Michigan’s Post Construction Program Performance Standards

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National Profile

Quick Facts

- 855 Phase I MS4s covered by 250 Individual Permits
- 6,695 Phase II MS4s
  - 6,589 covered by 54 General Permits
  - 106 covered by 100 Individual Permits
  - 3 Watershed Permits cover 3 Phase I and 40 Phase II MS4s

Regulated MS4 area represents 4% of the U.S. land area and > 80% of the population.

Regulated MS4s are typically cities, counties, towns, and villages. Phase II MS4s also include nontraditional MS4s such as public universities, departments of transportation, hospitals and prisons. The universe of the Phase II MS4 program changes every 10 years according to the U.S. Census Bureau definition of urbanized area.
Michigan Profile

Quick Facts

Phase I MS4s
- Ann Arbor
- Flint
- Grand Rapids
- Lansing
- MDOT
- Sterling Heights
- Warren

300 Phase II MS4s
Transitioning from general permits to individual permits

Regulated MS4 Area
Serves a population of 6.5 million people or 66% of Michigan's population
Permitting History

2003
Issued two general permits: Jurisdictional (traditional) and Watershed (pilot)

2008
Reissued general permits; permits contested
Class action lawsuit filed (300 permittees in the class)

2010
General permits withdrawn
Extended coverage under 2003 general permits

2013
Begin requiring permittees to apply for an individual permit

2015
MDEQ prevails in the lawsuit. Owning/operating an MS4 is a voluntary action not a state mandate.
First individual permit issued
Individual Permits

Stakeholders Meetings
• General permits were a one-size-fits-all approach
• Desired a permit reflecting the size and complexity of the MS4

Individual Permits
• 88 question application
• Range in length with referenced material
• Complete application produces a SWMP
• Public notice the application and permit for 30 days
• Approve SWMP as part of permit issuance
Performance Standards

**Water Quality Treatment Performance Standard**

- Treat the first 1” of runoff from the project site
- Treat runoff generated from 90% of all runoff-producing storms for the project site

Treatment: BMPs designed to reduce total suspended solids loadings by 80% or achieve a discharge concentration not to exceed 80 mg/l
Performance Standards

*Channel Protection Performance Standard*

Post-construction runoff rate and volume of discharge not to exceed the pre-development rate and volume for all storms up to the 2-year, 24-hour storm event at the project site.

Predevelopment: Last land use prior to the planned new development or redevelopment.
Challenges

Channel Protection Performance Standard dubbed “Infiltration Requirement” limiting BMP selection

Limited Soil Infiltration Rates (C/D soils)

Orifice Sizing Concerns
Challenges

**Linear Projects**
- Lack of ROW
- Jurisdictional issues
- Limitations of road funding

**Site Constraints**
- Focus on detention basins
- All or nothing attitude toward BMP selection
Process

- MDEQ review team to ensure consistency statewide
- Referenced existing resources
- Met with critical practitioners
- Addressed risk concerns
- Understand process updates needed (e.g. new spreadsheets as part of site review)
Maximizing the Site

• Identifying suitable areas of the site early in the design process
• Onsite infiltration testing
• Isolate contamination
• Decentralized BMPs (Green Infrastructure)
Alternatives

• Determination of Maximum Extent Technically Feasible (EISA Technical Guidance)

• Payment in lieu and off-site mitigation

• Separate directly connected impervious and pervious areas for water quality volume (e.g. one inch of runoff from all impervious areas and 0.25 inches of runoff from all disturbed pervious areas)
Alternatives

- Supplemental measures allowed in areas with marginal soils (e.g. soil amendments and underdrains)
- Extended detention to address soils with limited infiltration rates

7) The following infiltration \((K_{sat})\) values shall be used to determine the appropriate design methods for infiltration BMPs:

- \(K_{sat} \geq 0.50\) inches/hour
  Infiltration BMPs shall be constructed to provide the infiltration volume as calculated using the above requirements.

- \(0.24\) inches/hour \(< K_{sat} < 0.50\) inches/hour
  Install supplemental measures, which may include subsoil amendment, or an underdrain placed at the top of the storage bed layer to ensure dewatering in the event underlying soils fail to provide adequate drawdown/dewatering time. If underdrains are selected, they shall be designed to allow stormwater to percolate through the soils first, with the underdrain serving as a secondary outlet, by placing the underdrain in the upper level of the BMP, with pipe perforations located along the underdrain invert.

- \(K_{sat} < 0.24\) inches/hour
  Soils are not suitable for infiltration. Alternative methods to reduce stormwater volume shall be used.
Regional Consistency

*Flexibility within the individual permit*

Permittees desired:
• Consistent standards
• Coordinated compliance dates

Fair and equitable development/redevelopment expectations across a region
Successes

**Above and Beyond the Minimum Requirements**

- Standards applied in non-urbanized area and to direct discharges to WOS
- Standards applied to sites <1 acre (not part of a larger common plan of development/sale)
- Pre-settlement (woods/meadow) as the last land use for channel protection
- Required retrofits for redevelopment (>50% of the site redeveloped triggers retrofits)
Needs and Next Steps

National Stormwater Testing and Evaluation for Products and Practices (STEPP)

Promoting green infrastructure – Ongoing efforts to identify barriers within communities

Post construction control in CSO areas (resiliency planning)
Outcomes

Time consuming application reviews

Shared understanding of the SWMP and implementation expectations

Improved compliance as the focus is not on reviewing procedures