Challenges to BMP Maintenance in Fairfax County: Lessons Learned

CWEA Spring Seminar
June 15, 2018
Today’s Presentation

- Regulatory Drivers and Program Descriptions
- Overview of Public Inspections & Maintenance Program
- Challenges
- Lessons Learned
Fairfax County Overview

- Washington, DC metropolitan area
- 400 square miles
- 30 Watersheds
  - Chesapeake Bay Watershed
- 1.1 Million residents
- Phase 1 MS4 Permittee
- Latest Permit (VA0088587) became effective April 1, 2015
Regulatory Drivers and Program Descriptions

- **MS4 Permit: Publicly Maintained SWM Facilities (Part I.B.2.h)**
  - 1(a): “The permittee shall provide for adequate long-term operation and maintenance of SWM facilities owned or operated by the permittee in accordance with written inspection and maintenance procedures included in the MS4 Program Plan.”
  - 1(b): Inspect annually or alternative schedule based on risk assessment.
Overview of Public Inspections & Maintenance Program

• **Above-ground Facilities**
  – Wet and Dry Ponds (WP, DP)
  – Extended Detention DP (EDD)
  – Infiltration Trench (TR)
  – Constructed Wetland (WL)
  – Permeable Pavement (PP)
  – Rooftop Detention (RT)

• **Below-ground Facilities**
  – Underground Detention (UG)
  – Cistern (CS)
  – Sand Filter (SF)
  – Manufactured BMP (MB)
    • Proprietary
    • Non-proprietary

• **Vegetative Practices**
  – Bioretention (BR)
  – Treebox Filter (TF)
  – Green Roof (GR)
  – Vegetative Swale (VS)
  – Floating Treatment Wetland (FTW)
  – Open Space (OS)
  – Reforestation (RF)
  – Amended Soil (AS)

• **State Regulated Dams (SRD)**
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Overview of Public Inspections & Maintenance Program

Public Stormwater Inventory

Maintenance & Stormwater Management Division/Department of Public Works and Environmental Services
Challenges

• **Design Phase**
  – Site/facility type selection

• **Construction Phase**
  – Installation key to success
  – Requires technical expertise

• **Post-Construction Maintenance**
  – Majority of cost over life cycle
  – Centralized maintenance program dealing with variety of site conditions & expectations
  – Reliance upon contractors
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Challenges

- Focus on points of control
- Currently, focus primarily concerned with post-warranty maintenance of our inventory
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Challenges

Design → Construction → Bond / Warranty → Maintenance Inventory

Maintenance & Stormwater Management Division/Department of Public Works and Environmental Services
Not sure I understand the intent of the red arrows
Ambrose, Heather, 5/29/2018
Challenges: Design Phase

- Coordination with site reviewers and land development services
- Opportunity to provide comments on designs
  - Address comments
- Community buy-in
Lessons Learned: Design Phase

- Participate in review process

- Think function and access
  - Incorporate pretreatment when possible

- Community outreach
Challenges: Construction Phase

- Technical nature of work
- Limited pool of contractors performing specialized construction
- Phasing and coordination with site development
Lessons Learned: Construction Phase

• Technical expertise needed in field – Training

• Inspections – Check Lists
Challenges: Post-construction Maintenance

1. Cost & Efficiency
   - Determines Level of Service

2. Institutional Knowledge
   - Constantly turnover in key personnel in-house and contractors

3. Specialized experience

4. Levels of Service
   - Functionality vs. aesthetics, Plant vs. weed
   - Customer service above and beyond functional components
Lessons Learned: Post-construction Maintenance

1. Cost & Efficiency

- Partially determines Level of Service
- What is the value of the optics?
- Only get credit for function
Lessons Learned: Post-construction Maintenance

1. Cost & Efficiency

• From neighborhood resident, “We hope that the current condition may be maintained and that there will now be consistent and periodic grass cutting, including more when needed this year before winter, in order to avoid the wildlife look that we have now, fortunately, lost. Thanks for your efforts. **The Park now looks as good as the asphalt.**”
2. Institutional Knowledge

- Contractor training
- Developed facility specific O&M guidelines

GREEN INFRASTRUCTURE IS THE FUTURE. START TRAINING FOR YOURS.
3. Specialized Experience

- Segregation of facility types in Maintenance Contract
4. Levels of Service

- Asset Maintenance Cards
- O&M Guidelines
4. Levels of Service

• Simplify planting palettes
Lessons Learned: Post-construction Maintenance

4. Levels of Service

• Consequences of simplified planting plan

• What is the alternative?

• Reseeding?

• Limited interplanting?
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