

**RHS Sustainability Vision Statement:**

Ensuring MSU's long-term sustainability through innovative and balanced strategies that support stewardship, fiscal responsibility and partnership.

**1. Energy Conservation Strategies – Electricity, GHG, Steam, Emissions from Transportation**

- Assist in the implementation of MSU's Energy Transition Plan and in meeting goals
- Be a role model and encourage behavior change and education around energy use
- Ensure energy conservation measures are practiced and that applicable standards, policies, metrics and assessments are in place as changes are made
- Assist with commissioning and retro-commissioning processes, being mindful of fiscal responsibility and follow up
- Look for opportunities in renovations for sustainability impacts in regards to energy use
- Review RHS' divisional vehicle use and truck deliveries, consider conservation strategies

**2. Water Conservation Strategies**

- As we renovate, consider and support conservation strategies for low flow fixtures, sub-metering dining areas and water conserving equipment
- Be aware of renovations and sustainability impacts in regards to water use
- Consider how water use affects energy use

**3. Food Waste Strategies**

- Assist with closing the food loop and be cognizant of how food waste ties into energy
- Support efforts to reduce food waste, reduce food cost, review portion control, increase education and other tactics
- Review cost impacts of controlling food waste
- Implement and monitor trayless dining at Shaw and Yakeley; encourage trayless in other venues

**4. Sustainable Procurement Strategies**

- Increase local/regional purchasing strategies when fiscally able and available
- Know where our food and other products come from and how they are manufactured
- Track what our vendors do related to sustainability and recognize impacts, track and monitor
- Be knowledgeable of sustainable certifications and standards such as LEED, Forest Stewardship Council, Marine Stewardship, Certified Organic, Energy Star, Water Sense, etc.

**5. Connecting Sustainability, Education, Research**

- Be knowledgeable of how RHS partners with education and research: RHS/ RISE/ SOF collaboration with the Bailey Greenhouse, MSU's Anaerobic Digester and food waste, Spartan Engineering, MSU Beef, MSU Poultry, MSU Research and Student Grant Opportunities
- Look for potential research opportunities that help conserve resources and improve sustainability
- Continue to develop a living and learning laboratory for RHS and MSU around sustainability
- Help by letting others know what RHS and MSU are doing in the area of sustainability

**6. Material Diversion**

- Implement MSU's Standard Operating Practices (SOPs) for recycling and reuse
- Ensure recycling and reuse practices are in place and look for opportunities for expansion
- Participate and promote special event recycling initiatives
- Study processes to increase repurposing of salvaged furniture, fixtures and equipment
- Strive to achieve a 70 percent landfill diversion rate by 2017 (MSU goal)

**7. Social Responsibility**

- RHS is committed to supporting education and decision-making in settings outside of the classroom in which residential and community members embrace and practice sustainability by exploring the complex interactions between people and the environment
- Sustainability is a core value of MSU and RHS; RHS employees are expected to model behaviors that embrace sustainability and assist in educating those that do not know what we do

# Being SPARTAN Green in Bryan Hall

## LOW FLOW FIXTURES

Low flow plumbing fixtures help reduce the burden on municipal water supplies. Bryan Hall water usage is 27% less than before renovations due to high efficiency fixtures.



## RECLAIMED MICHIGAN WOOD

Reclaimed lumber was used as a majority of the trim wood. The reclaimed lumber was sourced from demolished barns across Michigan. Utilizing reclaimed wood decreases the need to use virgin resources, and results in protecting local and nationwide forestry reserves.



## LEED CERTIFICATION

To become LEED, or Leadership in Energy and Environmental Design, certified, Bryan Hall had to earn credits in the five green design categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources and indoor environmental quality. Being a LEED certified building saves money and resources, promotes renewable, clean energy and positively impacts the health of occupants.



## DAYLIGHTING

The sun provides an abundance of natural, free light throughout the day. Sunlight has been harnessed to help reduce energy consumption at Armstrong Hall. Occupants have a direct line of sight to the outdoors in over 98% of regularly occupied spaces.



## ACCESS TO PUBLIC TRANSPORTATION

CATA service provides access to transit rides for MSU residents every day. There are stops located within one quarter of a mile from Bryan Hall. Access to public transit greatly reduces pollution and land development impacts from automobile use.



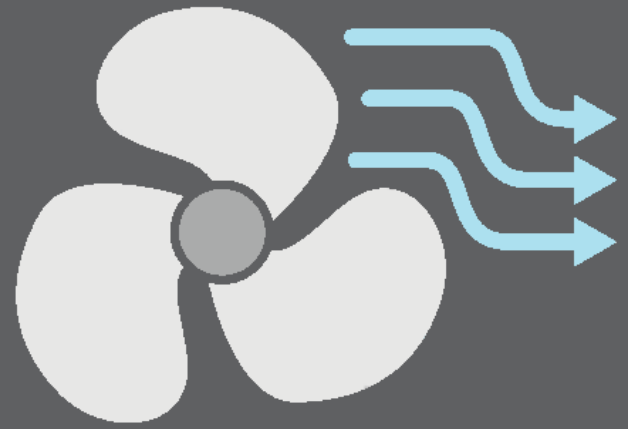
## INNOVATIVE RECYCLING PROGRAM

The Be Spartan Green Campus Sustainability Group has provided bins throughout Bryan Hall for occupants to recycle white paper, mixed paper, cardboard, glass and plastic. This recycling program employed throughout Michigan State University helps divert over 5.5 million pounds of material from landfills each year.



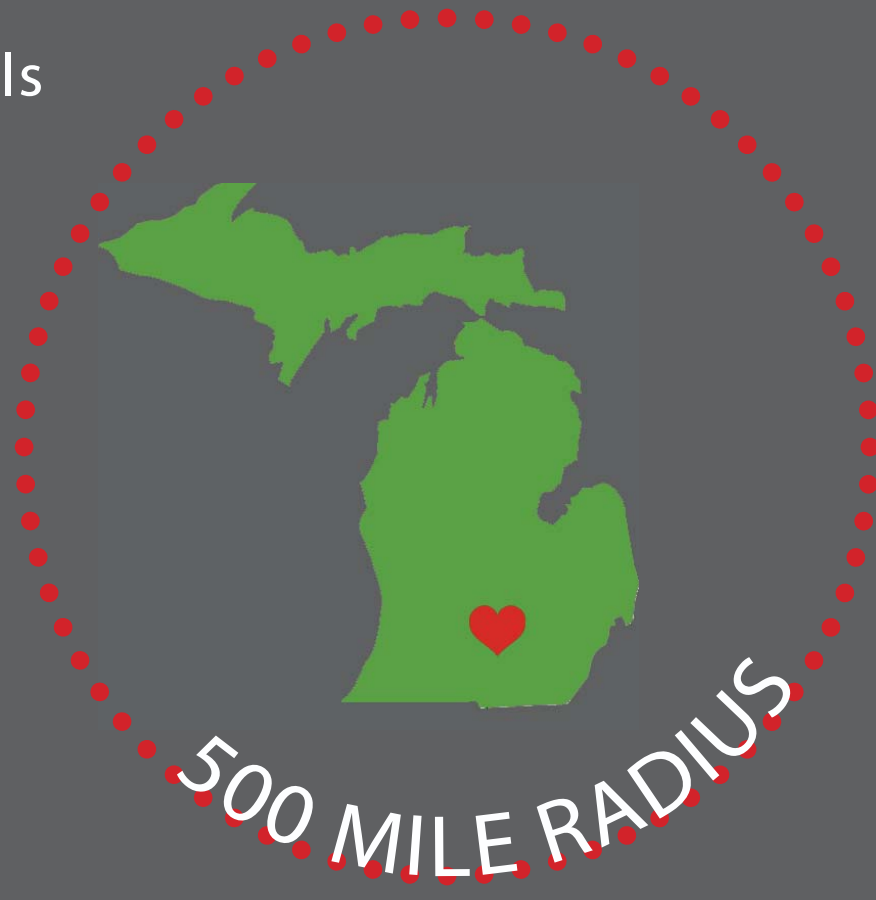
## THERMAL COMFORT

Bryan Hall utilizes steam to heat and cool the building. The HVAC system was designed to industry standards to meet the requirements of occupant thermal comfort. A long-term plan is in place to provide assessment of occupants' comfort and provide corrective action if necessary.



## REGIONAL MATERIALS

Over 16% of the materials in Bryan Hall were manufactured within 500 miles of East Lansing.



## ELIMINATING IRRIGATION

Bryan Hall's landscape system utilizes native and adaptive plants that eliminate the need for permanent irrigation systems, drastically reducing water usage and storm water runoff.



## ACCESSIBLE BIKE RACKS

There are accessible bike racks located around the exterior of Bryan Hall, and bike storage rooms throughout the interior. Riding a bike to class is not only healthy, it reduces air pollution throughout campus. For more information, contact MSU Bikes at 517-355-1723.



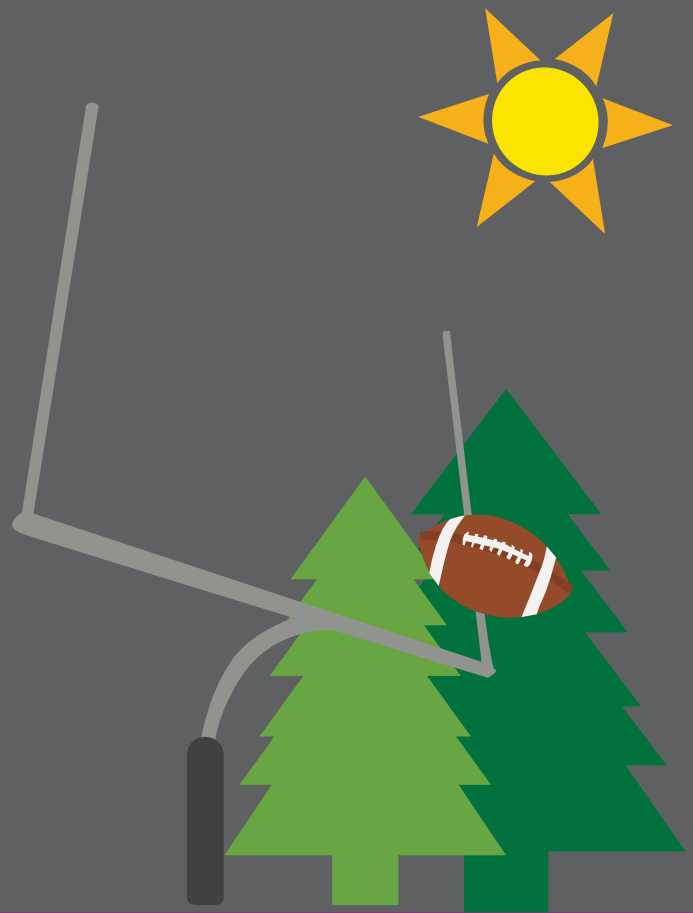
## WATER REFILL STATIONS

Water stations are available for occupants' use throughout Bryan Hall. The water is purified to ensure the quality of drinking water.



## OPEN SPACE

There is over 70,000 square feet of vegetated open space around Bryan Hall. The open space promotes biodiversity that enhances the beauty and quality of the environment and provides space for recreational activity.





# Being SPARTAN Green in Armstrong Hall

## LOW FLOW FIXTURES

Low flow plumbing fixtures help reduce the burden on municipal water supplies. Armstrong Hall water usage is 27% less than before renovations due to high efficiency fixtures.



## RECYCLED MATERIALS

Over 23% of the materials used in Armstrong Hall's renovation were manufactured using recycled materials. A recycled material is a product made from material recovered from the waste stream. The use of recycled materials saves natural resources, energy, and landfill space.



## LEED CERTIFICATION



To become LEED, or Leadership in Energy and Environmental Design, certified, Armstrong Hall had to earn credits in the five green design categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources and indoor environmental quality. Being a LEED certified building saves money and resources, promotes renewable, clean energy and positively impacts the health of occupants.

## DAYLIGHTING



The sun provides an abundance of natural, free light throughout the day. Sunlight has been harnessed to help reduce energy consumption at Armstrong Hall. Occupants have a direct line of sight to the outdoors in over 98% of regularly occupied spaces.

## ACCESS TO PUBLIC TRANSPORTATION

CATA service provides access to transit rides for MSU residents every day. There are stops located within one quarter of a mile from Armstrong Hall. Access to public transit greatly reduces pollution and land development impacts from automobile use.



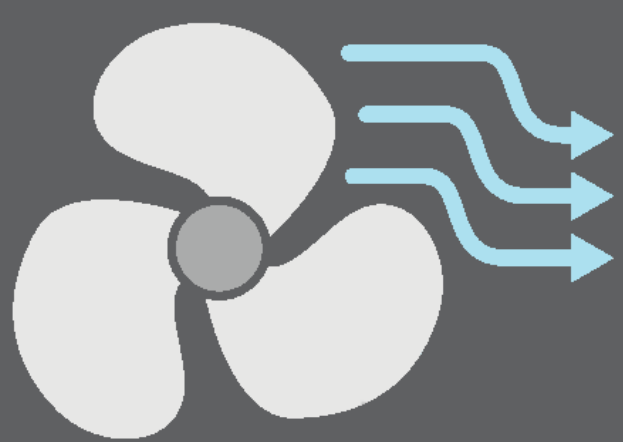
## INNOVATIVE RECYCLING PROGRAM

The Be Spartan Green Campus Sustainability Group has provided bins throughout Armstrong Hall for occupants to recycle white paper, mixed paper, cardboard, glass and plastic. This recycling program employed throughout Michigan State University helps divert over 5.5 million pounds of material from landfills each year.



## THERMAL COMFORT

Armstrong Hall utilizes steam to heat and cool the building. The HVAC system was designed to industry standards to meet the requirements of occupant thermal comfort. A long-term plan is in place to provide assessment of occupants' comfort and provide corrective action if necessary.



## REGIONAL MATERIALS

Over 10% of the materials in Armstrong Hall were manufactured within 500 miles of East Lansing.



## ELIMINATING IRRIGATION

Armstrong Hall's landscape system utilizes native and adaptive plants that eliminate the need for permanent irrigation systems, drastically reducing water usage and storm water runoff.



## ACCESSIBLE BIKE RACKS



There are accessible bike racks located around the exterior of Armstrong Hall, and bike storage rooms throughout the interior. Riding a bike to class is not only healthy, it reduces air pollution throughout campus. For more information, contact MSU Bikes at 517-355-1723.



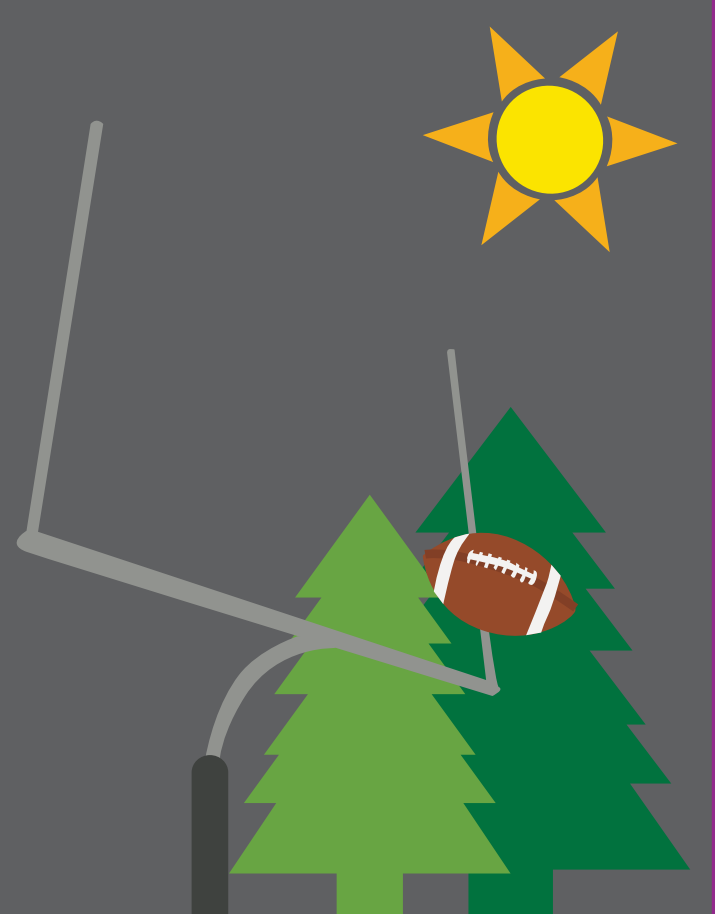
## WATER REFILL STATIONS

Water stations are available for occupants' use throughout Armstrong Hall. The water is purified to ensure the quality of drinking water.



## OPEN SPACE

There is over 75,000 square feet of vegetated open space around Armstrong Hall. The open space promotes biodiversity that enhances the beauty and quality of the environment and provides space for recreational activity.





# Being SPARTAN Green

## in Emmons Hall

### LOW FLOW FIXTURES

Low flow plumbing fixtures help reduce the burden on municipal water supplies. Emmons Hall water usage is 24% less than before renovations due to high efficiency fixtures.



### RECYCLED MATERIALS

Over 24% of the materials used in Emmons Hall's renovation were manufactured using recycled materials. A recycled material is a product made from material recovered from the waste stream. The use of recycled materials saves natural resources, energy, and landfill space.



### LEED CERTIFICATION



To become LEED, or Leadership in Energy and Environmental Design, certified, Emmons Hall had to earn credits in the five green design categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources and indoor environmental quality. Being a LEED certified building saves money and resources, promotes renewable, clean energy and positively impacts the health of occupants.

### DAYLIGHTING



The sun provides an abundance of natural, free light throughout the day. Sunlight has been harnessed to help reduce energy consumption at Emmons Hall. Occupants have a direct line of sight to the outdoors in over 80% of regularly occupied spaces.

### ACCESS TO PUBLIC TRANSPORTATION

CATA service provides access to transit rides for MSU residents every day. There are stops located within one quarter of a mile from Emmons Hall. Access to public transit greatly reduces pollution and land development impacts from automobile use.



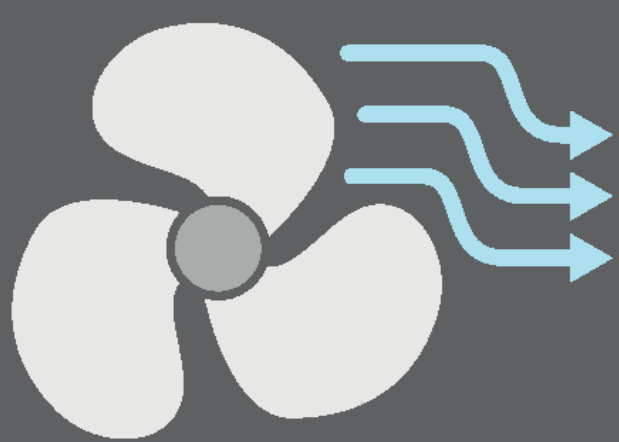
### INNOVATIVE RECYCLING PROGRAM

The Be Spartan Green Campus Sustainability Group has provided bins throughout Emmons Hall for occupants to recycle white paper, mixed paper, cardboard, glass and plastic. This recycling program employed throughout Michigan State University helps divert over 5.5 million pounds of material from landfills each year.



### THERMAL COMFORT

Emmons Hall utilizes steam to heat and cool the building. The HVAC system was designed to industry standards to meet the requirements of occupant thermal comfort. A long-term plan is in place to provide assessment of occupants' comfort and provide corrective action if necessary.



### REGIONAL MATERIALS

Over 10% of the materials in Emmons Hall were manufactured within 500 miles of East Lansing.



### WATER REFILL STATIONS

Water stations are available for occupants' use throughout Emmons Hall. The water is purified to ensure the quality of drinking water.



### ACCESSIBLE BIKE RACKS

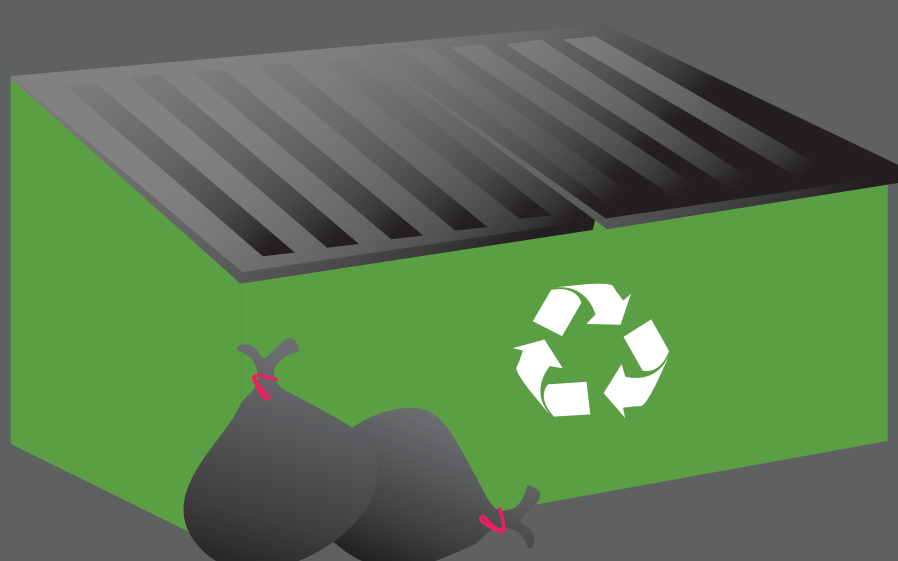


There are accessible bike racks located around the exterior of Emmons Hall, and bike storage rooms throughout the interior. Riding a bike to class is not only healthy, it reduces air pollution throughout campus. For more information, contact MSU Bikes at 517-355-1723.



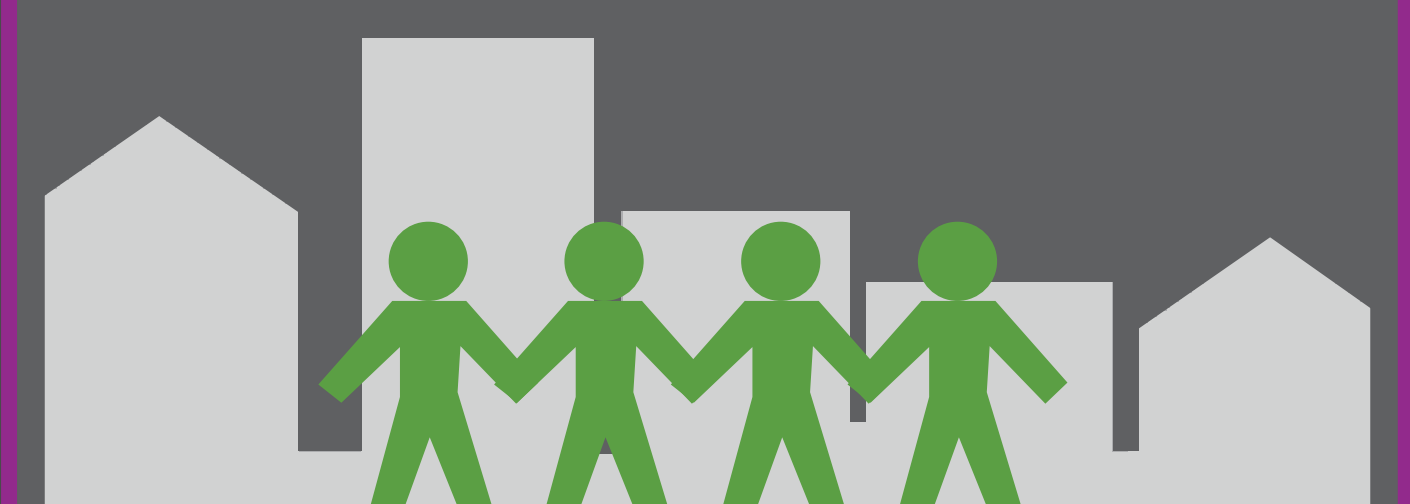
### WASTE MANAGEMENT

During the renovation at Emmons Hall, over 78% of the construction waste was diverted from a landfill by recycling and reusing materials.



### COMMUNITY CONNECTIVITY

The close proximity to the community gives Emmons Hall occupants access to restaurants, fitness centers, medical facilities, and other basic community services of a residential district.





# Being SPARTAN Green in Rather Hall

## LOW FLOW FIXTURES

Low flow plumbing fixtures help reduce the burden on municipal water supplies. Rather Hall water usage is 27% less than before renovations due to high efficiency fixtures.



## RECYCLED MATERIALS

Over 23% of the materials used in Rather Hall's renovation were manufactured using recycled materials. A recycled material is a product made from material recovered from the waste stream. The use of recycled materials saves natural resources, energy, and landfill space.



## LEED CERTIFICATION



To become LEED, or Leadership in Energy and Environmental Design, certified, Rather Hall had to earn credits in the five green design categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources and indoor environmental quality. Being a LEED certified building saves money and resources, promotes renewable, clean energy and positively impacts the health of occupants.

## DAYLIGHTING



The sun provides an abundance of natural, free light throughout the day. Sunlight has been harnessed to help reduce energy consumption at Rather Hall. Occupants have a direct line of sight to the outdoors in over 98% of regularly occupied spaces.

## ACCESS TO PUBLIC TRANSPORTATION

CATA service provides access to transit rides for MSU residents every day. There are stops located within one quarter of a mile from Rather Hall. Access to public transit greatly reduces pollution and land development impacts from automobile use.



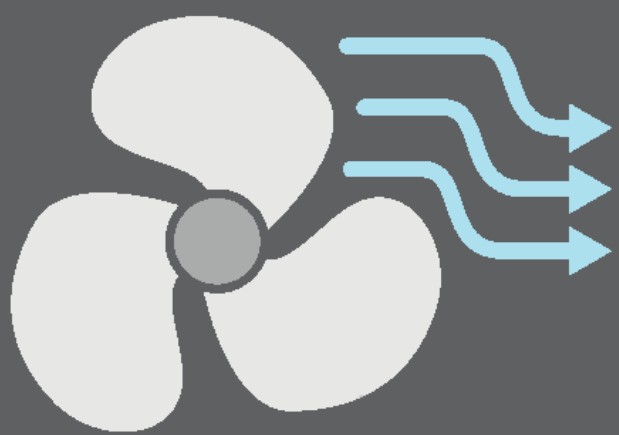
## INNOVATIVE RECYCLING PROGRAM

The Be Spartan Green Campus Sustainability Group has provided bins throughout Rather Hall for occupants to recycle white paper, mixed paper, cardboard, glass and plastic. This recycling program employed throughout Michigan State University helps divert over 5.5 million pounds of material from landfills each year.



## THERMAL COMFORT

Rather Hall's HVAC system utilizes steam to heat and cool the building efficiently. The HVAC system was designed to industry standards to meet the requirements of occupant thermal comfort. A long-term plan is in place to provide assessment of occupants' comfort and provide corrective action if necessary.



## REGIONAL MATERIALS

Over 10% of the materials in Rather Hall were manufactured within 500 miles of East Lansing.



## ELIMINATING IRRIGATION

Rather Hall's landscape system utilizes native and adaptive plants that eliminate the need for permanent irrigation systems, drastically reducing water usage and storm water runoff.



## ACCESSIBLE BIKE RACKS



There are accessible bike racks located around the exterior of Rather Hall, and bike storage rooms throughout the interior. Riding your bike to class is not only good for your health, but reduces air pollution throughout campus. For more information, contact MSU Bikes at 517-355-1723.



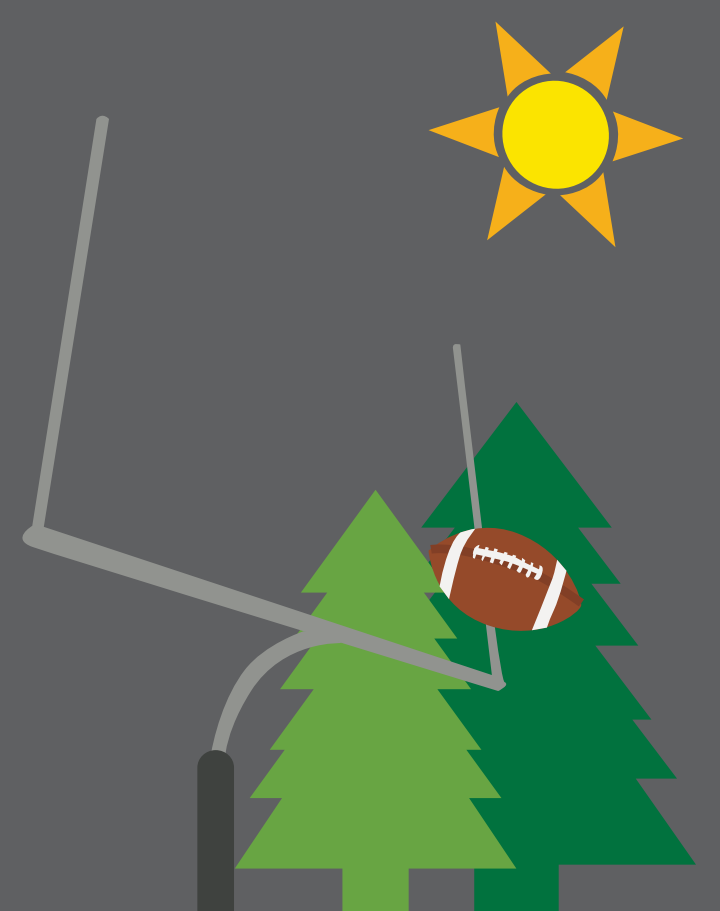
## WATER REFILL STATIONS

Water stations are available for occupants' use throughout Rather Hall. The water is purified to ensure the quality of drinking water.



## OPEN SPACE

There is over 75,000 square feet of vegetated open space around Rather Hall. The open space promotes biodiversity that enhances the beauty and quality of the environment and provides space for recreational activity.





# Being SPARTAN Green in Bailey Hall

## LOW FLOW FIXTURES

Low flow plumbing fixtures help reduce the burden on municipal water supplies. Bailey Hall water usage is 27% less than before renovations due to high efficiency fixtures.



## RECYCLED MATERIALS

Over 23% of the materials used in Bailey Hall's renovation were manufactured using recycled materials. A recycled material is a product made from material recovered from the waste stream. The use of recycled materials saves natural resources, energy, and landfill space.

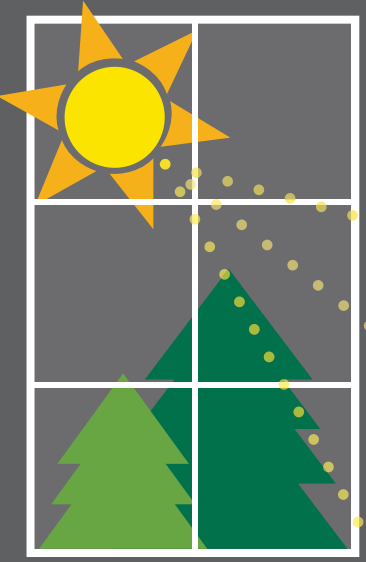


## LEED CERTIFICATION



To become LEED, or Leadership in Energy and Environmental Design, certified, Bailey Hall had to earn credits in the five green design categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources and indoor environmental quality. Being a LEED certified building saves money and resources, promotes renewable, clean energy and positively impacts the health of occupants.

## DAYLIGHTING



The sun provides an abundance of natural, free light throughout the day. Sunlight has been harnessed to help reduce energy consumption at Bailey Hall. Occupants have a direct line of sight to the outdoors in over 98% of regularly occupied spaces.

## ACCESS TO PUBLIC TRANSPORTATION

CATA service provides access to transit rides for MSU residents every day. There are stops located within one quarter of a mile from Bailey Hall. Access to public transit greatly reduces pollution and land development impacts from automobile use.



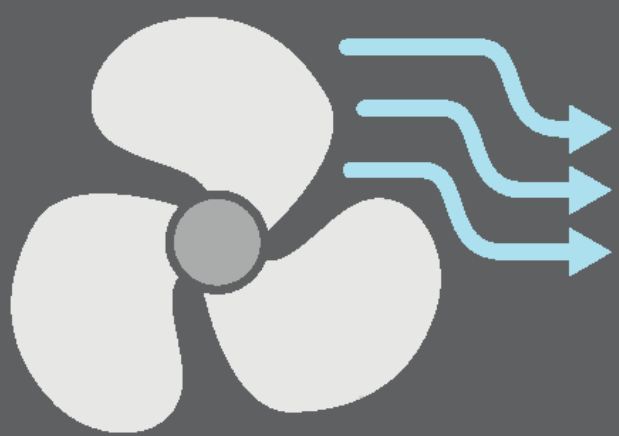
## INNOVATIVE RECYCLING PROGRAM

The Be Spartan Green Campus Sustainability Group has provided bins throughout Bailey Hall for occupants to recycle white paper, mixed paper, cardboard, glass and plastic. This recycling program employed throughout Michigan State University helps divert over 5.5 million pounds of material from landfills each year.



## THERMAL COMFORT

Bailey Hall's HVAC system utilizes steam to heat and cool the building efficiently. The HVAC system was designed to industry standards to meet the requirements of occupant thermal comfort. A long-term plan is in place to provide assessment of occupants' comfort and provide corrective action if necessary.



## REGIONAL MATERIALS

Over 10% of the materials in Bailey Hall were manufactured within 500 miles of East Lansing.

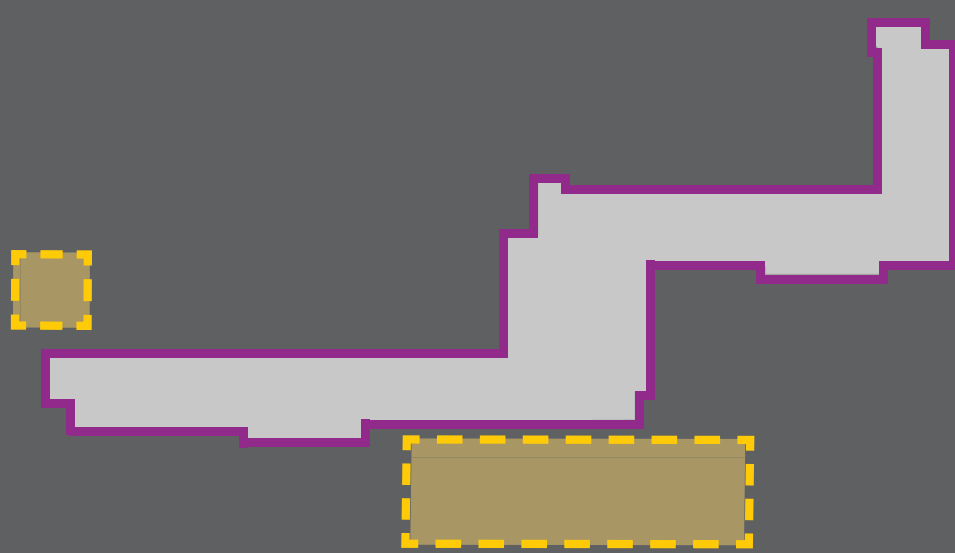


## ELIMINATING IRRIGATION

Bailey Hall's landscape system utilizes native and adaptive plants that eliminate the need for permanent irrigation systems, drastically reducing water usage and storm water runoff.



## ACCESSIBLE BIKE RACKS



There are accessible bike racks located around the exterior of Bailey Hall, and bike storage rooms throughout the interior. Riding your bike to class is not only good for your health, but reduces air pollution throughout campus. For more information, contact MSU Bikes at 517-355-1723.



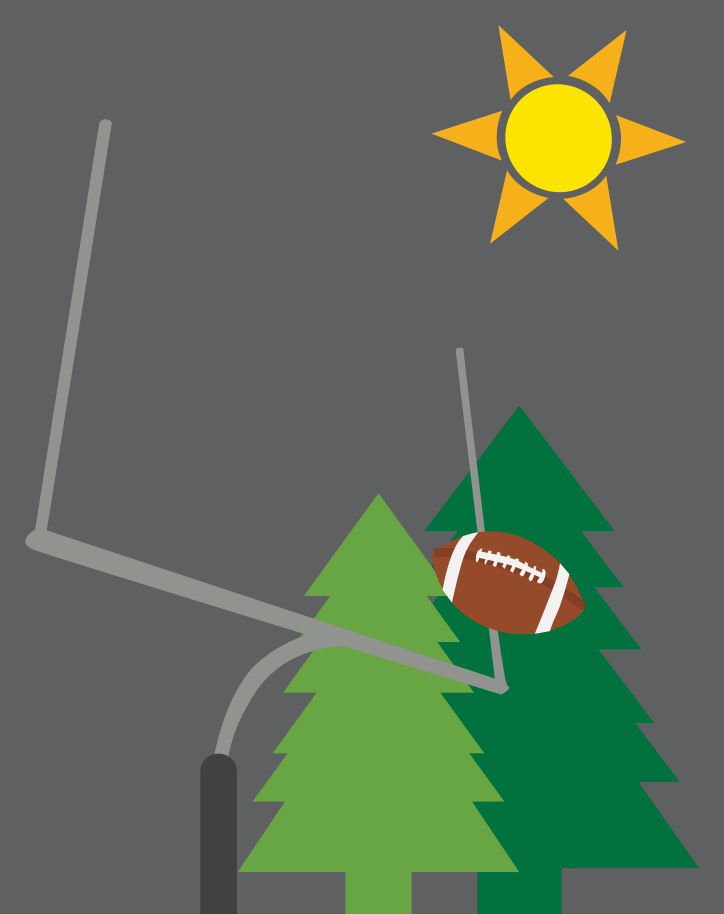
## WATER REFILL STATIONS

Water stations are available for occupants' use throughout Bailey Hall. The water is purified to ensure the quality of drinking water.



## OPEN SPACE

There is over 75,000 square feet of vegetated open space around Bailey Hall. The open space promotes biodiversity that enhances the beauty and quality of the environment and provides space for recreational activity.



RHS STRIVING TO BE

**WASTE  
FREE**





# WE COMPOST!

Composting returns valuable nutrients back to the soil. Coffee grounds and other organic materials are sent to the MSU Student Organic Farm where students learn about sustainable farming and food systems.





# BAILEY GREENHOUSE & URBAN FARM



Located on the grounds of Bailey Hall in MSU's Brody Neighborhood, Bailey GREENhouse is made possible through a partnership between the Division of Residential and Hospitality Services (RHS), the Residential Initiative on the Study of the Environment (RISE) and the MSU Student Organic Farm.

## **Bailey GREENhouse harvests:**

- herbs and mints
- spinach
- mixed greens
- tomatoes
- cucumbers
- strawberries
- rhubarb

**Partnership in Action:** Herbs grown in Bailey GREENhouse are tended to by students of RISE and served at Brody Square, the State Room Restaurant in the Kellogg Hotel and Conference Center, and various other dining halls across campus. MSU Culinary Services provides advance contracting for production of herbs grown at Bailey GREENhouse. RISE students work at Bailey GREENhouse to learn about how the economy can harmonize with natural cycles through organic growing methods, composting and the food cycle. In partnership with the MSU Recycling and Surplus Center, pre-consumer food waste from the residential dining halls is used for worm and hot composting at the MSU Student Organic Farm and used as nutrient-rich compost for Bailey GREENhouse soil!





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# Michigan State University

## Phase II NPDES Stormwater Progress Report

*Covering the Period*

January 1, 2014 – March 31, 2016

**Permittee:** MICHIGAN STATE UNIVERSITY

**Contact Person:**

Thomas Grover  
Environmental Compliance Officer  
Office of Environmental Health and Safety  
293 Farm Lane Road, Room #150  
Michigan State University  
East Lansing, MI 48824  
517-355-6651

*Submitted to the*

Michigan Department of Environmental Quality

April 1, 2016



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Appendix 1 - MSU Stormwater 2014-2015 BMPs and Impervious Surface Summary



## General Information and Regional Stormwater Management

This progress report is being submitted by Michigan State University (MSU) in partial fulfillment of the requirements of the Phase II Stormwater National Pollutant Discharge Elimination System (NPDES) Permit No. MI0059342. The permit allows for discharges from a municipal separate storm sewer system (MS4). The Michigan Department of Environmental Quality (MDEQ) requires that a progress report be submitted on the implementation status of the current permit (usually submitted every 2 years). This report covers the period January 1, 2014 – March 31, 2016.

MSU is working to meet its permit requirements by implementing campus-based stormwater management activities and collaborative activities with other communities within the Greater Lansing urbanized area. The regional and campus-based frameworks for these activities are described below.

### Greater Lansing Regional Committee (GLRC)

The Greater Lansing Regional Committee (GLRC) for Stormwater Management is a guiding body comprised of participating Phase II communities within the Greater Lansing Region. The committee has been established to guide the implementation of the Phase II Program for the communities within three identified urbanized watersheds: the Grand River, the Red Cedar River and the Looking Glass River watersheds.

### GLRC Background

Beginning in November 1999, nine communities and three counties in the Greater Lansing Area organized to discuss the Federal Regulations for the Stormwater Phase II Program. The result of this organization was an agreement to pool resources on a regional basis to fulfill the requirements of the program. Initially, based on 1990 census population data, these nine communities and three counties were the only entities in the Greater Lansing Area that were designated to participate in the Phase II “Voluntary Permit Program” by the Michigan Department of Environmental Quality (MDEQ). Following several meetings of this group during late 1999 and early 2000, a resolution was drafted to establish the “Greater Lansing Area Regional NPDES Phase II Stormwater Regulations Committee” and representatives from each jurisdiction were named to serve on the committee.

Soon after the organization of the committee in 2000, the Tri-County Regional Planning Commission (TCRPC) began to assist the committee in providing contractual, fiduciary, and administrative support. Tetra Tech was selected to produce a permit strategy study, and later to prepare the Voluntary Grant Permit Applications for each community. Again in 2002, Tetra Tech was retained to prepare watershed management plans (WMPs) for the Grand River and Red Cedar River watershed areas, and would later prepare a WMP for the Looking Glass River watershed area.

Based on the increased population data following the release of the 2000 Census, ten additional communities were designated to meet the stormwater Phase II requirements under Federal and State regulations. Ultimately seventeen communities and the three counties agreed to participate in a regional approach until April 30, 2008. Most recently the GLRC’s Memorandum of Agreement (MOA) was updated to align with the current permit cycle (2013 – 2017). The updated MOA was adopted by GLRC members and therefore establishes the GLRC legally through April 30, 2017. There are also a number of interested parties that are consistently involved with the planning activities associated with this project

such as county drain and road commissioners, school districts, utility authorities, and transportation authorities. The participating communities recognize the substantial benefits that can be derived through cooperative management of the watersheds and in providing mutual assistance in meeting the stormwater permit requirements.

### **GLRC Members**

The participating MS4 entities that make up the GLRC are as follows:

- City of DeWitt
- City of East Lansing
- City of Grand Ledge
- City of Lansing
- City of Mason
- Delhi Charter Township
- Delta Charter Township
- DeWitt Charter Township
- Lansing Charter Township
- Meridian Charter Township
- Oneida Charter Township
- Lansing School District
- Windsor Charter Township
- Waverly Community Schools\*
- Clinton County
- Clinton County Road Commission
- Eaton County
- Ingham County
- Michigan State University

\*Waverly Community Schools joined the GLRC in 2016

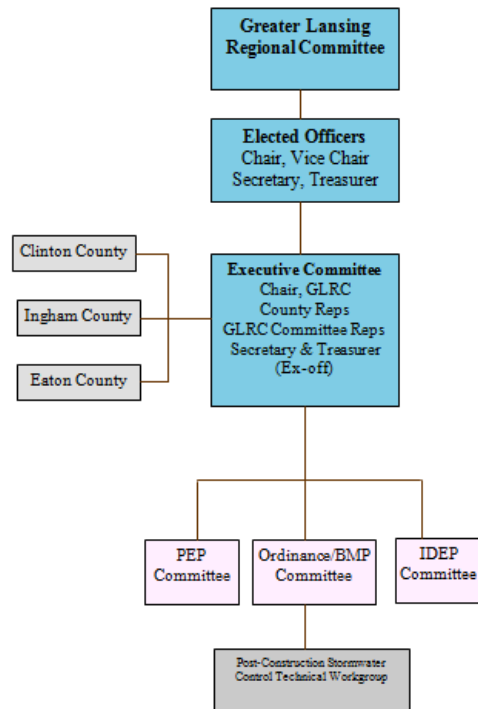
Although they are not permitted, Oneida Charter Township and Windsor Charter Township are associate members of the GLRC in order to benefit from the group's efforts to improve stormwater management and reduce pollution within the region. They also benefit from the public education materials developed by the GLRC.

### **GLRC Organization and Committees**

Within the GLRC, a number of committees have been established to guide various components of the Phase II Program. Other committees may be established as needed throughout the course of the project.



## GLRC Organization effective May 1, 2013



A list of the GLRC committees including a brief description of their responsibilities follows.

### Executive Committee

The GLRC Executive Committee is comprised of a maximum of eight voting members consisting of the Chair and Vice Chair of the GLRC, one representative from each of the three counties, and the chairs of the Illicit Discharge Elimination Program (IDEP) Committee, Public Education Program (PEP) Committee, and Ordinance/Best Management Practices (BMP) Committee. The Executive Committee meets five times a year and the Full Committee meets twice a year.

### Public Education Program (PEP) Committee

The PEP Committee guides the overall public education, participation, outreach, and involvement process. This also includes evaluation of the program and assessment of public knowledge and activities.

### Illicit Discharge Elimination Program (IDEP) Committee

The IDEP Committee guides the organization and implementation of the Illicit Discharge Elimination Program, mapping guidelines, field-sampling protocols, and how the watershed will be monitored for progress. The IDEP Committee has reviewed pet waste reduction techniques, septic tank maintenance issues, staff training and IDEP ordinances.

### Ordinance/Best Management Practices (BMP) Committee

The Ordinance/BMP Committee is responsible for reviewing and making recommendations on updating existing ordinances and developing new ordinances for compliance of the MS4 program. In addition, the committee provides educational opportunities to GLRC members related to good housekeeping techniques, staff training, Low Impact Development (LID) and BMPs that reduce pollution.

### Post-Construction Stormwater Control (PCSWC) Technical Workgroup

The PCSWC Technical Workgroup is a workgroup of the Ordinance/BMP Committee and was developed to address post-construction stormwater control requirements listed in the 2008 General Watershed Permit. The workgroup developed both a policy and procedures manual and a design standards manual for communities to implement at the local level. In addition, a draft ordinance was developed and provided to all GLRC members. This workgroup continues to meet as members implement the PCSWC standards in their communities.

## **Watershed Partnerships and Related Efforts**

### Middle Grand River Organization of Watersheds (MGROW)

MGROW is an outgrowth of the Grand River Expedition 2010, founded in 2011 and established as a 501c3 in February 2012. MGROW is striving to bring together local communities, watershed groups and other stakeholders in the Middle Grand River Watershed to build a greater understanding of and stewardship for our water resources. MGROW's mission: *To protect and preserve the history and the natural resources of the Middle Grand River Watershed by promoting education, conservation, restoration, and wise use of watershed resources.* While the Upper Grand River Watershed Alliance (Jackson area) and the Lower Grand River Organization of Watersheds (Grand Rapids area) assist local watersheds in their respective regions, serving as umbrella organizations to network and share ideas with local watersheds, the Middle Grand River Watershed has been without such support until the formation of MGROW. Local watersheds and program administrators in the MGROW area include: Friends of the Looking Glass River; Friends of the Maple River; GLRC; Middle Grand River Watershed Planning Project; Red Cedar River Watershed Planning Project; local conservation districts; Michigan State University Institute of Water Research (MSU-IWR); TCRPC and Mid-Michigan Environmental Action Council (Mid-MEAC). These groups have been operating independently from one another but have been exploring avenues for collaboration. The GLRC Coordinator continues to work with MGROW to identify collaborative opportunities related to education, recreation and monitoring. MGROW has established a Grand River Heritage Water Trail (booklet and smart phone application) to bring awareness to historical locations on the Grand River. They have volunteered to maintain the Lansing rain gardens, and supported expeditions on the tributaries of the Grand River. More information can be found on the website:

<http://www.mgrow.org/>

### Looking Glass River Watershed Efforts

Friends of the Looking Glass River Watershed Council host local paddling events and log jam clean ups. The GLRC partners on related events and activities to promote recreation and awareness of the river.

### Red Cedar River Watershed Management Planning Project (319)

The MSU Institute of Water Research was awarded a nonpoint source planning grant for the Red Cedar River in the fall of 2011, and developed a Watershed Management Plan (WMP) for the watershed. The comprehensive plan includes all watershed monitoring data, public education efforts, evaluation and a detailed implementation plan to address pollutants, sources and causes in the watershed. The GLRC supports this effort, by attending meetings, providing data and collaborating on public education ideas using GLRC survey results. The WMP was approved in 2015. The TCRPC applied for an implementation grant to fund the implementation of the WMP. Awards are expected to be announced in the spring of 2016. More information can be found on the website: <http://www.iwr.msu.edu/redcedarriver>

### Middle Grand River Watershed Management Planning Project (319)

The Eaton Conservation District (ECD) was awarded a nonpoint source planning grant for the Middle Grand River in the spring of 2011. This effort mirrors the Red Cedar River Watershed Management Planning Project. The plan was also approved in 2015. The ECD has applied for funding to implement the



Middle Grand River WMP. More information can be found at: <http://www.eatoncd.org/middle-grand-river-watershed.html>

### Greening Mid-Michigan (GMM)

Greening Mid-Michigan is a green infrastructure policy/poster plan that was developed and adopted by the TCRPC and partners in 2010. After a multi-year planning process and with more than \$90,000 in funding, GMM provides a benchmark and a vision for the communities in Clinton, Eaton and Ingham Counties to protect potential conservation areas, connect parks and trails across jurisdictional boundaries and for promoting sustainable land use policy. GMM gives communities a snapshot of where future conservation activities should occur, where low impact development would be most appropriate, and where communities can best link their recreation facilities. Most recently, the GLRC has collaborated on several video public service announcements. They can be found at <http://www.greenmidmichigan.org>.

The region is implementing the GMM vision is through formal adoption of the poster plan by local jurisdictions. Once the vision is adopted by a community, they can amend their master plan to include GMM language and data sets and they can amend zoning codes to more fully support the recommendations of GMM. GLRC members and partners that have adopted the GMM vision include: Eaton County Board of Commissioners, Clinton County Board of Commissioners, Ingham County Park Commission, Eaton Conservation District, Ingham County Road Department, Delhi Charter Township, Delta Charter Township, Lansing Charter Township, Meridian Charter Township, the City of Lansing, and the City of East Lansing.

## **IMPLEMENTATION COMMITTEE ACTIVITIES**

### **Public Education Program (PEP) Committee**

The PEP Committee met on the following dates:

- October 16, 2014
- November 16, 2015

#### *Committee Activities:*

The PEP Committee has developed a variety of educational materials and implemented a number of outreach activities that are described in detail in the Public Education Plan later in this report. In addition to those activities, the committee has worked on the following:

**Regional Water Quality Survey** – As stated in previous progress reports, the survey results continue to be used as a tool for the PEP Committee regarding all educational efforts and public participation. In November 2012 the survey was re-administered to evaluate progress in raising the public’s awareness of their impact on water quality in the region. The survey results can be found on the GLRC website here: <http://mywatersheds.org/resources/publications/>

**Education and Outreach Library** – The library was developed on the website to allow GLRC members and the public to review files for education purposes. These files include brochures, presentations, press releases and other information that municipalities may wish to use to promote our purpose. The website continues to be updated regularly to include many educational materials to encourage public involvement and education.

**“For Educators” Webpage** – The PEP Committee maintains a webpage on the GLRC website just for

educators in the region. The page serves as a resource guide for local teachers, workshop leaders, or anyone interested in environmental education. State and federal environmental curriculum is highlighted as well as links to local resources for field trips, in-classroom presentations, etc. It includes resources and example projects that the schools can integrate into their current activities. The webpage also serves as a toolbox for teachers and school district officials that are required to meet MS4 permit requirements. This page continues to be updated on a regular basis.

**Environmental Education Curriculum** – The Michigan Environmental Education Curriculum Support (MEECS) provides environmental curriculum to all school districts in Michigan. The MEECS curriculum is posted to the GLRC website.

**Adopt A River** – The GLRC display was part of the environmental fair at the Adopt A River events held on May 3, 2014 and May 9, 2015. A demonstration of stormwater runoff was included. More than 500 residents participate in this event each year.

**Radio Show** – The GLRC Coordinator was interviewed on the local 92.9 FM WLMI Tim Barron morning radio show on April 11, 2014, July 10, 2014, October 16, 2014, and March 16, 2015. Topics included septic tank maintenance, fertilizer use, leaf pick up, reporting of spills and overall awareness of rivers and streams.

**Public Presentations** – The following public presentations were made on behalf of the GLRC within the reporting period:

- August 18, 2014: Presented the Totally Topography activity to 25 young students at the Educational Child Care Center in Lansing. The activity demonstrates runoff using play dough and spray bottles.
- October 17, 2014 and September 23, 2015: The TCRPC hosted two Ultimate Mid-Michigan Bus Tours for elected officials to tour the region and learn about green infrastructure, downtown redevelopment and local farming initiatives. The GLRC Coordinator shared the importance of stormwater and natural resources management on both tours. More than 50 people attended each tour.
- November 12, 2014: Provided the TCRPC Program and Grant Committee with an overview of the Pollution Isn't Pretty outreach campaign.
- January 22, 2015: Presented on GLRC and MGROW activities at the TCRPC Sustainability Symposium. More than 100 people attended.
- May 1, 2015: Participated in a panel discussion with the City of Lansing to answer general stormwater questions at the Michigan Environmental Council – Mid-Michigan Regional Meeting.
- August 26, 2015: Presented to the Kiwanis Club of Mason Golden K about stormwater management, the purpose of the GLRC, and what homeowners can do to reduce pollution. Approximately 30 people attended.
- September 17, 2015: In partnership with the Eaton Conservation District and several other organizations, the GLRC participated in a Celebrate Our Rivers event on the Michigan



Princess Riverboat. The GLRC Coordinator shared the message about the work of the GLRC municipalities. More than 130 people attended.

- November 19, 2015: Shared the REACH Studio Art Center storm drain awareness project video with the TCRPC Commissioners. The young artists were presented with a resolution of recognition for their efforts.
- March 10, 2016: Presented to more than 75 students at the MSU Science Festival about stormwater runoff using the Totally Topography activity.
- March 29, 2016: Presented at the MWEA Watershed Summit about ordinance manuals and different land use policy recommendations for protecting water quality.

**GLRC Annual Report** – The first GLRC Annual Report was developed in early 2012 (reporting on 2011). The intent of the 10-page report is for GLRC members to share it with their boards, councils and commissions in order to demonstrate the work completed throughout the year. TCRPC also shares the report with all commissioners and uses it to provide several different audiences with an overview of GLRC activities. The effort continues with reports developed through 2015.

**GLRC Quarterly Newsletters** – The GLRC began publishing quarterly newsletters in January 2010 and continues to do so. The newsletters are posted online and sent to an email distribution list of 150 stakeholders. It is recommended that GLRC members share the newsletters with elected officials and appropriate boards, councils and commissions.

**Social Media** – The GLRC joined Facebook and Twitter in December 2009. Regular posts/updates are related to watershed stewardship, public involvement and participation. GLRC and partner events are also posted frequently. Currently 113 people “like” the GLRC on Facebook (an increase of 67 since 2013) and 229 individuals “follow” the GLRC on Twitter (an increase of 212 since 2013). The committee hopes to strengthen the GLRC presence through these avenues in the future. Facebook ads have been purchased to boost some messages directing people to the GLRC website. Pages can be accessed at: <https://www.facebook.com/GLRC4stormwater/> and <https://twitter.com/GLRC4stormwater>.

**Calendar Updates** – The committee is continuously updating the GLRC calendar with applicable meetings, webinars, educational opportunities, recreation and cleanup activities throughout the watersheds. The calendar can be viewed by both GLRC members and the public.

**General Outreach/Education Efforts** – The GLRC partners with several different groups, agencies and organizations in the region. Activities completed within this reporting period include:

- MWEA Watershed Committee – GLRC Coordinator attends MWEA Watershed Committee meetings and provides some support to the group related to the MS4 permit application process.
- December 2014; 2015 – Promoted annual MWEA Watershed Seminar. GLRC Coordinator attended.
- March 2014; 2015; 2016 – GLRC display was on exhibit at the MWEA Watershed Summit.
- March 2014 – Provided letter of support to Mid-MEAC regarding a grant application to MiCorps Volunteer Stream Monitoring Program.

- August 2014 – Provided 25 posters to the Grand Learning Network to share with their partner schools. Posters were displayed in classrooms and lobbies.
- May 2015: Attended three training sessions (over 12 weeks) from Water Words that Work, LLC. The sessions focused on improving education and outreach, finding the target audience, and using appropriate language in outreach campaigns.
- August 2015: Provided input, guidance, and recommendations for the TCPRC report: *Tri-County Water Policies & Programs Guide*. The report can be accessed at: <http://www.mtcrpc.org/env.htm>
- August 2015: The Bill Earl Fishing Map was printed and the GLRC provided language and PIP graphics to discuss the importance of riparian buffers. Five thousand copies have been printed.
- August and October 2015: HOMTV interviewed the GLRC Coordinator twice. Topics included stormwater management and pet waste management.
- January 2016: Provided letter of support to Ingham Conservation District in support of a Red Cedar River Clean-up grant application.
- The GLRC Coordinator has consistently provided notices to GLRC members regarding anything relevant to the MS4 program including seminars, training, webinars, legislative updates, etc.

### **IDEP Committee**

All GLRC members are well into implementation of their individual IDEP programs. The GLRC Coordinator is partnering with the local watershed management planning efforts to expand efforts related to pet waste reduction techniques, on-site septic system management, and other ways to reduce illicit connections. Providing staff training for GLRC members is the main focus of the Committee.

The IDEP Committee met on December 3, 2015 for a roundtable discussion and staff training. The Excal Video: *Illicit Discharge Detection & Elimination: A Grate Concern* video was shown to the 39 attendees. Videos are available for use by GLRC members.

### **Ordinance/ BMP Committee**

The Ordinance/BMP Committee's main function is to provide guidance related to facility inspections and conduct staff training. This is done in conjunction with the IDEP Committee staff training. On December 3, 2015, the IDEP Committee met and conducted staff training for both IDEP and good housekeeping techniques. The Excal Video: *Rain Check: Stormwater Pollution Prevention for MS4s* was shown to the 39 attendees.

#### *Committee Activities:*

**MDEQ Industrial Stormwater Operator Training** – On May 28, 2015, 24 people attended the MDEQ training to certify new Industrial Stormwater Operators and recertify existing Industrial Stormwater Operators. The GLRC Coordinator was recertified through this training. The MSU Industrial Stormwater Operator attended this training session.

**Good Housekeeping Training Videos** - In the spring of 2012 the Ordinance/BMP Committee purchased

the Excal Video: *Rain Check: Stormwater Pollution Prevention for MS4s* to assist GLRC members in meeting their MS4 permit requirements for good housekeeping/pollution prevention training. The video complements another available Excal video the GLRC has used for several years: *Storm Watch: Municipal Stormwater Pollution Prevention*. Both videos are available for all GLRC members to use. Members can also ask the GLRC Coordinator to conduct the training.

**GLRC PCSWC Manuals** – In February 2011, the PCSWC Technical Workgroup provided GLRC members with template PCSWC manuals for both design standards and policy/procedures. This effort also included a draft ordinance. This regional approach creates an equitable environment for future development and redevelopment that meets federal permit requirements. GLRC Members are implementing these guidelines into their site plan review and development processes.

### **Other GLRC Activities**

**Water Quality Mapping Database** - Data management is an important part of evaluating success and challenges in the watersheds. The committee has been maintaining the water quality database originally created in 2007 with GIS capability. The main purpose of the database is to organize past, current, and future water quality data in conjunction with available land use data to help protect and improve water quality in the region. The database is primarily used for viewing current information in a comprehensive, visual format. The pending 319 watershed implementation grant proposal includes additional work pertaining to water quality monitoring and tracking.

**Ingham County Surface Water Monitoring Program (*E. Coli*)** – The Ingham County Health Department tests regular sites for *E. Coli*. Sampling has been conducted through this program for more than ten years. The GLRC continues to compile the data for inclusion in the water quality database.

### **Recreation Efforts**

The GLRC promotes partner efforts and recreational events through the website and social media.

### **Michigan State University Stormwater Management Program (SWMP)**

Stormwater is managed on the MSU campus by a team of faculty, staff and students representing a broad cross-section of the University. Units and Departments that are playing a role in managing stormwater runoff and implementing the University's Stormwater Management Program (SWMP) include the Office of Environmental Health and Safety (EHS), IPF Planning, Design and Construction (PDC), IPF Landscape Services, IPF Power and Water, Land Management Office, Campus Planning and Administration, Office of Campus Sustainability, Residential and Hospitality Services, Institute of Water Research, MSU Police, Department of Community Sustainability, Department of Biosystems and Agricultural Engineering, and Department of Horticulture.

A Stormwater Committee comprised of representatives from a subset of these units and chaired by the University Engineer guides the implementation of the SWMP. The committee meets monthly to oversee SWMP activities and to direct additional campus-based stormwater activities. A list of committee members is available here: <https://ipf.msu.edu/green/water/stormwater-committee.html>



## STORMWATER MANAGEMENT PROGRAM COMPONENTS

The following are required components of the SWMP:

**Public Education Plan (PEP)**, to promote, publicize, and facilitate education for the purpose of encouraging the public to reduce the discharge of pollutants to stormwater to the maximum extent practicable.

**Public Participation/Public Involvement (PPP)**, to share components of the SWMP and encourage participation in its review and implementation

**Illicit Discharge Elimination Program (IDEP)**, to detect and eliminate illicit connections and discharges to the MS4.

**Post Construction Stormwater Runoff** for New Development and Redevelopment Projects, to address post-construction stormwater runoff from projects that disturb one acre or more, including projects less than one acre that are part of a larger common plan of development that would disturb one acre or more.

**Construction Stormwater Runoff Control**, to augment Part 91 rules dealing with soil erosion, offsite sedimentation and other construction-related wastes.

**Pollution Prevention and Good Housekeeping Program**, to minimize pollutant runoff to the maximum extent practicable from municipal operations that discharge stormwater to the surface waters of the state.

## Public Education Plan and Public Participation

The MSU Stormwater Public Education Plan (PEP) seeks to promote, publicize, and facilitate watershed education for the purpose of encouraging the public to reduce the discharge of pollutants in stormwater to the maximum extent practicable. The PEP has been developed to ensure that the targeted audiences are reached with the appropriate messages for the following topics:

- A. *Promote public responsibility and stewardship in the applicant's watershed(s).*
- B. *Inform and educate the public about the connection of the MS4 to area waterbodies and the potential impacts discharges could have on surface waters of the state.*
- C. *Educate the public on illicit discharges and promote public reporting of illicit discharges and improper disposal of materials into the MS4.*
- D. *Promote preferred cleaning materials and procedures for car, pavement, and power washing.*
- E. *Inform and educate the public on proper application and disposal of pesticides, herbicides, and fertilizers.*
- F. *Promote proper disposal practices for grass clippings, leaf litter, and animal wastes that may enter into the MS4.*
- G. *Identify and promote the availability, location, and requirements of facilities for collection or disposal of household hazardous waste, travel trailer sanitary wastes, chemicals, yard wastes, and motor vehicle fluids.*
- H. *Inform and educate the public on proper septic system care and maintenance, and how to recognize system failure.*
- I. *Educate the public on, and promote the benefits of, green infrastructure and Low Impact Development.*
- J. *Promote methods for managing riparian lands to protect water quality.*
- K. *Identify and educate commercial, industrial, and institutional entities likely to contribute pollutants to stormwater runoff.*

As required by the stormwater permit, the GLRC PEP Committee prioritized the public education topic areas into high, medium and low categories. Many factors were considered in this process including survey results, available resources, cost effective outreach methods, existing public knowledge levels and potential for collaborating with other programs currently underway (e.g., Greening Mid-Michigan).

### High priority topics areas include:

- *Inform and educate the public about the connection of the MS4 to area waterbodies and the potential impacts discharges could have on surface waters of the state.*

- *Educate the public on illicit discharges and promote public reporting of illicit discharges and improper disposal of materials into the MS4.*
- *Educate the public on, and promote the benefits of, green infrastructure and Low Impact Development.*

The following PEP activities were undertaken by MSU and the GLRC during the period January 2014-March 2016. Activities in the PEP include those that are watershed-wide and thus implemented in partnership with the GLRC as well as activities planned and implemented solely on the MSU campus.

**PEP Implementation Plan**

Activities listed below correspond directly with the eleven topic areas A - K for compliance. For all applicable topics, the PEP identifies:

1. Target audiences
2. Applicable topic areas and priority level
3. Key messages
4. Delivery mechanisms
5. Timetable
6. Responsible party (or parties)
7. Evaluation techniques

**(A) Promote public responsibility and stewardship in the applicant’s watershed(s).**

**Activity:** Participate in the Greening Mid-Michigan (GMM) Project, a regional green infrastructure (GI) vision video production  
**Corr. topic area:** A  
**Priority:** High  
**Target audience:** Public  
**Key message:** A video was produced with WKAR that promotes GI techniques, demonstrating how they lead to improved land use and water resources management. It includes shorter sound bites specifically related to stormwater management.  
**Delivery Mech.:** GLRC website, social media, WKAR local TV, municipal TV, and MSU-WATER website  
**Timetable:** 2014  
**Responsibility:** GLRC Coordinator and MSU-IWR  
**Evaluation:** Available at: <http://msu-water.msu.edu/what-is-stormwater/>

**Activity:** Continue to maintain watershed signage at road and river crossings.  
**Corr. Topic area:** A, C  
**Priority:** Medium  
**Target Audience:** Public  
**Key message:** Promoting local water resources, connecting the public to their surrounding environment. Signs read “Please Protect the Red Cedar River Watershed.”  
**Delivery Mech.** Passing vehicles, people biking, walking or running will view the signs.  
**Timetable:** Signs are in place and maintained by Landscape Services  
**Responsibility:** MSU Landscape Services



**Evaluation:** More than 50,000 students are enrolled at the East Lansing campus. Signage is maintained at the Farm Lane Bridge, which is a main roadway through the campus.

**Activity:** Use “Do you know your watershed?” brochure and update as appropriate.

**Corr. Topic area:** B

**Priority:** Medium

**Target audience:** Public

**Key message:** The brochure educates the public about what a watershed is, our local watersheds and general information about watershed protection.

**Delivery Mech:** Posted on the GLRC website, handed out at public events.

**Timetable:** The brochure is used at all public events (Adopt A River, Quiet Water Symposium, Michigan Water Environment Association (MWEA Watershed Summit), and updated as appropriate.

**Responsibility:** PEP Committee and MSU

**Evaluation:** The brochure is accessible on the MSU-WATER website: <http://msu-water.msu.edu/wp-content/uploads/2014/06/Watershed-Brochure-EDIT.pdf>

**Activity:** Use informational display and handout materials for use at various campus events.

**Corr. Topic area:** B, C, I

**Priority:** Medium

**Target audience:** MSU Students faculty, staff and visitors to campus

**Key message:** Our actions affect our local watersheds; report illicit discharges; take individual action to protect water quality

**Delivery Mech:** Display is used at a variety of local events.

**Timetable:** An MSU-specific watershed display, using the Pollution Isn’t Pretty tagline, was developed in 2014 for use at various events.

**Responsibility:** MSU-IWR

**Evaluation:** Events included Autumnfest in November 2014 and 2015 (estimated 700 attendees per year), Grandparents University in June 2014 and 2015 (50 attendees per year), Ag Expo in July 2014 (1000 attendees), Red Cedar Salmon Run in November 2014 and October 2015 (125 attendees), Children’s Water Festival, May 2014 (100 students).

**Activity:** Update basic educational graphic with tag line and GLRC website

**Corr. Topic area(s):** B, C, D, E, F, G, H, I, J, K (all)

**Priority:** Medium

**Target audience:** Public

**Key message:** Pollution awareness using the tagline “Pollution Isn’t Pretty

**Delivery Mech:** Various handout materials, billboard and website links

**Timetable:** 2014-ongoing

**Responsibility:** PEP Committee

**Evaluation:** The graphics are displayed on the GLRC and MSU-WATER Website and are included in all education materials.

**Pollution Isn’t Pretty (PIP)** - Originally funded by TCRPC’s Mid-Michigan Program for Greater Sustainability; MGROW has facilitated the use of the water resources education campaign entitled: Pollution Isn’t Pretty. The PIP campaign was professionally designed and is being used consistently across the region. For more information visit the website: <http://www.pollutionisntpretty.org>



**Billboard Public Service Announcement (PSA)** – In 2014 the PEP Committee partnered with the ECD to have 10 billboards displayed across the urbanized area. The PIP campaign was used. The following table summarizes the average daily traffic:

Billboard Statistics - March 3, 2014 - May 14, 2014				
2014	Location Description	Average Daily Traffic	No. of Days	Total Traffic
Location 1	Larch St/Kalamazoo St	12,700	72	914,400
Location 2	Holmes Rd/Washington Ave	8,774	72	631,728
Location 3	Lansing Rd/Canal Rd	12,100	72	871,200
Location 4	Grand River Ave/DeWitt St	13,600	72	979,200
Location 5	Cedar St/Willoughby Rd	45,853	72	3,301,416
Location 6	Pennsylvania Ave/Tisdale St	13,400	72	964,800
Location 7	MLK Blvd/Haag	18,100	72	1,303,200
Location 8	Lansing Rd/Waverly Rd	7,900	72	568,800
Location 9	I-96/Jones Rd	40,600	72	2,923,200
Location 10	East St/Fredrick St	14,300	72	1,029,600

**Total number of traffic for length of campaign:** 13,487,544

*Average Daily Traffic Counts provided by Tri-County Regional Planning Commission*



**PIP Movie Theater Ads/PSA** – The GLRC worked with Clear Water Media to develop four, 15-second public service announcements. They are used on social media and websites. They were shown at the local movie theaters (Studio C, Celebration Cinema and the Lansing Mall NCG) in October and November of 2015. In addition, the Charlotte Allive Center and Charlotte Public Schools Public Access channel ran the videos. They can be viewed here: [https://www.youtube.com/channel/UCm-2OdB67N\\_dSAnR5osYSFw](https://www.youtube.com/channel/UCm-2OdB67N_dSAnR5osYSFw).

**Storm Drain Art Awareness** – The GLRC and ECD partnered with the City of Lansing and the REACH Studio Art Center Teen Open Studio to complete four murals around storm drains in the urbanized area. The murals are in close proximity to the Grand River. The GLRC Coordinator gave a presentation to the teen artists on stormwater, how it is managed through the MS4 and why it is important to protect our rivers. You can learn more about the project here: <https://www.youtube.com/watch?v=HHU1VsXxnJ4>. The murals are expected to last approximately 5-7 years with re-sealing every couple of years.



**City Pulse Advertisements** – In partnership with the ECD, the GLRC purchased ad space in the Lansing City Pulse for the months of January and February 2016. The ads include ¼ page space and 30 days of an



online ad was included. The images change every week and are from the PIP campaign. The City Pulse has an audience of over 50,000 readers each week for the weekly print newspaper and over 30,000 people each week online. They have more than 500 distribution locations in the Greater Lansing area.

**Activity:** Utilize existing news articles and update them to be more flexible with different media outlets (Twitter, shorter columns, etc.).  
**Corr. Topic area(s):** B, C, D, E, F, G, H, I, J, K (all)  
**Priority:** Medium  
**Target audience:** Public, elected officials  
**Key message:** Articles cover the following topics:

What is a Watershed	Pet Waste
Riparian Areas	Storm v. Sanitary Sewer
Who/What is the GLRC	Car Washing
Onsite Septic Systems	Adopt Your Catch Basin
Fertilizers	Illicit Discharges
Vehicle Maintenance	Wetlands

**Delivery Mech:** Articles are posted on the GLRC website and MSU-WATER website.  
**Timetable:** Ongoing  
**Responsibility:** GLRC Coordinator, PEP Committee and MSU-IWR  
**Evaluation:** The articles are available at: <http://msu-water.msu.edu/what-is-stormwater/>

**Activity:** Children’s Water Festival Participation  
**Corr. Topic area(s):** B, C, D, E, F, G, H, I, J, K (all)  
**Priority:** Medium  
**Target audience:** Elementary students, teachers and parents  
**Key message:** Water resource awareness, pollution prevention, source water protection, water conservation, infiltration, etc.  
**Delivery Mech:** Direct communication with teachers (mail, phone, etc.)  
**Timetable:** May 2014  
**Responsibility:** GLRC Coordinator. The University provided financial support, offered volunteer presenters for the festival, and provided the venue for the event.  
**Evaluation:** MSU provided two presenters for the May 2014 Children’s Water Festival. One of the sessions focused specifically on stormwater pollution prevention.

**Activity:** Red Cedar River Cleanup Events  
**Corr. Topic Area(s):** B, C, I  
**Priority:** Medium  
**Target Audience:** Students, visitors, faculty and staff  
**Messages:** Individual involvement in stewardship has a synergistic effect  
**Description:** The MSU Fisheries and Wildlife Club, Residential Instruction on the Study of the Environment (RISE) and other student organizations host fall and spring cleanup events on the Red Cedar River.  
**Timetable:** Fall and Spring of each year  
**Responsibility:** Student organizations, Landscape Services, Residential and Hospitality Services, Surplus Store & Recycling Center

**Evaluation:** Cleanup events were held on April 7 and October 19, 2014. The 2014 events drew more than 200 volunteers and collected 4,200 pounds of bikes and metal materials. Cleanups were also held on April 19 and October 18, 2015, with a total of approximately 250 volunteers and 5,043 pounds of bikes and metal materials collected.

**Activity:** Website Development

**Corr. Topic Area(s):** B, C, D, E, F, G, H, I, J, K (all)

**Priority:** Medium

**Target Audience:** Students, faculty, staff, citizens

**Key messages:** Watershed management is an important concept; MSU and the GLRC are taking a proactive approach toward it.

**Description:** Various stormwater-related materials are provided.

**Timetable:** Ongoing

**Responsibility:** GLRC and MSU-IWR

**Evaluation:** Website statistics

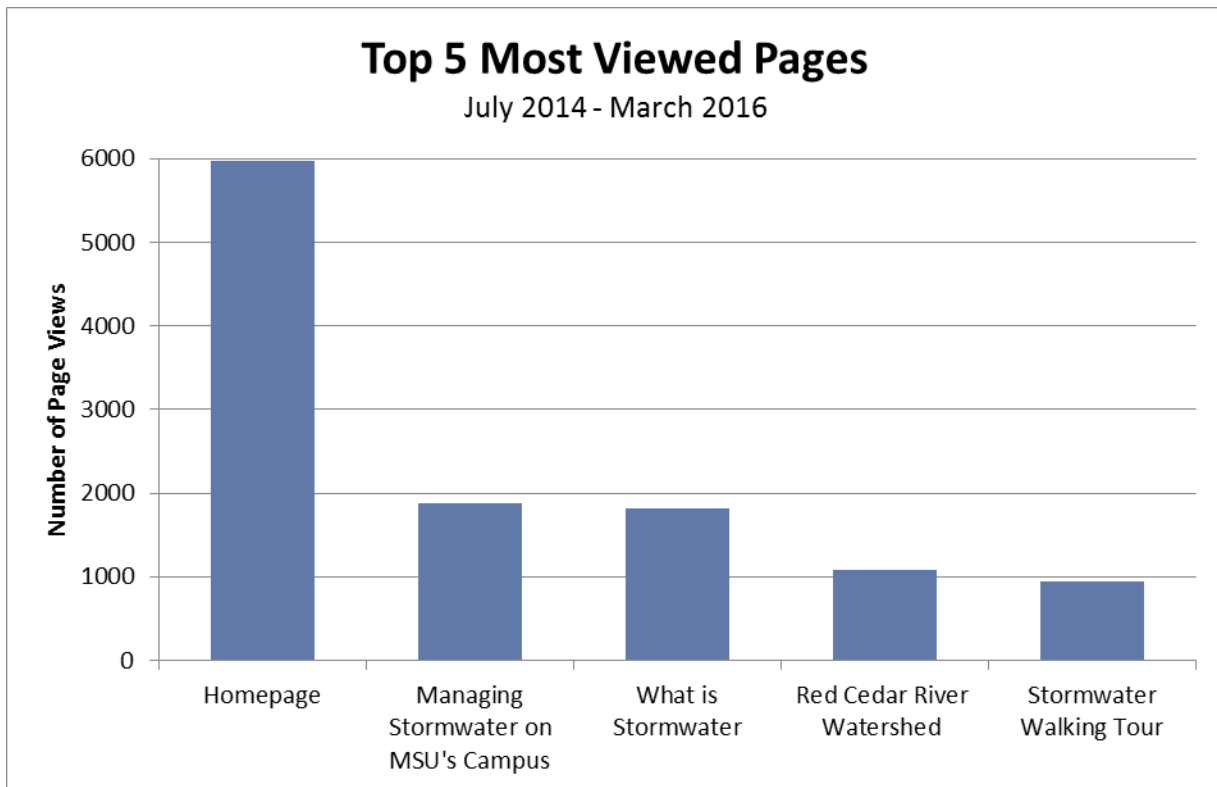
**GLRC Website [www.mywatersheds.org](http://www.mywatersheds.org)** - the public website for the GLRC is maintained and updated on a regular basis. The website includes information relating to watersheds, stormwater stewardship, GLRC reports, educational information, links to other environmental organizations and more. All public education outreach materials developed by the GLRC direct the viewer to the website. The website was updated in the spring of 2015.

The PEP Committee reviews the website stats on a regular basis. In 2014 the website had 3,861 page views (an increase of 691 views from 2013) and 1,738 visitors (an increase of 328 from 2013). In 2015, the website had 7,115 page views (and increase of 3,254 from 2014) and 4,412 users (an increase of 2,674 from 2014). There has been a significant increase in website traffic with the website redesign along with a multi-media outreach effort.

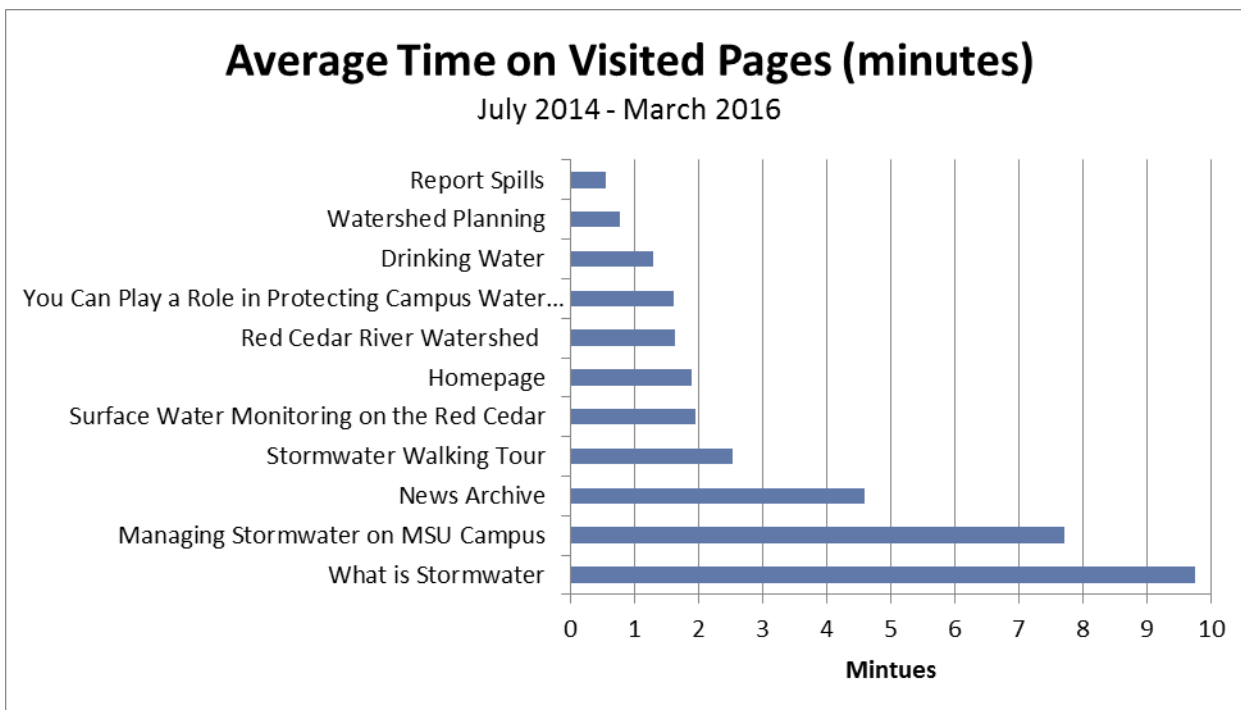
On July 30, 2015, a Website Workshop was held for GLRC. An MSU representative participated in the workshop. The workshop shared example websites and offered suggestions for stormwater-related materials that could be shared via community websites.

**MSU-WATER Website [www.msu-water.msu.edu](http://www.msu-water.msu.edu)** – the website includes information about the Red Cedar River, educational materials, upcoming events and links to the GLRC website and other stormwater-related sites. The website was redesigned in 2014 to address MS4 permit requirements and to incorporate additional information about the Red Cedar River watershed planning process. The site includes a link to MSU’s stormwater permit and SWMP: <http://msu-water.msu.edu/managing-stormwater-on-the-msu-campus/>

Google Analytics data collection on the redesigned site began in July 2014. The following data and charts represent data from July 2014 to mid-March 2016. Bot traffic (i.e., traffic from software applications) was removed from the data. A total of 4,074 sessions were logged from July 2014-March 2016, 72% of which were new users. The overwhelming majority of sessions were from the Mid-Michigan area.



The top 5 most viewed pages on the MSU-Water website are displayed above. Note that the chart figures include repeated views of each page.



This chart displays the average amount of time in minutes a user spent on a given page on the website. The



time spent on the “What is Stormwater” page averaged 9.8 minutes between July 2014 and March 2016. This may indicate that users spent time reading through the various Q&As about stormwater runoff, watched a portion of the “Protecting Mid-Michigan’s Waterways” video or browsed through the various resources available on the page.

***(B) Inform and educate the public about the connection of the MS4 to area waterbodies and the potential impacts discharges could have on surface waters of the state.***



**Activity:** Affix curb markers to catch basins  
**Corr. Topic area:** A, C  
**Priority:** High  
**Target Audience:** Students, faculty, staff, visitors  
**Key message:** Bring awareness to the general public that storm drains flow to waterways of the state, to not dump pollutants into the drains.  
**Delivery Mech.** Continue the campus curb marker labeling program, and provide ongoing maintenance for catch basin curb markers.  
**Timetable:** Continued from second permit cycle.  
**Responsibility:** MSU Environmental Health and Safety (EHS) and IWR  
**Evaluation:** Curb markers are checked each summer season. In 2014, 442 labels were replaced, and in 2015, 315 labels were replaced. EHS maintains records of label replacements.

**Activity:** Student Outreach  
**Corr. topic area:** A,C  
**Priority:** High  
**Target audience:** Students (both on- and off- campus)  
**Key message:** Stormwater runoff and how students can play a role in protecting water quality  
**Delivery Mech.:** Displays at RHS Neighborhood Engagement Centers  
**Timetable:** 2014-2016  
**Responsibility:** Residential and Hospitality Services, MSU-IWR  
**Evaluation:** Posters were developed in 2014, and two posters were displayed in all residence halls over the course of the 2015-2016 school year. That includes 283 floor boards and 26 lobby boards, for a total of 309 locations. Approximately 17,000 students live in the residence halls.

Six posters were developed for use with student and faculty/staff education programs. The posters include the PIP graphics and MSU-WATER website address.

***(C) Educate the public on illicit discharges and promote public reporting of illicit discharges and improper disposal of materials into the MS4.***

**Activity:** Maintain the GLRC website for community-specific pollution reporting phone numbers for illicit discharges.  
**Corr. Topic area:** N/A  
**Priority:** High  
**Target audience:** Public  
**Key message:** To report illicit discharges (description provided), illegal dumping, etc.  
**Delivery Mech.** GLRC website and social media, MSU IPF website  
**Timetable:** Currently in place, ongoing activity.  
**Responsibility:** GLRC Coordinator, PEP Committee, MSU IPF

**Evaluation:** Reporting information is available at <http://msu-water.msu.edu/report-spills/>

**Activity:** Employee Information Dissemination – Written Materials

**Corr. Topic Area(s):** A, B, I

**Priority:** High

**Target Audience:** Campus Community, IPF Staff Members

**Key Message:** General watershed and stormwater information; How to spot and report illicit discharges

**Delivery Mech.:** Articles and videos that discuss stormwater-related issues, including reporting illicit discharges, benefits of low impact design and how the campus is managing stormwater

**Timetable:** Current Permit Cycle

**Responsibility:** Campus Sustainability, IPF communications staff and IWR

**Evaluation:** The following article and video were developed in 2015:

**Stormwater Video:**

Protecting and preserving Michigan State’s water resources  
[https://www.youtube.com/watch?v=XIfZYECE\\_SE](https://www.youtube.com/watch?v=XIfZYECE_SE)

Total views: 287

**Stormwater Article:**

Protecting and preserving our shared water resources  
<http://bespartangreen.msu.edu/news.php?id=2015-07-01-protecting-and-preserving-our-shared-water-resources>

Total views: 245

**Activity:** Employee Information Dissemination – Staff Training

**Corr. Topic Area(s):** A, B

**Priority:** High

**Target Audience:** RHS and IPF Environmental Stewards

**Key Message:** General watershed and stormwater updates; How to spot and report illicit discharges

**Delivery Mech.:** As part of ongoing Environmental Stewards training, provide stormwater information and materials

**Timetable:** Current Permit Cycle

**Responsibility:** IPF communications staff, RHS Sustainability and IWR

**Evaluation:** Stormwater collaboration was discussed at a Sustainability breakfast meeting in March 2016. Ongoing collaborations with MSU Sustainability, RHS and IWR were strategized. In addition, a PIP information campaign timeline was developed by Campus Sustainability and IWR. Online stormwater training is also offered. During the reporting period, 279 individuals completed the online training program.

***(D) Promote preferred cleaning materials and procedures for car, pavement, and power washing.***

**Activity:** Series of posters and brochures covering: car washing, pet waste, motor oil and fertilizer reduction.

**Corr. Topic area(s):** A, B, F, G

**Priority:** Medium  
**Target audience:** Public  
**Key message:** The posters and brochures describe the impact that bad practices related to car washing, pet waste disposal, motor oil disposal and fertilizer application can have on water quality. They also provide alternatives or best management practices for each of the four topics.  
**Delivery Mech.** Posters and brochures are available in hard copy for use at various events. They are also posted to the GLRC and MSU-WATER website.  
**Timetable:** Continuous use at public events (Adopt A River, Quiet Water Symposium, MWEA Watershed Summit), etc., update as appropriate.  
**Responsibility:** GLRC Coordinator, PEP Committee and MSU-IWR  
**Evaluation:** Posters are available on the GLRC website.

*(E) Inform and educate the public on proper application and disposal of pesticides, herbicides, and fertilizers.*

See corresponding topic area G below.

*(F) Promote proper disposal practices for grass clippings, leaf litter, and animal wastes that may enter into the MS4.*

**Activity:** Promote existing materials related to grass clippings and leaf litter.  
**Corr. Topic area(s):** A, K  
**Priority:** Medium  
**Target audience:** Public, small businesses  
**Key message:** Use the best management practices for management of grass clippings and leaf litter.  
**Delivery Mech.** Website and social media postings, promoted through the GLRC educational display.  
**Timetable:** Ongoing  
**Responsibility:** GLRC Coordinator  
**Evaluation:** Information is available on the GLRC website.

*(G) Identify and promote the availability, location, and requirements of facilities for collection or disposal of household hazardous waste, travel trailer sanitary wastes, chemicals, yard wastes, and motor vehicle fluids.*

**Activity:** Promote local Household Hazardous Waste Collection and Recycling Events.  
**Corr. Topic area(s):** D, E,  
**Priority:** Medium  
**Target audience:** Public, small businesses  
**Key message:** Pollution prevention by using available resources for appropriate disposal of waste.  
**Delivery Mech.** GLRC website, social media  
**Timetable:** Continuous, updates as necessary and as events are scheduled.  
**Responsibility:** GLRC coordinator. MSU Surplus Store and Recycling Center promotes recycling and community reuse days.  
**Evaluation:** Materials are available on the GLRC website.

A fact sheet describing locations for campers to dump their travel trailer waste was developed. The GLRC

fact sheet providing an overview of the group and six minimum measures was updated to utilize the PIP campaign. The fact sheets can be found here: [http://mywatersheds.org/wp-content/uploads/2015/07/GLRC\\_RV-Dumping-Site-Directory.pdf](http://mywatersheds.org/wp-content/uploads/2015/07/GLRC_RV-Dumping-Site-Directory.pdf)  
[http://mywatersheds.org/wp-content/uploads/2015/02/GLRC-Fact-Sheet\\_new.pdf](http://mywatersheds.org/wp-content/uploads/2015/02/GLRC-Fact-Sheet_new.pdf)

***(H) Inform and educate the public on proper septic system care and maintenance, and how to recognize system failure.***

**Activity:** Promote and post local Point of Sale/Time of Sale septic/well inspection ordinances in Eaton and Ingham Counties. Also partner with local 319 groups addressing existing *E.coli* TMDL, post materials developed, explore educational opportunities, etc.

**Corr. Topic area(s):** A

**Priority:** Low

**Target audience:** Public

**Key message:** Maintain your septic system; it could be contaminating local water bodies through stormwater runoff.

**Delivery Mech.:** GLRC website, social media

**Timetable:** Continuous

**Responsibility:** GLRC coordinator

**Evaluation:** Not yet completed

***(I) Educate the public on, and promote the benefits of, green infrastructure and Low Impact Development.***

**Activity:** LID Signage

**Corr. topic area:** A

**Priority:** High

**Target audience:** Students, faculty, staff and visitors to campus

**Key message:** Signs promote the benefits of GI

**Delivery Mech.:** Signs will be posted at various LID practices on campus

**Timetable:** At least two signs posted over the permit cycle

**Responsibility:** IPF, Surplus Store and Recycling, MSU-IWR

**Evaluation:** In 2014 MSU completed the development of a Stormwater Walking Tour and associated signage. Information is available at the MSU-WATER website: <http://msu-water.msu.edu/stormwater-walking-tour/>. The tour has been used in 2014 in CSUS 354, an undergraduate water resources management class, in 2015 in CSUS 200, Introduction to Sustainability, and with the Lake and Stream Leaders Institute in 2015.

***(J) Promote methods for managing riparian lands to protect water quality.***

**Activity:** Riparian buffer brochure developed, other resources posted to the GLRC website

**Corr. topic area:** A

**Priority:** Medium

**Target audience:** Riparian landowners

**Key message:** The brochure provides general information about native riparian buffers and why they are important for water quality and habitat.



**Delivery Mech.:** GLRC website, social media, use with educational display, MSU-WATER website  
**Timetable:** Ongoing  
**Responsibility:** GLRC Coordinator  
**Evaluation:** The brochure is available on the GLRC website.

**Activity:** Grow Zone Signage  
**Corr. topic area:** A  
**Priority:** Medium  
**Target audience:** Students, faculty, staff and visitors to campus  
**Key message:** Signs emphasize importance of buffers for protecting waterways  
**Delivery Mech.:** Signs are posted along the campus stretch of the river corridor  
**Timetable:** Ongoing  
**Responsibility:** Landscape Services  
**Evaluation:** Signage is being maintained.

*(K) Identify and educate commercial, industrial, and institutional entities likely to contribute pollutants to stormwater runoff.*

**Activity:** Explore opportunities to connect with local business regarding pollution prevention through stormwater runoff. This may include business publications, presentation to associations and focus groups.

**Corr. topic area(s):** A  
**Priority:** Medium  
**Target audience:** Businesses, industries, institutions  
**Key message:** Improve stormwater management to reduce pollution.  
**Delivery Mech.:** TBD  
**Timetable:** GLRC Coordinator will outreach to local businesses twice per permit cycle.  
**Responsibility:** PEP Committee  
**Evaluation:** Not Yet Completed

**Activity:** Proper Waste Disposal Information Dissemination  
**Corr. Topic Area:** N/A  
**Target Audience:** Faculty, Staff and Students  
**Key Message:** Proper waste disposal  
**Delivery Mech:** The Office of Environmental Health and Safety (formerly ORCBS) at MSU is an independently-reporting administrative support unit created to provide educational and consultative programs and services to the faculty, staff and students of Michigan State University. Through onsite visits and training programs, EHS personnel address proper handling, transportation and disposal of generated hazardous waste; various Chemical, Radiation, Environmental and Biological support training; Laboratory Safety and Inspections; State and Federal regulation compliance requirements  
**Timetable:** Ongoing  
**Responsibility:** EHS  
**Evaluation:** EHS documents visits to various campus units.

## Other MSU Stormwater Outreach Activities

**Networked Neighborhoods for Eco-Conservation Online (NECO)** – MSU-IWR continued to promote the NECO website, which uses both social networking and mapping technology to link people together with common goals of improving the environment in the Great Lakes Basin, their watershed, city, town or own back yard. More information can be found at the NECO website: [www.networkedneighbors.org](http://www.networkedneighbors.org)



**February 2014 and May 2015** - Meetings to discuss the campus stormwater permit and management activities were held with the Vice President for Finance and Operation's (VPFO's) office.

**Spring Semester 2014, 2015, 2016** – MSU stormwater information and BMPs were included in CSUS 354, Water Resources Management course. 30 students per year.

**March 2014** - Stormwater and watershed information was provided by MSU during a HOM-TV interview.

**June 2014 and 2015** - MSU offered training programs to approximately 50 attendees at the annual Grandparents University event. The training included information about the Red Cedar River and stormwater management.

**September 2014** – MSU watershed planning and stormwater information was presented to the MSU WorldTAP International Water Management Short Course.

**October 2015** – A tour of campus stormwater BMPs was provided to the Michigan Lake and Stream Leaders Institute, with 25 participants.

**November 2014 and October 2015** – MSU provided a display at the Red Cedar Salmon Run 5K.

**November 2014 and 2015** - MSU provided a watershed display and distributed stormwater materials at the MSU College of Agriculture and Natural Resources Autumnfest event. The event is open to the public and draws approximately 700 people each year.

**Fall Semester 2015** - MSU stormwater information and BMPs were included in CSUS 354, Water Resources Management course. 30 students.

**Spring Semester 2016** – MSU stormwater information and BMPs were included in CSUS 200, Introduction to Sustainability course. 40 students.



## Illicit Discharge Elimination Program

The Illicit Discharge Elimination Program (IDEP) describes current and proposed Best Management Practices (BMPs) to meet the minimum control measure requirements to the Maximum Extent Practicable. The following definitions apply to the IDEP:

- **Illicit Discharge:** Any discharge to, or seepage into, an MS4 that is not composed entirely of stormwater or uncontaminated groundwater except discharges pursuant to an NPDES permit.
- **Illicit Connection:** A physical connection to an MS4 that primarily conveys non-stormwater discharges other than uncontaminated groundwater into the MS4; or a physical connection not authorized or permitted by the local authority, where a local authority requires authorization or a permit for physical connections.

In addition to prohibiting illicit connections as part of the Plumbing Code in the University's Construction Standards, Standard Operating Procedures that prohibit illicit discharges into the University's storm sewer system are in place, and are under the purview of MSU's Office of Environmental Health and Safety (EHS).

### IDEP Inspections and Corrective Actions

In 2015, 44 of MSU's 52 outfalls were located and visually inspected. Of those 44, nine had dry weather flow present and were sampled. Another eight outfalls were submerged, and it could not be verified if they had any active flow.

The nine outfalls that were sampled were tested for temperature, pH, ammonia, surfactants and E. coli. (Temperature was checked in the field; all other parameters were checked by Brighton Analytical Laboratory.) All sampling parameters came back within normal range except for two E. coli levels that came back high (one at 1966 CFU/100mL and one at >2419 CFU/100mL). One of these high E. coli outfalls was resampled, and came back at 189 CFU/100mL, and it was determined that human error in sampling was the most likely explanation for the original high sample. The other outfall became submerged and could not be resampled.

In 2016, all remaining outfalls will be located and any previously submerged outfalls will be re-inspected. Any outfalls with dry weather flow will be sampled with the same procedure used in 2015, and any abnormally high parameters will be investigated. Any outfalls that are submerged will be traced back to the nearest manhole and sampled from there if water flow is present.

The MSU Environmental Health and Safety (EHS) Office responds to all concerns or questions regarding potential illicit discharges to the Red Cedar River. Calls from the public and the campus community are routed from either the MSU Police or the IPF to the Environmental Compliance Office of EHS. The Environmental Compliance Office then makes a record with the time/date of the call and the nature of the concern. As soon as practicable, a staff member physically verifies any issues. If any discharges are noted, a sample is taken and analyzed, and further investigation is undertaken to determine the source of the discharge. If no issues are verified by the MSU staff, a note will be made on the record, and the approximate location will be watched in the future to see if the issue arises again. Records of these calls and responses are maintained by the MSU EHS Department.

One illicit discharge investigation was conducted over this reporting period. EHS maintains records of



these investigations.

MSU also works to minimize the potential for seepage from the sanitary sewer system. MSU was awarded a SAW grant which will start in spring 2016. The first year of the grant will focus on cleaning, televising and condition assessment of both the storm and sanitary sewer collection system. The data gathered will be organized and incorporated with the University's current GIS system and will be the basis for developing asset management plans. This work will be ongoing for the next three years.

MSU continues to collaborate with the Ingham County Health Department and other jurisdictions within the county on the Ingham County Surface Water Roundtable, which conducts weekly *E. coli* sampling throughout the Red Cedar River Watershed April-October. That data is available as a link from the MSU-WATER website.

#### IDEP Staff Training

In addition to online stormwater training that includes an illicit discharge detection component (see Good Housekeeping section), in **August, 2015**, seven staff members participated in a field-based IDEP investigation training program, which was conducted by Tetrattech. The training session covered illicit detection protocol, sampling procedures and QA/QC techniques.

The following table includes IDEP-related commitments included in MSU's SWMP.

Minimum Measure	BMP	Begin By	Complete By	Evaluation Methods	Comments
IDEP	Update map and listing of all MS4 annually to DEQ if new discharges are added.	Apr-08	Ongoing	No. of new discharges added, mapped & provided to DEQ	None added in this reporting period
IDEP	GPS all MS4 outlets to Waters of the State and provide latitude and longitude to DEQ for their use.	Apr-08	Long Term	No. of outlets tracked through GPS	On file at EHS and IPF
IDEP	Inspect all on-campus discharge points	2013	2014-2017	Summary of each discharge point, including photographs	Substantial progress in 2015. To be completed in 2016
IDEP	Staff Training on IDEP inspection procedures	Continued from first permit cycle	Ongoing	List of staff trained on IDEP protocol	Available at EHS
IDEP	Staff Training on identifying and reporting illicit discharges	2010	Ongoing	List of staff trained	Available at EHS
IDEP	Identify illicit discharges and take corrective actions	On-Going	Long Term	No. of illicit discharges identified and database of corrective actions taken.	None identified in this reporting period

## Post Construction Stormwater Runoff

Post-construction stormwater runoff controls are necessary to maintain or restore stable hydrology in receiving waters by limiting surface runoff rates and volumes and reducing pollutant loadings from sites that undergo development or significant redevelopment. Under Michigan's MS4 stormwater permit, post-construction stormwater runoff from all new and redevelopment projects that disturb one acre or more, must meet the following stormwater discharge criteria:

- Treatment methods shall be designed on a site-specific basis to achieve discharge concentrations of total suspended solids (TSS) not to exceed 80 milligrams per liter (mg/l) resulting from up to one inch of rainfall.
- The channel protection criteria shall maintain post-development site runoff volume and peak flow rate at or below existing levels for all storms up to the 2-year, 24-hour event (2.42 inches).

### Stormwater Design Standards and Off- Site Mitigation

The approach for MSU views the campus as one parcel with the Red Cedar River as its outlet. Each individual development or redevelopment project is required to evaluate a method of complying with the stormwater requirements at the site and prepare a cost estimate for construction, following the procedures in the MSU Stormwater Design Standards, which will then be submitted to the campus Stormwater Review Committee. The methodology used in the development for the design standards was vetted through DEQ staff in a series of meetings. Design standards can be accessed at:

<https://ipf.msu.edu/green/water/stormwater-committee.html>

Projects that may alter the stormwater volume or peak-rate characteristics are tracked on a campus-wide basis and tabulated in a credit system or bank. Projects contributing to the bank will include demolition projects (e.g., buildings, parking lots, roadways) and stormwater improvement projects (e.g., porous pavement parking lots, bio-retention areas, etc.).

Recognizing that new projects located in highly developed zones of campus will have difficulty meeting the stormwater permit standards without incurring excessive costs or without resorting to impractical solutions such as stormwater pumping, the Stormwater Committee may recommend that a project use credits from the campus bank to meet its stormwater requirements under the new general permit. This decision will be made on a project-by-project basis after a site-specific evaluation and cost estimate has been completed. If a project applies for bank credits, the project may be charged a proportionate cost to help pay the capital costs associated with a larger, regional project that would be implemented to maintain the stormwater bank. Under the alternative approach, regional projects would have to demonstrate effectiveness of a 1.2 multiplier for all permit parameters over a site specific solution. Larger development projects that have enough land area available for LID techniques that exceed their stormwater requirements may also contribute to the campus bank. If the offset bank has been expended and an offsite project is deemed necessary, the regional stormwater control project must be completed concurrently with the development or within one calendar year of substantial completion of the project.

### Documentation of Existing System

The MSU IPF Division is responsible for maintaining the storm sewer maps and infrastructure records for



the campus. All storm sewer pipes and structures have been mapped and documented in a Geographic Information System (GIS) database. MSU has 52 storm sewer pipes that discharge directly via outlets to the Red Cedar River between Hagadorn Road at the eastern edge of campus and the Kalamazoo Street Bridge at the western edge. The storm sewer pipes range in size from 12 inches to 84 inches and provide stormwater conveyance for approximately 2,200 acres of north campus. All storm sewer revisions completed on construction projects are recorded as the projects are completed so the GIS system stays current. A number of LID techniques have been implemented across the campus over the first two stormwater permit cycles, including bioretention areas, green roofs and porous pavement. Proprietary treatment systems have been installed as well, including numerous stormwater separators located throughout campus and a nutrient-separating baffle box that was installed at Birch and Wilson Roads.

Stormwater BMPs are tracked by MSU IPF. As required by the NPDES Stormwater Permit, **the BMP and impervious summary for 2014-2015 is included as Appendix 1 of this report. Upcoming BMPs are also included as part of that report.**

#### Site Specific Requirements

The Stormwater Committee is also responsible for reviewing the use of infiltration BMPs to meet the water quality treatment and channel protection standards for new development or redevelopment projects in areas of soil or groundwater contamination in a manner that does not exacerbate existing conditions. The committee meets monthly to discuss upcoming development projects, including proposed stormwater treatments options. Design review methodology discourages infiltration BMPs in areas of known soil or groundwater contamination. In these areas, alternative BMP designs are discussed and proposed.

The committee reviewed this procedure at its December 2015 regular meeting. The committee maintains that the monthly meetings and ongoing discussions regarding these site-specific considerations is effective and appropriate.

#### Upcoming Activities

New BMPs that are slated to come online beyond this reporting period are included in the summary report, which is included as Appendix 1.

## Construction Stormwater Runoff

The Federal National Pollutant Discharge Elimination System (NPDES) Stormwater Program is part of the Clean Water Act administered by US Environmental Protection Agency. One aspect of this program addresses runoff from construction activities. Administration of the NPDES Stormwater Program in Michigan has been delegated to the MDEQ. These permit requirements specifically reference discharges from construction activities where the pollutants enter the MS4 owned or operated by the permittee and when the pollutants are in violation of any of the following:

- Section 9116 of Part 91 of the Michigan Act- *Sec.9116. A person who owns land on which an earth change has been made that may result in or contribute to soil erosion or sedimentation of the waters of the state shall implement and maintain soil erosion and sedimentation control measures that will effectively reduce soil erosion or sedimentation from the land on which the earth change has been made.*
- Michigan's Permit-by-Rule at R 323.2190(2)(a)- *Not directly or indirectly discharge wastes such as discarded building materials, concrete truck washout, chemicals, lubricants, fuels, liter, sanitary waste, or any other substance at the construction site into the waters of the state in violation of Part 31 of the Act or rules promulgated there under.*

### Procedure to Ensure that Construction Activity One Acre or Greater in Total Earth Disturbance with the Potential to Discharge is Conducted by an Approved Authorized Public Agency

The University works with the City of East Lansing, Ingham County and Meridian Township, which are designated by DEQ as Authorized Public Agencies and Municipal Enforcing Agencies pursuant to Part 91. As such, campus development projects must obtain a Grading/Soil Erosion and Sedimentation Control permit from the City, County or Township. A number of staff members from the MSU IPF Division and Land Management Office (LMO) have successfully completed the Certified Stormwater Operator (CSWO) training and passed the CWSO/SESC Inspector exam. These individuals serve as the campus project representatives to ensure that all SESC requirements are met for new development projects.

### Procedures to Ensure Adequate Allowance for Soil Erosion and Sedimentation Controls on Preliminary Site Plans, as Applicable:

As part of standard design and construction procedures on campus, staff members from IPF Planning, Design and Construction (PDC) or the LMO review or prepare all Soil Erosion and Sedimentation Control Plan drawings and specifications. These documents are produced by a consultant or internally, PDC or LMO staff members begin site analysis in the Schematic Design stage or earlier. The SESC document is being produced by a consultant, they are provided with the SESC/Stormwater Discharge checklist and other information as appropriate.

The acreage of the project and proximity to surface waters determines whether the proposed construction will require a permit. If a permit is required, the site location determines the appropriate governing agency; City, County or Township. The SESC documents are reviewed by PDC or LMO staff, in cooperation with the appropriate governing agency, multiple times throughout the design process to ensure that the appropriate controls will be in place according to the specific site. Documents are put out for bid and PDC or LMO staff confirm that all necessary SESC devices and techniques are clearly located and quantifiable.

Throughout the construction process regular site visits are performed by PDC or LMO staff members, who are Certified Storm Operators.

More than 1,000 SESC reports were filed, pertaining to approximately 30 campus projects, throughout the reporting period. Documentation is available at IPF PDC.

Procedures to Provide Notice When Pollutants Are Discharged from Construction Activities:

Where any pollutants are discharged from a construction activity in violation of any of the above noted statutes, to MSU's storm sewer system, the University will provide the following notifications:

- If soil, sediment or any other wastes that may adversely affect adjacent properties or public rights-of-ways, are discharged from a site, the University's CSWO assigned to that project location will notify the Authorized Public Agency within 24 hours of becoming aware of the discharge and consult with them regarding DEQ notification.
- If the University suspects that the discharge may endanger public health or the environment, the violation will be reported within 24 hours of becoming aware of the discharge. The CSWO assigned to that project location will work with the MSU Office of Environmental Health and Safety (EHS), which will ultimately report the discharge to MDEQ.

No reports were filed during this reporting period.

Procedures for the Receipt and Consideration of Complaints or Other Information Submitted by the Public Regarding Construction Activities Discharging Wastes to the MS4:

The University's CSWOs from the IPF and LMO inspect all permitted construction sites on a regular basis. As part of the Public Education Plan activities, individuals will be instructed to contact the IPF main dispatch number at 517-353-1760 with concerns about construction activity discharges. If a complaint is received dispatch operators will then notify the CWSO assigned to that location for immediate review. All complaints will be reviewed by no later than the next business day after receipt. Any action required by the contractor will be processed immediately.



## Pollution Prevention and Good Housekeeping Program

The NPDES stormwater requirements stress the importance of developing proper pollution prevention procedures and maintaining good housekeeping practices on municipal property.

Municipal operations cover a wide variety of activities and land uses that are potential sources of stormwater pollutants. These include, but are not limited to roadways; parking lots; transportation and equipment garages; fueling areas; warehouses; stockpiles of salt and other raw materials; open ditches and storm sewers; turf and landscaping for all municipal properties, including parks; and waste handling and disposal areas.

The Greater Lansing Regional Committee (GLRC) Ordinance Committee developed the “Good Housekeeping and Pollution Prevention for Municipal Activities” manual. The manual included specific source control Best Management Practices (BMPs) that could be used by individual GLRC members to address many of the requirements of their permit. Staff members in IPF Landscape Services have used portions of this BMP manual to guide their operations. In addition, operating procedures pertaining to specific requirements in the stormwater permit are included below.

### High-Priority Sites

The MSU Stormwater Committee identified the following facilities as high-priority:

- 1) MSU Transportation Services
- 2) MSU Surplus Store & Recycling Center
- 3) Forest Akers Golf Course Maintenance Facility.

MSU maintains separate Stormwater Pollution Prevention Plans (SWPPP) for these facilities. MSU EHS conducts monthly housekeeping inspections at each of these locations, looking specifically at areas of high concern (e.g., fuel tanks, outdoor storage, etc.). In addition, EHS staff also conduct quarterly comprehensive site inspections at each location to verify that the entire site is in compliance with the SWPPP. Inspection records are available at EHS.

### Medium-and Low-Priority Sites

MSU’s parking lots and parking ramps have been identified by the Stormwater Committee as medium-priority facilities. For these and the remaining facilities identified as lower-priority sites, standard operating procedures as included in the GLRC “Good Housekeeping and Pollution Prevention for Municipal Activities” guide as well as procedures documented in the SWMP.

### Structural Stormwater Control Operation and Maintenance Activities

Landscape Services is responsible for collecting and disposing of debris and wastes from MSU’s sewer and catch basin cleaning; street sweeping and other sources of pollution that may otherwise be discharged into the separate stormwater drainage system. MSU’s Office of Environmental Health and Safety (EHS) oversees compliance with Part 121 rules dealing with liquid industrial wastes, including ensuring that contractors meet all applicable requirements. The IPF Division is responsible for ensuring compliance with Part 115 solid waste disposal.

In 2014, 692 catch basins were serviced, with 245,558.3 lbs. of debris collected. Fourteen oil separators were serviced, with 9,910 gallons of water/slurry removed. In 2015, due to contractor issues, only three

structures were cleaned with approximately 1500 pounds removed. Additional cleaning will be completed in summer, 2016.

### Municipal Operations and Maintenance Activities

IPF staff members have developed a stormwater facilities inspection spreadsheet that includes various BMPs and routine inspection and maintenance tasks for each. IPF also maintains a map of BMPS, with an accompanying spreadsheet to document inspection and maintenance dates and labor hours for each BMP. The spreadsheets are housed on the IPF server.

In May of 2015 15 BMPs were inspected. Ten were inspected in September 2015. One Landscape Architect from Planning Design and Construction and two Gardening Supervisors from Landscape Services attend the inspections. Each BMP has been assigned an equipment number which is used to track costs of inspection and maintenance. A map-based mobile application, typically used on iPads, is being used in the field to track scheduled inspection and maintenance activities such as catch basin cleaning, and will be used to input BMP inspection and maintenance data starting in 2016. This application allows the user to locate items on an interactive map that are scheduled for maintenance or inspection. Elements (Equipment) are only highlighted when they are due for an action.

### Street Sweeping, Parking Lot, Sidewalk and Bridge Maintenance

Landscape Services is responsible for sweeping streets and parking lots on the MSU campus. All equipment is maintained on a fixed schedule; streets and parking lots are currently swept a minimum of two times per year. Structures are swept monthly and washed annually or as needed. Sweepings are stored in a rolloff bin and hauled to an approved landfill. No street sweepings are composted. Parking lots are swept on a regular basis following the street sweeping rotating schedule. During this reporting period, roadways and parking lots sweepings collected approximately 140 cubic yards of debris per year. Documentation is available at MSU Landscape Services.

### Cold Weather Operations

Snow and ice removal on the Michigan State University campus is a major priority of MSU Landscape Services. During the 2014-2015 snow season, 1,876 tons of salt were applied, 57,000 gallons of salt brine was applied, and \$137,346 was spent on deicing products.

### Employee/Contractor Training Related to Stormwater Management Activities

MSU has an online stormwater training program in place. The training program includes the Excal video entitled *Rain Check: Stormwater Pollution Prevention for MS4s*. MSU-specific information is included at the end of the training video, as well as a short quiz. During this reporting period, 279 staff members, representing the Land Management Office, IPF Landscape Services, IPF PDC, IPF Maintenance Services and several academic departments have completed the online training. Additional individuals will be trained within this permit cycle and beyond.

MSU staff members also attended the Michigan Green Infrastructure Conference in May 2014 and a training program entitled “Stormwater Pollutant Chemistry: Applications to Monitoring and BMP Effectiveness” in March 2015.

Contractor training pertaining to stormwater was incorporated into the Woody Plant Protection training sessions that are regularly conducted by Landscape Services staff members. In this reporting period, 36 contractors were trained. Records are available at MSU Landscape Services.

### Managing Vegetated Properties

University employees who apply pesticides and fertilizers are required to possess a valid commercial applicator's license from the State of Michigan. As part of the continuing education/recertification requirements, employees are trained in proper storage, handling and use of pesticides, herbicides, and fertilizers on the MSU campus.

The following table includes Good Housekeeping-related commitments included in MSU's SWMP.

Minimum Measure	BMPS	Begin By	Complete By	Evaluation Methods	Comments
Pollution Prevention and Good Housekeeping	Identify areas along the river corridor as candidates to install riparian buffer preservation (no mow).	Continued from second permit cycle	Ongoing	Map of river corridor with buffer areas delineated	In place and maintained by IPF Landscape Services
Pollution Prevention and Good Housekeeping	Install Grow Zone Signs	Continued from second permit cycle	Ongoing	Number of signs installed along the river corridor	Eight "Grow Zone" signs continue to be maintained on the campus.
Pollution Prevention and Good Housekeeping	Staff Stormwater Training	2008	Ongoing	No. of staff trained. Freq of training.	Online training is conducted and tracked.
Pollution Prevention and Good Housekeeping	Review existing salt application practices; make changes if necessary		2016	Existing practices reviewed, improvements implemented, number of staff trained	Snow management plan is in place.
Pollution Prevention and Good Housekeeping	Sweep/clean University parking lots and streets		Ongoing	Freq of sweeping, amount of material collected	Reports are available through IPF Landscape Services
Pollution Prevention and Good Housekeeping	Clean catch basins on a regular basis and ensure proper disposal of waste materials			Half of catch basins are cleaned each summer	Freq of cleaning and amount of material collected. Waste is handled by a licensed contractor. Reports are available through IPF Landscape Services
Pollution Prevention and Good Housekeeping	Develop stormwater training materials for contractors.		2014		Training materials have been incorporated into Woody Plant Protection training program.

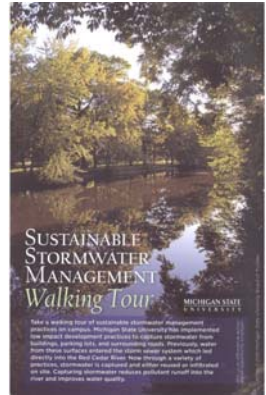


## Other Actions

Partnerships with campus service units, faculty members and students are an important component of MSU's stormwater management activities. A number of projects are underway that promote service learning opportunities for both undergraduate and graduate students.

In 2014, a Sustainable Stormwater Management Walking Tour of the MSU campus was finalized, which includes a summary brochure and signs that are posted at seven campus stormwater BMP locations. Hard copy brochures have been printed, and signs for each of the sites were installed. Tour information is also included on the MSU-WATER website: <http://msu-water.msu.edu/stormwater-walking-tour/>

Faculty members from MSU's Departments of Biosystems and Agricultural Engineering and Horticulture are engaging students in research activities at several BMP sites across the campus. For example, ongoing monitoring has been underway for several years at the Farm Lane Underpass bioretention site. Students are monitoring the effectiveness of various plant species in treating stormwater runoff, and produce annual monitoring reports that are shared with the MSU Stormwater Committee. In support of actions included in the MSU SWMP, MSU continues to incorporate the Red Cedar River and stormwater management issues into existing coursework.



## Nested Drainage System Agreements

This section does not apply to Michigan State University.

## Summary

The University is committed to continuing its commitment to managing campus water resources in a holistic manner. A watershed management plan was developed for the Red Cedar River Watershed, with an emphasis on *E. coli* bacteria. MSU faculty, students and staff members are working with numerous local partners in this effort. Along with those broader, watershed-wide efforts, good working relationships have developed among the members of the Greater Lansing Regional Committee for Stormwater Management (GLRC), and MSU will continue to be a full partner with these communities in the urbanized portion of the watershed as a member of this organization. In addition, the campus Stormwater Committee, comprised of staff members from multiple service units and departments, continues to emphasize an integrated approach to managing stormwater on campus.