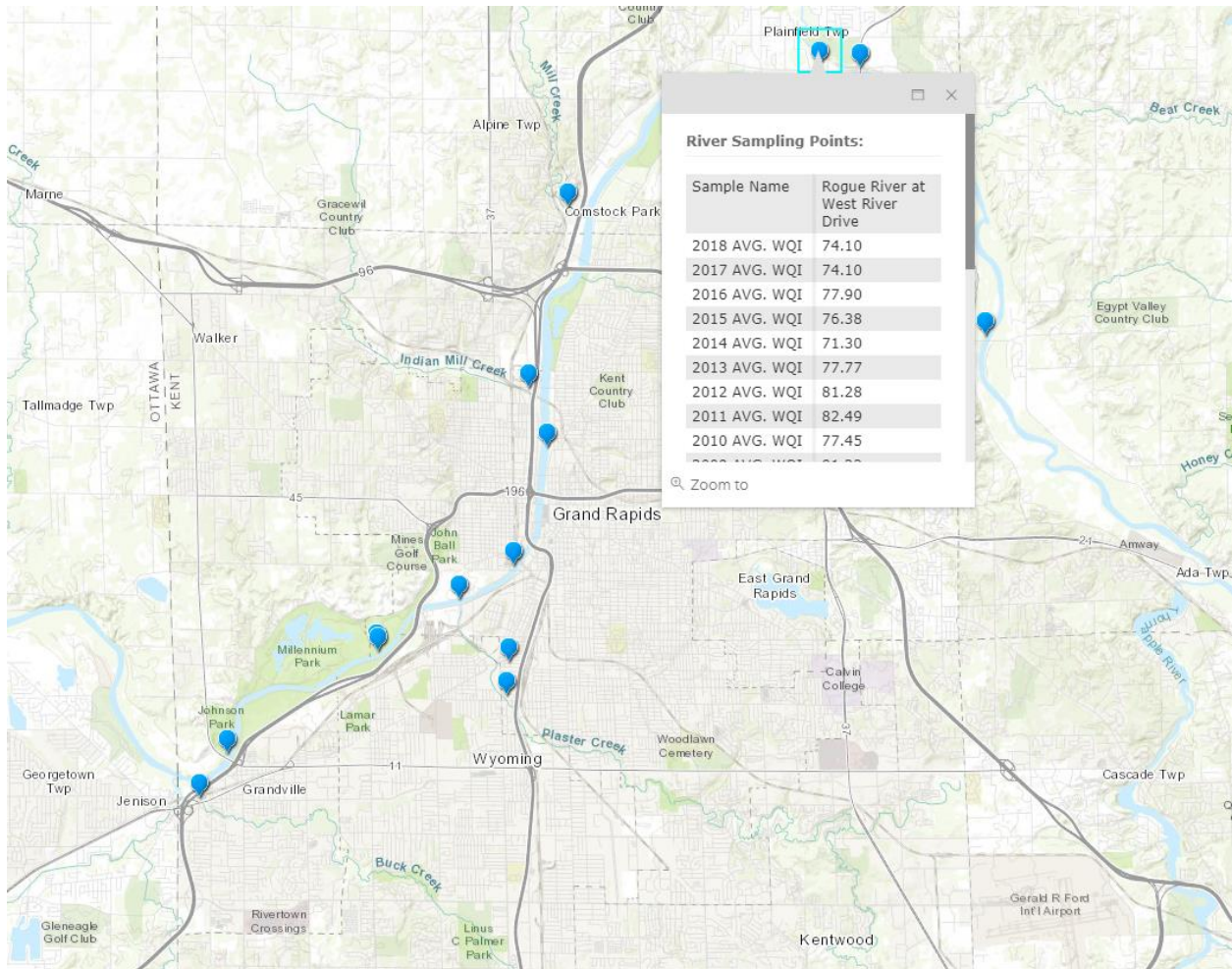


Figure 1 Grand Rapids Water Quality Index Web Interface

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 Rogue River at West River Drive is provided as an example of water quality in the Grand River. An interactive map and data from sampling events can be viewed as follows:

[https://grandrapids.maps.arcgis.com/apps/Embed/index.html?webmap=b58bd9f6cda949599b15753b888a7048&extent=-85.8676,42.8116,-85.4244,43.0326&zoom=true&scale=true&search=true&searchextent=false&legend=true&disable\\_scroll=false&theme=light](https://grandrapids.maps.arcgis.com/apps/Embed/index.html?webmap=b58bd9f6cda949599b15753b888a7048&extent=-85.8676,42.8116,-85.4244,43.0326&zoom=true&scale=true&search=true&searchextent=false&legend=true&disable_scroll=false&theme=light)

## Data Repository

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

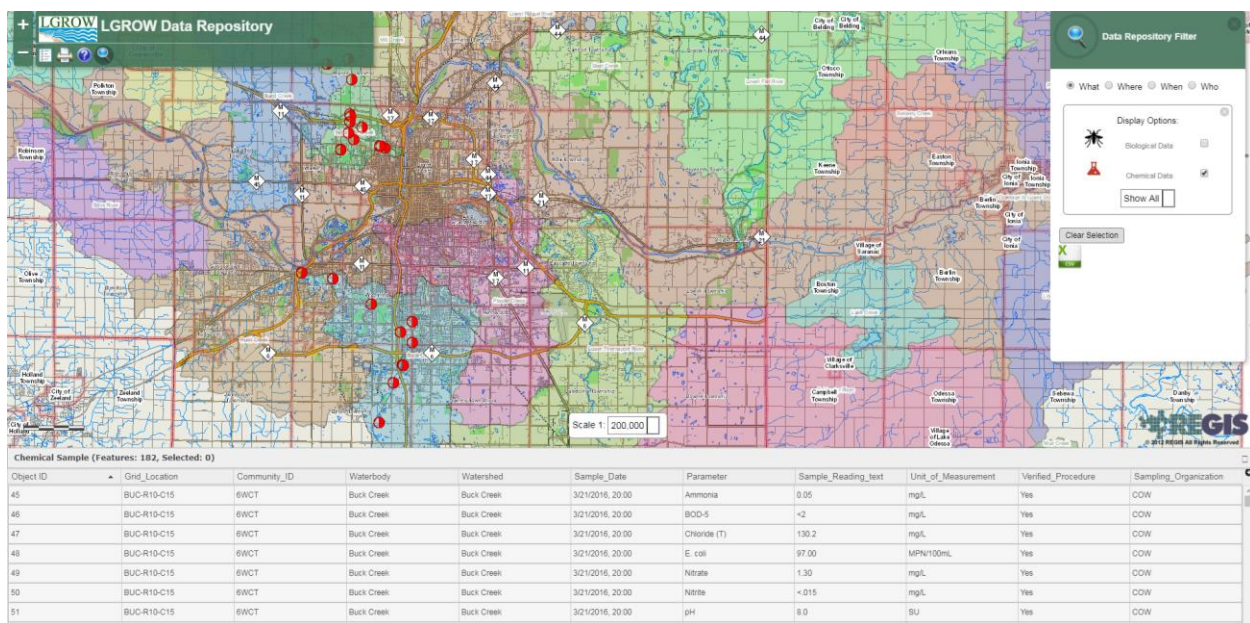


Figure 2 LGROW Data Repository

## Adopt a Drain Grand River

LGROW expanded the City of Grand Rapids “Basin Buddy” adopt-a-catch-basin program to MS4 communities throughout the watershed. This is described in the PEP Implementation section below and can be found here: <https://www.adoptadrain-lgrow.org/>

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

### **Encouraging proper septic tank maintenance**

Each year a portion of the public education materials distributed address proper septic tank maintenance. Detailed information regarding the nature of these materials is included in Part 3 - PEP of this progress report. Additionally, communities in both Kent and Ottawa Counties work collaboratively with their respective Health Departments to report and ensure correction of failing or failed septic systems. Individual communities track this data in Part 4 – IDEP of this progress report.

The US EPA hosts SepticSmart Week once a year, and LGROW uses the materials provided to encourage of proper septic system care. SepticSmart Week 2018 was held on September 17-21, and focused on educating homeowners and communities on the proper care and maintenance of their septic systems.

### **Encouraging septage ordinance**

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

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

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

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

### **Implement 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 systems. The City of Grand Rapids collaborates with Cascade Charter Township, the City of East Grand Rapids, Forest Hills Public Schools, Grand Rapids Charter Township, Kent County, Kentwood, and the City of Walker. The City of Wyoming collaborates with the City of Kentwood and portions of the City of Grandville. The City of Grandville collaborates with the City of Hudsonville and portions of Georgetown Charter Township. The City of Grand Haven collaborates with the City of Ferrysburg and the Village of Spring Lake. The North Kent Sewer Authority collaborates with Plainfield Charter Township and the City of Rockford. All of the MS4 LGROW community members have procedures to inspect and maintain their sanitary sewer systems, which are independent of their MS4 systems. Information related to the maintenance and upgrades of sewer infrastructure is included in Part 2B of the report.

### **Implement Low Impact Development Practices**

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

### **Implement watershed focused land-use planning**

Throughout the watershed, construction in FEMA mapped floodplains is regulated by the Michigan Building Code to ensure that construction below the base flood elevation does not occur. This is accomplished by providing prescribed release rates for Bank Erosion Control, as well as Flood Control. Water Quality control is addressed with detention and infiltration, where possible, or delayed and restricted release where it is not.

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



### **Implement proper soil erosion and sedimentation control techniques**

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

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

| Community  | Part 91 Contact Info         |              | MEA | Utilizes CEA |          |        | APA |
|--|------------------------------|--------------|-----|--------------|----------|--------|-----|
|  | Name                         | Phone        |     | Kent         | Muskegon | Ottawa |     |
| Cascade Charter Township   | KCRC                         | 616-242-6914 |     | X            |          |        |     |
| East Grand Rapids, City of   | KCRC                         | 616-242-6914 |     | X            |          |        |     |
| Ferrysburg, City of  | OCWRC                        | 616-994-4530 |     |              |          | X      |     |
| Forest Hills Public Schools  | KCRC                         | 616-242-6914 |     | X            |          |        |     |
| Fruitport, Village of  | Muskegon County DPW          | 231-724-6411 |     |              | X        |        |     |
| Georgetown Charter Township  | OCWRC                        | 616-994-4530 |     |              |          | X      |     |
| Grand Haven, City of   | OCWRC                        | 616-994-4530 |     |              |          | X      |     |
| Grand Rapids Charter Township  | KCRC                         | 616-242-6914 |     | X            |          |        |     |
| Grand Rapids, City of  | Environmental Services Dept. | 616-456-3057 | X   |              |          |        | X   |
| Grandville, City of  | KCRC                         | 616-242-6914 |     | X            |          |        |     |
| Hudsonville, City of   | OCWRC                        | 616-994-4530 |     |              |          | X      |     |
| Kent County Drain Commissioner & Administration  | Deputy Drain Commissioner    | 616-336-3688 |     |              |          |        | X   |
| Kent County DPW  | Kent Co. DPW                 | 616-336-3694 |     |              |          |        | X   |
| <b>Kent County Road Commission (Kent County CEA)</b>                                       | KCRC                         | 616-242-6914 |     | X            |          |        | X   |
| Kentwood, City of  | Engineering Dept.            | 616-554-0737 | X   |              |          |        | X   |
| <b>Ottawa County Water Resources Commissioner &amp; Administration (Ottawa County CEA)</b> | 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**

EGLE 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. These practices were also covered in training given by GVMC staff, and more details can be found in Part 2D.

**Part 2B - Stormwater Controls Inspection, Maintenance and Effectiveness  
 August 1, 2018 to July 31, 2019**

| <b>Property Name:</b> Forest Hills Public Schools |                             |                             |   |   |
|---|-----------------------------|-----------------------------|---|---|
| <b>Structural Storm Water Control</b>             | <b>Inspection Frequency</b> | <b>Maintenance Schedule</b> | <b>Inspection and Maintenance Conducted and Location of Log (if applicable)</b>   | <b>Effectiveness of Control and Support Documentation</b> |
| Storm sewers                                      | Annually                    | Annually or as needed       | Cleaning will be completed on a 5 year basis; will occur in the 2019-2020 school year.  | Operating as designed.                                    |
| Oil/Water Separators                              | Quarterly                   | Annually or more as needed  | See attached invoices. Records kept at FHPS Operations offices. Maintenanaced annually.   | Operating as designed.                                    |
| Grit Separators                                   | Quarterly                   | Annually or more as needed  | See attached invoices. Records kept at FHPS Operations offices. Maintenanaced annually.   | Operating as designed.                                    |
| Detention Basins                                  | Semi-annual                 | Semi-annual                 | Maintenanaced as needed.  | Operating as designed.                                    |
| Catch basins                                      | Semi-annual                 | Semi-annual                 | See attached invoices. Records kept at FHPS Operations offices. Maintenanaced once every 3 years. Last occurred in 2016, work has started again in the 2019-2020 school year. | Operating as designed.                                    |
| Vegetated buffer strips (established)             | Semi-annual                 | Annually or more as needed  | Maintenanaced as needed.  | Operating as designed.                                    |

**Part 2C - Procedures Status  
 August 1, 2018 to July 31, 2019**

The following Pollution Prevention and Good Housekeeping procedures were adopted by Forest Hills Public Schools. Dates of revised procedures are listed and revisions attached.

| <b>Procedure</b>  | <b>Date Adopted</b> | <b>Date Revised<br/>(if needed)</b> |
|---|---------------------|-------------------------------------|
| Procedure to Ensure Protection of Drainage Systems from Construction-Site Runoff          | August 9, 2010      |                                     |
| Procedure to Dispose of Storm Sewer System Operation and Maintenance Waste                | August 9, 2010      |                                     |
| Procedures to Construct, Operate, and Maintain Streets, Roads, Highways, and Parking Lots | August 9, 2010      |                                     |
| Procedure to Reduce Runoff of Total Suspended Solids (TSS)                                | August 9, 2010      |                                     |
| Procedure to Prevent Salt and Sand from Entering Receiving Streams                        | August 9, 2010      |                                     |
| Procedure to Control Dust and TSS in Runoff   | August 9, 2010      |                                     |
| Procedure for Managing Vegetation on Permittee Owned Properties                           | August 9, 2010      |                                     |
| Procedure for Using Fertilizers on Permittee Owned Properties                             | August 9, 2010      |                                     |
|   |                     |                                     |

Specific procedures for storm water controls of the storm sewer system, catch basin, oil/water separators, grit separators, detention basins and vegetated filter strips are part of the Building & Grounds Storm Water Manual.

**Part 2D - Staff and Contractors Training on Pollution Prevention and Good Housekeeping  
 August 1, 2018 to July 31, 2019**

| Training Topic Area  | Employee Group to Receive Training               | Training Frequency                   | Potential Training Type  |
|--|--|--------------------------------------|--|
| <b>Required Topics</b>   |  |                                      |  |
| Maintenance activities, maintenance schedules, and inspection procedures | Building & Grounds/Operations<br><br>Contractors | Annual<br><br>Per project            | <b>Written Procedures in Storm Water Manual</b><br><br><b>Storm Water Pollution Prevention - A Drop in the Bucket - DVD from Excal Visual, LLC</b><br><br><b>"Best Management Practices for Municipal Operations" Training Session – Live Presentation</b> |
| <b>Training completed:</b>   | See attached sign in sheet                       | August 14, 2019<br>Or Sept. 17, 2019 | Training given by GVMC   |

| <b>Training Topic Area</b>  | <b>Employee Group to Receive Training</b>        | <b>Training Frequency</b>            | <b>Potential Training Type</b>  |
|---|--|--------------------------------------|---|
| Controls on streets, parking lots, maintenance garages, and storage yards   | Building & Grounds/Operations<br><br>Contractors | Annual<br><br>Per project            | <b>Written Procedures in Storm Water Manual</b><br><br><b>Storm Watch - Municipal Storm Water Pollution Prevention - DVD from Excal Visual, LLC</b><br><br><b>Spills &amp; Skills - Non-Emergency HazMat Spill Response - DVD from Excal Visual, LLC</b><br><br><b><u>MDEQ Storm Water Employee Training</u></b><br>This session explains the importance of preventing contamination from storm water runoff and ways employees can be involved at your facility. This session is designed to meet the permit requirements for employee training. (Approx 17 minutes) |
| <b>Training completed:</b>  | See attached sign in sheet                       | August 14, 2019<br>Or Sept. 17, 2019 | Training given by GVMC  |
| Disposal of O&M waste   | Building & Grounds/Operations<br><br>Contractors | Annual<br><br>Per project            | <b>Written Procedures in Storm Water Manual</b><br><br><b>Regulatory Requirements for Waste Disposal – Live Presentation</b>  |
| <b>Training completed:</b>  | See attached sign in sheet                       | August 14, 2019<br>Or Sept. 17, 2019 | Training given by GVMC  |
| Water quality protection in flood control projects (detention basins, dams) | Contractors                                      | Per project                          | <b>Written Procedures in Storm Water Manual</b><br><br><b>Retrofitting Detention Ponds for Water Quality – Live Presentation</b>  |
| <b>Training completed:</b>  | See attached sign in sheet                       | August 14, 2019<br>Or Sept. 17, 2019 | Training given by GVMC  |

| <b>Training Topic Area</b>  | <b>Employee Group to Receive Training</b>        | <b>Training Frequency</b>            | <b>Potential Training Type</b>  |
|---|--|--------------------------------------|---|
| Controls to reduce discharge of pesticides, herbicides, and fertilizers | Building & Grounds/Operations<br><br>Contractors | Annual<br><br>Per project            | <b>Written Procedures in Storm Water Manual</b><br><br><b>LGRW_LandscapingContractorTrainingBrochure_2011-08-01.pub</b>   |
| <b>Training completed:</b>  | See attached sign in sheet                       | August 14, 2019<br>Or Sept. 17, 2019 | Training given by GVMC  |
| <b>Other Topics</b>   |  |                                      |   |
| Construction site stormwater runoff                                     | Building & Grounds/Operations<br><br>Contractors | Annual<br><br>Per project            | <b>Ground Control - Storm Water Pollution Prevention for Construction Sites - DVD from Excal Visual, LLC</b><br><br><b>LGRW_ContractorTrainingBrochure_2011-09-16.pub</b>   |
| <b>Training completed:</b>  | See attached sign in sheet                       | August 14, 2019<br>Or Sept. 17, 2019 | Training given by GVMC  |
| Gravel Road Maintenance   | No gravel roads                                  | N/A                                  | <b>Keep An Eye On It! - Environmental Awareness for Gravel Road Maintenance - DVD from SEMCOG &amp; Road Commission for Oakland County</b>  |
| <b>Training completed:</b>  | N/A  | N/A                                  | <b>N/A</b>  |
| LID   | Building & Grounds/Operations<br><br>Contractors | Annual<br><br>Per project            | <b>Reduce Runoff: Slow It Down, Spread It Out, Soak It In - DVD from USEPA</b><br><b>RiverSmart Homes: Getting Smart about Runoff - DVD from USEPA</b><br><b>Building Green: A Success Story in Philadelphia - DVD from USEPA</b><br><b>After the Storm - DVD from USEPA</b><br><b>BMP Tour of GVSU Campuses – Walking Tour</b> |



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| <b>Training Topic Area</b>    | <b>Employee Group to Receive Training</b>                                 | <b>Training Frequency</b>            | <b>Potential Training Type</b>   |
|-------------------------------|---|--------------------------------------|--|
| <b>Training completed:</b>    | See attached sign in sheet  | August 14, 2019<br>Or Sept. 17, 2019 | Training given by GVMC   |
| IDEP                          | Building & Grounds/Operations<br><br>Custodial Staff<br><br>Food Services | Annual                               | <b>WaterPollutionReportForm.doc</b><br><b>Article_City_Employees.doc</b> |
| <b>Training completed:</b>    | See attached sign in sheet  | August 14, 2019<br>Or Sept. 17, 2019 | Training given by GVMC   |
| General Storm Water Education | New Building & Grounds Staff  | As hired                             | <b>"Back to Basics" Storm Water Training – Live Presentations</b>        |
| <b>Training completed:</b>    | See attached sign in sheet  | August 14, 2019<br>Or Sept. 17, 2019 | Training given by GVMC   |

## Part 2E - Post Construction Controls Activities

### August 1, 2018 to July 31, 2019

On August 1, 2008, Forest Hills Public Schools adopted a resolution not to develop or redevelop any parcel of one acre or more in size without the plans for the development being in compliance with the "Development Drainage Rules" of the Kent County Drain Commissioner. These rules ensure protection of the receiving waters from impacts commonly associated with development including the quantity, quality, and rate of discharge, including protection of sensitive areas such as wetlands and riparian areas.

Forest Hills Public Schools does not have planning and zoning authority, therefore cannot direct growth to identified areas or encourage infill development in higher density urban areas and areas with existing infrastructure.

Forest Hills Public Schools does not have authority to establish in-stream maximum flow targets, or to coordinate release volumes and rates from detention basins to achieve in-stream maximum flow targets.

Forest Hills Public Schools provides long-term operation and maintenance of its own facilities, so does not need to require that of others.

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

**0**

How many projects were approved with storm water controls according to PCC?

**N/A during this reporting period**

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

**N/A**

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

**N/A**

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

**The only projects that occurred during this reporting period were resurfacing of streets or parking lots- no increased impervious area.**

**FHPS worked with the KCDC at Ada Vista Elementary School to improve drain conditions near the entrance of the school.**

## Part 3 – Public Education Plan

### 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, 2018, and July 31, 2019.

### Public Engagement Committee

The LGRW Public Engagement Committee was formed in 1999 to begin development and implementation of the PEP. Since that time the committee has met on a regular basis to discuss and plan activities scheduled for implementation in the PEP and the LGR Watershed Management Plan. In addition to MS4 communities, the 2018-2019 Public Engagement Committee consisted of the following actively attending community partners:

| <b>Table 3. Non-MS4 Partner Organizations</b> |                       |
|---|-----------------------|
| <b>Agency</b>                                 | <b>Representative</b> |
| EGLE  | Amanda St. Amour      |
| GVMC – West Michigan Clean Air Coalition      | Andrea Faber          |
| Ottawa Co. Conservation District              | Benjamin Jordan       |
| East Jordan Ironworks                         | Kevin Spyhalski       |
| GVMC  | Eileen Boekestein     |
| Trout Unlimited                               | Jamie Vaughan         |
| Groundswell, GVSU                             | Joanna Allerhand      |
| Groundswell, GVSU                             | Jessica Vander Ark    |
| Kent County Resource Recovery                 | Isaac Thaler          |
| EGLE  | Michelle Storey       |
| GVMC  | Courtney Cromley      |
| WMEAC   | Kyle Hart             |
| WMEAC   | Thea VanGoor          |
| GVMC/GVSU                                     | Carlos Calderon       |
| GVMC  | Rachel Frantz         |
| Grand Rapids Public Museum                    | Stephanie Ogren       |
| American Rivers                               | Shanyn Viars          |
| GVMC  | Wendy Ogilvie         |
| Kent County Health Department                 | Brendan Earl          |
| Kent Conservation District                    | Jessie Schulte        |
| Citizen Labs                                  | Allen Clark           |
| Cannon Township                               | Tricia Anderson       |
| GVMC  | Cara Decker           |
| EGLE  | Dana Strouse          |

The goals of the Public Engagement Committee are: To support programs, events, materials, and activities that help communities meet the educational requirements of the NPDES stormwater permits; To document successful implementation of the Information and Education Plan of the federally-approved Lower Grand River Watershed Management Plan; and, To cooperate and collaborate with LGROW's network to foster public education and outreach regarding shared environmental priorities. During this reporting period, the Committee met six times. Each committee meeting is organized around these three goals, with specific activities scheduled throughout the year to meet those goals as follows:

January: Place orders for PEP giveaway materials and discuss distribution plan

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

May: Ongoing business, Committee updates, Planning for summer events

September: Review event year, Ongoing business

October: Choose focus areas for following year, Discuss changes for next year, Ongoing business,

November: Finalize giveaway order options for next year

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

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

## **PEP Implementation**

This section describes the public education activities implemented by the Permittees from August 1, 2018 through July 31, 2019 to meet the requirements of the 2013 approved PEP. Target audiences, messages, and delivery mechanisms are described for each Public Education Topic.

### Public Education Topic 1 - Personal Watershed Stewardship

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

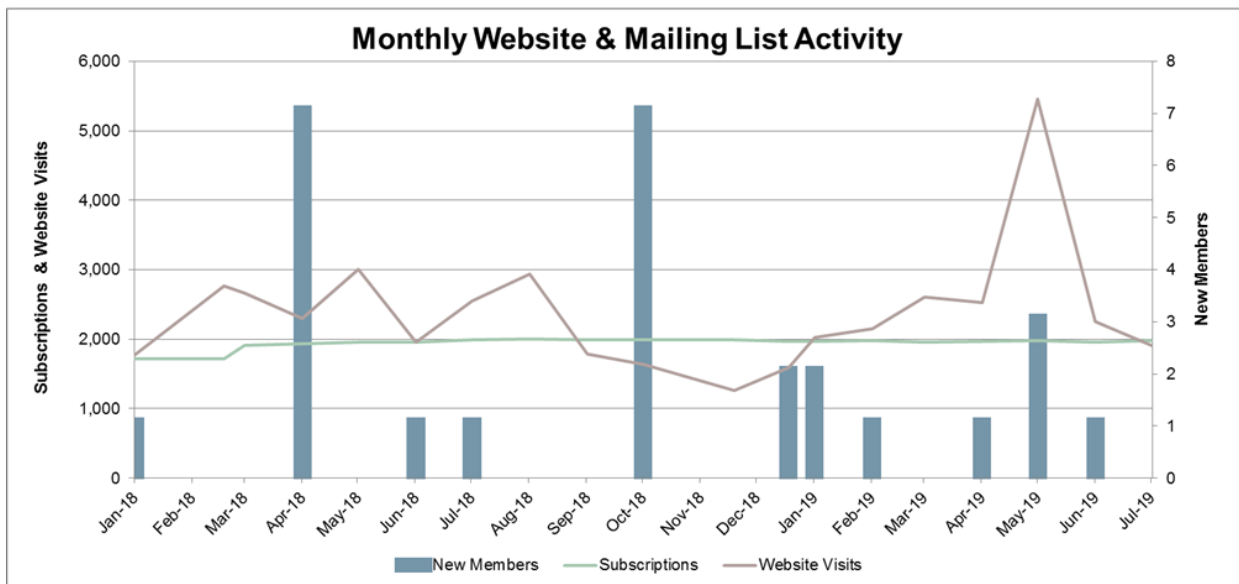
*Target Audience*: Residents, visitors, and public employees

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

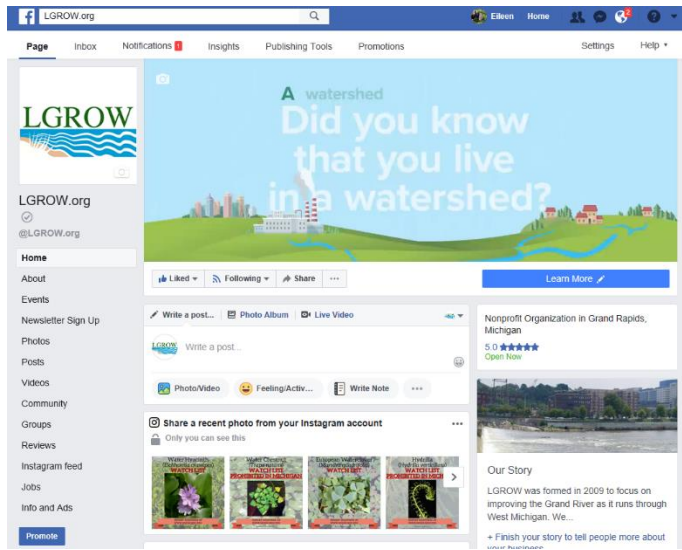
*Delivery Method:*

- Permittees' websites link to LGROW's website, [www.lgrow.org](http://www.lgrow.org). The watershed website provides information on non-point source (NPS) pollution, local watershed issues, water science education, and watershed management. The LGROW website was accessed by an average of 913 unique visitors each month. The website logged 10,959 unique visitors and 28,120 total page views over the entire reporting period.
- LGROW also sends out a seasonal email newsletter with information about the watershed, upcoming educational events, and stormwater educational articles. Newsletter subscriptions and website traffic by month are displayed in Figure 3.

**Figure 3. Website and mailing list activity by month**

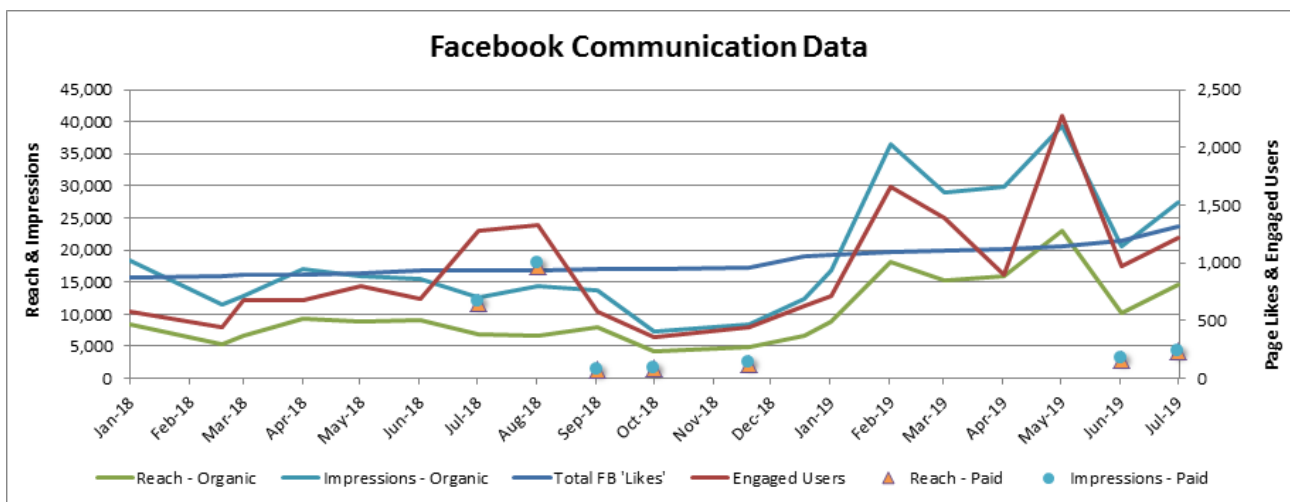


- LGROW worked to promote participation through its Facebook page with a regular posting schedule including watershed project highlights, upcoming events, and volunteer opportunities. Throughout the reporting period, LGROW Facebook posts have reached 166,087 people. As of the end of the reporting period, the Facebook page reached 1,313 Likes (this number has increased from the last reporting period). Facebook



user engagement has shown consistent growth over the reporting period with the average number of Likes, Shares, and Comments. LGROW promoted its Facebook page three times during the reporting period using paid promotions, which increased its audience significantly. Facebook activity is displayed by month in Figure 4.

**Figure 4 Facebook Communication Data by Month**



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- Permittees distributed LGROW, stormwater, and watershed education materials listed below to residents in the LGRW at multiple events, and venues. Materials were distributed according to the type of event and the target audiences in attendance. Listed below are the number and type of educational materials ordered by permittees to distribute throughout the reporting period:

- 1300 LGROW Lip Balms
- 1550 Gardening Gloves
- 750 Rainbow Trout "Only rain in the drain" stress balls
- 1400 Pet Waste bag dispensers
- 1400 Floating Key Chains with Illicit Discharge Reporting Information
- 1300 Funnels with Waste Disposal Information
- 900 Medication Containers with Waste Disposal Information
- 1500 Native Seed Packets
- 1100 Magnetic "Only rain in the drain" Note Pads
- 200 LGROW-Great Lakes Transfer Stickers

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

- Keep Your Lakes Great and Your Rivers Grand Magnets
- Keep Your Lakes Great and Your Rivers Grand vinyl stickers
- "Keep your Lakes Great and your River Grand" dry bags
- "Keep your Lakes Great and your River Grand" magic scarves
- Watershed Temporary Tattoos
- Paint by number Watershed Maps
- Troutie Coloring Books
- Car Wash Pledges and Shammies
- Reusable LGROW Water Bottles
- Reusable LGROW Tote Bags
- LGROW Brochures
- LGROW Pens





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



Banners on display in Spring Lake

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

| <b>Table 4 LGROW and MS4 Participant Events</b> |                                      |                                |
|---|--------------------------------------|--------------------------------|
| <b>MS4 Community</b>                            | <b>Event/ Activity</b>               | <b>Date</b>                    |
| East Grand Rapids, City of                      | LGROW Spring Forum                   | 5/17/19                        |
|   | Touch a Truck Event                  | 5/22/19                        |
| Ferrysburg, City of                             | ReLeaf Tree Planting                 | 6/8/2019                       |
| Forest Hills Public Schools                     | Classroom Programming                | Ongoing                        |
| Fruitport, Village of                           | Old Fashioned Days                   | 5/22-5/28/19                   |
| Georgetown Charter Township                     | Jenison Public Schools Collaboration | Ongoing                        |
|   | Ottawa County Water Quality Forum    | 11/19/2018                     |
|   | LGROW Spring Forum                   | 5/17/2019                      |
| Grand Haven, City of                            | Earth Day Festival                   | 4/27/2019                      |
|   | Whitecaps                            | 7/28/2019                      |
|   | Robinson Elementary                  | 10/10/2018                     |
|   | Coast Guard Festival                 | 7/27-8/5/2018; 7/26 - 8/4/2019 |



| <b>Table 4 LGROW and MS4 Participant Events</b> |   |                                |
|---|---|--------------------------------|
| <b>MS4 Community</b>                            | <b>Event/ Activity</b>                                    | <b>Date</b>                    |
|   | Salmon Festival   | 9/14-15/18                     |
| Grand Rapids, City of                           | Home and Garden Show                                      | 3/7-3/10/19                    |
|   | Mayors Grand River Cleanup                                | 9/8/18                         |
|   | Ottawa County Water Quality Forum                         | 11/19/18                       |
|   | MWEA Watershed & Stormwater Seminar                       | 12/4/18                        |
|   | MWEA Watershed Summit                                     | 3/27/19                        |
|   | Dia del Nino  | 4/27/19                        |
|   | LGROW Spring Forum  | 5/17/19                        |
|   | Water Resource Recovery Facility Tours                    | Ongoing                        |
|   | Rainbarrel Workshops                                      | 5 in 2019                      |
|   | Grand River Water Festival                                | 6/22/19                        |
|   | MWEA Annual Conference                                    | 6/23-6/26/19                   |
|   | Rain Garden/GI Workday                                    | October 2018 and February 2019 |
|   | National Green Infrastructure Certification Pilot Program | Ongoing                        |
| Grand Rapids Charter Township                   | Partner with FHPS   | Ongoing                        |
| Grandville, City of                             | Buck Creek Cleanup  | 8/18/18                        |
|   | Mayors Grand River Cleanup                                | 9/8/18                         |
|   | Michigan Week Community Event                             | 5/15/19                        |
|   | MWEA Annual Conference                                    | 6/23-6/26/19                   |
|   | LGROW Spring Forum  | 5/17/19                        |
| Hudsonville, City of                            | Ottawa County Water Quality Forum                         | 11/19/18                       |
|   | DPW Days  | 5/4/19                         |
|   | LGROW Spring Forum  | 5/17/19                        |
|   | MWEA Watershed & Stormwater Seminar                       | 12/4/18                        |
|   | MWEA Watershed Summit                                     | 3/27/19                        |
| Kent County Road Commission                     | Facility Tours  | Ongoing                        |
|   | LGROW Spring Forum  | 5/17/19                        |
|   | MWEA Annual Conference                                    | 6/23-6/26/19                   |
| Kent County Drain Commission                    | Riparian Planting at Shadyside Park                       | 5/15/19                        |
| Kentwood, City of                               | Buck Creek Cleanup  | 8/18/18                        |
|   | Rain Garden/GI Work Day                                   | 1/11/19                        |
|   | Earth Day, Blandford Nature Ctr.                          | 5/20/19                        |
|   | Presentation @ Byron Ctr.                                 | 5/19                           |

| <b>Table 4 LGROW and MS4 Participant Events</b>               |   |                         |
|---|---|-------------------------|
| <b>MS4 Community</b>  | <b>Event/ Activity</b>                      | <b>Date</b>             |
|   | Charter School for rain garden              |                         |
|   | LGROW Spring Forum                          | 5/17/19                 |
| Ottawa County Administration and Water Resources Commissioner | LGROW Spring Forum                          | 5/17/19                 |
|   | Ottawa County Water Quality Forum           | 11/19/18                |
| Plainfield Charter Township                                   | LGROW Spring Forum                          | 5/17/19                 |
| Sparta, Village of  | Partnership with Sparta Schools             | Ongoing                 |
|   | LGROW Spring Forum                          | 5/17/19                 |
|   | ReLeaf Tree Planting                        | 6/8/19                  |
|   | Nash Creek Cleanup                          | Multiple from 2018-2019 |
| Spring Lake, Village of                                       | LGROW Spring Forum                          | 5/17/19                 |
| Walker, City of   | MWEA Watershed & Stormwater Seminar         | 12/4/19                 |
|   | LGROW Spring Forum                          | 5/17/19                 |
|   | Storm Drain Stenciling Event                | 6/1/19                  |
|   | Indian Mill Creek Cleanup                   | 6/2/2018                |
|   | Walker Carnival                             | 6/10/19                 |
|   | Green Infrastructure Seminar                | 8/23/18                 |
|   | Green Infrastructure Tour                   | 10/31/18                |
| Wyoming, City of  | Buck Creek Cleanup                          | 8/18/18                 |
|   | Partnership with Godwin and Wyoming Schools | Ongoing                 |
|   | Facility Tours                              | Ongoing                 |
|   | LGROW Spring Forum                          | 5/17/19                 |
|   | LGROW Watershed Jamboree                    | 9/13/18                 |
|   | Grand River Water Festival                  | 6/22/19                 |

- The Quiet Water Symposium promotes non-motorized outdoor recreation and a shared concern for our Great Lakes environment. The 24th Annual Symposium was held on March 2nd, 2019. LGROW hosted a booth with several watershed displays and distributed information and giveaways focused on watershed awareness and the development of a Water Trail throughout



the Grand River. Although this event takes place outside the LGRW, many of the attendees travel through the Lower Grand during their excursions. The Symposium also presents a valuable opportunity to partner with our upstream watershed, the Middle Grand River Organization of Watersheds (MGROW), who is actively involved in public outreach through their own MS4 program.

- LGROW hosted a table at the Blandford Nature Center Earth Day event on April 20, 2019. This was a public event designed to connect residents of the Grand Rapids metro area with their local community conservation resources, information on new and upcoming projects, and highlight volunteer opportunities to get involved. LGROW hosted a table with information on the watershed, the Friends of Indian Mill Creek watershed group, and stormwater educational materials focusing on proper disposal of household hazardous wastes, alternatives to HHW, and reporting of illicit discharges.



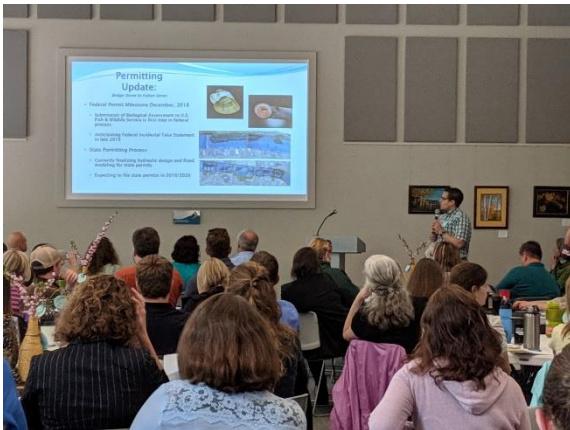
- LGROW hosted its 16th Annual Grand River Spring Forum in the Blandford Nature Visitor Center, Friday May 17<sup>th</sup>, 2019. The event had a record-setting 150 attendees and attracted many great sponsors. During the morning portion of the Forum, attendees were welcomed by GVMC Director, John Weiss, Blandford Nature Center Land Stewardship Manager, Julie Batty, and the Chair of the LGROW Board, Carrie Rivette. LGROW Committee Chairs gave brief updates on their committee accomplishments, goals, and work being done. Don Carpenter, PhD, PE, LEED AP, the keynote speaker, presented his findings with the presentation, 'Determining Strategies for Removing Barriers to Green Infrastructure Implementation.'



While the adults were enjoying LGROW updates and the Keynote presentation, student groups from five local schools presented their own projects to each other in the Star Schoolhouse. During the break, the students brought their posters to the Visitor Center for the Forum attendees to view and ask questions about their projects.



Finally, the 'Shed Talks featured multiple presentations celebrating LGROW projects and partnerships. The 'Grand River Rainscaping Program & Workforce Development,' presented by Revery Landscape Architect, Rebecca Marquardt and Al Pennington from Moore & Bruggink, gave an overview of the National Green Infrastructure Certification Course which piloted this past winter at Grand Rapids Community College. Matt Chapman, Grand Rapids Whitewater, and Reverend Nurya Love Parish of



Plainsong Farms, presented on the Lower Grand River Habitat Restoration & Farmland Conservation Project. Nichol DeMol of Trout Unlimited and Paco Ollervides from River Network gave a presentation on 'Community Engagement in Restoration' which highlighted partnerships in the watershed and diversity, equity, and inclusion efforts and future goals. The final 'Shed Talk was the unveiling of the Grand River Adopt-a-Drain program by GVMC's Stormwater Coordinator, Cara Decker, and James

Wilfong of Citizen Labs, who have been working on the program. This program is an extension of the existing City of Grand Rapids Basin Buddy Program, where citizens 'adopt' a storm drain and promise to keep it clear of trash and debris.

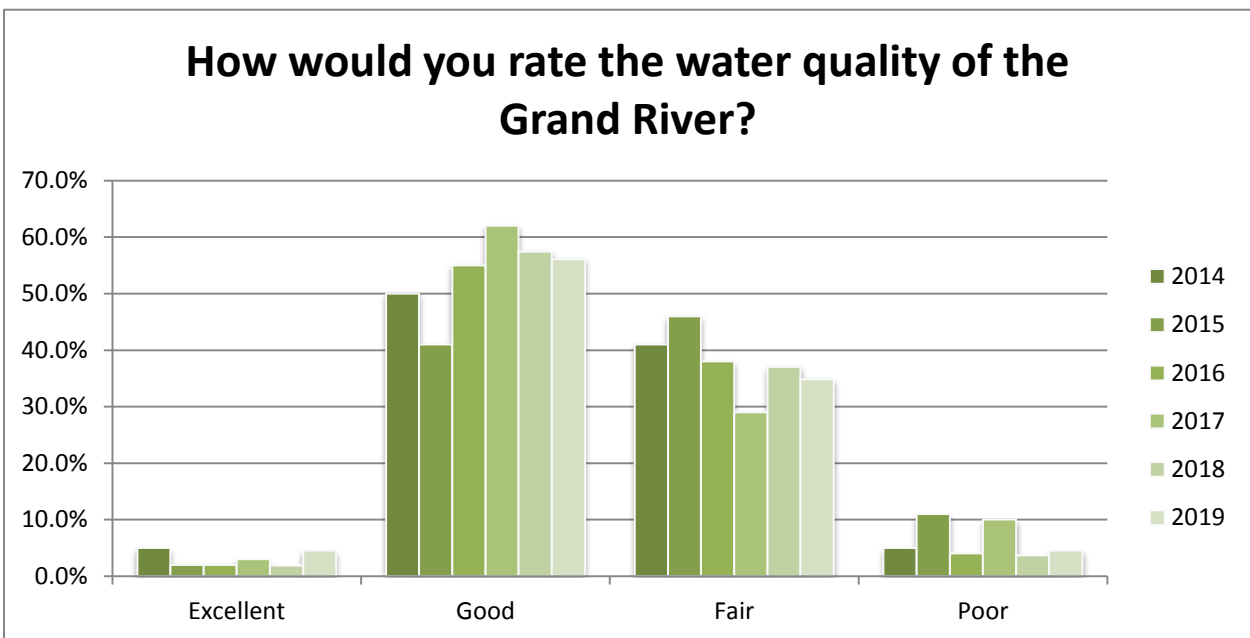
After lunch was served, attendees were invited to attend one of two walking tours. The Highlands tour, led by the Land Conservancy, explored the site of the Highlands Restoration Project. The former Highlands Golf Course has begun to return to its natural state and will soon have a daylighted stream running through it, which is currently piped underground. The second walking tour featured a bioswale demonstration site, funded by the National Fish and Wildlife Foundation 5 Star and Urban Waters Grant, located adjacent to Blandford Nature Center's trail along Milo Street. The bioswale



slows, filters, and captures stormwater runoff from the street before it enters the Brandywine Creek, a tributary to Indian Mill Creek.

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 very similar numbers of respondents identifying the Grand River as "Poor", "Fair", or "Good" but a slight increase in number of respondents identifying the Grand River as "Excellent" from 2018 to 2019.

**Figure 5. 2019 Survey Results: How would you rate the water quality in the Grand River?**



- LGROW sponsored the Grand River Water Festival on June 22, 2019, at Riverside Park, which was attended by approximately 3,000 people. The festival is a free-of-charge, day-long, music driven, environmental festival featuring traditional folk, country, bluegrass, Cajun, blues, and world beat music performed by Michigan musicians. Visitors to the LGROW booth identified their location in the watershed by referencing handed out 1-page watershed summaries to each visitor who identified their Subwatershed. The LGROW booth's educational



materials focused on how homeowners can reduce stormwater runoff from their properties by installing green infrastructure practices through the LGROW Rainscaping program.

- LGROW hosted a concourse table at a WhiteCaps game on Sunday, July 28, 2019. The public was welcome to bring their dogs to the ballpark during that game. GVMC staff and volunteers from the City of Grand Haven (a MS4 permitted community) helped run a booth. Volunteers handed out LGROW pet waste bag dispensers to coincide with that night's theme. Volunteers discussed the importance of watershed protection with attendees of the game. Human attendance at the ballpark was 6,443 people that night.



- LGROW worked with students from schools throughout the watershed to educate about stormwater runoff and the connections between land use and water quality. Throughout the permit cycle, LGROW worked with 2,399 students living in MS4 communities. These activities can be seen in the table below. LGROW also led a professional development session for 25 educators from within the watershed, 21 of whom work in communities covered by an MS4 permit. Teachers were trained in



Students learn to play "Pollution or Solution" chutes and ladders game focusing on stormwater runoff and BMPs at River City Water Festival

the use of Project WET materials, which teach students about a variety of water issues including watersheds, water quality, stormwater, and best management practices. LGROW also participates as a member of the Groundswell advisory council, which supports schools in the Lower Grand River Watershed as they implement place-based education and stewardship projects in the watershed. Groundswell reaches approximately 500 students annually through its programs focused on the Lower Grand River Watershed, including supporting

projects at 4 schools in the nested jurisdiction of Kentwood Public Schools, at 5 schools in the permitted district of Forest Hills Public Schools, and at 1 school in the nested jurisdiction of Grandville Public Schools in 2018-2019.

**2018-2019 Student Outreach & Education Metrics (8/1/2018-7/31/2019)**

| Date       | Event   | Location/School   | Subwatershed                                       | Youth Reached | MS4 Community |
|------------|---|---|--|---------------|---------------|
| 9/14/2018  | Bioswale Maintenance Day  | North Park Montessori   | Lamberton Creek                                    | 50            | Grand Rapids  |
| 10/15/2018 | Water Quality Monitoring (10/15, 10/29, & 10/30/19)   | Grand Rapids Public Museum School   | Lamberton Creek, Mill Creek, and Indian Mill Creek | 50            | Grand Rapids  |
| 10/17/2018 | River Walk Tour: Rapids Restoration & Grand River Water Quality   | Kent Innovation High  | Lower Grand  | 75            | Various       |
| 10/17/2018 | Rainscaping Site Assessment Activity & Native Plantings along Buck Creek Riparian Area  | Grandville Middle School  | Buck Creek   | 75            | Grandville    |
| 10/18/2018 | River City Water Festival: "Chutes and Ladders" Stormwater Pollution & Green Infrastructure Game  | 23 classes from schools throughout the watershed                              | Lower Grand  | 661           | Various       |
| 10/19/2018 | Sustainable Agriculture & Watershed Health Field Days at Plainsong Farm (10/19/18 & 5/30/19)  | Sparta Middle School  | Rogue River  | 110           | Sparta        |
| 10/19/2018 | Bioswale Planting at Blandford Nature Center/Milo St.   | Blandford School (GRPS) 6th, CA Frost Middle/High, CA Frost Elementary        | Indian Mill Creek                                  | 130           | Grand Rapids  |
| 10/26/2018 | Sustainable Agriculture & Watershed Health Field Days at Plainsong Farm (10/26/18, 12/4/18, 3/14/19, 5/28-29/19)  | East Rockford Middle School   | Rogue River  | 118           | Rockford      |
| 11/02/2018 | Water Quality Monitoring  | Kent Skills Career Center   | Lamberton Creek                                    | 25            | Various       |
| 11/29/2018 | Chutes and Ladders Stormwater Pollution & Green Infrastructure Game   | Northern Trails 5/6 (Forest Hills)  | Lower Grand  | 30            | FHPS          |
| 12/13/2018 | Watershed Presentation & "Chutes and Ladders" Stormwater Pollution & Green Infrastructure Game (12/13/18) & Watershed/Water Quality Monitoring Field Day @ Buck Creek (4/30/19) | Grandville Christian School   | Buck Creek   | 55            | Grandville    |
| 3/26/2019  | Watershed Presentation and Assistance developing Groundswell project on Rain Gardens and Native Plantings (3/26/19, 4/18/19)  | Central Woodlands 5/6 (Forest Hills)  | Buck Creek   | 30            | FHPS          |
| 04/08/2019 | Watershed Presentation; Training high school seniors to teach watershed concepts to 2nd graders (4/8/19) & Project Showcase Assistance with Seniors and 2nd Graders (5/16/19)   | East Lee Campus   | Plaster Creek                                      | 25            | Wyoming       |
| 5/6/2019   | Macroinvertebrate Sampling in Grand River @ Canoemobile (5/6-5/6/19 & 5/14/19)  | Grand Rapids Public Schools   | Lower Grand  | 400           | Grand Rapids  |
| 5/21/2019  | Watershed & Stormwater Field Trip @ Plaster Creek   | Vista Charter Academy   | Plaster Creek                                      | 90            | Grand Rapids  |
| 5/16/2019  | Stormwater & Green Infrastructure Presentation and Model Building   | Jenison Junior High   | Rush Creek   | 405           | JPS           |
| 05/22/2019 | Stream Habitat Assessment (for erosion) on Forest Hills Northern Campus   | Northern Trails 5/6 (Forest Hills)  | Lower Grand  | 30            | FHPS          |
| 06/28/2019 | River Walk Tour: Rapids Restoration & Grand River Water Quality   | TRIO Upward Bound (GVSU program to encourage GRPS students to attend college) | Lower Grand  | 20            | Grand Rapids  |
| 06/10/2019 | Indian Mill Creek and Coldbrook Creek Cleanup   | Kenowa Hills High   | Indian Mill Creek                                  | 50            | KHPS          |
|            |   | <b>TOTAL YOUTH REACHED</b>  |  | 2399          |               |

- LGROW's 30-second "Find my watershed" advertisement was played throughout the summer at Downtown Grand Rapids Inc.'s "Movies on Monroe" series. The advertisement was played at 4 events, with each night averaging over 4,000 people.





- On September 13, 2018, watershed groups across the LGRW came together to collaborate, share accomplishments and struggles, and to meet the public at the first annual Watershed Jamboree. There were representatives from the Rogue River, Plaster Creek, Indian Mill Creek, Flat River, Buck Creek, Coldwater River, Sand Creek, Thornapple River, and Rush Creek watersheds, who brought displays, brochures, and other materials to help spread information and involve the public in their work. After the meeting, the public was invited to join the fun for free hot dogs, games, macroinvertebrate identification, soil painting, fly fishing for land trout, and live music from the B-Side Growlers. There are 31 subwatersheds within the LGRW, only 11 of which have established watershed groups or representatives. LGROW is encouraging the success of established groups and fostering the establishment of new subwatershed groups. A Subwatershed group supporting the Coldbrook Creek watershed was formed as a result of this event. A Subwatershed Committee, representing the leadership of Subwatershed groups throughout the LGRW was also formed to give subwatersheds a voice on the LGROW Board.



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



Summer Seasonal  
Tips Flier



Public Education Topic 2 - Ultimate Stormwater Discharge Location and Potential Impacts

*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.



Storm drain markers

*Delivery Method:*

- Permittees installed the plastic storm drain markers designed by the Public Engagement Committee. The drain markers carry the messages "Keep your Lakes Great and your Rivers Grand." Some Permittees also engaged with community partners to do storm drain stenciling events which are detailed in the PEP Questionnaire. This image was also used on several giveaways including vinyl stickers and magnets. In total, 28 drain markers were installed and 63 new catch basins pre-stamped with the message "No Dumping: Drains to Waterway" were installed in the watershed. Over 2,000 pre-stamped catch basins were already in place prior to this reporting period.
- 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 Pledges, and the "Grand River Yours To Protect" informational poster board at a variety of events and locations throughout the Watershed. The PEP Questionnaire included in this report details when and where these materials were used by individual Permittees.
- Troutie Stress Balls were provided for communities to distribute. The fish shaped stress balls had the message: 'Only rain in the drain, it leads directly to my home!' This give-away allowed people to easily make the connection between storm drains and water quality as it relates to aquatic habitat.

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.

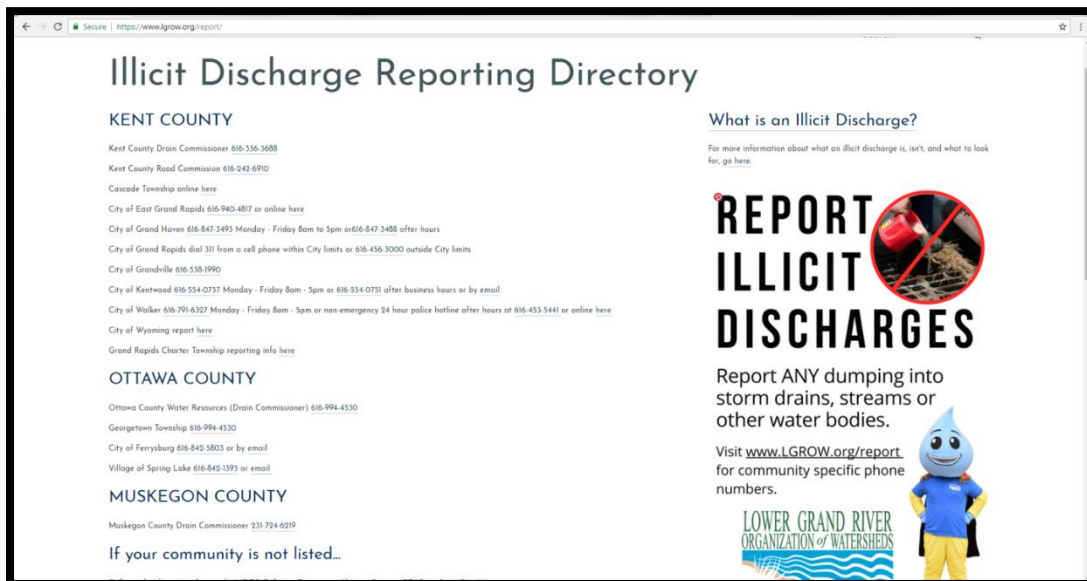
*Content of Message:* 1) How to identify illicit discharges. 2) How to report illicit discharges. 3) Water quality impacts from illicit discharges. 4) Consequences/penalties associated with illicit discharges and improper waste disposal. 5) Proper septic system care and maintenance. 6) How to recognize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



Coasters

*Delivery Method:*

- LGROW's Reporting Directory website for MS4 communities across the Lower Grand River Watershed was updated to include current information for DPW employees or citizens seeking information about how to report illicit discharges. This website can be found at: <https://www.lgrow.org/report/>. Communities were encouraged to share this information on their municipal webpages, and on social media. Permittees made information about how to report illicit discharges available to residents and staff through a variety of channels, including by linking to this website.



- Illicit discharge magnets and coasters were distributed to promote use of the website and to raise awareness for DPW employees and citizens, encouraging them to report illicit discharges.
- Newsletter articles titled, 'Septic System Maintenance Protects Human Health and Water Quality' and 'Greening Your Spring Cleaning' were published for all MS4s to distribute to their employees or citizens. These articles highlighted steps the public can take to reduce illicit discharges from failing septic systems or improperly managed household hazardous waste.
- Some communities promote the Citizens Reporting form developed previously by LGROW, while others use an online reporting form. The method each community used to distribute this information is detailed in PEP Questionnaires.
- Permittees distributed copies of USEPA's "Do your Part - Be Septic Smart!" brochure to their residents. This brochure describes what a septic system is, how it works, and how to maintain it. LGROW participated in SepticSmart week September 17-21, 2018, by publishing a blog post and daily social media posts about proper septic maintenance. MS4 communities participated by using EPA's SepticSmart Week Social Media Guide or by sharing LGROW information via their social media channels.

#### Public Education Topic 4 - Personal Actions that can Impact the Watershed



*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



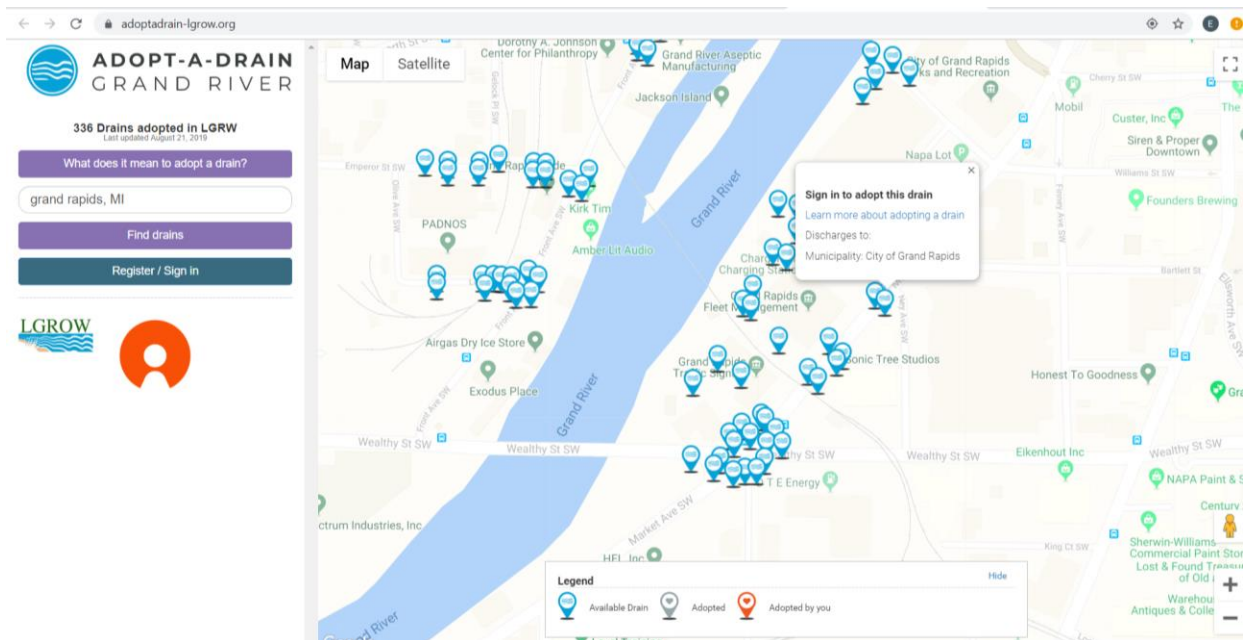
*Content of Message:* 1) BMPs for car, pavement, power washing. 2) Preferred cleaning materials and practices, "phosphate free as important as biodegradable". 3) BMPs for pesticide use, fertilizer use and their disposal. 4) BMPs for proper management of grass clippings, leaf litter, and animal wastes. 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*" at events and in municipality offices. This brochure is available in English and Spanish.
- Several communities hosted rain barrel events or rain garden work days as detailed in their PEP Questionnaires.
- LGROW and Permittees distributed pet waste bag dispensers to hook to the pet's leash. The dispensers came with a waterproof card providing information on dog parks in the Watershed and discussing the connection between picking up pet waste and protecting stormwater.
- Permittees also distributed a shammy to use for home car washes along with a brochure including 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.* The brochure also provides other environmental friendly car care tips.
- Some permittees distributed a flyer describing proper procedure for draining residential swimming pools in the fall. This was distributed publicly online via [www.lgrow.org](http://www.lgrow.org) and made available for customization by MS4 communities. The flyer can be downloaded at <https://www.lgrow.org/ms4information>.
- LGROW partnered with the nonprofit volunteer group Citizen Labs to expand the City of Grand Rapids' "Basin Buddy" program to MS4 communities throughout the LGRW. Adopt a Drain Grand River (<https://www.lgrow.org/adopt-a-drain>) provides education to citizens on the locations, ownership, and discharge location of storm drains in the watershed. It also allows citizens to assist municipalities by volunteering to "adopt" a catch basin by keeping it clear of trash, organic debris, and snow throughout the year. Currently 13 MS4 communities are participating in the program and 336 catch basins have been adopted.



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Public Education Topic 5 - Waste Management Assistance

*PEP Objective 5:* Education on proper disposal of household hazardous 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 wastes, chemicals, motor vehicle fluids and unused medications.

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

*Delivery Method:*

- Permittees and LGROW.org shared the newsletter article 'Greening Your Spring Cleaning' This article encourages 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 allow more Kent County residents to take advantage of this service.
- Many communities hosted clean up days to encourage proper disposal of unwanted materials. Details of these events, as applicable, are provided in individual PEP Questionnaires and Part 7.

Public Education Topics 6 - Management of Riparian Lands

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

*Target Audience:* Riparian landowners, construction activities, landscapers

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

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

*Delivery Method:*

- LGROW continued to promote its Grand River Rainscaping: Treating Stormwater Naturally program. This program aims to promote installation of green infrastructure and native landscaping practices to reduce stormwater runoff from residential properties and improve water quality. Residential site assessments were performed on 24 properties, 22 of which were in MS4 communities. Residents who have a site assessment completed receive a customized report of what green

**Grand River Rainscaping**  
 An LGROW Program

**TREATING STORMWATER NATURALLY**

**WHAT IS RAINSCAPING?**  
 Rainscaping is a method of watershed restoration that promotes green infrastructure awareness and implementation among homeowners, landscapers, and contractors that highlights both the benefit of green infrastructure practices and the skills required for installation and maintenance.

**GREEN INFRASTRUCTURE**  
 Green infrastructure is the practice of infiltrating stormwater by use of natural systems in order to reestablish a healthy water flow and improve water quality. These systems allow for the infiltration of stormwater before it is released into conventional storm sewer systems, protecting our lakes, rivers, and streams from harmful pollutants. These practices lead to vital community features such as public parks, forests, rivers, wetlands, and lakes. Using these natural systems to treat stormwater will result in clearer water, improved air quality, healthy wildlife habitats, and safe recreation sites. Urban areas are beginning to face new state and federal regulations to clean up rivers and reduce stormwater runoff. With green infrastructures these communities can create comprehensive plans, determine new development areas, and redevelop other areas to improve their local communities.

**HOW RAINSCAPING CAN HELP YOU!**

- Make your yard a haven for bees and butterflies
- Make your community healthier and more livable
- Improve wet problem areas in your yard
- Meet regulatory and economic goals
- Reach cost-effective and sustainable green decisions
- Manage your natural resources more effectively
- Redesign urban landscapes for environmental health

**GETTING STARTED**

**RAIN GARDENS**—Rain gardens are filled with specifically selected native plants that absorb untreated stormwater with their deep root systems, preventing it from polluting our waterways.

**STREAMSIDE BUFFER/RIPARIAN AREAS**—Streamside buffers, or riparian areas, are made up of native plants that surround a river or waterway in order to control erosion, filter pollutants, protect fish, reduce flow, and provide suitable wildlife habitat.

**NATIVE PLANTS**—Native landscaping utilizes indigenous plant species that attract pollinators and other beneficial insects. They have deep root systems which help infiltrate stormwater and require less water, fertilizer, and overall care, once established.

**TREES**—Trees are increasingly recognized for their importance in managing runoff. Roots take up water and help create conditions in the soil that promote infiltration. Depending on the size and species, a single tree may store 100 gallons, or more, of stormwater.

**RAIN BARRELS**—Rain barrels capture and store rainwater for future use. They can be bought or made from recycled drums of various sizes and connected directly to a downspout.

Find your watershed at [www.LGROW.org/watershedmap](http://www.LGROW.org/watershedmap)

**CONTACT US! | P 616-776-7605 | E INFO@LGROW.ORG**

[LGROW.org/rainscaping](http://LGROW.org/rainscaping)

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infrastructure practices are best suited to their site as well as resources for implementing those practices. The Rainscaping program is aimed at both shoreline and non-shoreline properties.

## **Evaluation Measures**

This section includes a description of the quantitative and qualitative evaluation measures of PEP effectiveness implemented between August 1, 2018, and July 31, 2019. During this reporting period, LGROW also contracted with Petersen Research Consultants, LLC to create updated robust evaluation measures for the PEP. An updated evaluation plan will be completed and reported on during the next permit cycle as part of LGROW's ongoing PEP update process.

During this permit cycle, permittees completed PEP Questionnaires to provide a quantitative and qualitative evaluation of their individual stormwater education efforts. Based on the input provided by the Permittees, the most popular topics addressed were proper disposal of household hazardous waste and proper use of pesticides, herbicides, and fertilizers. In total, materials were distributed at around 50 events (see Table 4) and at various locations throughout the watershed.

The 2013 PEP identifies both outputs (number of items/brochures distributed and people reached) and outcomes (changes in awareness, attitudes, and behavior) as measures to evaluate during each 5-year permit cycle. Outputs for the current permit year have been identified in the PEP activity descriptions above. LGROW has been measuring outcomes through a 12-question community survey, which was last completed in 2017 and reported on in the 2016-2017 Progress Report. A new community survey is being developed as part of the contracted work with Petersen Research Consultants, LLC and will be implemented during the coming reporting cycles.

One outcome that is evaluated annually is the number of illicit discharge reports received by municipalities from the public. PEP Objective 3 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, 54 reported during the 2016-17 reporting period, 34 reported during the 2017-2018 reporting period, and 39 reported during the 2018-2019 reporting period. From 2015 to the current reporting period, there has been a 39% overall increase in reports. The number of illicit discharges reported in each community varied widely, with a little less than half of permittees receiving zero reports. Looking at the number on a watershed-wide scale shows an increase in reporting for illicit discharges during this reporting period compared to last. This could be due to LGROW's focused effort on preventing illicit discharges during this reporting period. Efforts to educate the public about illicit discharges will continue in order to raise awareness and



encourage citizen reporting. Of the 39 illicit discharges reported in the watershed, all were investigated, and 35 of them were eliminated. Once investigated, a few of the reported discharges ended up being exempt (ie. uncontaminated groundwater), or non-existent. More community specific information can be found in Part 4 of this report.

Objective 3 also focuses on reducing illicit discharges from failing septic systems in MS4 communities. The Kent County Health Department has been an active member of the Public Engagement Committee in the past reporting cycle and provided the following information on septic system repairs in Kent County MS4 communities: During the 2018-19 reporting period, the KCHD issued 83 repair permits in MS4 communities in Kent County. These repairs are estimated to have prevented the discharge of 37,350 gallons daily of untreated or partially treated sewage with the potential to negatively affect groundwater and/or surface water. This totals 13,632,750 gallons of illicit discharges that were avoided annually. This data is based on an average 3-bedroom house in Kent County with 150 gallons/day per bedroom with double occupancy per the Sewage Regulations of Kent County, MI.

Another outcome measured annually is the number of watershed residents dropping off HHW during collection events as an evaluation of PEP Objective 5: Waste Management Assistance. The PEP sets a 15% increase in the number of watershed residents dropping off 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 from the 2016-2017 reporting period on, 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. In 2017, Kent County started reporting their HHW dropoff to LGROW in annual numbers rather than by reporting period. In the 2017 calendar year, they accepted 260,856 pounds of hazardous waste, a 71% increase in pounds from 2016. In 2018, they accepted 274,000 pounds of hazardous waste, a 5% increase in pounds from 2017. This represents a 139% increase since the drop off program started in the 2014-15 reporting period, which exceeds 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.

## 2019 Stormwater Public Education Plan (PEP) Questionnaire

### Reporting period of August 1, 2018 to July 31, 2019

Please complete this questionnaire to provide an evaluation of the stormwater education activities you have implemented between **August 1, 2018 and July 31, 2019**. GVMC will include this information, along with watershed-wide measures of effectiveness, in your 2018 Progress Report to EGLE. **Please return this form to GVMC by Friday, August 30, 2019.**

**Community Name: Forest Hills Public Schools**

### Brochures, Flyers, and Giveaways:

- Which of the following general stormwater awareness/LGROW materials (brochure, flyers, giveaways) did you order/distribute from GVMC this year:
  - LGROW Brochures
  - "Make your home the Solution to Stormwater Pollution" brochure
  - "Do your part – be SepticSmart! brochure
  - Household hazardous waste disposal guidelines from Kent County or Ottawa County DPW
  - LGROW Seasonal Tip Sheets (Fall, Winter, Spring, Summer)
  - LGROW Chapstick
  - LGROW Totebags
  - "Keep your lakes Great and your River Grand" sticker
  - Troutie coloring book
  - Paint by number watershed map
  - Trout stress ball with "Only rain in the drain – it leads directly to my home"
  - Report illicit discharge magnets
  - Report illicit discharge coasters
  - Native plant seeds
  - LGROW gardening gloves
  - Safe waste disposal funnel
  - Medication containers
  - Floating key chain
  - Magnetic note pads
  - Other: **pet waste bag dispensers**
- Have you given away all the materials (brochures, flyers, giveaways) you ordered from GVMC this year?  
 Yes  No
- Where did you distribute your materials?  
 Government office  Library  Community event  Other school grounds and maintenance crews
- Approximately how many people did you interact with during distribution of materials?
- What was the most popular giveaway from the materials distributed in your community?
- What topics are of greatest interest to members of your community?
  - How to report stormwater pollution
  - Stormwater discharge locations/impacts
  - Native vegetation/rain gardens/riparian buffers
  - Proper vehicle care/motor oil disposal
  - Proper use of pesticides/fertilizers/herbicides
  - Proper yard waste disposal
  - Proper septic system maintenance
  - Household hazardous waste management

**Illicit Discharge Reporting**

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

- Hard copies of "Citizens Reporting Brochures" from the IDEP – Number distributed:
- Link to LGROW's reporting page posted to your website <https://www.lgrow.org/report/>
- Report Illicit Discharge magnets – Number distributed:
- Report Illicit Discharge key chains – Number distributed:
- Report Illicit Discharge coasters – Number distributed:

Please describe any interest, comments, or discussion generated from these materials:

How many complaints were received from the general public regarding illicit discharges?

**Newsletters, Banners, and Displays**

8. Did you display lamppost banners during this permit cycle?

- Displayed lamppost banners provided in 2009-2018 at (streets):
- Did not display lamppost banners

9. Did you distribute stormwater focused newsletter articles to your residents?  Yes  No

- a. Please describe any interest, comments, or discussion generated from the articles
- b. If applicable, list the newsletter name or webpage address used to distribute stormwater information to the public:
- c. If applicable, how many residents received your community newsletter?
- d. If applicable, how many total website hits did you receive for your online newsletter articles or stormwater information website?

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

- |  |                                     |  |
|--|-------------------------------------|--|
| Stormwater poster board display (Trifold)  | <input type="checkbox"/> Yes, Date: | <input checked="" type="checkbox"/> No |
| <input checked="" type="checkbox"/> No     |                                     |  |
| EnviroScope interactive stormwater model   | <input type="checkbox"/> Yes, Date: | <input checked="" type="checkbox"/> No |
| Watershed map with pushpins                | <input type="checkbox"/> Yes, Date: | <input checked="" type="checkbox"/> No |
| Stormwater mural banner and scavenger hunt | <input type="checkbox"/> Yes, Date: | <input checked="" type="checkbox"/> No |
| Major Runoff stormwater mascot             | <input type="checkbox"/> Yes, Date: | <input checked="" type="checkbox"/> No |
| Interactive corn hole board                | <input type="checkbox"/> Yes, Date: | <input checked="" type="checkbox"/> No |
| Interactive catch basin demos              | <input type="checkbox"/> Yes, Date: | <input checked="" type="checkbox"/> No |
| Watershed hand stamp                       | <input type="checkbox"/> Yes, Date: | <input checked="" type="checkbox"/> No |

**Events and Pledges**

11. Did you distribute any additional educational materials on native plants?

- Yes (Describe):
- No

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

13. Did your community collect pet waste pledges distributed with the public education materials?

- Yes, Number:
- No

14. Did your community collect car wash pledges distributed with the public education materials?

- Yes, Number:
- No

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

15. Did you implement a storm drain awareness activity between August 1, 2018 and July 31, 2019?

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

Please describe any interest, comments, or discussion generated from the activities above:

Have you noticed a reduction in storm drain dumping? Yes No Describe:

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

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

- Rain barrel workshop Date: \_\_\_\_\_ Number of Attendees: \_\_\_\_\_
- Rain garden/Green Infrastructure Workday Date: \_\_\_\_\_ Number of attendees: \_\_\_\_\_
- River clean up (location): \_\_\_\_\_ Date: \_\_\_\_\_ Number of Attendees: \_\_\_\_\_
- Watershed Jamboree – September 13, 2018
- Ottawa County Water Quality Forum – November 19, 2018
- MWEA Watershed & Stormwater Seminar – December 4, 2018
- MWEA Watershed Summit – March 27, 2019
- Earth Day at Blandford Nature Center – April 20, 2019
- 16<sup>th</sup> Annual Grand River Spring Forum – May 17, 2019
- Grand River Water Festival – June 22, 2019
- MWEA Annual Conference – June 23-26, 2019
- West Michigan WhiteCaps Concourse Table – July 28, 2019
- Other: \_\_\_\_\_ Date: \_\_\_\_\_ Number of Attendees: \_\_\_\_\_

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

19. Please describe any educational materials, activities, or events that you would like to see LGROW provide in the future.

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

Please see LGROW's work with classrooms, students, and teachers in FHPS in the attachments to this report.

## **PART 4 – Illicit Discharge Elimination Plan**

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

During this reporting period, dry-weather screening was completed by GVMC with the assistance from the following communities: Cascade Township, the City of East Grand Rapids, City of Ferrysburg, Forest Hills Public Schools, Village of Fruitport, Georgetown Township, City of Grand Haven, City of Grandville, City of Hudsonville, Plainfield Township, City of Rockford, Village of Sparta, and the Village of Spring Lake. Other communities in the watershed that completed screening during this reporting period include: the Kent County Road Commission, and the City's of Grand Rapids, Kentwood, Walker and Wyoming. Field verification of discharge points and outfalls were completed during the screening, and then incorporated into the MS4's GIS data.

**Community IDEP Activities**

|  |
|--|
| <p>Please describe any dry-weather screening conducted during the reporting period and the findings of that screening.</p>   |
| <p>Dry weather screening was performed in October 2018. Please see the attached report. All outfalls were found to be in satisfactory condition.</p>   |
| <p>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. Please describe enforcement action, if any.</p> <p>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.</p> |
| <p>Floor cleaner waste was occasionally observed being dumped into school loading docks (quantity unknown). After investigation, it was determined that the loading dock drains were storm drains. All floor cleaner waste is now disposed of in custodial slop sinks that are connected to the sanitary sewer. Employees were also trained on how to properly dispose of this type of wastewater.</p>   |
| <p>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.</p>   |
| <p>N/A</p>   |

Please describe the actions your community takes when indications of illicit discharges have been identified.

Staff will report illicit dischargers to their building custodian who will resolve the issue or forward information on to Operations and Maintenance staff to take care of.

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*).

All floor cleaner waste going into stormdrains was eliminated. Estimated quantity of wastewater is unknown.

|  |
|--|
| <p>Identify any specific coordination with the health department in response to illicit discharge elimination for failed or failing septic fields, or identify if any septic systems have been eliminated in your community and hooked up to the municipal system.</p>           |
| <p>N/A</p>   |
| <p>Describe the effectiveness of the program to prevent illicit discharges and the method used to assess effectiveness.</p>  |
| <p>School staff has not received any reports of illicit discharges during the reporting period, so the program is effective. Working with students in classrooms is also an effective way to make more people aware of the impacts of illicit discharges on school property.</p> |



## **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:

Lists were submitted to EGLE in Early 2019 as Appendix 2 in the Illicit Discharge Elimination Plan revision as part of the 2016 MS4 Permit Application.

Each community maintains an updated map of their MS4, with the help of GVMC Environmental Programs, or REGIS.

## 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                                       |
| NA   | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No |
|  | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No |
|  | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Comments:  |  |  |

## **PART 7 - Other Actions**

Please list any extra efforts your community has conducted above and beyond your commitments recorded above (e.g., stream buffer ordinance adoption, new management techniques, invasive species control, habitat enhancement/protection, logjam removal, stream/beach clean-ups, etc.) that have helped implement the **Lower Grand River Watershed Management Plan**:

FHPS works with Cascade and Ada Twp. to hold environmental cleanup days for residents of the Townships. Residents can come drop off trash, electronics, and other large household items. This program occurs in the fall and the spring, with drop off locations on school property.

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

Please see attached documentation for work with GVSU's Groundswell in classrooms.

## **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:

| <b>Original SWPPI<br/>Section/Subsection</b> | <b>Revision</b> |
|--|-----------------|
|  |                 |

## **Additional Documentation**

## 2018 IDEP Outfall Screening

### Forest Hills Public Schools Report

Communities in Kent and Ottawa Counties, Michigan, required to have federal Clean Water Act National Pollution Discharge Elimination System (NPDES) stormwater permits, joined together under the guidance of the Grand Valley Metro Council (GVMC) to apply for a watershed-based stormwater permit in 2003. The Lower Grand River Organization of Watersheds (LGROW) was officially formed as an agency of GVMC in 2009 to coordinate the implementation of the permits and provide basin-wide oversight, conduct watershed-wide initiatives, and prioritize water quality concerns.

Since then, 23 entities, made up of county, city, village, township, universities, and local school districts, have collaborated on reducing pollutants in stormwater runoff to improve local waterways in the Lower Grand River Watershed. The implementation of their shared plans for education, pollution prevention, and post-construction controls has empowered the communities and their residents to protect the watershed and improve quality of life.

Currently, communities are implementing a regional Illicit Discharge Elimination Plan (IDEP) to prohibit and effectively eliminate illicit discharges to municipal separate storm sewer systems (MS4s). Communities have adopted illicit discharge ordinances based on this plan that give them legal authority to eliminate illicit connections. Working cooperatively, they have accurately identified ownership and responsibility of all outfalls to waters of the state and MS4 to MS4 discharge points in the urbanized areas. The communities also signed inter-agency agreements to cooperate with upstream tracing of a source when an illicit discharge was found. This unique cooperative arrangement gained the attention of EPA, resulting in modifications to the upcoming reissuance of the permits that allow the continuation of interjurisdictional programs to protect the watershed.

#### Fieldwork

In the summer of 2018, LGROW interns were shared between 15 different communities in Kent, Ottawa, and Muskegon Counties to screen all MS4 outfalls in the watershed, resulting in the identification and testing of dry-weather flows and eliminating illicit discharges. Before screening began, training and mapping needed to occur. LGROW staff provided IDEP training to all MS4s in the Lower Grand River Watershed and the MS4s in the Macatawa Watershed on May 22 and 23, 2018. An LGROW intern created a map of each community's storm sewer system using ArcCollector to be used in the field on a tablet or smartphone.

Outfall screening is weather dependent. Interns needed to wait 48 hours after the last rain event in order to determine if flow was present during dry weather. If flow is present in the system during dry weather, it can be an indicator of illicit discharges or illicit connections. Inspections are completed to eliminate these discharges or connections and to give MS4 communities insight into how their systems are operating. Once in the field, ArcCollector was used to find each outfall. It was used similarly to a

hand-held GPS unit. Locations for outfalls in Forest Hills Public Schools varied from major roads to others located in tall shrubs.

LGROW interns were responsible for inspecting each outfall following certain guidelines set forth in the IDEP. If the outfall did not have water flowing from it (which is ideal), then only basic observations regarding the size or material of the pipe, and the outfall location would be recorded. If an outfall was found to have dry weather flow, then a field test would be required. Water was sampled for pH, ammonia, and temperature. Sample results determined follow-up procedures.

LGROW staff performed outfall inspections in Forest Hills Public Schools October 24<sup>th</sup> and 25<sup>th</sup>. Only catch basins had been previously mapped on Forest Hills property, so field verification of stormwater infrastructure occurred concurrently with outfall inspections.

Outfalls inspected can be seen in Figure 1. Two outfalls in Forest Hills were sampled due to flow being observed. These outfalls were located at the Administration building and at Forest Hills Central near the bus lot. No follow-ups resulted from these tests; PH, Ammonia and Temperature results were in the normal range, as specified per the IDEP.

Using ArcCollector, all data from 2018 fieldwork will be saved and can be referenced in the future by communities. Photographs of each outfall were attached to the data entries, which will make dry weather screening easier in the future. This screening occurs every 5 years. These pictures were also taken so that each MS4 program manager can see what their outfalls look like. If there are any issues with their outfalls (ex: broken or impaired pipes) it should be visible in these images.

Forest Hills has two broken outfalls. These outfalls were located at Central Middle and Meadow Brook Elementary. There were also five impaired outfalls found. These outfalls were located; in between Central Middle and Central High School, near Central's football field, at the Operation Center, at the Fine Arts Center, and near the football field parking lot at Northern High School. These locations can be seen in the PDF sent with this email.

Severe erosion was observed on Northern's campus. An unnamed tributary to the Grand River flows behind the Middle School, baseball diamonds and football stadium. Not all stormwater infrastructure observed during fieldwork was accounted for on the school's blueprints.

To the east of the field house/maintenance outbuilding located between the baseball diamond and the football field on Northern's campus, there is a structure near the stream that appears to have been constructed to help channel stormwater to the tributary. However, this structure does not appear to be functioning, or the stormwater flow is too great to fit in the pipe that was built. The earth is eroded behind the concrete structure. See photos below.



The tributary runs from the west side of Northern Hills Middle School around the back of the school. Severe erosion was observed at this location while monitoring outfalls. Many exposed tree roots were observed. See photo below.





This tributary is a concern because it has a Total Maximum Daily Load (TMDL) allocation for Total Suspended Solids (TSS) under the upcoming MS4 permit. The school district needs to make a significant effort to reduce the contribution of TSS to the tributary per the permit. This area would be an excellent opportunity for student research projects and implementation that have significant real world impact.

This information will be submitted to the Michigan Department of Environmental Quality (MDEQ). More information regarding the schools MS4 permit and permit specific documents can be found at:

[www.lgrow.org/ms4](http://www.lgrow.org/ms4)

Figure 1: Outfalls and Discharge Points

**FHPS Outfalls and Discharge Points  
2018**

| Outfall ID# | Location                | Point of Discharge                   | Priority    | Outfall or Discharge Point | Ultimate Outfall                     |
|-------------|-------------------------|--------------------------------------|-------------|----------------------------|--------------------------------------|
| CWS1        | Central Woodlands 5/6   | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| CWS2        | Central Woodlands 5/6   | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| CWS3        | Central Woodlands 5/6   | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHC1        | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| FHC2        | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| FHC3        | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| FHC4        | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| FHC5        | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| FHC6        | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| FHC7        | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| FHC8        | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| FHC9        | F.H. Central High       | Walden Lake Drain                    | Medium High | Outfall                    | Walden Lake Drain                    |
| FHC10       | F.H. Central High       | Walden Lake Drain                    | Medium High | Outfall                    | Walden Lake Drain                    |
| FHC11       | F.H. Central High       | Walden Lake Drain                    | Medium High | Outfall                    | Walden Lake Drain                    |
| FHC12       | F.H. Central High       | Walden Lake Drain                    | Medium High | Outfall                    | Walden Lake Drain                    |
| FHC13       | F.H. Central High       | Walden Lake Drain                    | Medium High | Outfall                    | Walden Lake Drain                    |
| FHC14       | F.H. Central High       | Walden Lake Drain                    | Medium High | Outfall                    | Walden Lake Drain                    |
| FHC15       | F.H. Central High       | Walden Lake Drain                    | Medium High | Outfall                    | Walden Lake Drain                    |
| FHC16       | F.H. Central High       | Walden Lake Drain                    | Medium High | Outfall                    | Walden Lake Drain                    |
| FHC17       | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| FHC18       | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| FHC19       | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| FHC20       | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| FHC21       | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| FHC22       | F.H. Central High       | Paradise Lake                        | Medium High | Outfall                    | Paradise Lake                        |
| AES1        | Ada Elementary          | Unnamed Tributary to Grand River     | Medium High | Outfall                    | Grand River                          |
| AES2        | Ada Elementary          | Unnamed Tributary to Grand River     | Medium High | Outfall                    | Grand River                          |
| AES3        | Ada Elementary          | Unnamed Tributary to Grand River     | Medium High | Outfall                    | Grand River                          |
| AES4        | Ada Elementary          | Unnamed Tributary to Grand River     | Medium High | Outfall                    | Grand River                          |
| AES5        | Ada Elementary          | Unnamed Tributary to Grand River     | Medium High | Outfall                    | Grand River                          |
| ADM1        | Administration Bldg     | Unnamed Stream                       | Medium High | Outfall                    | Unnamed Stream                       |
| MBE1        | Meadow Brook Elementary | Gilett Drain                         | Medium High | Outfall                    | Gilett Drain                         |
| MBE2        | Meadow Brook Elementary | Gilett Drain                         | Medium High | Outfall                    | Gilett Drain                         |
| AV1         | Ada Vista               | Unnamed Tributary to Thomapple River | Medium High | Outfall                    | Unnamed Tributary to Thomapple River |
| AV2         | Ada Vista               | Unnamed Tributary to Thomapple River | Medium High | Outfall                    | Unnamed Tributary to Thomapple River |

| Outfall ID# | Location                  | Point of Discharge                   | Priority    | Outfall or Discharge Point | Ultimate Outfall                     |
|-------------|---------------------------|--------------------------------------|-------------|----------------------------|--------------------------------------|
| AV3         | Ada Vista                 | Unnamed Tributary to Thomapple River | Medium High | Outfall                    | Unnamed Tributary to Thomapple River |
| FHFAC1      | Fine Arts/ Aquatic Center | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHFAC2      | Fine Arts/ Aquatic Center | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHFAC3      | Fine Arts/ Aquatic Center | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHFAC4      | Fine Arts/ Aquatic Center | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHFAC5      | Fine Arts/ Aquatic Center | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHFAC6      | Fine Arts/ Aquatic Center | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHFAC7      | Fine Arts/ Aquatic Center | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHFAC8      | Fine Arts/ Aquatic Center | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHFAC9      | Fine Arts/ Aquatic Center | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHFAC10     | Fine Arts/ Aquatic Center | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| CE1         | Collins Elementary        | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| CE2         | Collins Elementary        | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| KFE1        | Knapp Forest Elementary   | Unnamed Tributary to Grand River     | Medium High | Outfall                    | Unnamed Tributary to Grand River     |
| KFE2        | Knapp Forest Elementary   | Unnamed Tributary to Grand River     | Medium High | Outfall                    | Unnamed Tributary to Grand River     |
| KFE3        | Knapp Forest Elementary   | Unnamed Tributary to Grand River     | Medium High | Outfall                    | Unnamed Tributary to Grand River     |
| KFE4        | Knapp Forest Elementary   | Unnamed Tributary to Grand River     | Medium High | Outfall                    | Unnamed Tributary to Grand River     |
| KFE5        | Knapp Forest Elementary   | Unnamed Tributary to Grand River     | Medium High | Outfall                    | Unnamed Tributary to Grand River     |
| FHE1        | Eastern High/Middle       | Unnamed Tributary to Egypt Creek     | Medium High | Outfall                    | Unnamed Tributary to Egypt Creek     |
| FHE2        | Eastern High/Middle       | Unnamed Tributary to Egypt Creek     | Medium High | Outfall                    | Unnamed Tributary to Egypt Creek     |
| FHE3        | Eastern High/Middle       | Unnamed Tributary to Egypt Creek     | Medium High | Outfall                    | Unnamed Tributary to Egypt Creek     |
| FHE4        | Eastern High/Middle       | Unnamed Tributary to Egypt Creek     | Medium High | Outfall                    | Unnamed Tributary to Egypt Creek     |
| FHE5        | Eastern High/Middle       | Unnamed Tributary to Egypt Creek     | Medium High | Outfall                    | Unnamed Tributary to Egypt Creek     |
| FHE6        | Eastern High/Middle       | Unnamed Tributary to Egypt Creek     | Medium High | Outfall                    | Unnamed Tributary to Egypt Creek     |
| FHN1        | F.H. Northern High        | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHN2        | F.H. Northern High        | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHN3        | F.H. Northern High        | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHN4        | F.H. Northern High        | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHN5        | F.H. Northern High        | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHN6        | F.H. Northern High        | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHN7        | F.H. Northern High        | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHN8        | F.H. Northern High        | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHN9        | F.H. Northern High        | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHN10       | F.H. Northern High        | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |
| FHN11       | F.H. Northern High        | Saddlebag Drain                      | Medium High | Outfall                    | Saddlebag Drain                      |



Stormwater Training

Date: 8-14-19

Time: 9 AM

Location: FH FINE ARTS CENTER

NAME:

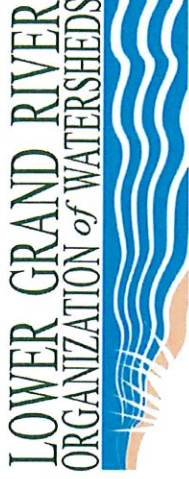
DEPARTMENT:

SIGNATURE:

|                 |                |                      |               |
|-----------------|----------------|----------------------|---------------|
| David Westfall  | Ground         |                      | Don Van       |
| Rich Langriz    | FHM            |                      | [Signature]   |
| Curt Cantrell   | Maint          |                      | Curt Cantrell |
| Brian Blake     | Maint          |                      | Brian Blake   |
| Lili Bush       | HEAD CUSTODIAN | ADMIN/CAL/FAC F/S/OD | Debi R. Bush  |
| Michael Johnson | Head Custodian |                      | [Signature]   |
| Xan Seiler      | Grounds        |                      | X             |
| Ron Baerwinkel  | Operations     |                      | [Signature]   |
| Bill McKin      | Operations     |                      | [Signature]   |







Stormwater Training

Date: Tue. 9/17/2019

Time: 1:00 pm

Location: FHPS

NAME:

JOB TITLE:

SIGNATURE:

|                 |           |  |
|-----------------|-----------|--|
| Jon SARRB       | CE ROADS  |  |
| Andy Kalinowski | Grounds   |  |
| John A. Swait   | Maint.    |  |
| John Westphal   | Maint     |  |
| Mark Leiby      | Head Cust |  |
| Tim Perseant    | cust      |  |
| Brian Jungtish  | cust      |  |
| Brian Jungtish  | Mechanic  |  |
| Jeff Tolac      | cust      |  |



**From:** [Boezwinkle, Ron](mailto:Boezwinkle, Ron)  
**To:** [Cara Decker](mailto:Cara Decker)  
**Subject:** Fwd: Boy Scout outdoor clean-up opportunity  
**Date:** Monday, September 09, 2019 10:02:07 AM

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----- Forwarded message -----

**From:** VanSweden, Chad <[chad.vansweden@cascadeng.com](mailto:chad.vansweden@cascadeng.com)>  
**Date:** Fri, Sep 6, 2019 at 2:58 PM  
**Subject:** RE: Boy Scout outdoor clean-up opportunity  
**To:** Boezwinkle, Ron <[rboezwinkle@fhps.net](mailto:rboezwinkle@fhps.net)>  
**Cc:** Daniel Robertson <[drobotson@fhps.net](mailto:drobotson@fhps.net)>

Ron, Thanks for the reply and feedback! I will discuss with our committee and get back with Daniel on some possible dates. I think it would be good to start with general track pickup and I can work out the details with Dan. Like you said, any additional activities would require separate discussions but would be good things to eventually expand into. We do not own any heavy equipment, so no worries about that. It will simply be trash bags and gloves for the clean-up.

Thanks again and we look forward to serving in our community!

Chad Van Sweden

**From:** Boezwinkle, Ron [mailto:[rboezwinkle@fhps.net](mailto:rboezwinkle@fhps.net)]  
**Sent:** Friday, September 06, 2019 8:49 AM  
**To:** VanSweden, Chad <[chad.vansweden@cascadeng.com](mailto:chad.vansweden@cascadeng.com)>  
**Cc:** Daniel Robertson <[drobotson@fhps.net](mailto:drobotson@fhps.net)>  
**Subject:** Re: Boy Scout outdoor clean-up opportunity

Chad,

Thanks for the offer. We would be happy to serve as hosts for your cleanup efforts.

I've copied Danny Robertson (FHPS Head of Grounds) on this email. I'm going ask you to coordinate any efforts with him (dates, areas being cleaned, activities, etc.). After you initially establish the goals, I wouldn't see the communication needed as more than periodic emails or phone calls to confirm dates and locations.



A couple things that might be helpful to know:

- It would be most helpful for the district to schedule a cleanup time just prior to the start of school (early/mid August) and also in the spring once the snow has melted.
- The Operations Department [Seasonal Information](#) page provides a good overview of our sites and areas that are maintained.
  - The FAQs provide answers to many of the questions we receive.
    - In particular, make sure to review that FAQ related to [pesticide applications](#).
  - I'm going to assume that you won't be using any large equipment, but don't have an issue if the scouts are using leaf blowers, etc. as long as they are monitored and operating them safely.
- We need to focus on cleanup for this agreement. If there are any requests to add planting areas, build benches, add rain gardens, we'll need to have a separate discussion. Often projects of that type are advantageous to both the scouts and our district, but we'll want to have a better understanding of the outcome as well as the steps involved in reaching it.

As a former scout leader I want to thank you again for your offer. Service and stewardship are both important aspects of scouting and I look forward to seeing the results of your troop's efforts!

Ron

On Tue, Aug 20, 2019 at 2:37 PM VanSweden, Chad <[chad.vansweden@cascadeng.com](mailto:chad.vansweden@cascadeng.com)> wrote:

Good afternoon Ron,

My name is Chad Van Sweden, and I am heading up the Boy Scout Troop 290 highway cleanup activities. Due to safety reasons, we have decided not to have the scouts clean-up along I-96 anymore. We are looking for new outdoor environmental clean-up activities for our troop to serve in multiple times a year. We currently meet at St. Roberts in Ada, so we are close to FH Central High school and Middle School. We were wondering if you would have any service opportunities for us to serve in (pick up trash around the schools, perform any basic grounds keeping activities, etc.). We were thinking of three to six 2-hour activities throughout the year.

We do pull kids from all over Forest Hills district, so it does not need to be limited to Central schools. We are willing to serve were best needed.

Sorry if you are not the correct person for this request. If not you, please let me know who the correct person would be.

Thank you,

**Chad Van Sweden**

Troop 290

Highway Clean-up Chair

C: 616-915-8347

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**Ron Boezwinkle**

Director of Operations, Forest Hills Public Schools

[rboezwinkle@fhps.net](mailto:rboezwinkle@fhps.net)

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**Ron Boezwinkle**

Director of Operations, Forest Hills Public Schools

[rboezwinkle@fhps.net](mailto:rboezwinkle@fhps.net)





LGROW working with students in Spring 2019 at Forest Hills Northern Campus in the Unnamed Tributary.





## FHPS Groundswell Projects 2017-2018

| School                  | Teacher           | Contact  | PEP Objective(s)   | Project Description  |
|-------------------------|-------------------|--|--|--|
| Central Middle School   | Lea Sevigny       | <a href="mailto:lsevigny@fhps.net">lsevigny@fhps.net</a>           | <ol style="list-style-type: none"> <li>1. Watershed Awareness</li> <li>4. Personal Actions</li> </ol>  | <p>Students in ceramics, woodshop, Natural Expressions, and the Honors Science 8 classes will create an artistic destination for the school and natural communities. The southwest entrance of CMS has a total area of 250 square feet, 130 square feet of which will be used for a created natural area ("Bird Bungalow"). The area will serve as a place for birds, butterflies, and bees to find areas to feed, nest, lay their young; and it will give students an opportunity to collect data on overwintering birds through the windows. Natural Expressions students will use an interpretive signage board as an opportunity to educate the community about the watershed and how to make positive impacts.</p>  |
| Eastern Middle School   | Kathy Mitchell    | <a href="mailto:kmitchell@fhps.net">kmitchell@fhps.net</a>         | <ol style="list-style-type: none"> <li>1. Watershed Awareness</li> <li>4. Personal Actions</li> <li>6. Riparian Lands</li> </ol>   | <p>Seventh grade students begin their Ecology unit with a presentation from Mark Fitzpatrick, director of Ada Park, about invasive species. Students work on spotted knapweed removal from an existing courtyard on campus and create beds that they fill with new native plant and mulch. Students also do a spring cleaning of the courtyard which includes weeding and more mulch. Then, in May, all 200 students visit Ada Park or Roselle Park to pick garlic mustard, an invasive species there. Eighth grade students study water quality through chemical testing and macroinvertebrate data on the Eastern campus in September and discover the connections within the Grand River watershed. All 200 students spend two hours canoeing down the Rogue River in Rockford to further cement their connection to their watershed. In the spring, eighth graders again test water and study macroinvertebrates to compare data with fall results.</p>  |
| Knapp Forest Elementary | Cortney Kittredge | <a href="mailto:ckittridge@fhps.net">ckittridge@fhps.net</a>       | <ol style="list-style-type: none"> <li>1. Watershed Awareness</li> <li>2. Ultimate SW Discharge &amp; Impacts</li> <li>4. Personal Actions</li> </ol>                            | <p>Students will create short films to teach others about the importance of living an environmentally friendly or sustainable lifestyle. They will highlight the Grand River watershed focusing on human impact in our local community. Films will be shown at an event at our school for families to learn more about ways they can be part of the solution.</p>  |
| Orchard View Elementary | Anne Keller       | <a href="mailto:anne.keller5@gmail.com">anne.keller5@gmail.com</a> | <ol style="list-style-type: none"> <li>1. Watershed Awareness</li> <li>2. Ultimate SW Discharge &amp; Impacts</li> <li>4. Personal Actions</li> </ol>                            | <p>This project will help students learn about the Grand River watershed by looking at the watershed from many angles: environmental, socio-economic, historical, and geographical. Students will apply what they learn about the Grand River Watershed in three ways: creative products (including, but not limited to, shadow puppetry shows and short films), educational outreach (by sharing their creative products with other schools and community facilities such as local library branches and museums), and a hands-on project that gives back to the community (a rain garden built on site for a local business).</p>   |
| Meadowbrook Elementary  | Lynnae Jarrell    | <a href="mailto:ljjarrell@fhps.net">ljjarrell@fhps.net</a>         | <ol style="list-style-type: none"> <li>1. Watershed Awareness</li> <li>2. Ultimate SW Discharge &amp; Impacts</li> <li>4. Personal Actions</li> <li>6. Riparian Lands</li> </ol> | <p>Students will monitor the health of our school's watershed through site inventories, stream sampling, monitoring storm drains, data collection, removing invasive species, and restoring creek banks with native plants to return the school property to its original ecosystems (woodlands, wetlands, and meadow). Data will be collected, recorded, and analyzed in the fall and spring to monitor improvement. Students will present results describing the impact of their work to the community. PBL activities also include composting lunchroom and school waste, and then feeding compost to our compost worms. The vermicompost will be returned to the school gardens as a way of restoring soil health and improving native plant growth to filter NPS pollutants before it enters Plaster Creek. As stewards of their land, students will initiate the planning and implementing of school-wide community PBL activities by being actively involved in the decision making process of this year's project that will impact the Plaster Creek, Grand River, and the Great Lakes watershed.</p> |
| Northern Trails 5/6     | Klara Patrick     | <a href="mailto:kpatrick@fhps.net">kpatrick@fhps.net</a>           | <ol style="list-style-type: none"> <li>1. Watershed Awareness</li> <li>2. Ultimate SW Discharge &amp; Impacts</li> <li>4. Personal Actions</li> <li>6. Riparian Lands</li> </ol> | <p>Students will understand what makes quality water. They will be exposed to LaMotte water testing kits and will use them on the pond at Northern Trails, at the Grand River when releasing salmon, on the WG Jackson, and will also test the water of the salmon tank that is set up in class. Students will become aware of non-point source pollution and what the general public can do as best practices to help our watershed. Students will understand how macroinvertebrates show water's quality and how to identify them. In the spring students will have a chance to be involved with clearing storm drains and understand their importance- where they go, our influence upon them and more.</p>   |

## FHPS Groundswell Projects 2018-2019

| School                | Teacher                        | Contact  | PEP Objective(s)   | Project Description   |
|-----------------------|--------------------------------|--|--|---|
| Central Woodlands 5/6 | Patty Tolly                    | <a href="mailto:ptolly@fhps.net">ptolly@fhps.net</a>   | <ol style="list-style-type: none"> <li>1. Watershed Awareness</li> <li>2. Ultimate Discharge Location</li> <li>4. Personal Actions</li> <li>5. Riparian Lands</li> </ol>   | <p>Central Woodlands and Central Elementary will be learning together about watersheds, how human impact affects the quality of our water, particularly in the area of Buck Creek watershed and the importance of native plants in our environment to help with filtration. Students will decide if their project will be one of education, planning and implementing a native garden, rain barrel implementation, sewer painting, or a variety of other ways to help with stop water pollution. In order to do this, we will work together on watershed projects, attend a learning field trip on native plants at the Wittenbach/Wege Center and then will plan and implement a native garden at Central Elementary School. Sixth grade students will plan out their projects and work with Kindergartners to teach them what they have learned and have them help with the project. Our culminating activity will be a field trip to Saugatuck Sand Dunes to learn more about ecosystems and native plants keeping the dunes in tack.</p>  |
| Collins Elementary    | Karin Cramer<br>Marnie TenCate | <a href="mailto:kcramer@fhps.net">kcramer@fhps.net</a><br><a href="mailto:mtencate@fhps.net">mtencate@fhps.net</a> | <ol style="list-style-type: none"> <li>1. Watershed Awareness</li> <li>4. Personal Actions</li> </ol>  | <p>The Collins Native Plant and Pollinator garden project has transformed an overgrown eyesore area into native plant and butterfly sanctuary. Our students worked hard to remove the thick burdock and other nonnative plants growing wild, only to discover a massive black locust stump and soon after, a quick return of the weeds. After a professional treatment of herbicide, rototilling by our principal, and stump removal financed by our PTO, the garden was ready to plant. The sole native plant in the 14'x14' space was a solitary common milkweed. This September, our Groundswell students researched and presented in partnerships information about each of the native plants we acquired to plant in our new garden. The students used the plant heights to help plan where to place the seedlings and on planting day, each student planted a seedling and marked it with a plastic or metal stake they had labeled. In addition to the plants, each class raised Monarch butterflies from egg to adult. We tagged most of the butterflies with Monarch Watch stickers, recorded the gender, and released them in or near the new garden. As spring approaches, our students will be applying to have the garden registered as a Monarch Waystation. We will also learn more about pollinators and the invasive species in our schoolyard, parks, and neighborhoods.</p>  |
| Eastern Middle School | Kathy Mitchell                 | <a href="mailto:kmitchell@fhps.net">kmitchell@fhps.net</a>   | <ol style="list-style-type: none"> <li>1. Watershed Awareness</li> <li>4. Personal Actions</li> <li>6. Riparian Lands</li> </ol>   | <p>Although this project is repeated from the previous years, it always affects at least 200 DIFFERENT students. The original 200 students graduated from college last spring and every group of seventh graders since has contributed to the success of the project--the expanded restoration of our degraded school grounds. I am very proud of what we accomplish every single year. Seventh grade students begin their school year with a presentation from Mark Fitzpatrick, director of Ada Park, about invasive species. Students work on spotted knapweed removal from an existing courtyard on campus and create beds they fill with new native plants and mulch. Every year we decrease the amount of spotted knapweed by creating new planting areas and planting additional native plants. Students also do a spring cleaning of the courtyard which includes weeding and adding more mulch. Then, in May, all 200 students will visit Roselle Park to pick garlic mustard, an invasive species there and to plant natives from seeds collected on our campus. Eighth grade students study water quality through chemical testing and macroinvertebrate data on the Eastern campus in September and discover the connections within the Grand River watershed. Their fall water study culminates in a canoe voyage on the Rogue River. In the spring, eighth graders again test water on Eastern's campus and compare their data to the fall results. While there is a push to create "new" projects every year, this project addresses a problem that will not go away without constant attention. Also, because of this project, our teaching about invasives had increased in depth and breadth. Every single seventh grader for eleven years has played their part in eradicating invasive species and planting native plants with the added benefit of improving their school campus. This is not a rain garden to which 20 students contribute one time; it is an ongoing, successful, meaningful and fully appropriate project for students every single year. Next fall we will surpass the 2,400 student mark. Is there another project out there that can make that claim? Thank you for your support of this important endeavor!</p> |
| Central Middle        | Lea Sevigny                    | <a href="mailto:lsevigny@fhps.net">lsevigny@fhps.net</a>   | <ol style="list-style-type: none"> <li>1. Watershed Awareness</li> <li>2. Ultimate SW Discharge &amp; Impacts</li> <li>4. Personal Actions</li> <li>5. Waste Management Assistance</li> <li>6. Riparian Lands</li> </ol> | <p>CMS is reaching out to our neighbors to the north (Amway) to see how it's done and to the west (Paradise Lake Association) to put stewardship into practice. Students will see the positive and negative impacts they can have on their place. They will consider all the factors in water quality on campus runoff that has direct drainage to Lake Michigan, starting in a detention pond at Central Middle. They will partner with Paradise Lake neighborhood association to determine the health of the waterbody and what issues might impact its health. The Environmental Health Team at Amway is collaborating with Natural Expressions classes on the subjects of waste, alternative energy, and stormwater runoff. They are going to help students take data that are more specific about our waste and create a plan for change. As inspiration, we are also connecting with an educator from the Kent County Dept. of Public Works who is coming to speak to Natural Expressions students about waste, landfills, recycling, etc. and to explain the Kent County goal to reduce landfill trash by 20% in 2020 and 90% in 2030. Students will also share their knowledge of healthy watersheds/ecosystems, native trees, and invasive forest organisms with 3rd graders from Ada Elementary and families attending the Kent County Parks Discover! Millennium event. Finally, CMS Groundswell students will share their knowledge of invasive garlic mustard and removal practices with the rest of the student body and the community in Ada Croft neighborhood before and during an invasive plant pulling event in the woodland "commons" area of Ada Croft.</p>   |
| Eastern High School   | Dolores Keeley                 | <a href="mailto:dkeeley@fhps.net">dkeeley@fhps.net</a>   | <ol style="list-style-type: none"> <li>1. Watershed Awareness</li> </ol>   | <p>The Wayfinder navigators is an interdisciplinary class for 9th graders. It is a 2 hour block that focuses on biology, health, and PE. It includes an outdoor based, environmental, inquiry, purpose-seeking curriculum. The Groundswell project 2017/2018 begun work to create a hiking trail in the 20 wooded acres adjacent to the school. The project this year will be to create an outdoor learning classroom in the woods and continue developing the hiking trail into a guided-learning nature trail.</p>  |