

Potential Interface of Seattle Neighborhood Greenways and GSI/CSO Projects

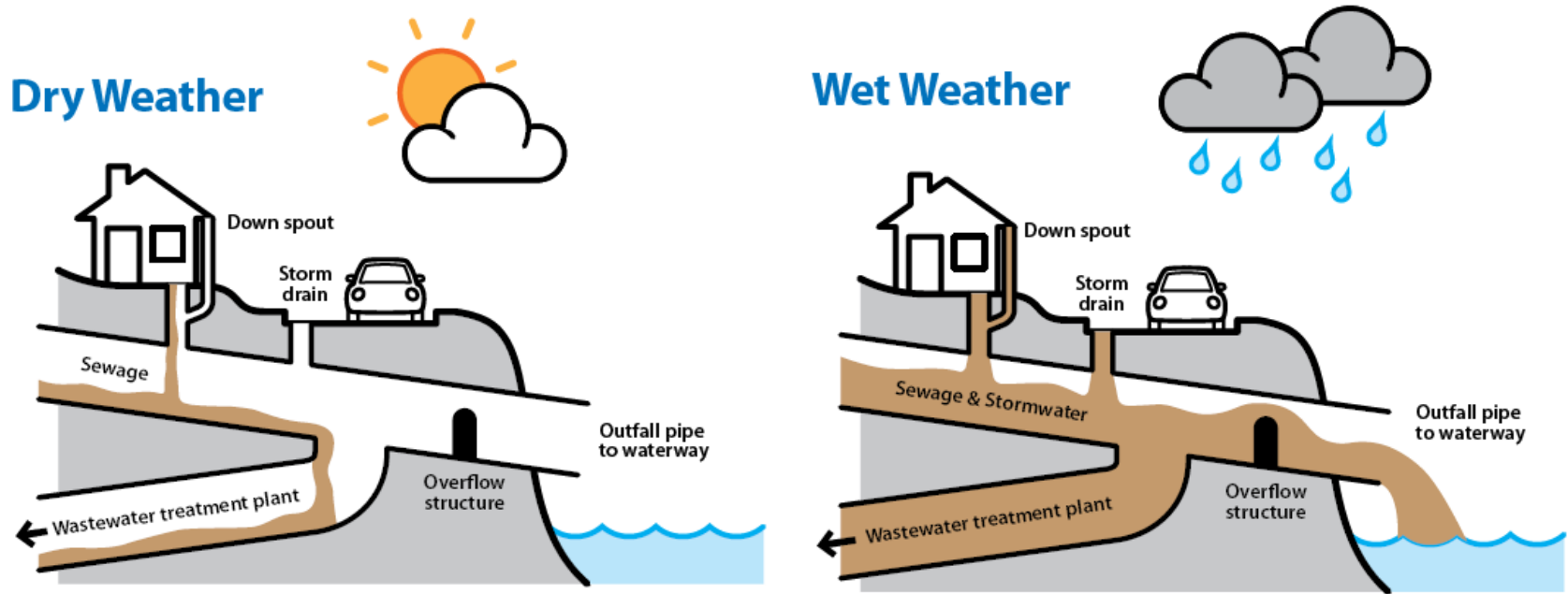
CDWAC

November 14, 2012

Tonight's Agenda

- Presentation
 - Overview of Seattle Public Utilities Combined Sewer Overflow Reduction Program and Strategies for reducing CSOs
 - **Retrofit Program ("Fix It First"), with Delridge Example**
 - **Green Stormwater Infrastructure (GSI) Program ("Keep Stormwater Out")**
 - Roadside Raingarden focus
 - Delridge and Ballard
 - Project Schedule
- Questions

Combined Sewer Overflows (CSO)



SPU's CSO System

- 87 outfalls
- 300 overflows per year on average for 2010-2011
- 134 million gallons into Seattle lakes, streams, and Puget Sound



3-Steps to Reducing CSOs:



1.

Fix it first



2.

Keep
Stormwater
Out



3.

Store
what's left

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CSOs in Delridge



- 13.3 million gallons of untreated stormwater and sewage overflowed into Longfellow Creek in 2010
- 1.3 million gallons of overflow in 2011

Fix it First – Tank Retrofit Projects

- SPU's largest CSO control facilities - 1.6 million gallons of storage each
- Holds excess flows until there is capacity downstream
- Clogging at facilities causes more frequent overflows



Solution

- Install gates, pumps, and sensors to monitor and control flow entering downstream system
- Construction starts 2014
- Construction will last 6-12 months



Despite better maintenance,
problems remain

3-Steps to Reducing CSOs:



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Keep Stormwater Out: RainWise (Residential)



Voluntary Installations - RainWise

SPU RainWise Program

- Voluntary Incentive/rebate system on Private Property
 - \$3.5/sf Mitigated
- 2 Practices:
 - Residential Rain Gardens
 - Overflow to street or side sewer
 - (next – adding trees & greenroofs)



Keep Stormwater Out: Roadside Rain Gardens



Integrating Multiple objectives



Additional Opportunities for Complete Streets Integration

Near-term Transit Improvements

Improved bike-transit integration: Bike + ride facility at major Rapid Ride stations might include bike lockers or dedicated, covered, fit bicycle parking and could also incorporate attractive rain garden demonstrations and/or permeable paving.

Family-Friendly Biking

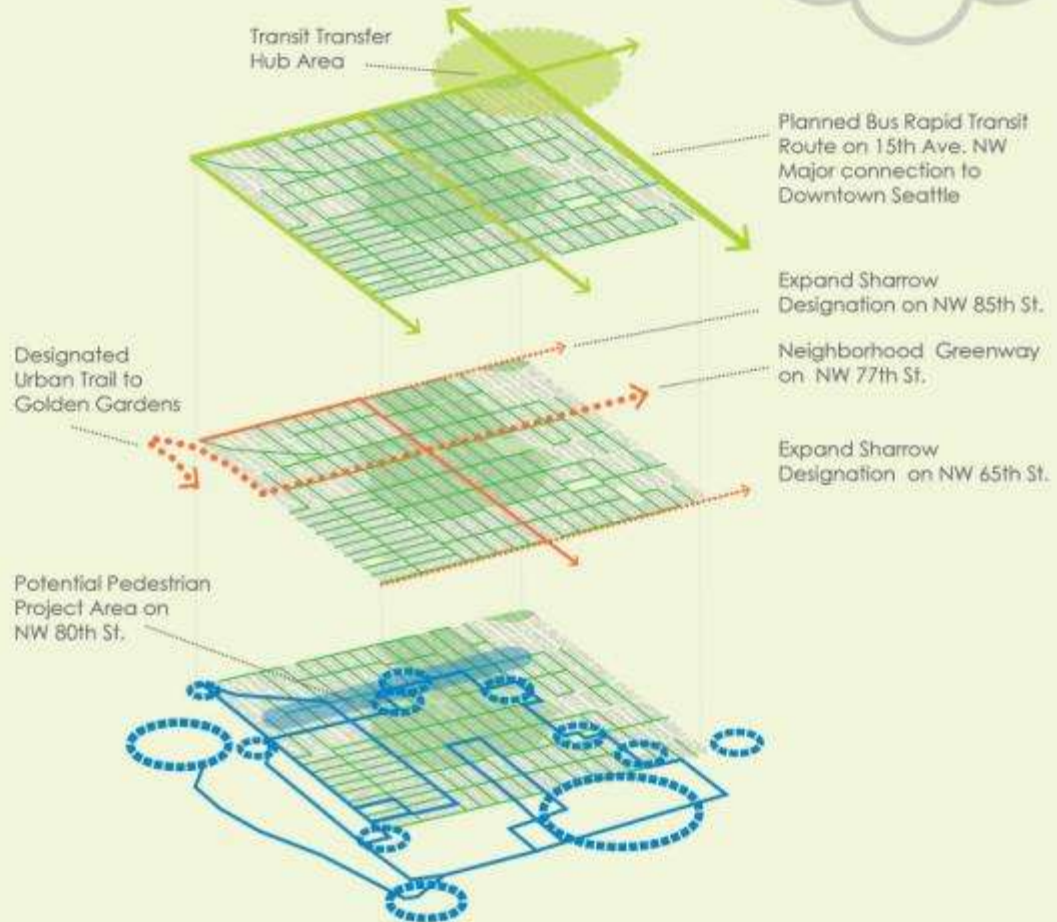
Improved major connection routes to Burke-Gilman trail. Major entry points to trail could also incorporate GSI demonstrations such as attractive, linear bio-filtration swales to cleanse stormwater (lower basin is a separated system).

Improved major arterial crossings at NW 85th St., NW 80th St., NW 65th St., 15th Ave, NW, and 24th Ave, NW could include curb bulb extensions with attractive GSI treatments.

Pedestrian Safety + Amenities

Safe Routes to School programs at Salmon Bay Elementary, Loyal Heights Elementary and Ballard HS could include GSI demonstration sites at or adjacent to each learning institution and/or along walking routes. Pedestrian counts could help identify most heavily-traveled routes. Similar approach could be taken with neighborhood churches and senior housing facilities.

walk. bike. ride. Summary of Existing Aspirations within the Ballard CSO Basins



**Pedestrian Master Plan Goals
Conducive to GSI Overlay**



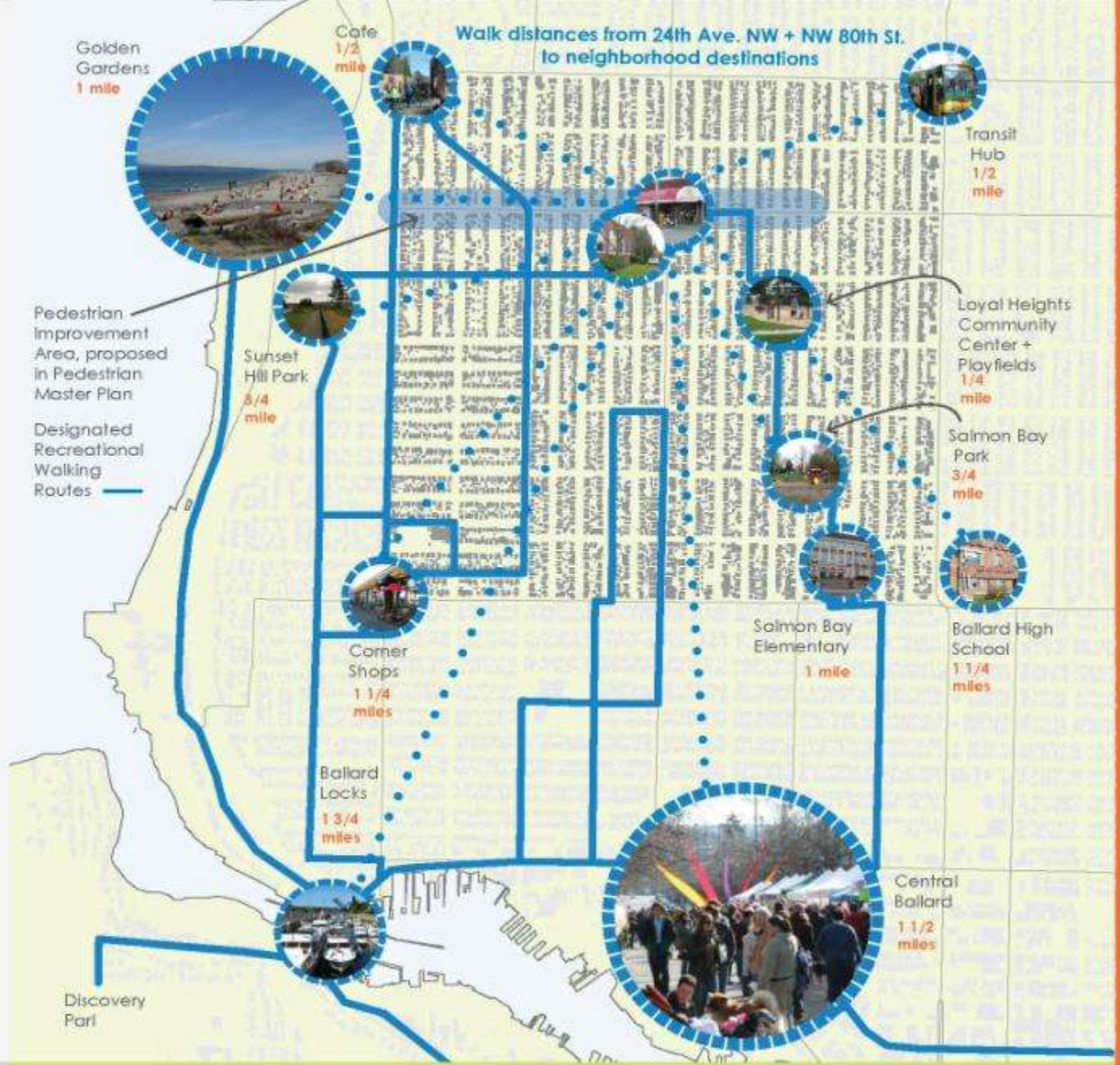
Chicanes calm sidestreet traffic speeds



Curb bulbs shorten crossing distances
+ improve sightlines for pedestrians



Extended planting strips narrow drive
lanes to provide traffic calming



**Bus Rapid Transit Planned
15th Ave. NW, 2012**



RAPID RIDE

D Line

- Buses every 10 minutes
- Easy, fast boarding
- Pay in advance
- Traffic redesigns
- Lights will favor buses
- Sheltered, lit stations
- Real-time bus info
- Stop request signals
- New, low-emission buses

LEGEND

- RapidRide - D Line
- Other Metro transit services
- Station
- Stop



Major Opportunity:
Bicycle Park + Ride
facilities along
15th Ave. NW



Major Opportunities:

- Inter-neighborhood bicycle connections, especially E-W
- Improved Burke-Gilman Access
- Improved Ballard Bridge Crossing
- Transit Hub Facilities for bike/bus commuters along 15th Ave. NW
- Non-arterial, family-friendly bike routes, intra-neighborhood and inter-neighborhood

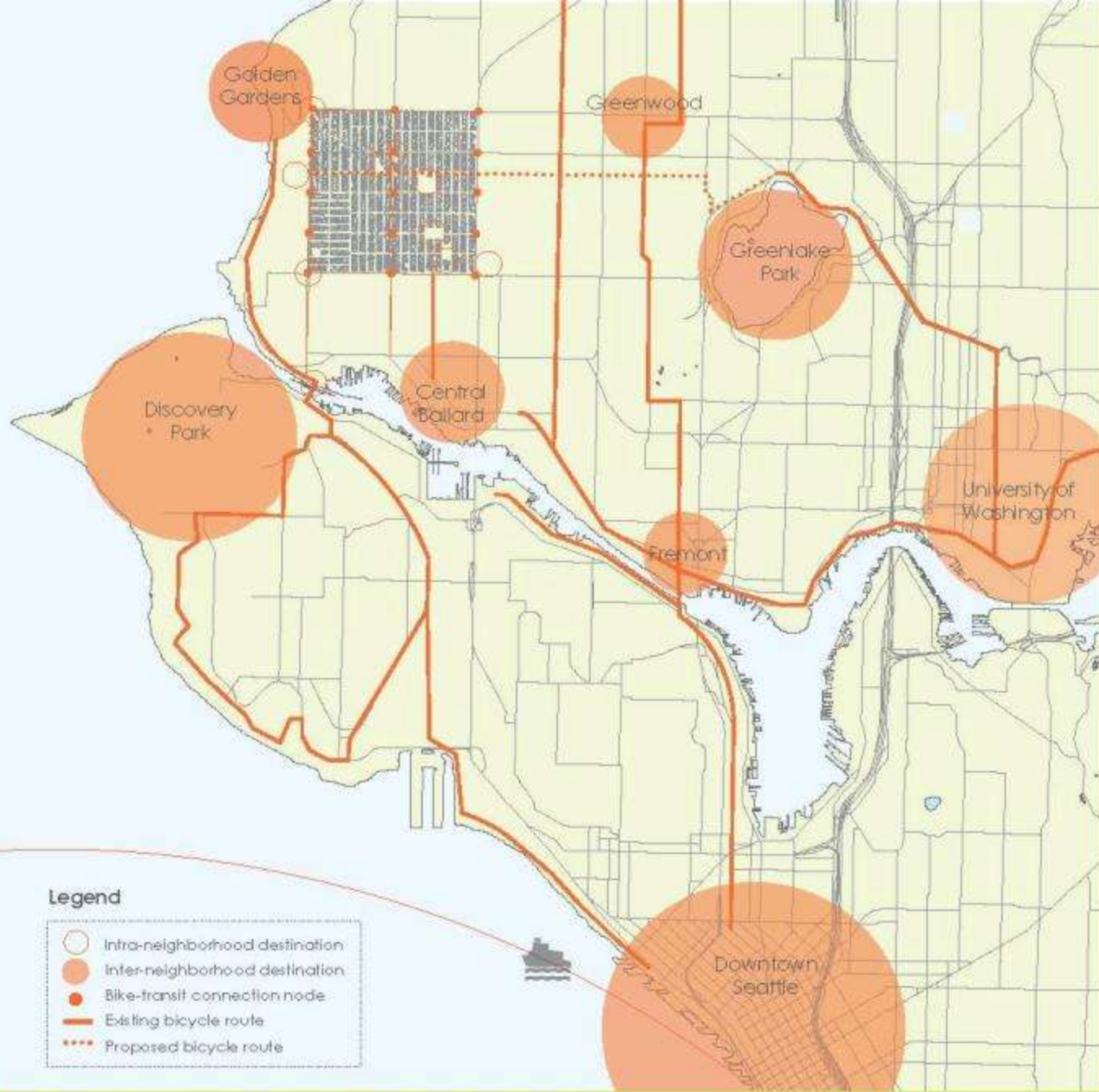
Neighborhood Greenway

To meet its Bicycle Master Plan targets, Seattle must invite more intra-neighborhood and inter-neighborhood family-friendly, everyday riding.

NW 77th St. has been identified in the Bicycle Master Plan as a critical East-West connector between the Ballard plateau, Greenlake and the UW. Adding bicycle-friendly features, traffic calming strategies and green stormwater infrastructure along this route would create Ballard's first Neighborhood Greenway.



Neighborhood Greenways may include design elements that reduce vehicle access and speed, such as this pilot strategy in NW Portland, Oregon

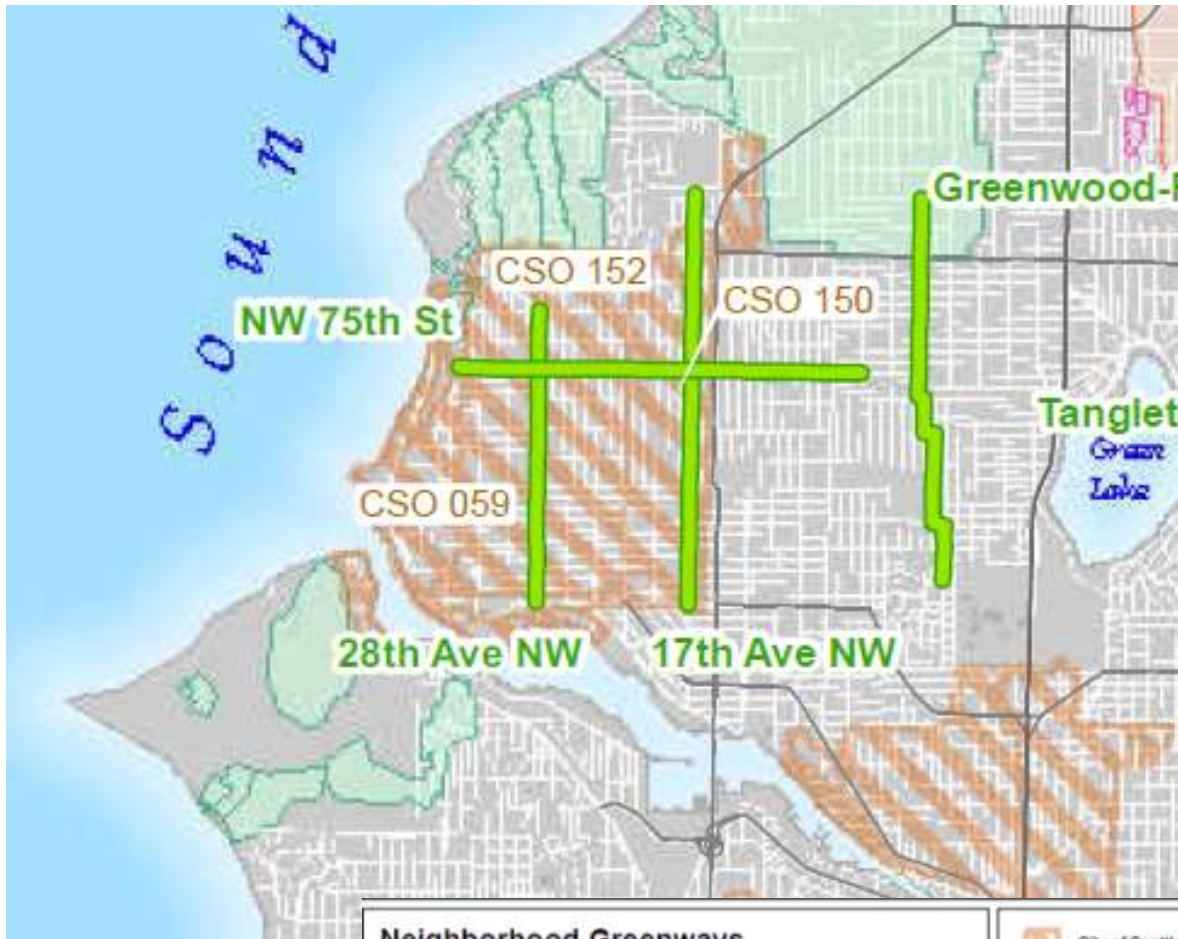


Legend

- Intra-neighborhood destination
- Inter-neighborhood destination
- Bike-transit connection node
- Existing bicycle route
- Proposed bicycle route



Neighborhood GreenWays



Ballard

Neighborhood Greenways
CSO Basins and Creek Watersheds



City of Seattle

October 2012



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|----------------------------|---|
| City of Seattle CSO Basins | MS4 Creek Watersheds by Receiving Waterbody |
| Neighborhood Greenways | Duwamish Waterway |
| Freeways/Highways | Lake Union/Ship Canal |
| Arterials | Lake Washington |
| Seattle City Limits | Puget Sound |



Delridge

DRAFT

Neighborhood Greenways CSO Basins and Creek Watersheds



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- Neighborhood Greenways
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- Seattle City Limits

- ### MS4 Creek Watersheds by Receiving Waterbody
- Duwamish Waterway
 - Lake Union/Ship Canal
 - Lake Washington
 - Puget Sound

Project Schedule and Public Involvement Opportunities

- Two-year process
- Ongoing two-way communication
- Regular check points
- Choices about how to be involved

Seven GSI Projects planned



Milestones: ● = borings ● = PITs ● = SG2 ★ = monitoring complete (info to gray)

Light shading = project on hold

Questions?

Tracy Tackett

GSI Program Manager

www.seattle.gov/util/greeninfrastructure

