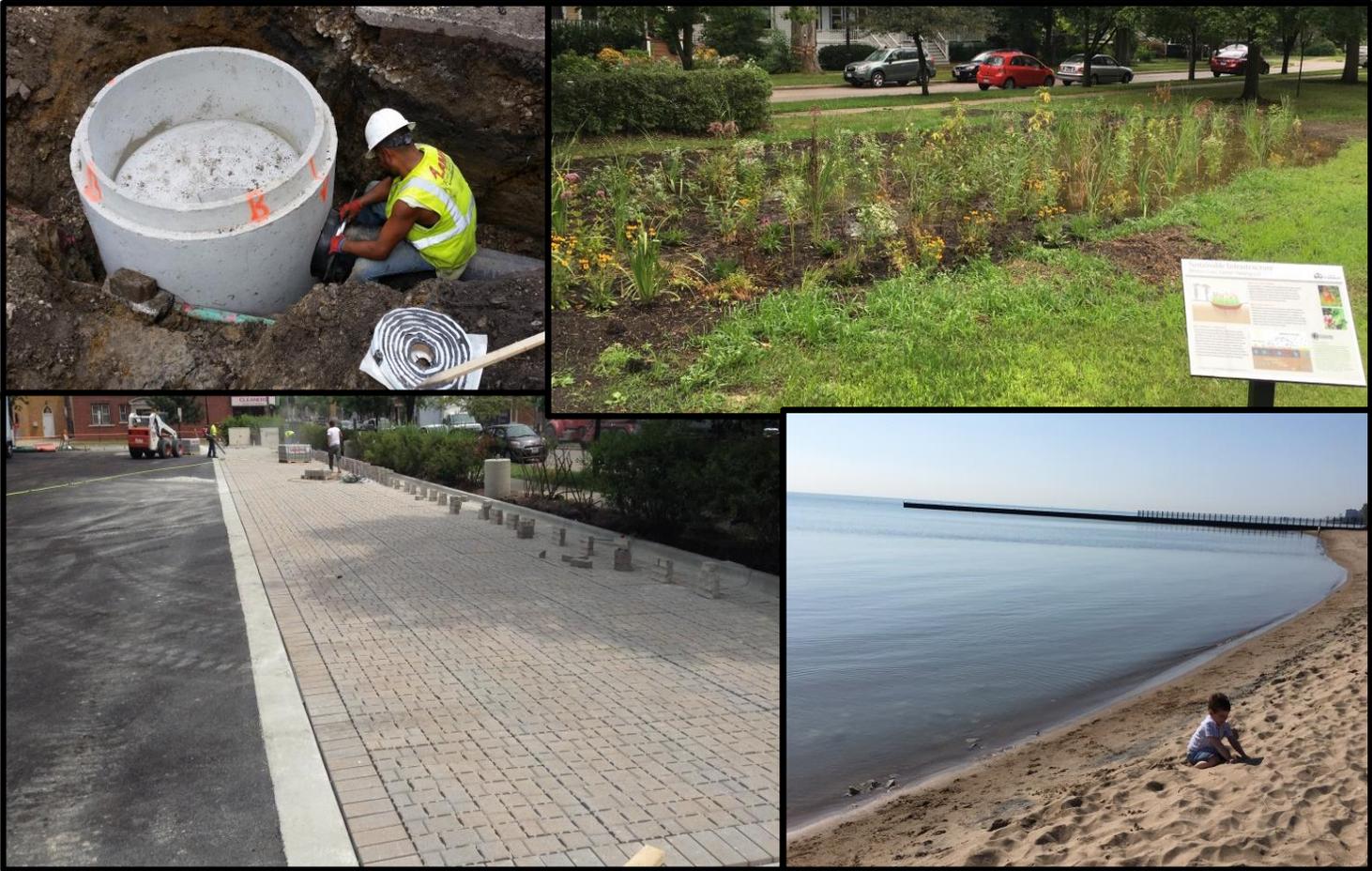
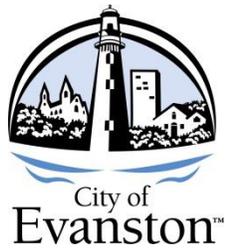


# Stormwater Management Guide





# Stormwater Management Guide

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## Section 1 - Vision and Goals

### Introduction:

In 1987, the City of Evanston committed to address the problem of basement sewer backups that had plagued its residents for generations. After investing over \$210 million dollars in stormwater infrastructure over 22 years, basement backups are largely a problem of the past.

Today, in the face of more intense rainfalls and an uncertain future climate, the City's stormwater challenges are changing. The City must be in a position to continue to provide its residents an acceptable level of protection against current and future stormwater events. To this end, the City is developing this Stormwater Management Guide, which will define the goals and approaches for managing the City's future stormwater needs.

### Vision:

The vision of this plan is to provide a framework for Evanston to develop a resilient stormwater management system under current conditions and in the face of climate change.

### Goals:

- a) Develop an acceptable level of protection for stormwater flooding
- b) Mitigate stormwater-related safety issues and property damage under current and future conditions
- c) Work towards achieving the goals outlined in the City of Evanston's Climate Action and Resilience Plan (CARP)
- d) Develop an equitable approach to stormwater management
- e) Be a leader in stormwater management best practices
- f) Maintain compliance with stormwater regulations
- g) Establish a sustainable funding stream for implementation of the plan

## Section 2 - Background Information

The City of Evanston is located just north of Chicago. Founded in 1863, Evanston is a thriving community. Evanston is located in Cook County, Illinois, which is the second-most populous county in the United States after Los Angeles County, California. Yet the population density of Evanston is far higher than Cook County's average (see text box). Evanston is very urban and very densely populated.

### a) Evanston Sewer Systems

#### i) Combined Sewer System

A network of sewers in the public right-of-way (ROW) that combines sewage and drainage from residential, commercial and other buildings with stormwater runoff from the public ROW and conveys this mixture to a point of disposal. Stormwater runoff from the public

ROW often includes stormwater runoff from adjoining private property. In many areas, the flow of stormwater into the combined sewer system is restricted so as not to surcharge the combined system, thus minimizing basement backups. The excess stormwater is detained on the surface within the public ROW.

#### ii) Relief Sewer System

A sewer system permitted through Metropolitan Water Reclamation District (MWRD) to primarily carry the excess stormwater runoff from the ROW that has been restricted from entering the combined system. Some locations served by relief sewers may receive detained stormwater overflowing from adjacent combined sewer areas.

#### iii) Storm Sewer System

A sewer system permitted by the Illinois Environmental Protection Agency (EPA) under the Municipal Separate Storm Sewer System (MS4) permit for stormwater discharge directly to the North Shore Channel or Lake Michigan. There is no connection between this system and any sanitary services or the combined/relief sewer.

#### Evanston Statistics

Population: 75,570<sup>1</sup>

Area: 7.8 square miles

Population Density: 9,688 population/square mile

#### Cook County Statistics

Population: 5,240,700<sup>1</sup>

Area: 945 square miles<sup>2</sup>

Population Density: 5,546 population/square mile

<sup>1</sup>US Census, 2013 Estimate

b) Metropolitan Water Reclamation District (MWRD)

- i) Founded in 1889 as the Sanitary District of Chicago under an act of the Illinois General Assembly, MWRD was tasked with reducing contamination of the water supply and the nuisance conditions of the rivers in the Chicago area. MWRD constructed 70 miles of canals and waterway improvements, reversing the flow of the Calumet and Chicago River systems from Lake Michigan into the Illinois River System. As part of the improvements, the North Shore Channel was built near and through Evanston.
- ii) Prior to the construction of the North Shore Channel, Evanston sewers and drainage ditches flowed into Lake Michigan. Post-construction, Evanston's sewers were gradually reversed to flow into the North Shore Channel. MWRD also constructed several intercepting sewers through Evanston to convey stormwater and sanitary sewage into the North Shore Channel. In 1928, after the MWRD completed construction of the North Side Intercepting Sewer and the North Side Sewage Treatment Works, Evanston's dry weather sewage no longer discharged into the North Shore Channel. However, excess flow of combined sewage and stormwater overflowed into the North Shore Channel.
- iii) Today, the MWRD operates seven water reclamation plants, serving the City of Chicago and 125 suburban communities. Wastewater from Evanston is treated at the Terrence J. O'Brien Water Reclamation Plant.
- iv) MWRD also operates the Tunnel and Reservoir Project (TARP), a large pollution and flood control system consisting of a deep tunnel system to convey combined sewer overflows (CSOs) and reservoirs to temporarily store CSOs. Each reservoir is associated with a water reclamation plant. When capacity is available at the water reclamation plant, CSO held in the reservoir is conveyed to the plant for complete treatment prior to discharge to the receiving waterway.
- v) Evanston is served by part of the Mainstream Tunnel and the McCook Reservoir. The Mainstream Tunnel begins 200-feet below the North Shore Channel near Sheridan Road in Wilmette and continues in a southerly direction below the channel to and beyond Howard Street, Evanston's southern border. The Mainstream Tunnel continues under the waterways and terminates 300-feet below ground at the McCook Reservoir in southwest suburban Bedford Park, approximately 30-miles from Evanston. CSO stored in McCook Reservoir is pumped to the Stickney Water Reclamation Plant for complete treatment before discharge to the Sanitary & Ship Canal.
- vi) When the Evanston combined sewer system or the relief sewer system surcharge, they will overflow to the deep tunnel prior to overflowing to the

North Shore Channel. However, when the TARP system is full, and the North Shore Channel is approaching its high level, Evanston's and MWRD sewer outfalls are submerged. When submerged, the discharge capacity of a sewer outfall is reduced. Under these conditions, Evanston's and MWRD sewers become surcharged, increasing the risk of local flooding.

c) Lake Michigan

- i) With approximately 3.5 miles of lakefront within the City of Evanston, Lake Michigan is a major geological feature to the City. There are three City owned storm sewer system outfalls that flow into Lake Michigan. They are located on Lincoln Street, Milburn Street, and Roslyn Place. Northwestern University maintains a private storm sewer system that discharges to Lake Michigan. These storm sewer systems are permitted by the Illinois Environmental Protection Agency.

## Section 3 - Hydrology and Hydraulics

### Goals:

- ✓ Develop an acceptable level of protection for stormwater flooding
- ✓ Mitigate stormwater-related safety issues and property damage under current and future conditions
- ✓ Develop an equitable approach to stormwater management
- ✓ Be a leader in stormwater management best practices

### Actions:

#### **Develop a hydrologic and hydraulic model for the City of Evanston**

The first step in assessing the City's stormwater management system is to create a hydrologic and hydraulic model covering the entire City. The model will be used to analyze the existing sewer systems under current conditions, as well as to understand how resilient the City's infrastructure will be to handle future storm conditions. MWRD infrastructure will be included in the model.

In order to develop a stormwater model, the City will need to advertise a request for proposal (RFP) to qualified consultants. Upon selecting a firm, it is expected to take approximately two years until an accurate model can be created and validated. The model will include a detailed representation of all three sewer systems within the City, the interaction between each system, and their impacts on overland flooding. Model results will be validated against the sewer flows measured during rain events as part of a flow-metering program. Once the model is functional, calibrated and validated, a plan for stormwater management improvements can be developed and included in the Capital Improvements Plan.

#### **Define level of protection**

The hydrologic and hydraulic model will allow the City's infrastructure to be analyzed against conditions that are anticipated under various climate change scenarios. With changes in weather patterns that have already been observed, current design standards may not be appropriate. After the model is created, the City will need to establish a target level of protection for future conditions. Knowing what thresholds of street/park/ROW flooding is acceptable and the future conditions that are to be designed to will provide the framework for appropriately developing a Capital Improvements Plan.

## **Identify Problem Areas**

The other benefit of a hydrologic and hydraulic model is to identify problem areas in the City, assessing a combination of underground infrastructure, overland flow, and green infrastructure. These will be used to establish a targeted Capital Improvements Plan that can employ stormwater management techniques in the most cost-effective manner at reasonable locations. The City will also be able to analyze areas most prone to CSOs and work towards the goal of contributing zero occurrences of CSOs as outlined in CARP.

## Section 4 - Stormwater Best Management Practices

### Goals:

- ✓ Develop an acceptable level of protection for stormwater flooding
- ✓ Mitigate stormwater-related safety issues and property damage under current and future conditions
- ✓ Develop an equitable approach to stormwater management
- ✓ Be a leader in stormwater management best practices

### Actions:

#### **Green Infrastructure**

##### Capital Projects

The City's approach to green infrastructure on Capital Projects shall be to maximize the use of assorted green infrastructure technologies in the most cost-effective manner at reasonable locations. This means that the City will use a technical approach to the selection of locations and types of green infrastructure that will be implemented. The use of stormwater models, geotechnical reports, and environmental studies will help direct the decision making on the appropriateness of each green infrastructure application.

The City's Engineering Division will analyze each capital improvement project for its ability to support green infrastructure. Before a project is designed, geotechnical and environmental testing will take place to assess what types of green infrastructure are most applicable to the various project sites. The City of Evanston follows MWRD's Technical Guidance Manual for the Implementation of the Watershed Management Ordinance (TGM) for the design of green infrastructure (see Article 5 of the TGM).

Below are some of the main selection factors for consideration:

- Site Layout and Grading – the physical orientation of the site will dictate if and what green infrastructure practice is possible.
- Infiltration Rate – should be between 0.5 and 2.41 inches per hour for implementation of volume control practices.
- Ground Water Level – bottom of volume control storage must be 3.5 feet above seasonably high ground water level.
- Environmental Factors – soil contaminants that could affect groundwater or other environmental concerns may prohibit the use of green infrastructure practices.

- Maintenance – locations with high maintenance concerns must be weighed (such as adjacent to beaches or baseball fields with highly sandy areas) as well as overall cost of maintenance.

Below is a guideline for evaluating recommended green infrastructure on varying types of projects.

<b>Types of Green Infrastructure</b>	<b>Streetscape Projects</b>	<b>Street Resurfacing</b>	<b>Parking Lots</b>	<b>Alleys</b>	<b>Parks</b>
Porous Pavement	•	•	•	•	•
Tree Boxes/Cells	•		•		
Rain Gardens	•		•		•
Bioswales	•		•	•	•
Infiltration Trench	•		•	•	•

### Private Development

The City will explore ways to promote green infrastructure on private property. Green infrastructure within the City’s public ROW provides only a limited benefit to the City’s stormwater management. Expanding the boundaries of green infrastructure into private areas, both residential and commercial, can provide a direct benefit to the overall stormwater system. Some items to be considered are listed below.

- Green Roofs
- Rain Harvesting
- Downspout Disconnection
- Green Walls
- Sustainable Backyards (City of Chicago)
- Green Infrastructure Incentive Programs

### **Urban Canopy and Greenspace**

The City recognizes that trees play an important role in the management of stormwater. From removing water from the soil via transpiration, promoting infiltration, and reducing erosion and slowing runoff, trees are an essential part of the City’s best management practices.

In keeping with the goals established through the Climate Action and Resilience Plan the City will make every effort to effectively grow the urban canopy and maintain greenspace. This includes protecting against threats such as Dutch Elm Disease, planting resilient trees found on the “Trees for 2050” publication, as well as maintaining various City programs to promote and encourage a strong urban canopy.

The City's Engineering department will also work closely with City Arborists to identify the best practices as related to Capital Improvement Projects. This will include decisions made for the removal and replacement of trees as well as the type, size, and location of new installations.

### **Infiltration and Inflow**

The City of Evanston is committed to eliminating infiltration and inflow (I/I) into the combined sewer system. I/I contributes to both basement back-ups and combined sewer overflows. There are various steps the City is taking to address these issues.

For infiltration, the City has been inspecting combined sewers and sewer structures to determine their structural and functional condition. When it is determined that the system is currently failing or at risk of failing, the City has been performing pipe and structure lining. Currently the City rehabilitates approximately two miles of combined sewer pipe and 50 structures per year.

To address inflow, the City of Evanston has been adding relief sewers throughout the City. This sewer removes roadway runoff from the majority of our combined sewer system and reduces the risk of basement back-ups. Once the hydraulic model is complete (see Section 3) the City will be able to identify additional locations that are good candidates for relief sewer extensions. In addition the City recommends disconnecting downspouts from the combined sewer system. In certain zoning districts this is required under City Code.

### **Water Quality (MS4)**

The majority of the City of Evanston operates in a combined or relief sewer area. Both of these systems outlet to MWRD facilities and do not flow directly into Lake Michigan or the North Shore Channel. However, there are some locations that do outlet directly to these waterways. These areas are known as municipal separate storm sewer systems (MS4) and are covered under a National Pollutant Discharge Elimination System (NPDES) permit.

A requirement of the MS4 permit is for the City to develop and maintain a stormwater management program. This program is designed to reduce pollutants from our waterway as well as educate the public on best practices for water quality. See Appendix B for more information.

## Section 5 - Policies and Regulations

### Goals:

- ✓ Work towards achieving the goals outlined in the City of Evanston's Climate Action and Resilience Plan
- ✓ Develop an equitable approach to stormwater management
- ✓ Maintain compliance with stormwater regulations

### Actions:

#### **Development of Policies and Regulations**

Upon the completion of the stormwater modeling, as described in Section 3, the City will have defined goals that will drive the development of policies and regulations. At this time the City will seek public engagement opportunities to direct the discussion of policy in the following areas:

- Impervious Area Restrictions (Commercial / Residential)
- Detention and Volume Control
- Combined Sewer Overflows
- Funding Programs and Maintenance
- Environmental Justice
- Public Outreach
- Complete and Green Streets Policy

## Section 6 - Stormwater Capital Improvements

### Goals:

- ✓ Mitigate stormwater-related safety issues and property damage
- ✓ Work towards achieving the goals outlined in the City of Evanston's Climate Action and Resilience Plan
- ✓ Develop an equitable approach to stormwater management
- ✓ Be a leader in stormwater management best practices
- ✓ Maintain compliance with stormwater regulations

### Actions:

#### **Develop a Capital Improvements Plan**

Within the scope of the stormwater modeling RFP (see Section 3) will be the creation of a multi-year Stormwater Capital Improvements Plan. The consultant will analyze the City's infrastructure and develop a plan that addresses the City's stormwater management needs. After an infrastructure plan is submitted by the consultant, the City will review it with additional considerations such as:

- Incorporate community needs into capital projects
- Current and future regulations
- Combined Sewer Overflows
- Incorporation into non-stormwater projects
- Environmental Justice

The final Stormwater Capital Improvements Plan will be included in the budget and taken to City Council.

## Section 7 – Funding

### Goals:

- ✓ Mitigate stormwater-related safety issues and property damage
- ✓ Develop an equitable approach to stormwater management
- ✓ Establish a sustainable funding stream for implementation of the plan

### Actions:

#### **Create a Funding Plan**

Upon the completion of the stormwater master plan and the development of a capital improvements plan for stormwater projects, the City will be able to identify the funding needs for this program. Once the needs are identified a plan will be created to provide the necessary funding. Items for consideration will be:

- Determining the appropriate revenue stream
- The creation of a new Stormwater Utility
- Available grants and loans
- Developing a funding plan for maintenance activities

## Section 8 - Operation and Maintenance

### Goals:

- ✓ Mitigate stormwater-related safety issues and property damage
- ✓ Maintain compliance with stormwater regulations

### Actions:

#### **Stormwater Systems**

The City's stormwater system is comprised of over 200 miles of sewer mains ranging in size from less than 6-inch diameter to 120-inch diameter, including over 5,500 manhole structures and over 9,000 drainage structures. Typical maintenance activities include structure cleaning, television inspection, sewer jetting, root cutting, street sweeping, and minor repairs.

Once a stormwater master plan is completed, a new maintenance projection will be made to account for the additional infrastructure that is added. The increased cost of maintenance will need to be considered for each new project that is implemented.

#### **Green Infrastructure**

Stormwater projects that include green infrastructure should be designed for practical implementation of maintenance operations. The City has developed an Operations and Maintenance Plan for green infrastructure installations (see Appendix A) that details out necessary steps to ensure proper function of our facilities. Various operations such as porous pavement sweeping and aggregate refresh as well as planting and weeding of rain gardens will add additional costs to the City's operational budgets for each project installed.

Long term funding of maintenance will be necessary to ensure that the infrastructure that is installed can continue to operate efficiently. The goal of green infrastructure is not to put applications into service for a temporary period of time, but to be a permanent part of the community, and this comes with costs not accounted for historically.

## Section 9 - Implementation Plan

City of Evanston Stormwater Management Guide	2019				2020				2021				2022				2023			
	Q1	Q2	Q3	Q4																
Finalize Stormwater Management Guide																				
<b>Hydrology and Hydraulics</b>																				
Hydraulic Model / SW Master Plan																				
Define Level of Protection and Problem Areas																				
Public Outreach																				
<b>Storm Water Best Management Practices</b>																				
Green Infrastructure Guidance																				
Urban Canopy and Greenspace																				
Infiltration and Inflow																				
Water Quality																				
<b>Policies and Procedures</b>																				
Public Engagement																				
<b>Stormwater Capital Improvements</b>																				
Storm Water Master Plan / CIP Plan																				
<b>Funding</b>																				
Create a Funding Plan																				
<b>Operations and Maintenance</b>																				
Maintenance of Sewer System																				
Maintenance of Green Infrastructure																				
Long Term Funding Plan																				

**Appendix A**

**CITY OF EVANSTON**  
**OPERATIONS & MAINTENANCE PLAN**  
**FOR**  
**CIVIC CENTER PARKING LOT**

**OWNER INFORMATION**

City of Evanston  
2100 Ridge Ave.  
Evanston, IL 60201

**Permeable Pavement Systems O&M Overview**

Maintenance is necessary for any type of permeable pavement system, much like any impervious pavement with catch basins and underground infrastructure. Over the lifetime of the permeable pavement system there will be a need to clean any sediment, soil, dirt and debris from the permeable pavement in order to maintain a sufficient infiltration rate. The following maintenance plan is intended to prevent clogging of the voids within the pervious portions of the permeable pavement system. The maintenance plan shall be monitored and revised as necessary. Permeable Pavements Systems include green alleys, permeable pavers, pervious concrete, and pervious asphalt.

Upon completion of project construction, the following Operations & Maintenance (O&M) procedures shall take effect and be conducted perpetually from the date that construction was completed.

**General Requirements**

1. This Operations & Maintenance (O&M) plan shall take effect upon completion of the construction.
2. O&M plan procedures and practices must be reviewed and assessed annually by the Owner. If upon review, the O&M plan is changed, these changes must be approved by MWRD.
3. Permeable pavement systems shall be inspected by the Owner a minimum of three (3) times a year. The Regular Maintenance Schedule shall be followed and corrective actions shall be required to repair or remediate problems identified in inspections.
4. Landscaped areas adjacent to permeable pavement systems shall be well maintained and shall not allow soil or other debris to be transported onto the permeable pavement system.
5. The Owner shall budget for sweeping permeable pavement (3) times per year, as described in the Regular Maintenance Schedule below.
6. The following activities shall be prohibited from occurring on the permeable pavement surface:
  - a. Temporary or permanent stockpiling of soil or other material that can potentially cause or contribute to clogging.
  - b. Application of pavement seal-coating.
  - c. Application of excessive load, so as to cause cracking and deformation.
  - d. Application of sand for improving traction.
  - e. Application of salt [permeable concrete only.]

## **Examples of Common Maintenance Issues**

Below are several warning signs and visual clues of common maintenance issues which must be prevented and addressed or remediated to ensure continued surface infiltration. These common problems can often be easily remedied by appropriate vacuuming and maintaining the proper joint aggregate level.

1. Slow Draining/Surface Runoff:
  - a. Verify with simple infiltration testing or observe after rain storms. (refer to Inspection of the Permeable Pavement System, 2.b)
  - b. Surface should drain immediately.
2. Ponding:
  - a. Look for signs of ponding during regular inspections and during rainfall events.
  - b. Rule of thumb: if more than a nickel deep one minute after a rainfall event, maintenance is necessary.
  - c. Verify correct materials were installed.
  - d. Exception: Ponding may be present at bottom of slopes.
3. Surface Crusting (debris and dirt caked on the infiltration surface):
  - a. Identify if there is a problem such as run-on sediments.
  - b. Increase cleaning frequency in troubled areas.
  - c. Remove debris immediately.
4. Weed Control:
  - a. Weed edges of permeable pavement systems near mown lawn areas.
  - b. Do not blow or discharge grass clippings onto the permeable pavement.
  - c. Remove weeds immediately. If weeds begins to grow in the openings, it should be easy to hand remove provided that the sprouts are pulled early.
  - d. Because weeding will be difficult where roots have been allowed to grow, inspecting and pulling grass sprouts from the permeable pavement shall be incorporated into the weekly lawn mowing routine surrounding the pavement system.
  - e. Weeds will not germinate unless there is a collection of soil or moisture.
  - f. Clean sediment from joint material [permeable pavers only].
5. Covered Joint Material [permeable pavers only]:
  - a. Identify problem and correct.
  - b. Remove immediately.

## **Inspection of the Permeable Pavement System**

Inspection of the permeable pavement system shall be conducted three (3) times a year (or in conjunction with regularly scheduled maintenance events) and after significant rainfall events exceeding 1.5 inches to evaluate the following:

1. Pavement Condition
  - a. Inspect permeable pavement surfaces for settlement, deformation or cracking.
  - b. Inspect void areas to determine needs for replenishing joint material.

- c. Note vegetation growth for removal.
2. Surface Infiltration
  - a. Inspect permeable pavement surfaces for sedimentation (any collection of debris, dirt, topsoil, mulch, leaves, etc.) or evidence of ponding.
  - b. Use a garden hose connected to water tank or external house faucet with running water to verify surface infiltration rate. If more than 20% of the permeable pavement surface area does not allow water to infiltrate readily (resulting in ponding or runoff), a restorative maintenance service shall be scheduled immediately.
3. Drainage structures
  - a. Inspect inlet structures, flow restrictors, and outfall locations for obstructions and evidence of erosion. Confined space safety procedures must be followed for manhole entry.
4. Run-on Areas – Inspect run-on areas for adequate cover and stability.

#### **Operations and Maintenance Reporting Requirements**

1. Maintain and update an electronic log book documenting the inspection activities and results, as well as, the performance of the required O&M activities in perpetuity. The logbook shall include:
  - a. Dates of inspection and maintenance/repair;
  - b. Facility components inspected and their conditions (refer to the previous section);
  - c. Details of all inspections and reasons that maintenance/corrective action is needed.
  - d. Details of all maintenance activities, both routine and emergency.

Examples of the Maintenance Checklist and Inspection Log are provided on pages 6 and 7.

2. Log book must be produced upon request of MWRD.

#### **Maintenance Types and Equipment Requirements**

There are two service types – preventative and restorative – for maintaining the integrity of a permeable pavement system.

1. **Preventative Maintenance Service**– removes most debris before being trapped in the joint aggregate material causing clogging. If the equipment settings are correct, this usually does not require removal of any joint material to restore infiltration.

Either high-efficiency vacuum sweepers or broom sweepers may be used. High-efficiency vacuum sweepers are more effective at capturing and removing fine sediment. However, mechanical sweeper equipment is able to dislodge surface encrusted sediment that typically clogs permeable pavement systems. When mechanical sweepers are used, permeable paving surface shall be dry-swept (water shall be turned off) in dry weather to remove encrusted sediment that appears as small and curled in the joints between pavers. When vacuum equipment is used, vacuum settings shall be adjusted to prevent uptake of aggregate from the porous unit paving openings and joints. Maintenance equipment requirements will vary according to project size, age, and product type. For

larger vehicular areas such as roads, parking lots, alleys or similar that can support vehicles, the following equipment shall be implemented:

- a. Regenerative Air Sweeper (preferred)
    - Utilize stream of air blowing horizontally across surface and vacuuming.
    - No rotating brushes.
  - b. Walk-Behind Vacuum (preferred)
    - Push-type gasoline-powered vacuum.
    - Applicable for smaller projects that cannot support vehicular weight (sidewalks and patios, etc.)
  - c. Rotary Brush (not preferred)
    - Poly bristles only.
    - Flip debris from joint.
    - Will require slight refilling of the joint aggregate material.
  - d. Broom Sweeper (not preferred)
    - Typical “street sweeper” type.
    - Rotating curb brushes with center pickup.
    - Poly bristles only.
    - Do not utilize high-pressure power wash to clean the surface. These cause sediments to wash into the joint aggregate and the underlying storage layer, and cause clogging over time.
2. **Restorative Maintenance Service**– requires some removal or complete removal of the joint material to renew infiltration. This occurs after debris has been captured and lodged in the joint aggregate. Equipment required:
- a. Vacuum Sweeper
    - Vacall Dynamic Multi-Purpose Vacuum Street Sweeper or Elgin Whirlwind Street Sweeper or equivalent equipment.
    - Minimum suction of 14,000 cubic feet per minute.
    - Complete evacuation of joint aggregate material [permeable pavers only].
    - Require replenishing removed joint aggregate material to “lip” of paver [permeable pavers only].

### **Regular Maintenance Schedule**

The following maintenance schedule establishes a best practices maintenance program that helps to ensure longevity of the system before restorative action is required. The schedule shall be reviewed, assessed, and updated/revised annually to reflect experience gained in maintaining the permeable pavement system and changing site conditions.

1. Early Spring (after the snow melt) – March 1 through April 15
  - a. Sweep the entire pavement surface using a regenerative air sweeper or broom/rotary brush followed by walk-behind vacuum or air sweeper.
  - b. Clean debris from paver surface with special focus at snow stockpile areas.

- c. Replenish joint aggregate material after cleaning as necessary [permeable pavers only].
  - d. Inspect and remove sediment and floatables in drainage structures and flow restrictors, if any, within the project area. Confined space safety procedures must be followed for manhole entry. Repair chamber, structure, or equipment if needed.
  - e. Every other year or if more than 20% of the permeable pavement surface area does not allow water to infiltrate readily (resulting in ponding or runoff), whichever is more frequent, a restorative maintenance service shall be performed using a vacuum sweeper to restore the infiltration rate. If applicable, joint aggregate material shall be replenished after cleaning [permeable pavers only].
2. Mid-Summer - June 15 through August 15
    - a. Sweep the entire pavement surface using a regenerative air sweeper or broom/rotary brush followed by walk-behind vacuum
    - b. Replenish joint aggregate material after cleaning as necessary [permeable pavers only].
  3. Late Fall – October 15 through November 30
    - a. Sweep the entire pavement surface using a regenerative air sweeper or broom/rotary brush followed by walk-behind vacuum
    - b. Replenish joint aggregate material as necessary [permeable pavers only].
    - c. Clean out drainage structures and flow restrictors, if any, within the project area. Confined space safety procedures must be followed for manhole entry.

### **Corrective Actions**

The following corrective actions, if identified in inspections by the Owner or MWRD, shall be carried out in addition to the regularly scheduled maintenance events:

1. Repair any settlement, deformations or cracking that are significant enough to adversely impact the function of the overall permeable pavement system.
2. If water ponding persists on the pavement surface after a storm event, clean the pavement surface to mitigate clogging.
3. Remove any vegetation growing on the pavement.
4. Repair blocked, restricted or eroding underdrain outfalls.
5. Repair and/or replant eroding run-on areas.
6. If the pavement surface infiltration rate is questionable at any time during the effective life of the pavement, MWRD may require infiltration rate testing to verify that the surface infiltration rate is no less than 20 in/hr. If the surface infiltration rate is lower than 20 in/hr, restorative maintenance shall be taken to restore the infiltration rate to an acceptable level based on the remaining effective life of the pavement.
7. If verification of in-place pavement surface infiltration rates is necessary, conduct pavement surface infiltration rate testing per ASTM C1781 Standard Test Method for Surface Infiltration Rate of Permeable Unit Pavement Systems or other methods approved by MWRD.

### **Winter Maintenance and De-Icing**

When clearing snow from permeable pavement systems, the Owner must ensure that plows have protective edges on the snowplow equipment. To reduce damage to the pavement surface, only use a polymer or rubber cutting edge on the plow.

When using commercial snow removal companies, confirm in writing that they have protective edges on the snowplow equipment. To reduce damage to the pavement surface, only use a polymer or rubber cutting edge on the plow.

Due to the very short flow distance from the permeable paving surface to the point of infiltration, the opportunity for ice formation is greatly reduced. For this reason, regular deicing may not be necessary and is not recommended for water quality reasons. If abrasives are used to provide traction, stone chips shall be used rather than sand. De-icing substances will speed up the surface wear on some styles of pavers. Many of the exposed aggregate products and tumbled products are unaffected by virtue of their style.

[This section on salt application is only applicable to permeable pavers and permeable asphalt. Do not use any salt on permeable concrete.]

The following de-icing salts can be used:

1. Sodium chloride (common rock salt) is the most popular de-icing salt. It is widely available and it will melt snow and ice at temperatures down to approximately 16° F. Below 16° F, rock salt stops melting snow and ice. Sodium chloride can damage adjacent grass, plants and metal. Apply with caution and use as sparingly as possible.
2. Calcium chloride is another de-icing salt. It generally looks like small, white, round, pellets. It will melt snow down to about 0° F. It can irritate skin. Studies indicate that depending on the concentration, calcium chloride is less damaging to grass than sodium chloride is. Heavy concentrations of calcium chloride can chemically attack concrete.
3. Potassium chloride is a de-icing salt available in some markets. It will not hurt skin or damage plants. However, it melts ice only when the air temperature is above 15° F.

The following material shall **not** be used on permeable pavement:

1. Sand for anti-skid as it will clog the paver system.
2. Magnesium chloride and fertilizers that contain ammonium nitrate and ammonium sulfate. They can attack the integrity of concrete.

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## Maintenance Checklist for Permeable Pavements

- Refer to the “City of Evanston’s Operations & Maintenance Plan” for detailed requirements.
- Maintenance of the permeable pavement system is required, at a minimum, three (3) times a year:  
Early Spring (3/1 to 4/15); Mid-Summer (6/15 to 8/15); Late Fall (10/15 to 11/30)

<b>Crew foreman:</b>	<b>Maintenance Type:</b>
<b>Date:</b> _____ <b>Time:</b> _____	<input type="checkbox"/> Regular (scheduled) <input type="checkbox"/> Emergency/Corrective Action

**List of Alleys Serviced:**

Maintenance Items	Completed? (Y/N)	Comments*
-------------------	------------------	-----------

**Salt/Deicing (Early Spring only)**

Remove piles of accumulated salt		
----------------------------------	--	--

**Preventive Pavement Cleaning (three times per year at a minimum)**

Sweep the entire pavement area (including both permeable and impermeable sections)		
--	--	--

Use walk-behind vacuum to remove sediment and organic debris on the permeable pavement surface		
--	--	--

**Drainage Structure Cleanup (Early Spring/Late Fall)**

Remove debris and sediment from drainage structures		
---	--	--

**Joint Aggregate Refill (as needed)**

Replenish joint aggregate material to “lip” of pavers as needed		
---	--	--

**Restorative Pavement Cleaning (Every 2 years or more often, as determined by inspection)**

Run a vacuum sweeper over permeable pavement to restore infiltration rate.		
--	--	--

**Additional Comments & Corrective Actions Taken:**

\* Include explanation if maintenance is not performed or if further correction action is needed.

<b>Inspection Log for Permeable Pavements</b>		
<ul style="list-style-type: none"> <li>• Refer to the “City of Evanston’s Operations &amp; Maintenance Plan for Civic Center Parking Lot” for detailed requirements.</li> <li>• Inspection of the permeable pavement system is required, at a minimum, three (3) times a year and after significant rainfall events exceeding 1.5 inches</li> <li>• Fill out one form for each permeable pavement area inspected.</li> </ul>		
<b>Inspector:</b> <b>Date:</b> _____ <b>Time:</b> _____ <b>Time Passed Since Last Rain Event:</b> _____		<b>Inspection/Maintenance Type:</b> <input type="checkbox"/> Regular (scheduled) <input type="checkbox"/> Emergency/Corrective Action <input type="checkbox"/> Following rainstorm > 1.5 in.
<b>Permeable/Porous Pavement Area:</b> <b>General Site Conditions:</b>		
Inspection Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action, Issue Location
<b>Surface Infiltration</b>		
No sedimentation or signs of sedimentation on permeable pavement and between pavers in joint aggregate material		
No water ponding or evidence of ponding on permeable pavement		
Verify surface infiltration via garden hose test at areas where sedimentation and/or ponding are suspected		
<b>Pavement Condition</b>		
No evidence of deterioration		
No cuts from utilities visible		
No evidence of improper load applied (deformation, settlement or cracking)		
No stockpiling of materials and no seal coating		
No vegetation growth between paver joints (if applicable)		
Joint material filled to “lip” of pavers (if applicable)		
Depth between top of joint material and top edge of paver = _____		
<b>Controlling Run-On</b>		
Adjacent vegetated areas show no signs of erosion and run-on to permeable pavement		
<b>Salt/Deicing (Early Spring only)</b>		
No evidence for the use of traction sand		
Piles of accumulated salt removed in spring		
<b>Drainage Structure Inspection (Early Spring/Late Fall/After &gt;1.5 inches of rainfall)</b>		
No evidence of blockage		
Good condition, no need for cleaning/repair		
Observation wells show water has drained within 72 hours		
<b>Signage</b>		
Signage for appropriate traffic load, no stockpiling, no seal coating and other required District signage.		
<b>Additional Comments, Recommendations:</b>		

# Appendix B

City of Evanston  
STORMWATER  
MANAGEMENT PLAN

February 2018



City of  
**Evanston**<sup>TM</sup>

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## 2.0 Introduction

This Stormwater Management Plan (SMP) was developed by the City of Evanston to protect water quality and reduce the discharge of pollutants from the municipality's storm sewer system to the maximum extent practicable (MEP). This SMP addresses the requirements established by the Illinois Environmental Protection Agency General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4 General Permit). This permit is the local enforcement mechanism of the U.S. Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) Stormwater Phase II Rule.

### 2.1 SMP Structure

The plan outlines a program of best management practices (BMPs), measurable goals, responsible individuals or departments, and implementation schedules for the following six minimum control measures:

- (1) Public education and outreach
- (2) Public involvement and participation
- (3) Illicit discharge detection and elimination
- (4) Construction site stormwater runoff control
- (5) Post-construction stormwater management in new development and redevelopment
- (6) Pollution prevention/good housekeeping

### 2.2 Area Subject to the Plan

The measures identified in this SMP will be applied throughout the boundaries of the City of Evanston except as otherwise noted and be consistent with the MS4 General Permit requirements.

### 2.3 SMP Development

A stormwater committee led by the Public Works Agency and including representatives from the Public Works, Community Development, Parks and Recreation and Citizen Engagement was assembled to coordinate the development and implementation of the SMP.

## 2.4 Annual Reporting

The SMP's implementation will be tracked and documented in Annual Reports summarizing stormwater management activities carried out by the City and its partners. These reports will be submitted to IEPA on an annual basis no later than June 1 for the reporting period of April 1 (of the previous year) – March 31.

## 2.5 Description of Municipality

The operator of the MS4 is the City of Evanston. The City of Evanston is a public entity located in Cook County, Illinois. The City of Evanston covers an area of approximately 7.8 square miles, located in Northeastern Illinois as shown in Figure 1.



### 3.0 Minimum Control Measures

#### 3.1 Public Education and Outreach

This minimum control measure outlines a program to communicate information about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff. This will be done through developing education materials and distributing them to the community. The following Best Management Practices (BMPs) and implementation schedule serve as Evanston’s MS4 Public Education and Outreach Program.

<b>BEST MANAGEMENT PRACTICES AND MEASURABLE GOALS</b>					
<b>PUBLIC EDUCATION AND OUTREACH</b>					
<b>Goal Description</b>	<b>Goal No.</b>	<b>Action</b>	<b>Lead Person/ Department</b>	<b>Initial Target Date</b>	<b>Measurable Goal</b>
Develop information for public on effective pollution prevention to minimize discharge of pollutants from private property, including: A. Fuels and oils (including vehicles leaks) B. Soaps, solvents or detergents used in outdoor washing of vehicles and other property C. Paint D. Lawn and garden care E. Winter de-icing materials (storage and use)	1.1.a	Develop educational information on effective pollution prevention to minimize discharge of pollutants from private property.	Sustainability	9/30/18	Develop flyer with educational information.
	1.1.b	Provide information on City website.	Water Production	9/30/18	Review and update annually.
	1.1.c	Provide information as press release through eNews system.	Community Engagement	9/30/18	Provide one press release annually.
	1.1.d	Provide printed materials available to public at Evanston Ecology Center.	Water Production	9/30/19	Review and update biannually.
Develop information for public about green infrastructure strategies such as green roofs, rain gardens, etc. that mimic natural processes and direct stormwater to where it can be infiltrated, evaporated or reused.	1.2.a	Develop educational information on green infrastructure strategies for managing stormwater.	Sustainability	12/31/19	Develop flyer with educational information.
	1.2.b	Provide information on City website.	Water Production	12/31/19	Review and update annually.
	1.2.c	Provide educational displays on example City projects that incorporate green infrastructure.	Capital Planning	9/30/18	Implement on one project annually.

**BEST MANAGEMENT PRACTICES AND MEASURABLE GOALS  
PUBLIC EDUCATION AND OUTREACH**

<b>Goal Description</b>	<b>Goal No.</b>	<b>Action</b>	<b>Lead Person/ Department</b>	<b>Initial Target Date</b>	<b>Measurable Goal</b>
Provide and report on annual evaluation of BMPs and measurable goals	1.3.a	Provide annual evaluation of compliance with BMPs.	Water Production	6/1/18	Implement annually.
	1.3.b	Post annual evaluation report on City website.	Water Production	6/1/18	Implement annually.
	1.3.c	Provide information as press release through eNews system.	Community Engagement	6/1/18	Implement annually.

### 3.2 Public Involvement/Participation

This minimum control measure outlines a program to encourage active public involvement and participation in implementing BMPs to reduce all pollutants of concern to the maximum extent practicable. This will be done through advertisement of the Stormwater Management Plan (SMP) and the associated annual evaluations, public hearings about the SMP and public comment periods to receive feedback for improvement. The following Best Management Practices (BMPs) and implementation schedule serve as Evanston’s MS4 Public Involvement/Participation Program.

**BEST MANAGEMENT PRACTICES AND MEASURABLE GOALS  
PUBLIC INVOLVEMENT/PARTICIPATION**

<b>Goal Description</b>	<b>Goal No.</b>	<b>Action</b>	<b>Lead Person/ Department</b>	<b>Initial Target Date</b>	<b>Measurable Goal</b>
Hold a public hearing regarding initial plan. Provide 15 day public comment period following the hearing. Advertise 10 days in advance.	2.1.a	Schedule public hearing at Environment Board meeting.	Water Production	5/31/18	Hold hearing.
	2.1.b	Provide information as press release through eNews system.	Community Engagement	5/31/18	Provide one press release.
	2.1.c	Advertise hearing in local newspaper at least 10 days in advance.	Water Production	5/20/18	Provide one newspaper advertisement.

**BEST MANAGEMENT PRACTICES AND MEASURABLE GOALS  
PUBLIC INVOLVEMENT/PARTICIPATION**

<b>Goal Description</b>	<b>Goal No.</b>	<b>Action</b>	<b>Lead Person/ Department</b>	<b>Initial Target Date</b>	<b>Measurable Goal</b>
Hold one public meeting annually for the public to provide comment on the Annual Evaluation.	2.2.a	Schedule public hearing at Environment Board.	Public Services	9/30/18	Hold hearing.
	2.2.b	Provide information as press release through eNews system.	Community Engagement	9/15/18	Provide one press release.
	2.2.c	Advertise hearing in local newspaper at least 10 days in advance.	Water Production	9/15/18	Provide one newspaper advertisement.
Identify Environmental Justice Areas and receive comment.	2.3.a	Develop Environmental Justice Area Report.	Water Production	12/31/19	Develop report.
	2.3.b	Hold public hearing on Environmental Justice Area Report.	Water Production	2/28/20	Hold public hearing on report.
	2.3.c	Provide information as press release through eNews System.	Community Engagement	2/18/20	Provide one press release.
	2.3.d	Advertise hearing in local newspaper at least 10 days in advance.	Water Production	2/18/20	Provide one newspaper advertisement.

### 3.3 Illicit Discharge Detection and Elimination

This minimum control measure outlines a program to detect and eliminate illicit discharges into the City’s storm sewer system. This will be done through periodic inspections of the storm sewer outfalls coupled with investigation and elimination of any illicit discharges that are detected. A public education program will be used to recruit resident and local business to be active partners in protecting the storm sewer system from illicit discharges. The following Best Management Practices (BMPs) and implementation schedule serve as Evanston’s MS4 Illicit Discharge Detection and Elimination Program.

**BEST MANAGEMENT PRACTICES AND MEASURABLE GOALS  
ILLICIT DISCHARGE DETECTION AND ELIMINATION**

<b>Goal Description</b>	<b>Goal No.</b>	<b>Action</b>	<b>Lead Person/ Department</b>	<b>Initial Target Date</b>	<b>Measurable Goal</b>
Develop, implement and enforce a program to detect and eliminate illicit connections or discharges into the permittee's small MS4.	3.1.a	Review existing illicit discharge detection and elimination program for compliance with new 2016-2021 MS4 permit requirements.	Water Production	5/31/18	Complete program review.
Update storm sewer map to include any modifications to the sewer system map.	3.2.a	Review recent construction projects and update City's GIS system with any changes to storm sewer system.	Water Production	5/31/18	Complete GIS updates.
	3.2.b	Publish City's storm sewer map on City website.	Water Production	5/31/18	Post updated map on City website.
Through regulatory mechanism, prohibit non-storm discharges into City's storm sewer system and implement appropriate enforcement procedures and actions, including enforceable requirements for the prompt reporting of all releases, spills and other unpermitted discharges such reports in a timely manner.	3.3.a	Review and update existing City ordinances for compliance with new 2016-2021 MS4 permit requirements.	Water Production	12/31/18	Complete review and update City ordinances as required.
	3.3.b	Develop procedure for reporting and tracking illicit discharge complaints in the 311 system.	Water Production	12/31/18	Create new service request type in 311.
	3.3.c	Review and update written procedures for responding to illicit discharge complaints for compliance with new 2016-2021 MS4 permit requirements.	Water Production	5/31/19	Review and update written illicit discharge response procedures.
Develop and implement a plan to detect and address non-storm water discharges, including illegal dumping to the system.	3.4.a	Review and update written procedures for annual dry weather flow inspection for compliance with new 2016-2021 MS4 permit requirements.	Water Production	6/30/18	Review and update annual dry weather flow inspection procedures.

**BEST MANAGEMENT PRACTICES AND MEASURABLE GOALS  
ILLICIT DISCHARGE DETECTION AND ELIMINATION**

<b>Goal Description</b>	<b>Goal No.</b>	<b>Action</b>	<b>Lead Person/ Department</b>	<b>Initial Target Date</b>	<b>Measurable Goal</b>
	3.4.b	On an annual basis, complete dry weather flow inspection of all storm sewer outfalls.	Water Production	9/15/18	Complete and document annual inspection.
Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste, and the requirements for reporting such mechanisms.	3.5.a	Develop educational information on hazards of improper disposal of waste and requirements for reporting.	Sustainability	9/30/19	Develop flyer with educational information.
	3.5.b	Provide annual training to all employees of Public Works, Community Development and Property Standards inspectors	Water Production	12/31/19	Provide information and/or training annually.
	3.6.c	Provide information on City website.	Water Production	9/30/19	Review and update annually.
	3.6.d	Provide information as press release through eNews system.	Community Engagement	9/30/19	Provide one press release annually.

### 3.4 Construction Site Storm Water Runoff Control

This minimum control measure outlines a program storm water management control at construction sites. This will be done by developing, implementing and enforcing a program to reduce pollutants in any storm water runoff from construction activities that result in a land disturbance of greater than or equal to one acre. Disturbances less than one acre will be included if part of a larger development that would ultimately disturb more than one acre. The following Best Management Practices (BMPs) and implementation schedule serve as Evanston’s MS4 Construction Site Storm Water Runoff Control Program.

**BEST MANAGEMENT PRACTICES AND MEASURABLE GOALS  
CONSTRUCTION SITE STORM WATER RUNOFF CONTROL**

<b>Goal Description</b>	<b>Goal No.</b>	<b>Action</b>	<b>Lead Person/ Department</b>	<b>Initial Target Date</b>	<b>Measurable Goal</b>
Develop an ordinance or regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance.	4.1.a	Review and update Erosion and Sediment Control Policy.	Capital Planning	12/31/18	Review and update policy.
	4.1.b	Provide information on City website.	Water Production	12/31/18	Review and update annually.
	4.1.c	Incorporate Erosion and Sediment Control Policy into City ordinances.	Water Production	12/31/20	Revised ordinance approved by City Council.
Require construction site operators to control or prohibit non-storm water discharges.	4.2.a	Incorporate requirements into Erosion and Sediment Control Policy.	Capital Planning	12/31/18	Review and update policy.
Require all regulated construction sites to have a storm water pollution prevention plan that meets the requirements of Part IV of the NPDES permit No. ILR10.	4.3.a	Incorporate requirements into Erosion and Sediment Control Policy.	Capital Planning	12/31/18	Review and update policy.
Require procedures for site plan reviews which incorporate consideration of potential water quality impacts and site plan review of individual pre-construction site plans by the permittee to ensure compliance with sediment and erosion control requirements.	4.4.a	Review and update procedures for site plan review for compliance with new 2016-2021 MS4 permit requirements.	Community Development	12/31/18	Review and update policy.
Require procedures for receipt and consideration of information submitted by the public.	4.5.a	Develop procedure for reporting and tracking illicit discharge complaints in the 311 system.	Public Works Agency	12/31/18	Create new service request type in 311.
Require site inspections and enforcement of ordinance provisions.	4.6.a	Continue program of site inspections.	Public Works Agency	Ongoing	Review and update annually.

### 3.5 Post-Construction Storm Water Management in New Development and Redevelopment

This minimum control measure outlines a program for storm water management control at new development and redevelopment. This will be done through maintaining the City’s existing Stormwater Control Ordinance and updating as necessary for compliance with new 2016-2021 MS4 permit requirements, including developing, implementing and enforcing a program to reduce pollutants in any storm water runoff from construction activities that trigger compliance with the City of Evanston’s Stormwater Control Ordinance. The following Best Management Practices (BMPs) and implementation schedule serve as Evanston’s MS4 Post-Construction Storm Water Management in New Development and Redevelopment Program.

<b>BEST MANAGEMENT PRACTICES AND MEASURABLE GOALS CONSTRUCTION SITE STORM WATER RUNOFF CONTROL</b>					
<b>Goal Description</b>	<b>Goal No.</b>	<b>Action</b>	<b>Lead Person/ Department</b>	<b>Initial Target Date</b>	<b>Measurable Goal</b>
Develop, implement and enforce a program to address and minimize stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre.	5.1.a	Enforce existing Evanston Stormwater Control Ordinance	Community Development	Ongoing	Review and update annually.
Develop and implement a program to minimize the volume of storm water runoff and pollutants from public highways, streets, roads, parking lots and sidewalks. Include training for all MS4 employees and contractors who main repair or replace public surfaces or green infrastructure.	5.3.a	Review and update City’s Complete and Green Streets Policy.	Capital Planning	06/30/18	Update policy, adopted and approved by City Council.
	5.3.b	Develop a checklist for evaluating street and other public right-of-way projects for compliance with the City’s Complete and Green Streets Policy.	Community Development	5/31/18	Finalized Complete and Green Streets Checklist (CGSC).
	5.3.c	Review City capital improvement projects using CGSC	Bureau of Capital Planning	6/30/19	Annual report.

**BEST MANAGEMENT PRACTICES AND MEASURABLE GOALS  
CONSTRUCTION SITE STORM WATER RUNOFF CONTROL**

<b>Goal Description</b>	<b>Goal No.</b>	<b>Action</b>	<b>Lead Person/ Department</b>	<b>Initial Target Date</b>	<b>Measurable Goal</b>
	5.3.d	Provide annual training on good MS4 practices to all Public Works Agency employees.	Public Works Agency	12/31/17	Annual training completed for Public Works employees verified by sign-in sheets
Develop and implement a program to minimize the volume of storm water runoff and pollutants from existing privately owned developed property.	5.4.a	Implement a regular street cleaning program.	Public Works Agency	4/30/18	Completed Street Cleaning Operation Schedule
	5.4.b	Implement a fall leaf pick-up plan to divert leaves from entering the sewer system.	Public Works Agency	9/30/18	Completed Fall Leaf Pick-up Plan

### 3.6 Pollution Prevention/Good Housekeeping for Municipal Operations

This minimum control measure outlines a program for prevention of stormwater pollution as a result of city operations. The following Best Management Practices (BMPs) and implementation schedule serve as Evanston’s MS4 Pollution Prevention/Good Housekeeping Program.

**BEST MANAGEMENT PRACTICES AND MEASURABLE GOALS  
POLLUTION PREVENTION/GOOD HOUSEKEEPING**

<b>Goal Description</b>	<b>Goal No.</b>	<b>Action</b>	<b>Lead Person/ Department</b>	<b>Initial Target Date</b>	<b>Measurable Goal</b>
Develop and implement an O&M program that includes an annual training component for municipal staff and contractors to prevent and reduce the discharge of pollutants to the maximum extent practicable.	6.1.a	Develop O&M Manual for Municipal Storage Yard Practices.	Public Works Agency	12/31/20	Completed O&M Manual.
Implement measures to minimize the discharge of pollutants from equipment and vehicle washing. Wash waters must be treated in a sediment basin at a minimum.	6.2.a	Conduct annual training on vehicle washout practices.	Public Works Agency	6/30/19	Conduct 1 training per year.
Minimize the exposure of building materials, products, construction waste, trash, landscape materials, fertilizers, pesticides, herbicides, chemical storage tanks, deicing material storage facilities and temporary stockpiles, detergents, sanitary waste and other materials to precipitation and to stormwater.	6.3.a	Do not store materials in areas served by storm sewer. All runoff will be directed to the combined sewer system.	Public Works Agency	12/31/18	Conduct 1 inspection of storage areas per year.
Minimize the discharge of pollutants from spills and leaks. Implement chemical spill and leak prevention and response procedures.	6.4.a	Provide annual training on chemical spill response.	Public Works Agency	12/31/18	Conduct 1 training annually.
	6.4.b	Provide chemical spill response kits at each municipal storage area.	Public Works Agency	12/31/18	Conduct annually inspection of chemical spill response kits.

**BEST MANAGEMENT PRACTICES AND MEASURABLE GOALS  
POLLUTION PREVENTION/GOOD HOUSEKEEPING**

<b>Goal Description</b>	<b>Goal No.</b>	<b>Action</b>	<b>Lead Person/ Department</b>	<b>Initial Target Date</b>	<b>Measurable Goal</b>
<p>Using training material available from USEPA, State of Illinois or other organizations, provide annual employee training to prevent and reduce stormwater pollution from:</p> <ul style="list-style-type: none"> <li>-park and open space maintenance</li> <li>-fleet and building maintenance</li> <li>-operation of storage yards</li> <li>-snow disposal</li> <li>-deicing material storage handling and use on roadways</li> <li>-new construction and land disturbance</li> <li>-storm water system maintenance</li> </ul> <p>procedures for proper disposal of street cleaning debris and catch basin materials.</p> <p>Training should include how flood management projects impact water quality, non-point source pollution control, green infrastructure controls and aquatic habitat.</p>	6.5.a	Conduct annual training on stormwater pollution reduction practices.	Public Works Agency	12/31/19	Conduct 1 training annually.