

# Post-Construction Stormwater Best Management Practices: Inspection and Compliance Program Overview and Updates

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## Outline

- BMP Stormwater Program Introduction
- Inspections & Compliance Overview
- Lessons Learned
- Looking Forward



# Stormwater BMP Program

- Stormwater BMPs are structural, vegetative, or managerial practices used to treat, prevent, or reduce pollutants in stormwater runoff.
- MSD's BMP program fulfills NPDES Phase II small MS4 requirements to address the quality of stormwater runoff from new and redevelopment projects  $\geq 1$  acre.
  - Provide water quality treatment for 90% of annual rainfall.
  - Reduce runoff volume to pre-construction levels on new development sites.
  - Channel protection through extended detention (1yr/24hr storm).
  - Stand alone BMPs must remove minimum 80% of TSS and have an acceptable longevity rate.

# Stormwater BMP Program

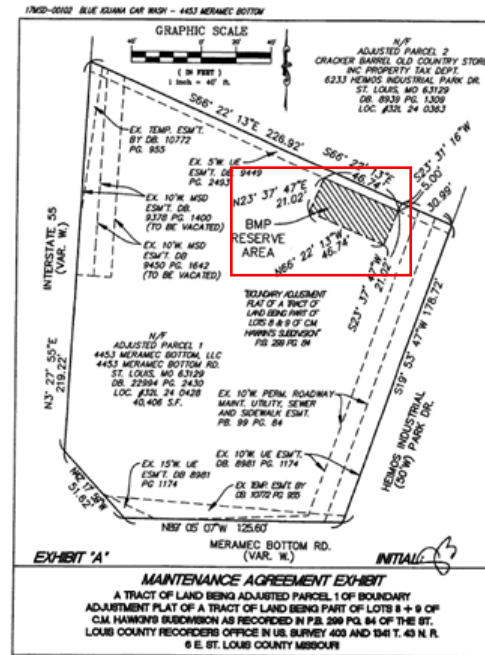
- MSD provides site design guidance, reviews projects, issues permit for construction, inspects and approves construction.
- Following project approval, constructed BMPs are entered into the Inspection and Compliance Program.
  - Field Inspections
  - Annual Reports Due List



# Stormwater BMP Program

Prior to approving plans the owner enters into a Maintenance Agreement with MSD. The MA includes the following:

- Requires owner to maintain facility in good working order;
- References SWMFR O&M which describes requirements for inspections, maintenance, and reporting;
- Reserve area for each BMP;
- Authority for MSD to make repairs should the owner fail to properly maintain the BMP; and,
- Agreement is to continue in perpetuity.



# Stormwater BMP Program

## Inspection and Compliance

- BMPs are inspected on a 3 year cycle.
- Informal and Formal Enforcement Actions are taken for facilities in disrepair.
  - O&M Enforcement Response Plan (updated 2019)
- Legal Authority for compliance inspections and enforcements is provided by MSD Ordinances 9030 and 15048.
- Annual report processing and review.
- Program/Technical Assistance

NOTE: This checklist is not mandated for use by MSD and does not exempt BMP owners from design and maintenance requirements specified in the SWMP.

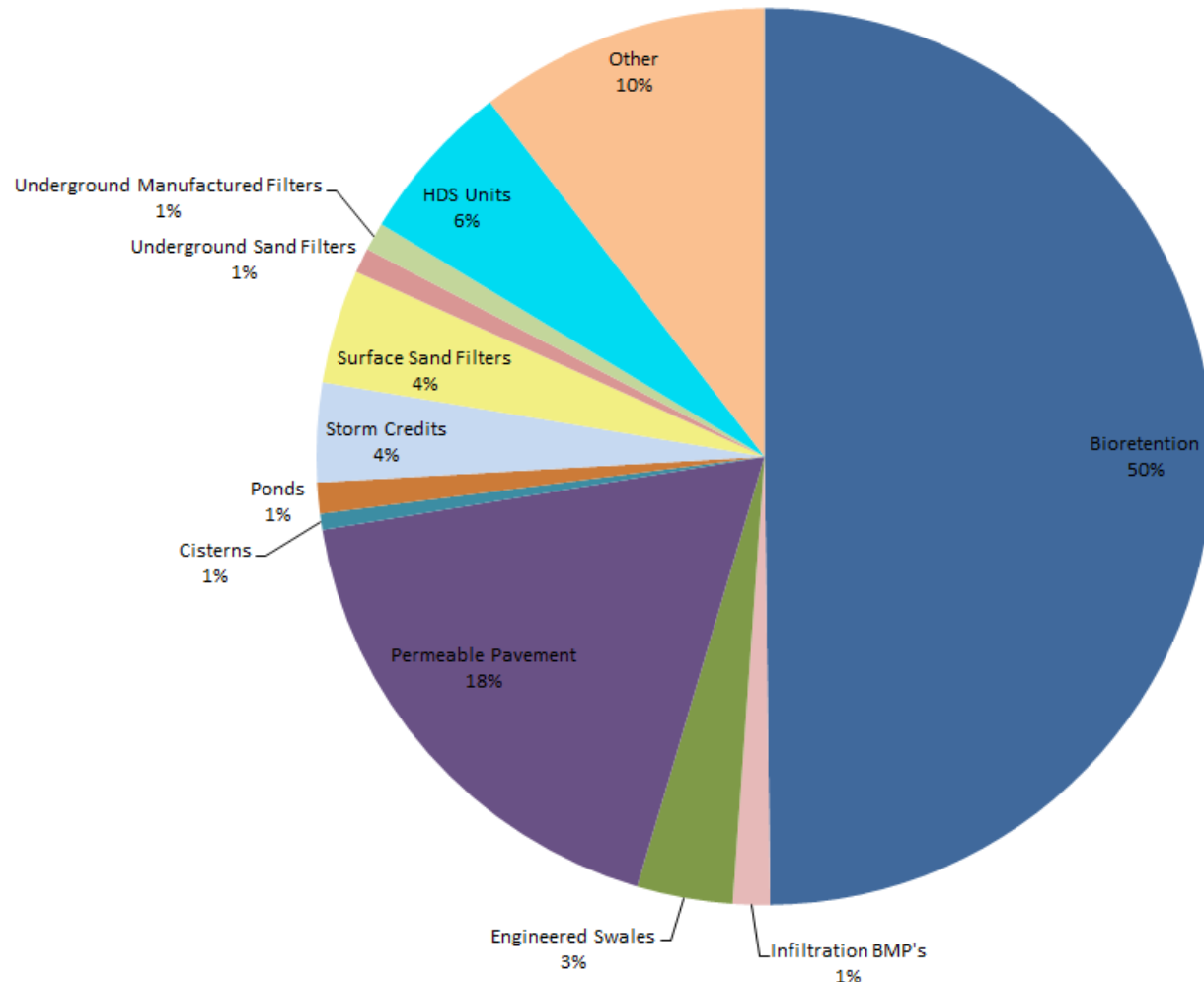
STORMWATER MANAGEMENT FACILITY MAINTENANCE INSPECTION CHECKLIST			
BIORBIOS: BIORETENTION/RAIN GARDEN			
Location	P Job Number: _____ Inspector: _____		
Owner Change since last inspection? Yes No	Date of inspection: _____		
Owner Name:	Owner Phone Number: _____		
Site Address:	Site Conditions: _____		
<b>INSPECTION RATING SYSTEM</b>			
0 = Good condition. Well maintained, no action required. Satisfactory Performance.			
1 = Moderate condition. Should monitor. Satisfactory Performance.			
2 = Degraded condition. Routine maintenance and repair needed. Unsatisfactory Performance.			
3 = Serious condition. Immediate need for repair or replacement. Unsatisfactory Performance.			
NOTE TO INSPECTOR: All personnel entering any work site must use appropriate safety measures and follow applicable OSHA regulations.			
INSPECTION ITEMS	RATING	COMMENTS	
<b>Overall Drainage Area Conditions:</b>			
<b>A. INLETS (if not piped, identify as overland flow)</b>			
Provide stable conveyance into facility?	0 1 2 3 N/A		
Excessive trash/debris/sediment accumulation?	0 1 2 3 N/A		
Evidence of erosion?	0 1 2 3 N/A		
<b>B. PRETREATMENT (if applicable)</b>			
Excessive trash/debris/sediment accumulation?	0 1 2 3 N/A		
Evidence of standing water? (Flooding, Noticeable Colors, Water Stains, Algae)	0 1 2 3 N/A		
Evidence of clogging?	0 1 2 3 N/A		
Check vegetation/erosion soil?	0 1 2 3 N/A		
Evidence of erosion?	0 1 2 3 N/A		
<b>C. TREATMENT AREA AND VEGETATION</b>			
Excessive trash/debris/sediment accumulation?	0 1 2 3 N/A		
Signs of erosion or movement of media (or pipe grout)?	0 1 2 3 N/A		
Evidence of oil/chemical accumulation?	0 1 2 3 N/A		
Evidence of standing water? (Flooding, Noticeable Colors, Water Stains, Algae)	0 1 2 3 N/A		
Underdrain system (if equipped) broken/clogged?	0 1 2 3 N/A		
Adequate silt covering present?	0 1 2 3 N/A		
Is vegetation overgrown? Invasive, overgrown weeds, woody vegetation?	0 1 2 3 N/A		
Check vegetation/erosion soil?	0 1 2 3 N/A		
Signs of media layer forming (or pipe grout)?	0 1 2 3 N/A		
<b>D. OVERFLOW/OUTLET STRUCTURE</b>			
Stable conveyance out of facility provided?	0 1 2 3 N/A		
Excessive trash/debris/sediment accumulation?	0 1 2 3 N/A		
Evidence of erosion elsewhere?	0 1 2 3 N/A		
<b>E. HAZARDS</b>			
Complaints from local residents? (describe if any)	0 1 2 3 N/A		
Any public hazards observed? (describe if any)	0 1 2 3 N/A		
<b>F. CORRECTIVE ACTIONS:</b>			
*If any 2-3 ratings are given in Sections A-E of this checklist, list corrective actions recommended or completed during inspection.			
CORRECTIVE ACTIONS	RECOMMENDED TO	COMPLETED AT TIME OF INSPECTION	
	OWNER		
<b>G. PHOTOGRAPHS</b>			
Please attach photographs, with descriptions, showing current condition of the system and any deficiencies noted in this inspection.			

MSD BMP Inspection Checklist Form, Rev 8/1/2016

# Inspection & Compliance

## Post-Construction BMPs Built, Permitted for Construction, or Under Review as of 12/31/2018

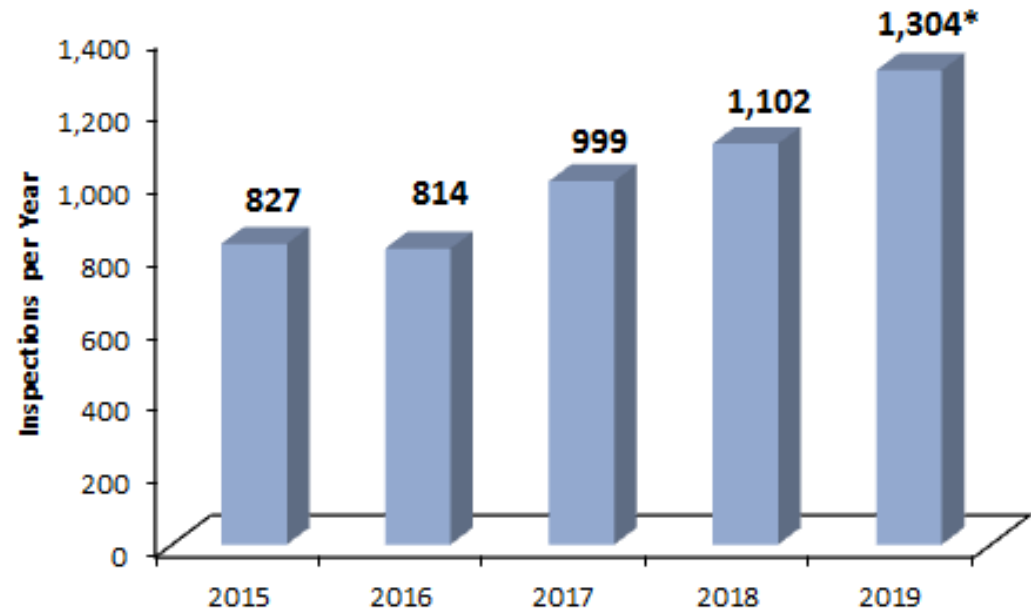
- 5,012 Total BMPs
- Bioretention (2,496)
- Permeable Pavements (892)
- Other (526, amended soils)



# Inspection & Compliance

## MSD Yearly Inspections for 2015-2019

- **\*1,304 inspections projected for 2019 (787 through July)**

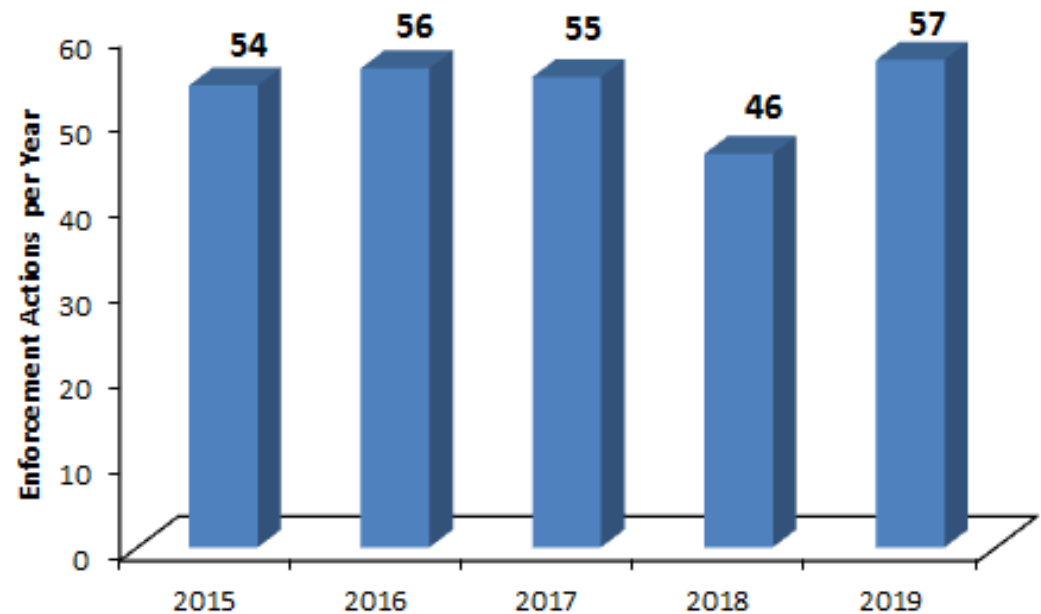




# Inspection & Compliance

## MSD Yearly Enforcement Actions 2015-2019

- 2019 enforcements (57) represent those taken though July.



# Inspection & Compliance

## Most Common Reasons for Enforcement:

- Excess debris or sediment
  - Raingardens, permeable pavements, HDSUs
- Excessive erosion
- Clogging or inadequate drainage
- Invasive plants
- Structural components
  - Permeable pavements with excessive spalling, compaction, or which has been permanently sealed.
  - Missing cleanout caps
  - Broken filter cartridges



# Inspection & Compliance

## Lessons Learned:

- Install certain BMPs during final phases of construction and protect from construction sediment.
- Maintaining the contributing drainage area can be just as important as the treatment basin.
- Perform regular inspections and maintenance to avoid costly repairs or restoration.



# Inspection & Compliance

## Looking Ahead:

- The Inspection & Compliance area for Stormwater BMPs will continue to grow.
- Early stages of inspecting aged detention basins and developing I&C program.
  - Nearly 2,800 facilities. Many that were not previously approved by MSD and lack a clear maintenance agreement.
  - Inspections to occur on a five year cycle.
  - Facilities will be inspected for condition and performance. Complaints will be considered as part of the overall assessment.



# Questions?



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