

Green Stormwater Infrastructure:

Program Update
January 14, 2014



Seattle
 Public
Utilities

Overview

The Basics

Seattle Stormwater Challenges

Green Infrastructure Tools, What and Why

Evolution of Green Infrastructure in Seattle

GSI Program Update

Policy + Program Development

Capital Improvement Projects

Partnerships



Stormwater Challenges

Too Much Runoff...

...causes flooding, sewer back-ups, and sewer overflows



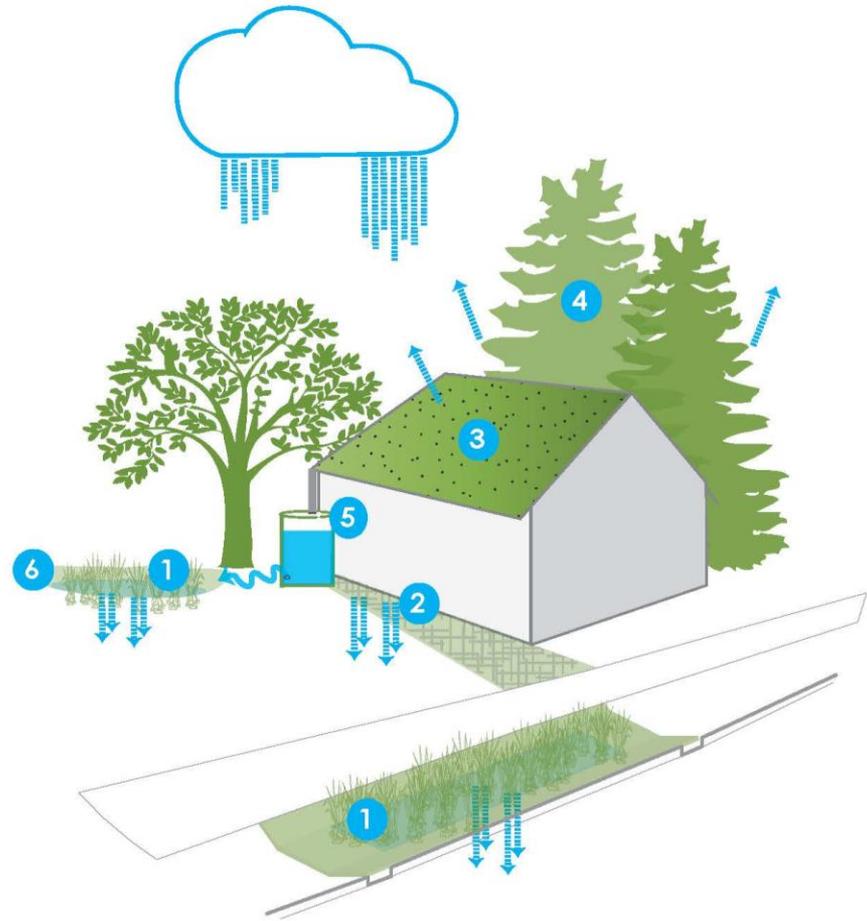
Too Much Pollution

...damages our creeks, lakes, and Puget Sound



What is GSI ?

- 1 bioretention (like rain gardens)
- 2 permeable/porous pavement
- 3 green roofs
- 4 urban canopy cover
- 5 rainwater harvesting (like cisterns)
- 6 soil building (like mulch + compost)
- 7 biofiltration



Why Use GSI?

	Preserved Pipe Capacity	Urban Water System & Utility Benefits
	Decreased Flow/Flood Prevention	
	Improved Water Quality	
	Potable Water Conservation (Reuse)	
	Groundwater Recharge	Other Environmental Benefits
	Energy + Carbon Savings	
	Improved Air Quality + Health	
	Carbon Storage / Sequestration	
	Biodiversity & Habitat Support	Neighborhood Benefits
	'Nearby Nature' + Beautification	
	Improved Pedestrian Safety + Experience	
	Education & Engagement Opportunities	
	Increased Property Value	

 YES  SOMETIMES  NO

GSI Program History (capital projects)

1 2000 SEA Streets

First full right-of-way GSI improvement in the U.S. achieved a 99% drop in runoff volume

2 2003 Carkeek Cascade

Post-construction monitoring showed 90% reduction in pollutants like lead, copper, and zinc

3 2004 & 2006 Green Grids

Neighborhood-wide projects in Pinehurst and Broadview show proof of concept at larger scale

2005-2009 Highpoint

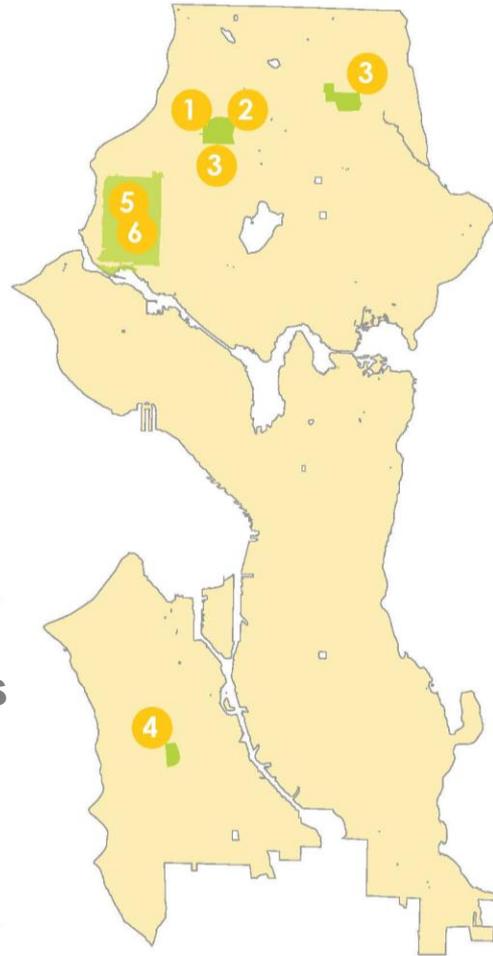
Neighborhood redevelopment project in collaboration with Seattle Housing Authority and Washington Dept. of Ecology

2010 RainWise Pilot

Incentive program provides rebates to property owners who install on-site rain gardens or stormwater cisterns

2011 Ballard CSO Pilot

Roadside GSI project designed to reduce combined sewer overflows into Salmon Bay

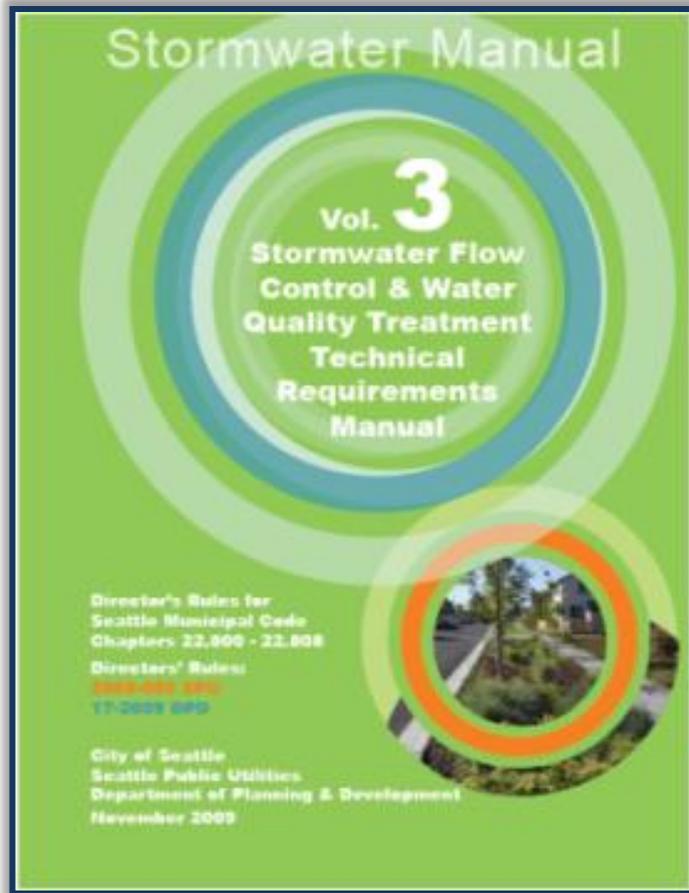


GSI Projects' Primary Driver

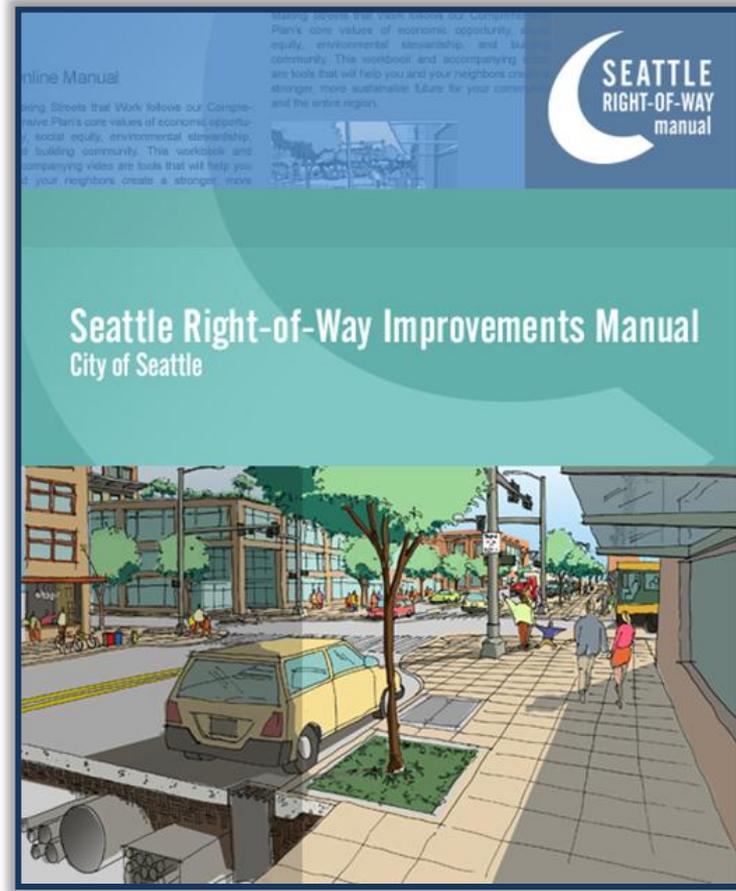
Project	Water Quality	Flow *
SEA Street #1		 (2-year)
Carkeek Cascade @ 110th		maximize
Broadview Green Grid		 (1-2 year)
Pinehurst Green Grid		 (1-2 year)
High Point		 Delay (6-month storm)
Thornton Creek Water Quality Project (primary bioFILTRATION)		
Ballard Roadside Rain Gardens		 (1 year)
Swale on Yale (primary bioFILTRATION)		

* Systems designed for flow control also achieve water quality targets

GSI Program History (policy)



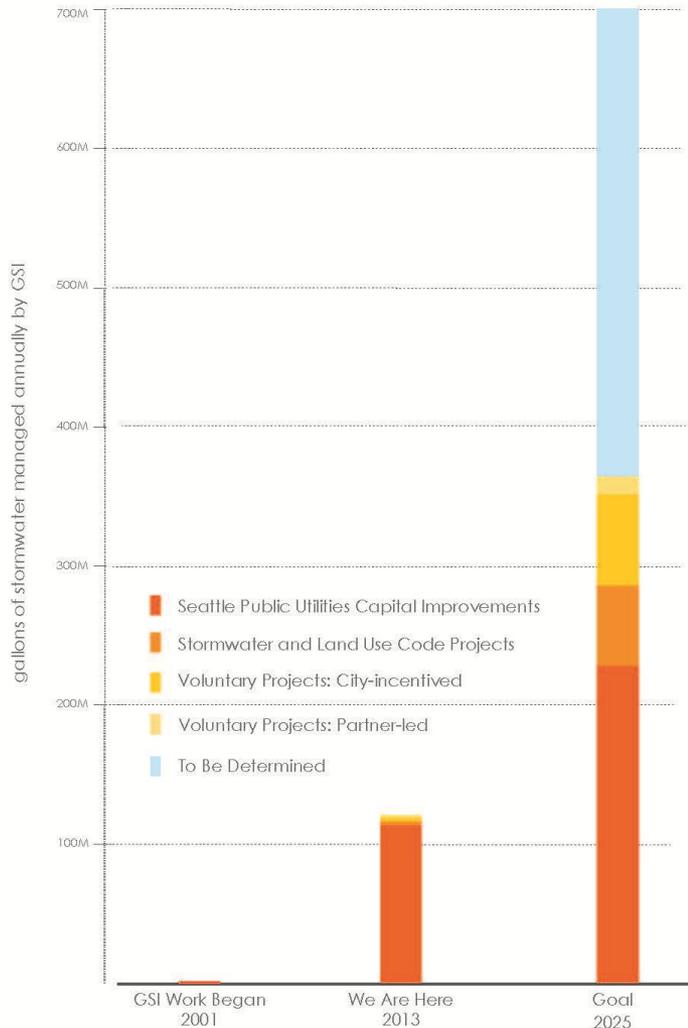
2009 Stormwater Code:
GSI to the 'maximum extent feasible'



Right-of-Way Improvement Manual
Guidance chapter for GSI practices in ROW

Policy + Program Development

Seattle Green Stormwater Infrastructure
2025 Goal: Manage 700M gallons Annually



In July 2013, City Council unanimously passed Resolution 31549:

- GSI should be relied upon to manage stormwater wherever possible
- Target to manage 700MG annually with GSI by 2025
- City Departments shall collaborate with OSE to produce Implementation Strategy for meeting new target

Policy + Program Development



Stormwater Code

Updating on-site stormwater management requirements

LID code integration

Review and update land-use codes

Public Rights-of-Way Retrofits Completing Options Analysis

Ballard Natural Drainage

Delridge Natural Drainage
and Neighborhood
Greenway

Both slated for
construction
in 2015



Public Rights-of-Way Retrofits in Design or Construction



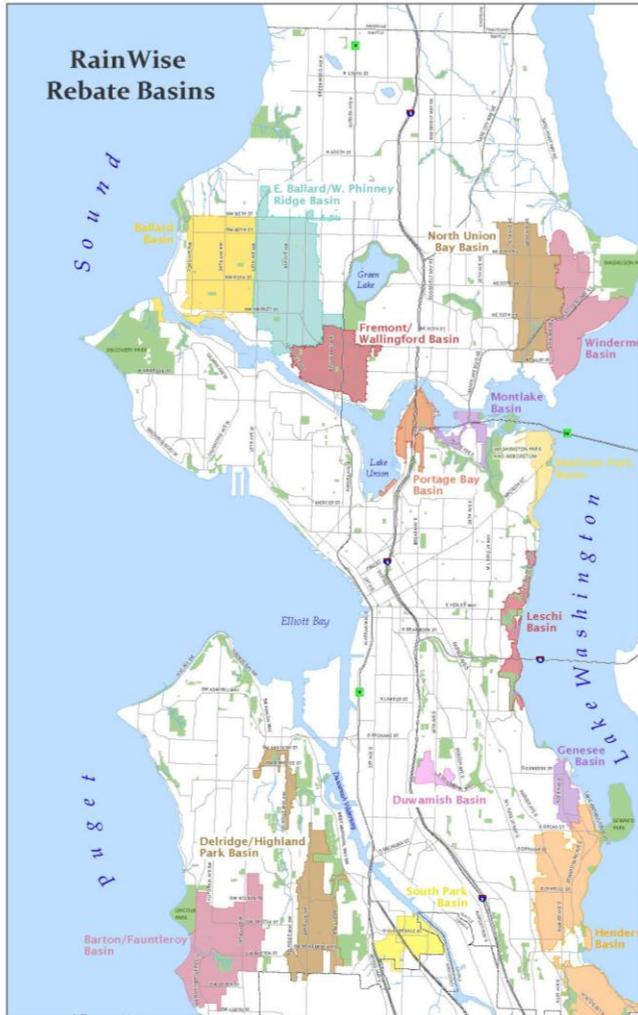
**Capital Hill Water Quality
Project (Swale on Yale)**

Venema NDS

Will complete design 3Q 2014

KCWTD's Barton Project
Starting construction 1Q 2014

Partnerships



Joint GSI program
management with
King County

RainWise Expansion

40,000 households
now eligible

Developing options to
increase access and equity

**Development
Incentives**

GSI 2025 Implementation Strategy

Development Milestones

Key Milestones (Winter/Spring 2014)

December:	Confirm 2013 baseline
Jan-Feb.	Define trajectory under "business as usual" City investment level; Draft potential investment paths (medium and high)
Late Feb.:	Define/refine medium + high possible City investment paths (through 2020) -- capital departments workshop (mid-late Feb.)
Early March:	Executive briefing/s: potential City investment paths and recommended alternative
Late March:	Early Mayors Office/Council briefings and request for feedback
April:	Revisions + follow-up executive briefings (late April)
Early May:	Public Comment Period (on full draft strategy)
June:	Delivery to Council

To rely, wherever possible, on natural drainage systems and green stormwater infrastructure (GSI).



Questions?

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www.seattle.gov/util/greeninfrastructure



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