Willamette Basin Five Year Review
2013-2018

Designated Management Agency TMDL Implementation

Dec. 12, 2019
Wilsonville City Hall, Second Floor
Today’s Overview

• TMDL urban/rural nonpoint source implementation
  – Background
  – Five year status 2013-2018
  – Data comparisons – 2014 and 2019
  – Water quality status and trends

• Questions ???
• Conclusions
Willamette TMDLS

• Goal
  – Achieve TMDL allocations over time to meet water quality standards
  – TMDLs
    • Primary: Bacteria, Mercury, Temperature
    • Dissolved Oxygen, Pesticides, Phosphorus, Turbidity
OAR 340 Division 42 TMDLs

- 340-042-0040 Establishing
- 340-042-0060 Issuing Order
- 340-042-0080 Implementing
• Prepare an implementation plan
  – Identify the management strategies
  – Timeline for implementing strategies
  – Performance monitoring
  – Compliance with land use requirements
  – Other analyses or information specified in the WQMP
• DEQ for review and approval
• Implement and revise the plan as needed
Monitoring and Evaluation

• Three broad components

  – Selection and implementation of effective strategies in TMDL implementation plans

  – Strategy effectiveness monitoring and,

  – Assessment of water quality or surrogate measures improvement
Willamette Basin DMAs

Willamette Basin TMDL DMA Total

- Urban/Rural Cities, Counties, Special Districts
- Federal & State Agencies, Water Conveyance, Special Districts
Willamette Basin Urban/Rural DMAs

Five Year Review Reporting Timelines

- 2018 Willamette 2006 and Tualatin
- 2019-2021 Willamette 2006 Other
- 2021 Molalla-Pudding
- Yamhill - No requirements
Control Measures
Stormwater Program Planning

1. Illicit discharge detection and elimination program

2. Pollution prevention and good housekeeping program for its operations and activities

3. Construction stormwater control program (e.g., erosion and sediment control)

4. Post-construction stormwater control program

5. Stormwater public education, outreach, and involvement program

Percent DMAs - All MS4 Phase I MS4 Phase II >= 10K < 10K

0% 20% 40% 60% 80% 100% 120%
## Example: Differences in Program Elements

<table>
<thead>
<tr>
<th></th>
<th>Percent of DMAs Implementing Construction SW Program</th>
<th>Percent of DMAs Implementing Construction Site Inspections</th>
<th>Percent of DMAs Implementing Employee Training on Construction and Maintenance Practices to Protect WQ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase I</strong></td>
<td>100</td>
<td>93</td>
<td>87</td>
</tr>
<tr>
<td><strong>Phase II</strong></td>
<td>100</td>
<td>100</td>
<td>11</td>
</tr>
<tr>
<td>≥ 10,000</td>
<td>100</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>&lt; 10,000</td>
<td>65</td>
<td>48</td>
<td>39</td>
</tr>
</tbody>
</table>
Pollution Prevention in Municipal Operations

- A program to minimize inflow and infiltration for wastewater collection causing sanitary sewer overflows (70%)
- Port-a-Potties in parks and other public spaces (66%)
- Pet waste clean-up outreach program for public spaces (55%)
- Dog parks sited away from waterways (34%)
- Pet waste pick-up stations (83%)
- No wildlife feeding ordinance or signs in public parks near waterways (21%)
- Purchase of electric, hybrid, of low miles/gallon vehicles for transportation fleet (30%)

Percent DMAs - All MS4 Phase I MS4 Phase II >= 10K < 10K

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Pollution Prevention in Municipal Operations

- Maintenance program for stormwater treatment controls (e.g., catch basins, rain gardens, etc)
  - 79%
- Employee training on construction and maintenance practices
  - 68%
- Minimize use of deicing agents
  - 70%
- Practices to reduce or avoid fertilizer
  - 60%
- Integrated pest management policy for the public works/parks dept
  - 53%
- Sweeping of parking lots
  - 45%
- Sweeping of streets
  - 83%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

- Percent DMAs - All
- MS4 Phase I
- MS4 Phase II
- >= 10K
- < 10K
Illicit Discharge, Detection and Elimination

- Conducting septic system investigations for illicit discharges when septic systems drain field has potential to drain to stormwater collection system
- Conducting on-site investigations for illicit discharges using smoke, dye, and/or closed circuit TV
- Procedures for prioritizing illicit discharge investigations using dry weather outfall screening (i.e., outfall reconnaissance inventory)
- Procedures for prioritizing illicit discharge investigations using an assessment of existing information (e.g., desktop assessment)
- Procedures for prioritizing illicit discharge investigations by sampling any flow in the stormwater system for indicator pollutants (i.e., indicator monitoring)
- Conducting on-site investigations for illicit discharges using smoke, dye, and/or closed circuit TV
- Conducting septic system investigations for illicit discharges when septic systems drain field has potential to drain to stormwater collection system

Percent DMAs - All MS4 Phase I MS4 Phase II >= 10K < 10K

- 64%
- 51%
- 60%
- 26%
- 36%
- 38%
- 47%
- 15%
- 0%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90%
Illicit Discharge, Detection and Elimination

- Procedures for prioritizing illicit discharge investigations using dry weather outfall screening (i.e., outfall reconnaissance inventory)
  - Percent DMAs - All: 26%
  - MS4 Phase I: 64%
  - MS4 Phase II: 51%
  - >= 10K: 60%
  - < 10K: 15%

- Procedures for responding to illicit discharges and enforcing compliance
  - Percent DMAs - All: 60%
  - MS4 Phase I: 60%
  - MS4 Phase II: 60%
  - >= 10K: 60%
  - < 10K: 60%

- A tracking system for illicit discharges
  - Percent DMAs - All: 51%
  - MS4 Phase I: 51%
  - MS4 Phase II: 51%
  - >= 10K: 51%
  - < 10K: 51%

- Development of a stormwater conveyance system map and/or database
  - Percent DMAs - All: 64%
  - MS4 Phase I: 64%
  - MS4 Phase II: 64%
  - >= 10K: 64%
  - < 10K: 64%
Post-Construction to Control Stormwater

- System development charges to fund stormwater infrastructure: 51%
- Stormwater fee for maintenance and administration of post-construction program: 53%
- System for documenting the performance of scheduled maintenance of stormwater controls: 43%
- This jurisdiction does not have LID requirements: 38%
- Requirement for maintenance of private stormwater controls: 55%
- Requirements for post-construction plans review and approval: 55%
- List of approved structural stormwater controls including green infrastructure controls: 53%
- Allowance for stormwater mitigation when a requirement to retain stormwater cannot be met: 30%

Legend:
- Percent DMAs - All
- MS4 Phase I
- MS4 Phase II
- >= 10K
- < 10K

Note: This jurisdiction does not have LID requirements.
Post-Construction to Control Stormwater

- Requirement to prioritize use of stormwater controls that infiltrate and evapotranspirate: 43%
- Performance standard for the level of stormwater treatment: 36%
- Performance standard to prevent stream bed and bank erosion: 40%
- Off-site mitigation of stormwater when a retention requirement cannot be met: 34%
- Specified volume of stormwater that must be retained on a developed site: 45%
- Specified volume of stormwater that must be treated prior to discharge: 53%
- Post-construction stormwater control program limited to MS4 Permit boundary: 23%
- Code review to identify barriers to stormwater controls: 43%
- Code to administer post-construction program: 60%

Percent DMAs - All  MS4 Phase I  MS4 Phase II  >= 10K  < 10K
Public Outreach, Education and Involvement

- Website used for posting
- Collaborating on region-wide campaigns (e.g., Clean Rivers Coalition)
- Incentivize riparian protection
- Mailers
  - A tree planting program, Tree Committees, Free or reduced cost tree planting program
  - Offer and/or advertise erosion and sediment control training to the development community
  - Promote carpooling and public transportation to reduce emissions with mercury
- Organize school programs
- City council meeting with TMDL in subject
- Workshop or training on a water quality topic
- Annual city cleanup day
- City development and planning committee meetings
- Water quality brochure, utility bill insert, city newsletter
- Media release
- Water quality complaint resolution
- Fund
- Percent DMAs - All
  - MS4 Phase I
  - MS4 Phase II
  - >= 10K
  - < 10K
Public Outreach, Education and Involvement

City council meeting with TMDL in subject
Organize school programs
Promote carpooling and public transportation to reduce emissions with mercury
Offer and/or advertise erosion and sediment control training to the development community
A tree planting program, Tree Committees, Free or reduced cost tree planting program
Mailers
Incentivize riparian protection
Collaborating on region-wide campaigns (e.g., Clean Rivers Coalition)
Website used for posting

Percent DMAs - All
MS4 Phase I
MS4 Phase II
>= 10K
< 10K

Website used for posting
Collaborating on region-wide campaigns (e.g., Clean Rivers Coalition)
Top 10: DMA- Reported Strategies

- Pet waste stations in public spaces
- Sweeping of streets
- Maintenance program for stormwater treatment controls (e.g., catch basins, bioswales, planter boxes, wet ponds, constructed wetlands etc.)
- Requirement developer receives DEQ approval for NPDES 1200-C permit prior to receiving a land use permit to commence construction activities
- Website used for posting

Determination for NPDES 1200-C Construction Stormwater Permit

- Employee training on construction and maintenance practices to protect water quality
- Inspection of construction sites to determine non-stormwater discharges
- Minimize the use of deicing agents
- A program to minimize inflow and infiltration (I/I) into your wastewater collection system causing sanitary sewer overflows
- Requirement developer receives DEQ approval for NPDES 1200-C permit prior to receiving a land use permit to commence construction activities
- Maintenance program for stormwater treatment controls (e.g., catch basins, bioswales, planter boxes, wet ponds, constructed wetlands etc.)
- Sweeping of streets
- Pet waste stations in public spaces

Percent DMAs - All MS4 Phase I MS4 Phase II >= 10K < 10K

- 83%
- 83%
- 79%
- 74%
- 72%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Top 10: DMA- Reported Strategies Cont.

A program to minimize inflow and infiltration (I/I) into your wastewater collection system causing sanitary sewer overflows

Minimize the use of deicing agents

Inspection of construction sites to determine non-stormwater discharges

Employee training on construction and maintenance practices to protect water quality

Determination for NPDES 1200-C Construction Stormwater Permit

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<tr>
<td>70%</td>
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<td>68%</td>
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<td>0%</td>
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Restoration Projects Implemented or Funded in Last Four Years

- **All**: 82,100 estimated linear feet, 103 restoration projects
- **MS4 Phase I**: 53,950 estimated linear feet, 60 restoration projects
- **MS4 Phase II**: 350 estimated linear feet, 1 restoration project
- **>=10K**: 13,800 estimated linear feet, 30 restoration projects
- **<10K**: 14,000 estimated linear feet, 12 restoration projects

**Legend**:
- Gray bars: Estimated Linear Feet
- Blue line: Number of Restoration Projects
Partner Collaboration to Meet Load Allocations

Funding and Resource limitations last 5 year review

Strategy to Overcome Funding Limits

Grants

Other (General, Water, Street, In-Kind/Donations, Annual Budget, Bond Measures)

Stormwater fees

System development charges

Funding Solutions Reported

Percent DMAs - All MS4 Phase I MS4 Phase II >= 10K < 10K

66%

45%

27%

38%

55%

36%

68%

10% 20% 30% 40% 50% 60% 70% 80% 90%
Stormwater, Riparian, and Water Quality Strategies

- Porta potties in parks
- Pet waste stations, signs
- Dog run away from streams
- No wildlife feeding ordinance
- Investigate/promote LID
- SW conveyance map
- Outreach WQ protection
- Tree protection ordinance
- Purchase instream transfers

Percent DMAS - All 2019
Percent DMAS - All 2014
Erosion Control, Public Outreach and Education

![Erosion Control and Public Education, Outreach, Erosion and Involvement Strategies](chart)

- Ordinance (< one acre)
- Education via website
- Tree planting
- Promote carpooling, public transportation
- Provide updates to Council
- Steep slope development requirements
- Erosion control plans during bldg permit

**Percent DMAS - All 2019**

**Percent DMAS - All 2014**
Questions?
Conclusions

- Implementation tracking
  - Plans
  - Reporting
- Selection and implementation of effective strategies
- Positive change – 2014 vs 2018
Conclusions

- BMP/Strategy effectiveness
- Water quality analysis – status and trends
- Post-Construction and IDDE
- Riparian protection and restoration