

Oregon City

Stormwater and Grading Design Standards and Code Update

April 7| 2015



Oregon City Stormwater Management

- Natural systems

- Willamette River
- Clackamas River
- Abernethy Creek
- Newell Creek
- Coffee Creek
- Other smaller drainage channels

- Private and public infrastructure

- Water quality and flow control standards since 1999

- Older drainage Master Plans

- Continuing development patterns



City's Existing Standards

- Public Works Stormwater Grading and Design Manual (1999)
- Public Works Standards for Erosion and Sediment Control (1999)
- OCMC 13.12 – Stormwater Management
- OCMC 17.47 – Erosion and Sediment Control
- Also OCMC 8.08 (Nuisances) and 15.48 (Grading)
- Erosion and Sediment Control, Planning and Design Manual (2008 from Clackamas County)

Why make a change?

Stormwater Regulations in Oregon City

- Water quality standards have been exceeded locally in the Willamette River:
 - Bacteria
 - Mercury
 - Temperature
- TMDLs have been established for the Willamette River and its tributaries.
- Oregon City has a Phase I NPDES Permit from DEQ to cover discharge from the stormwater system (MS4)



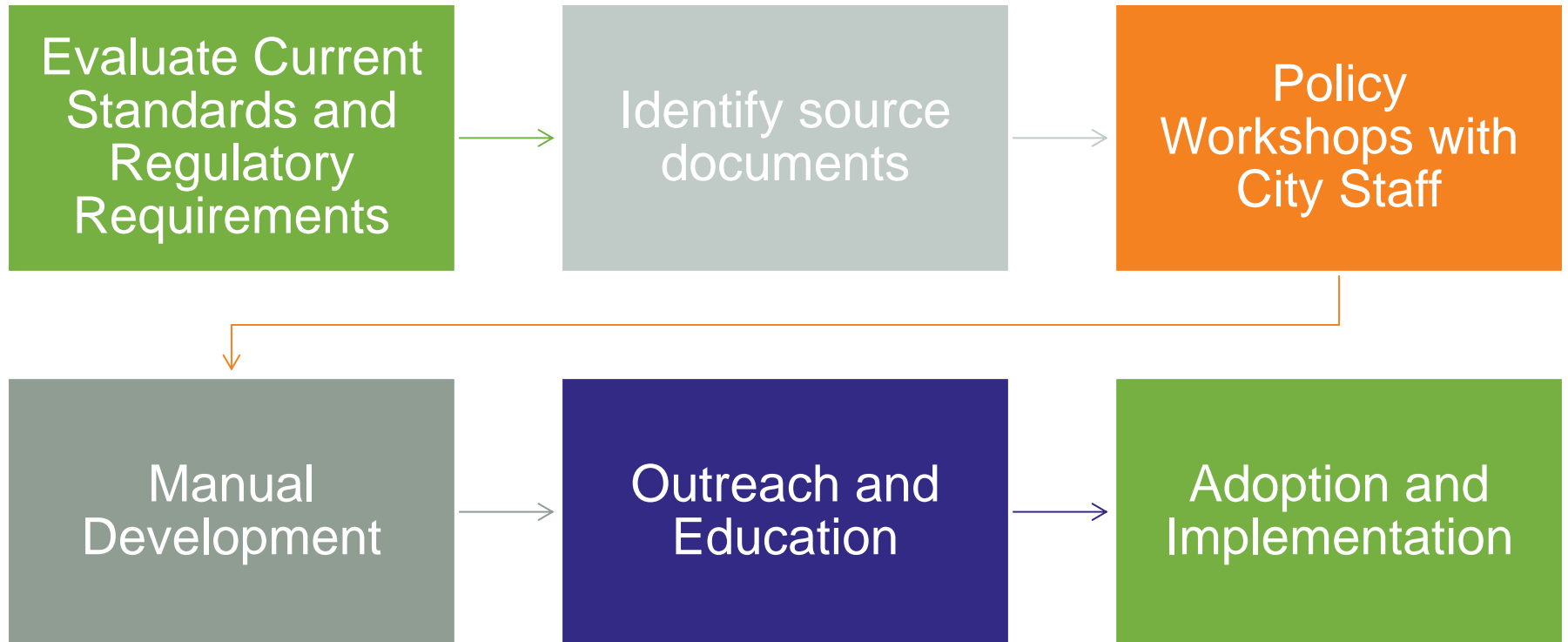
MS4 NPDES Permit Requirements

- City must establish standards that...
 - Target natural surface conditions
 - Reduce volume, duration, and rates of discharge
 - Prioritize Low Impact Development (LID)
 - Capture and treat 80% of average annual runoff volume
- Stormwater program must...
 - Remove LID barriers in municipal code
 - Include specific BMP design criteria
 - Ensure tracking and maintenance of facilities.
- Post-construction standards required by November 1, 2014
 - Status report delivered to DEQ in January 2015



Manual Development Process

Manual Development Process



Policy Workshops



Stormwater and Grading Design Standards Manual

Chapters

General
Introduction

Site
Assessment
and Planning

Grading, Fill,
and Excavation

Stormwater
Facility
Selection and
Design

Conveyance
System Design

Source Controls

Erosion
Prevention and
Sediment
Control

Operation and
Maintenance

Submittal
Requirements

Appendices

Facility
Planting
Guidance

Site
Assessment
and Planning
Checklist

Stormwater
Facility Design
and
Maintenance

Infiltration
Testing

Manufactured
Treatment
Technologies

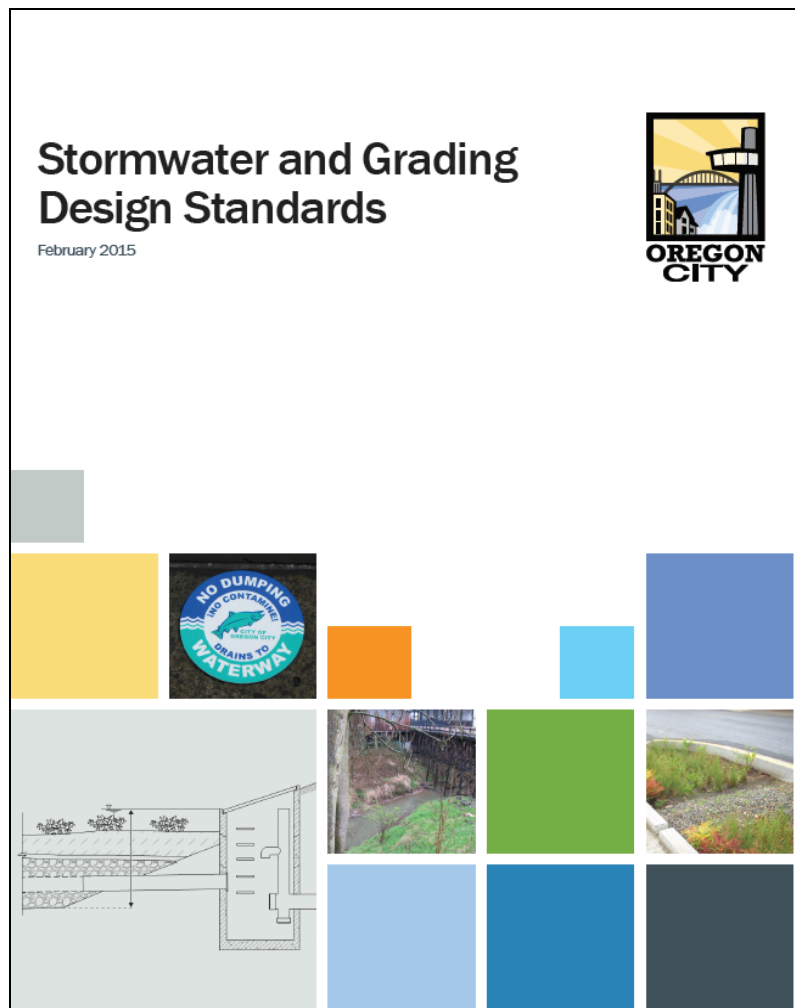
Maintenance
Covenant and
Access
Easement

Historic
Vegetation
Map

Hydrograph
Method
Guidelines

Stormwater and Grading Design Standards

Summary of Changes

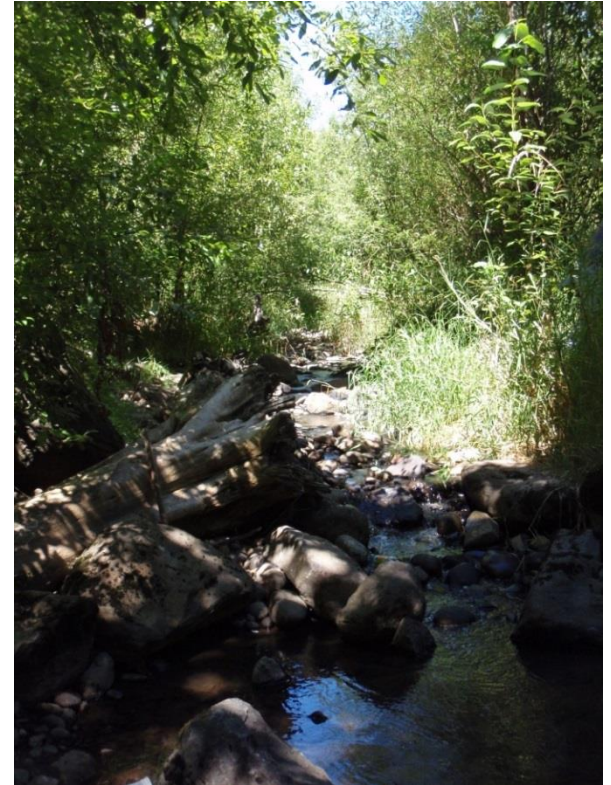


- Meets NPDES MS4 Permit requirements
- Single set of thresholds for water quality and flow control
- Prioritizes LID
- Flow control standards require duration matching
- Facility planting guidance
- Maintenance requirements
- Regional consistency
- Stormwater Facility Sizing Tool
- See Handout for details

BMP Sizing Tool



- Simplified tool to address the impacts of hydromodification
- Method for sizing:
 - Stormwater Planters
 - Rain gardens
 - Swales
 - Infiltrators
 - Detention ponds
- Quick calcs for site planning
- Consistency in design and submittals

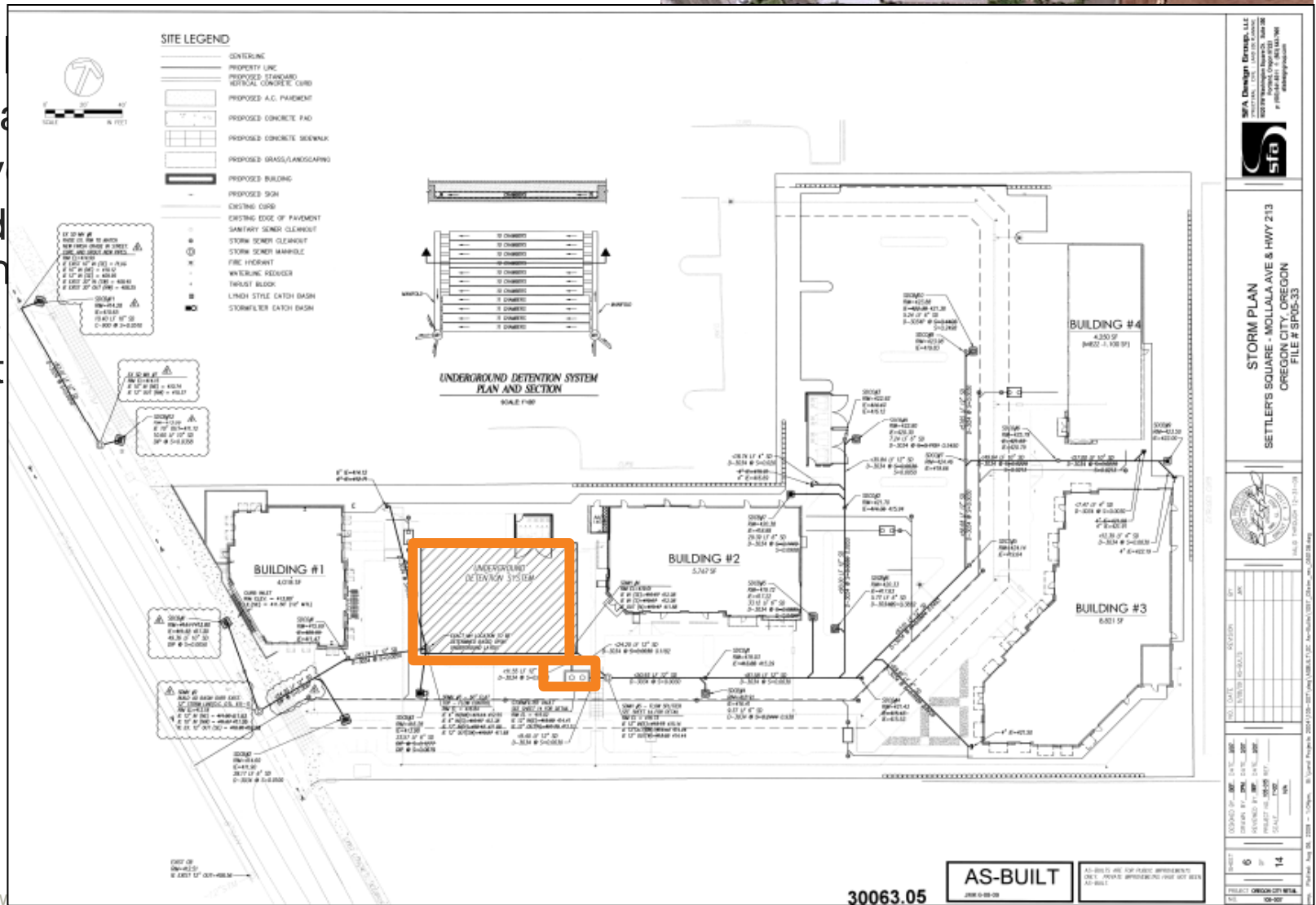


Case Study

Stormwater Standards Case Study

Commercial Development

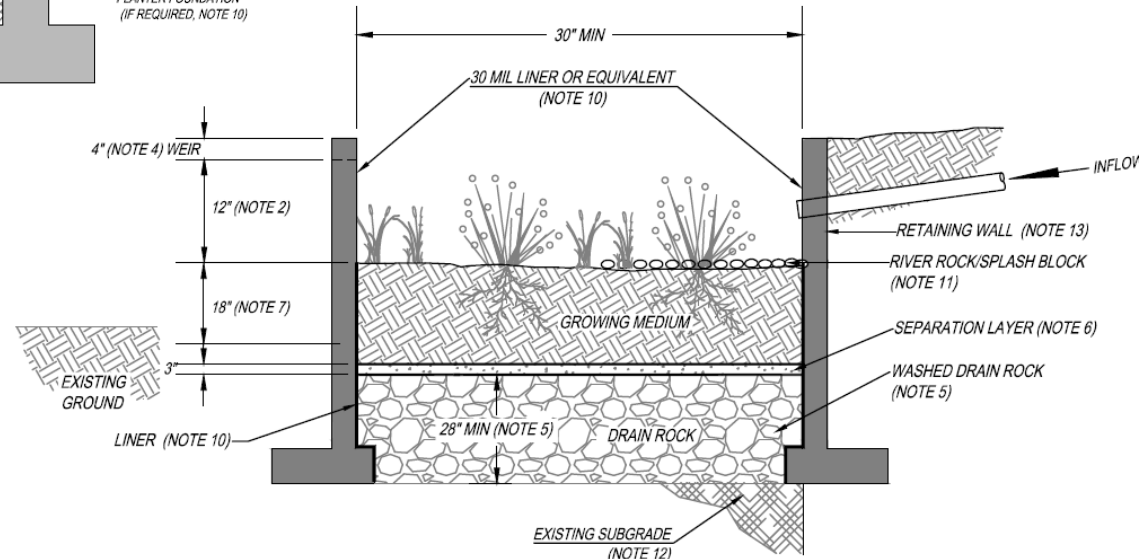
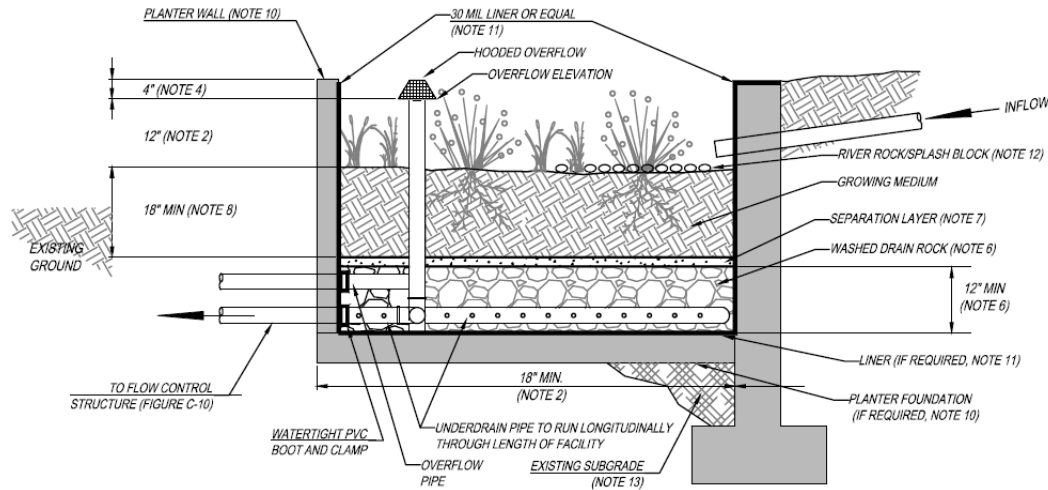
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Stormwater Standards Case Study

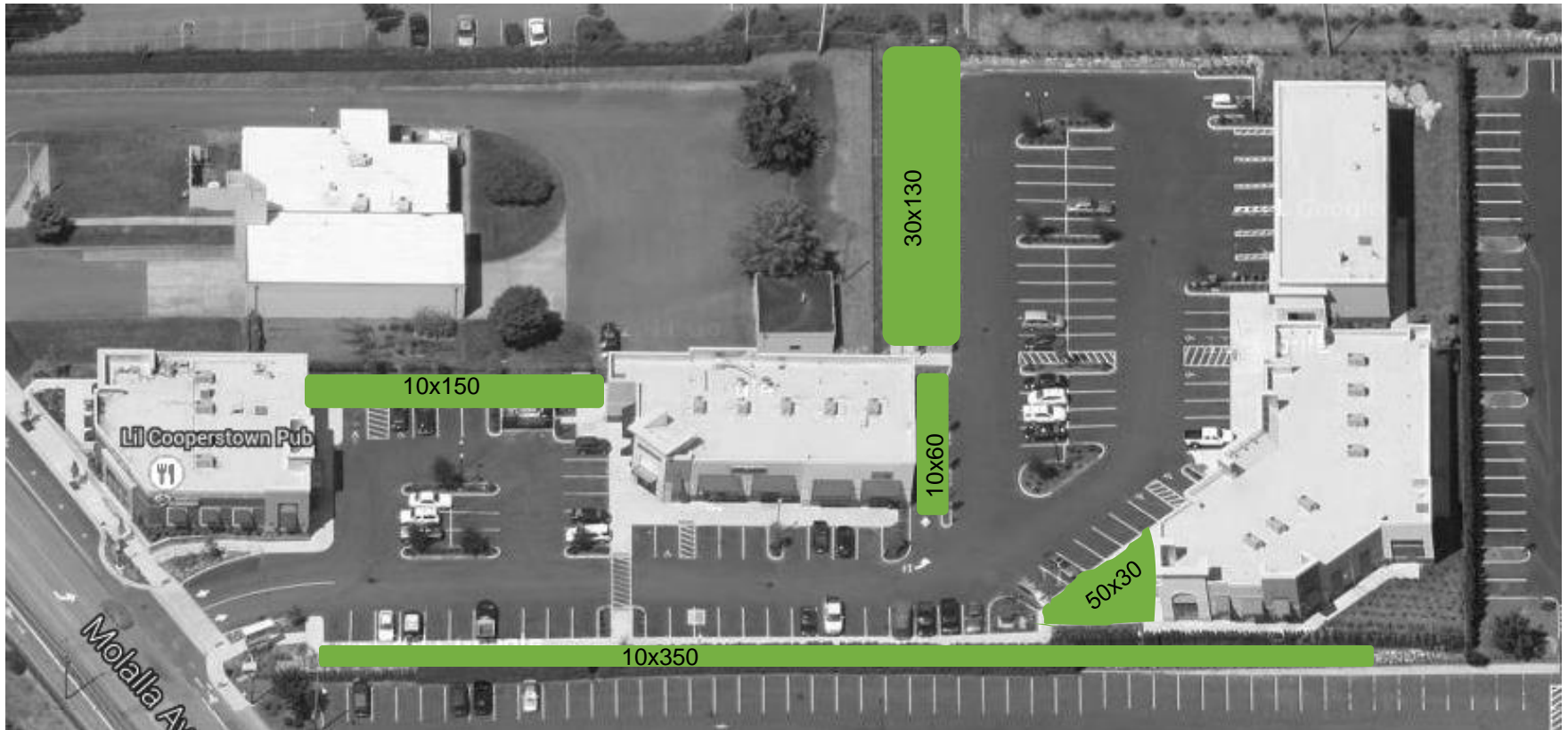
Commercial Development

* SEE CITY'S STANDARD DRAWINGS
FOR LOCATING PLANTERS IN THE
PUBLIC RIGHT-OF-WAY.



Stormwater Standards Case Study

Commercial Development



Stormwater Standards Case Study

Commercial Development

- Similar construction costs
 - Underground filters and detention tanks: ~\$410K
 - Surface stormwater planters: ~405K
- Incorporate stormwater planters into site design
- Surface stormwater facilities can be used to meet landscaping requirements
- Maintenance of stormwater planters part of landscaping contract

Questions and Discussion

Additional Slides

MS4 NPDES Permit Requirements

Post Construction stormwater site runoff permit conditions are as follows:

- 1) Incorporate site-specific management practices that target natural surface or pre-development hydrologic functions as much as practicable. The site-specific management practices should **optimize on-site retention** based on site conditions.*
- 2) Reduce site specific post-development stormwater runoff **volume, duration, and rates of discharges** to the municipal separate stormwater system (MS4) to minimize hydrological and water quality impacts from impervious surfaces;*
- 3) **Prioritize and include implementation of Low-Impact Development** (LID), Green Infrastructure (GI) or equivalent design and construction approaches.*
- 4) **Capture and treat 80% of the annual average runoff volume**, based on a documented local or regional rainfall frequency and intensity.”*

(Schedule A.4.f)

Clackamas Cost Comparison Study

Happy Valley Town Center

- Happy Valley Town Center (HVTC)
 - 15.6 Acre commercial development
 - Traditional design within last 10-years

» Findings

- LID design does not reduce the retail area, or parking
- LID design \$40k more over actual cost
- \$535k less than Detention Pipe Alternative/New Standards



Clackamas Cost Comparison Study

Greenbrier Subdivision

- Greenbrier Subdivision
 - 12.45 acre site residential
 - 59 single-family lots averaging 7,100 sq-ft (2004)

» Findings

- Existing Design
(\$17,291/lot, 59 lots)
- Treatment and Flow Control Pond
(\$25,357, 53 lots)
- Green St. Swale & Pond
(\$17,771/lot, **61 lots**)

