

Barton CSO project – Green Stormwater Infrastructure (GSI)



**Sunrise Heights &
Westwood
Community Meeting
April 6, 2011**



King County

**Department of Natural Resources and Parks
Wastewater Treatment Division**

Meeting Agenda

- Opportunity to meet each other
- Introduce project and activities to date
- CSO control program overview
- Green Stormwater Infrastructure to control CSOs
- Project Schedule and Next Steps
- Question and answer

Maryann Petrocelli, King County Community Relations

- Ongoing community outreach
- Engaging project area neighbors

King County Will Continue Working with the West Seattle Community During Design and Construction



- Public meetings
- Presentations to community and neighborhood groups
- One on one communications with project area neighbors
- Web and newsletter updates

The screenshot shows the King County Wastewater Treatment website. The main heading is "Wastewater Treatment" with a sub-heading "King County, Washington". A navigation menu includes "HOME", "NEWS", "SERVICES", "DIRECTORY", and "CONTACT". A search bar is present. The page is titled "Puget Sound Beach CSO Control Projects" and "Barton CSO Control Project". A "December 8, 2010 Update" section highlights a "Green" proposal for combined sewer overflow (CSO) control in Barton. The text states: "King County recommends a 'Green' proposal for combined sewer overflow (CSO) control in Barton. King County plans to design and build green stormwater infrastructure (GSI) to control combined sewer overflows (CSOs) in the Barton basin. The GSI project will consist of planted areas between sidewalks and curbs in the Sunrise Heights and Westwood neighborhoods in West Seattle. Also known as 'raingardens,' GSI refers to engineered infrastructure used to manage stormwater. GSI uses soils and vegetation, in combination with other decentralized storage and infiltration approaches to infiltrate, evaporate, capture, and reuse stormwater in the Barton basin raingardens, plantings, and street trees in the City of Seattle-owned right-of-way will be designed to capture and reduce the amount of peak stormwater flows that would enter the combined sewer system by up to 15 million gallons a day. This is the first 'green' project King County Wastewater Treatment Division will implement for flow control in the conveyance system. King County will work closely with project neighbors and the West Seattle community throughout design, construction, and into operations." A map of the Barton area is shown. A "Request for Proposal (RFP) for Design Engineering Services for the Barton CSO project, RFP E00222E11, is currently advertised: http://www.kingcounty.gov/procurement. Click on the Solicitations link and navigate to the RFP number." An "Upcoming Community Meeting" is listed for Wednesday, April 6, 2011, from 6:30 p.m. to 8 p.m. at Westside School, 7740 34th Avenue SW. A "Field Work Notification" is also mentioned for March 2011, including soil sampling and groundwater monitoring. A "Draft Barton and Murray CSO Control Facilities Plan" is dated February 2011. A "News releases" section is also visible.

Mary Wohleb, King County Project Manager

- Definitions
 - Combined Sewer Overflow
 - Green Stormwater Infrastructure
- Project Development To Date

From Approaches to Alternatives to Selection of GSI

2009

- Identified approaches
- Performed analysis to determine feasibility of approaches
- Community Open House (October)

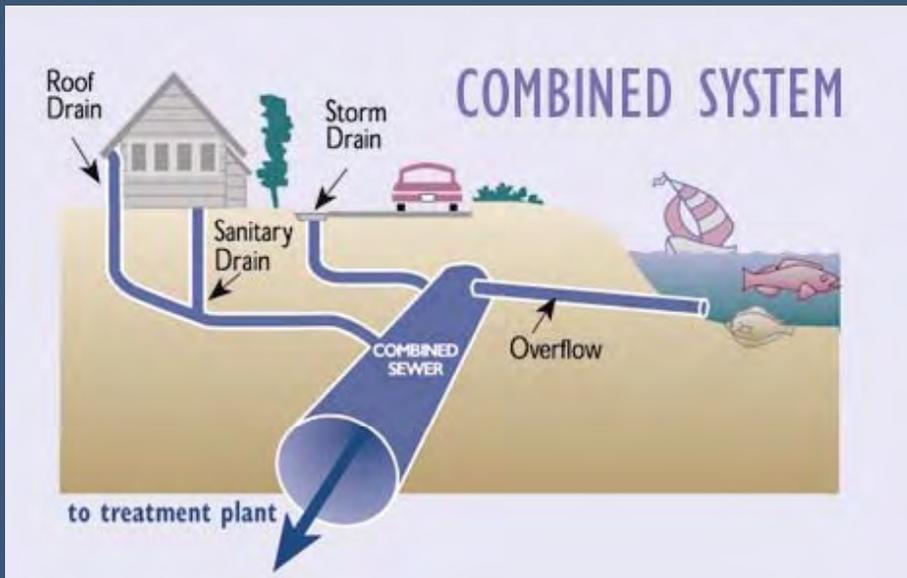
2010

- Public Meeting on shortlisted alternatives (March)
- Refine alternatives (April – July)
- Community meeting on GSI with Sunrise Heights and Westwood residents (August)
- Evaluate alternatives (September – November)
- Select alternative (December)

Jeff Lykken, Consultant Lead Engineer

- How the sewer system works
- Basin characteristics
- Why GSI

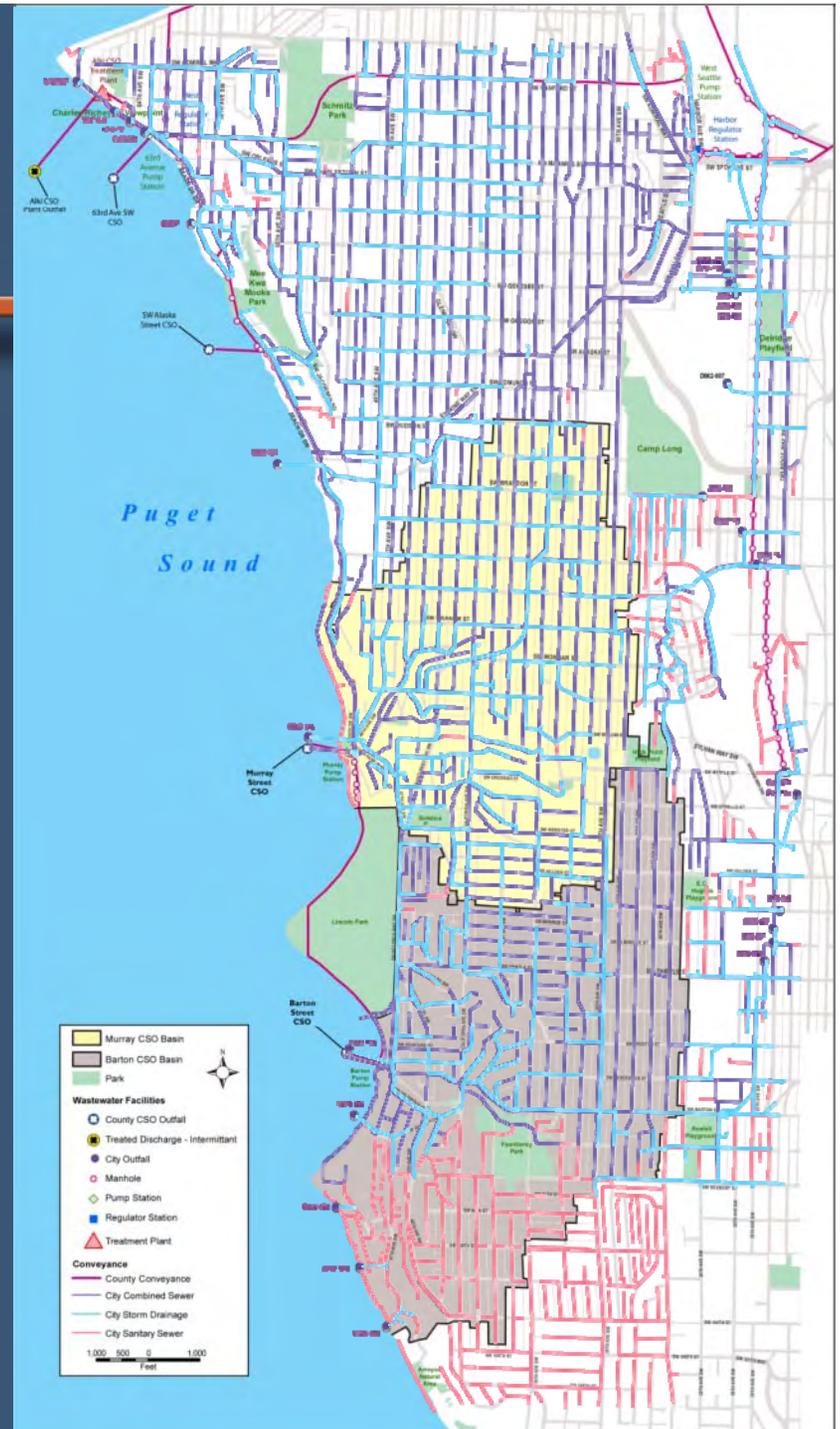
The Combined Sewer System



- Conveys wastewater & stormwater to treatment plants
- Pipelines & pump stations were sized to capture most of the flow
- Relief points – CSOs – were built to discharge when flows exceed capacity
- CSO control target set by State Ecology regulations (WAC 173-245)
- No more than one untreated event per year allowed on a long-term average

King County and SPU CSO Systems

- Both King County and SPU operate CSO systems in Barton and Murray Basins
- SPU Basins 094 and 091 (Barton) and 090 (Murray) are each controlled



Basin Description and Requirements

- 1,111 acres
- Barton CSOs
 - Average 4 overflow events per year
- Investigated CSO Control Approaches
 - Storage
 - Conveyance
 - Treatment
 - Peak flow reduction



Peak Flow Routing in Barton Basin



Advantages to GSI

- Control requirements for this basin allowed more sustainable solution
- Reduces total volume of stormwater conveyed and treated in regional system
- It can be constructed in the public right-of-way

John Phillips, GSI Program Lead

- What is GSI
- GSI in your neighborhood
- How does GSI work

What is Green Stormwater Infrastructure?

- Green Stormwater Infrastructure (GSI)
 - GSI refers to *engineered* infrastructure in relation to stormwater management practices.
 - These practices make use of soils and vegetation, in combination with other decentralized storage and infiltration approaches to infiltrate, evaporate, capture, and reuse stormwater.

Why Use Green Stormwater Infrastructure?

- King County and SPU worked together to integrate GSI into CSO planning
 - Reduce size of gray infrastructure project
 - Reduce costs of CSO program implementation
 - Reduce stormwater volume over time
 - Adapt to unknown future conditions

GSI Evaluation

- Where does the flow come from and where is it going?



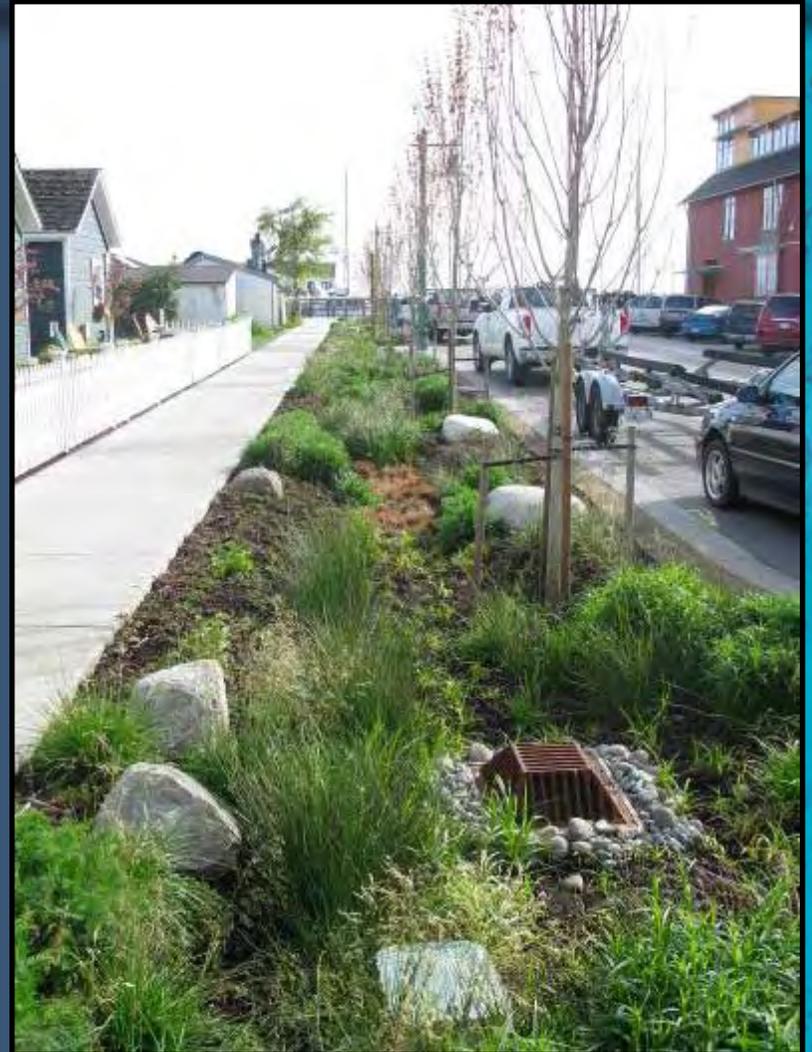
GSI Project in Barton

- Identified Barton basin as having highest feasibility for most green techniques
 - Bioretention/Bioswales
 - Permeable Pavement
 - Roof Disconnection
- Identified large area of streets connected to combined sewer system
- Eliminate the CSO storage requirement in the Barton Basin

Examples of Streets with GSI



High Point, Seattle



Port Townsend

Potential GSI Benefits

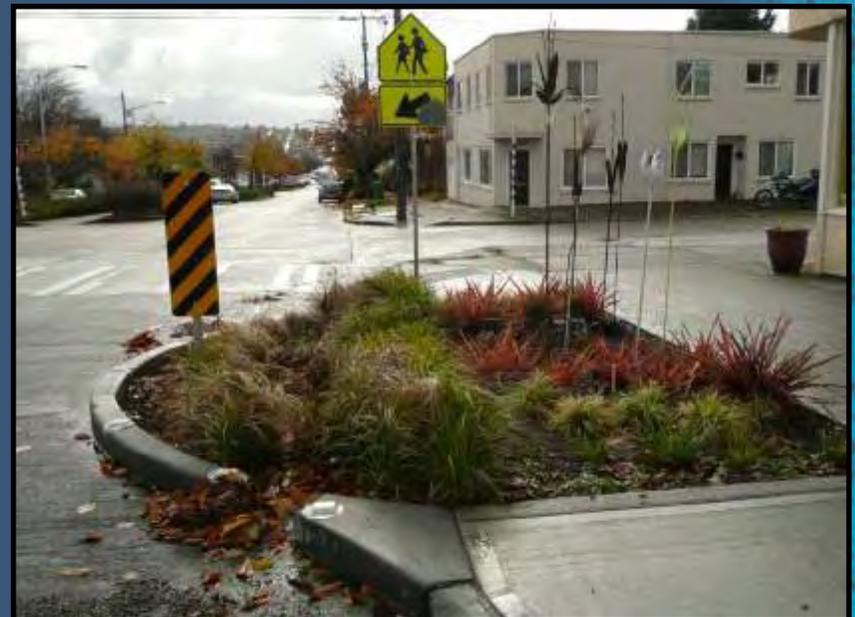


31st Ave SW & SW Kenyon St.

- Managing stormwater at source
- Traffic calming
- Additional street trees and landscaping

Streetscape Benefit

- Traffic Calming
 - Narrowing street ends
 - Enhanced landscape
 - Street trees



Landscape Treatment

- Accommodates trees
 - Existing trees
 - New trees
 - Relocated trees



- Typically a mix of grasses, native plants and ornamental plants

Potential GSI concerns

- Parking
- Access
- Existing landscaping
- Maintenance
- Where does the water go



Parking Impacts



- Defined Parking
 - Minimal reduction in parking
 - One to two spaces per house
- Curb Alignment
 - Maintain existing where possible
 - Curb bulbs with landscape enhancements

Access

- Provide crossable zones from sidewalk to street edge
- Steppable zone next to curb
- Visibility along and across the street
- Durable plants (Dog and Kid proof)



Maintenance – King County

- King County would be responsible for major maintenance
- Maintain flow and storage
- Long term function

Construction



Planting



3 Months



3 Years

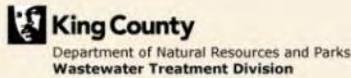


Next steps and project schedule

- Field work
- Design team
- Community outreach

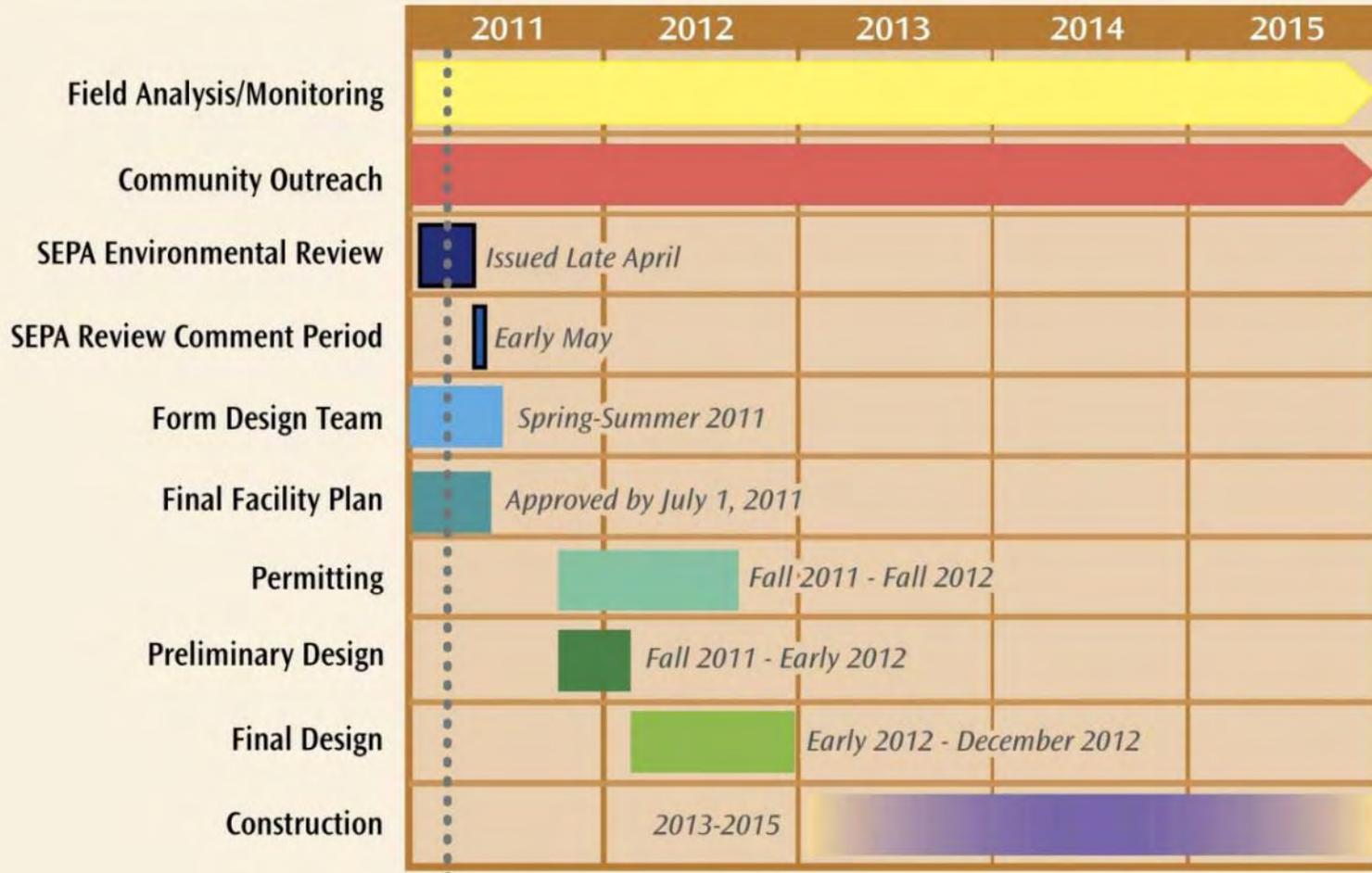


Anticipated Project Schedule



BARTON BASIN CSO-GSI PROJECT

ANTICIPATED TIMELINE



WE ARE HERE

For More Information

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www.kingcounty.gov/environment/wtd/

One on One Questions, Comments, Input