Seattle Public Utilities

King County
Department of Natural Resources and Parks
Wastewater Treatment Division

Green Stormwater Infrastructure Program

Right Place, Right Project

A Community Guide to Partnership Opportunities

Are you or your community interested in green stormwater infrastructure (GSI)? This booklet will help you understand how to select the right GSI project for your location. It will also inform you about resources available to help you with your project.

Contents

What is Green Stormwater Infrastructure (GSI)?

Green stormwater infrastructure, or GSI, is a set of stormwater best practices integrated into a project design that use or mimic natural processes to slow, capture, clean, or reuse polluted runoff from our roads, parking lots, driveways, and roofs. GSI manages polluted runoff using infiltration, evaporation, slowing through soil, or stormwater storage and reuse.

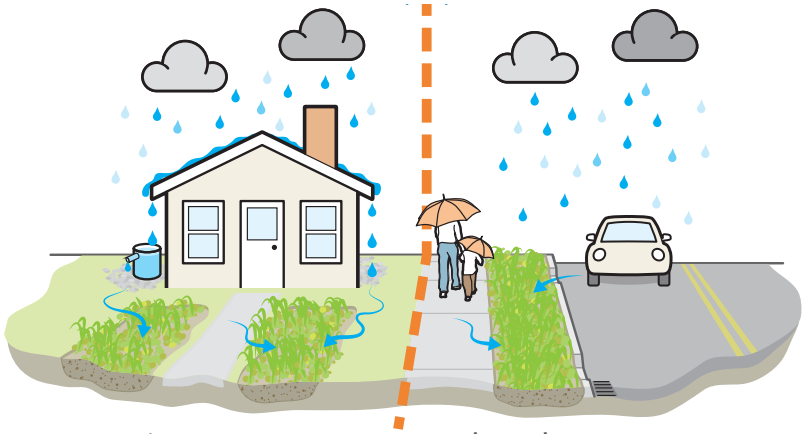
Why GSI?

Seattle is striving to reduce the amount of polluted runoff entering Puget Sound and our lakes, rivers, and creeks. GSI helps do that while providing other benefits to our neighborhoods, such as making our streets and sidewalks more green, beautiful, and safe and helping our community prepare for the likely impacts of climate change.

Seattle has set a community-wide target of managing 700 million gallons of stormwater runoff annually with GSI by the year 2025.

GSI in private space, GSI in shared public space

GSI can be placed in private space, such as yards, or shared space, such as parks and planting strips in the space between the sidewalk and the street. Seattle Public Utilities (SPU) and King County Wastewater Treatment Division (WTD) are providing the information in this booklet to help facilitate voluntary project implementation in both private space and shared, public space.



Right Place, Right Project

Follow these steps to get started

1 Determine if infiltration is possible

GSI approaches that allow stormwater to soak into the native soil are always preferable, if feasible. Refer to the map at the right to determine if your proposed project has the potential to accommodate infiltrating GSI approaches like rain gardens.

If infiltrating GSI approaches *cannot* be used at your site, consider using alternate approaches such as a green roof or stormwater cistern. (See chart on pages 4-5 for more information.)

2 Consider the specifics of your site

Site-specific conditions have a big influence on which GSI approaches will help you meet your project goals. The efficiency of the approach will determine how much space will be needed, for example. It is also important to consider variables like nearby parking needs, general location of underground utilities, location of mature trees that must be protected and preserved, and the location of other structures that may constrain your project, like power poles and driveways.

Always consider how long-term maintenance will be achieved to ensure the future success of the project.

3 Consider community co-benefits

GSI offers a variety of co-benefits beyond stormwater management. These vary according to the approaches used and the specific project design and may include: improved pedestrian safety and experience, enhanced aesthetics, bird and pollinator habitat, improved tree canopy cover, and rainwater available for irrigation. To review basic community information for the area you are considering, check out the My Neighborhood Map tool at: http://web6.seattle.gov/mnm/.

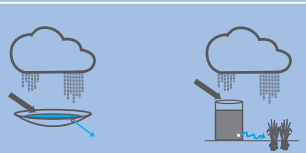
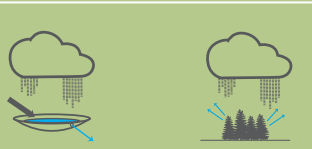
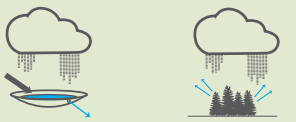
4 Develop your design concept

Working with your design team, review the GSI tools matrix on pages 4-5 and begin sketching out your project concept. Questions to answer early on include: 1) What area of impervious surface do you want to manage with your project? 2) If you plan to work in shared space, are your neighbors aware of your idea and supportive? 3) What design elements will help your project fit in well with the surrounding streetscape and neighborhood?

Infiltration Feasibility

The yellow areas on the map to the left are areas where infiltration is not likely to be technically feasible because of steep slopes, underlying bedrock, or contaminated soil. Using non-infiltrating GSI approaches is recommended in these areas.

Right Place, Right Project: Selecting the right GSI tool for your

GSI tool		How it Works	Benefits
Bioretention			• Can manage large amounts of runoff • Can be designed to calm traffic • Adds beauty, habitat, and green space • Protects against future flooding risks due to climate change • Can be used for Green Factor requirements
Rain garden			• Manages runoff from roofs, paths, driveways • Adds beauty and habitat to your property • No technical knowledge is required for routine maintenance
Stormwater cisterns			• Easy to design, install, and maintain • During winter, cistern slowly releases water to yard or side sewer to make room for more • During summer, water can be used for irrigation and can reduce overall water use
Permeable paving			• Manages runoff and maintains a durable driving surface for cars and people • Can add visual interest/design detail
Green roof			• Adds more green space to your property • Adds habitat for birds and beneficial insects • Improves air quality • Has potential for LEED™ credits • May be designed for food production
Depaving			• Frees up underutilized paved space for trees, plantings, and other uses, including GSI • Allows stormwater to soak into the ground where it falls instead of picking up and carrying pollutants into creeks and waterways • Can restore habitats for birds, insects, and other wildlife
Tree canopy			• Tree planting and care is easy and fun • Mature trees improves air quality • Trees offer cool shade in summer and protect against harsh wind in winter • Adds beauty and green space to urban areas
Compost and mulch			• Mulching is easy • Amending soil with compost helps rain soak in and builds healthier landscapes • Saves money by reducing need for irrigation, fertilizers and pesticides

project

Efficiency	Use in Shared Space	Use in Private Space	Okay to use where infiltration is restricted?	Considerations
These approaches can manage runoff from an area of impervious surface many times larger than the facility. 	√	√	Use an under drain	• A street slope of less than 6% slope is preferable • Bioretention requires consistent long-term maintenance • Designs may affect street parking and underground utilities • If an underdrain is needed, this requires careful layout and design • Bioretention usually requires geotechnical study and engineering • Avoid difficult-to-maintain areas like medians and arterials
	√	√	No	• Requires a level space and a 10 feet setback from building foundations • Requires site be free of big tree roots and utilities • Requires a way for stormwater to flow into rain garden • Requires an overflow design
	No	√	√	• Requires an outdoor location at least 5 feet from property line • Requires a level location and a solid base • Requires a an overflow design
These approaches manage (or prevent) runoff from an area about equal to their own size. 	Only for Code	√	Use an under drain	• Requires a near level space (up to a 5% slope is okay) • Professional installation is recommended for driving surfaces • Requires regular maintenance to ensure long-term function
	Only in Parks	√	√	• Requires a structure that can support a green roof • Low-pitched roofs are more easily installed and maintained • Irrigation may be required, especially in the first three years
	√	√	With caution	• Some paving, such as concrete with steel reinforcement will require professional removal • Decompact the top 12" of uncovered soil and amend with 2-3" of compost to help restore permeability • If your project will remove an acre or more of impervious surface or if it will install 2000 square feet or more permeable paving, a Grading Permit from the City of Seattle is required
These approaches manage runoff from an area smaller than their own area/size 	√	√	√	• Ensure design has sufficient space for trees to grow to maturity • If proposed project area is in the public right-of-way, refer to the Seattle Department of Transportation list of approved species • All newly planted trees must be irrigated during the summer for the first 3-5 years after planting • Choose evergreen trees wherever possible
	√	√	√	• Mulch should be replenished annually for best effect • Arborist wood chips are the preferred mulching material for weed suppression, water retention, and slow-release of nutrients to soil

Partnering opportunities to bring GSI to shared public right-of-way space in your neighborhood

Direct financial partnering or technical assistance from local water utilities

Creek protection projects in the right-of-way (street)

In the parts of Seattle where polluted runoff from roads flows directly into creeks, Seattle Public Utilities (SPU) wants to form innovative partnerships (cost-sharing and/or direct technical assistance) with community-based groups, sister agencies, and developers interested in installing roadside rain gardens to treat runoff. To receive additional information about how to become involved in project development in these areas, please contact us at: spu_roadside_rain_gardens@seattle.gov

Combined sewer overflow (CSO) prevention projects in the right-of-way (street)

In parts of Seattle where runoff from the road contributes to overflows of sewage and polluted stormwater discharging directly into water bodies, SPU and King County Wastewater Treatment Division (WTD) are offering these direct resources:

Cost-sharing partnerships are open to sister public agencies and private developers engaged in the early planning phase of large-scale redevelopment projects. Eligible projects must propose managing at least 10,000 sq. ft. of impervious right-of-way surface, beyond what is required for the project's Stormwater Code compliance (manage runoff from an area outside the development's defined project area). This threshold can be lower if the partnering entity will contribute landscape maintenance for the expected life of the project.

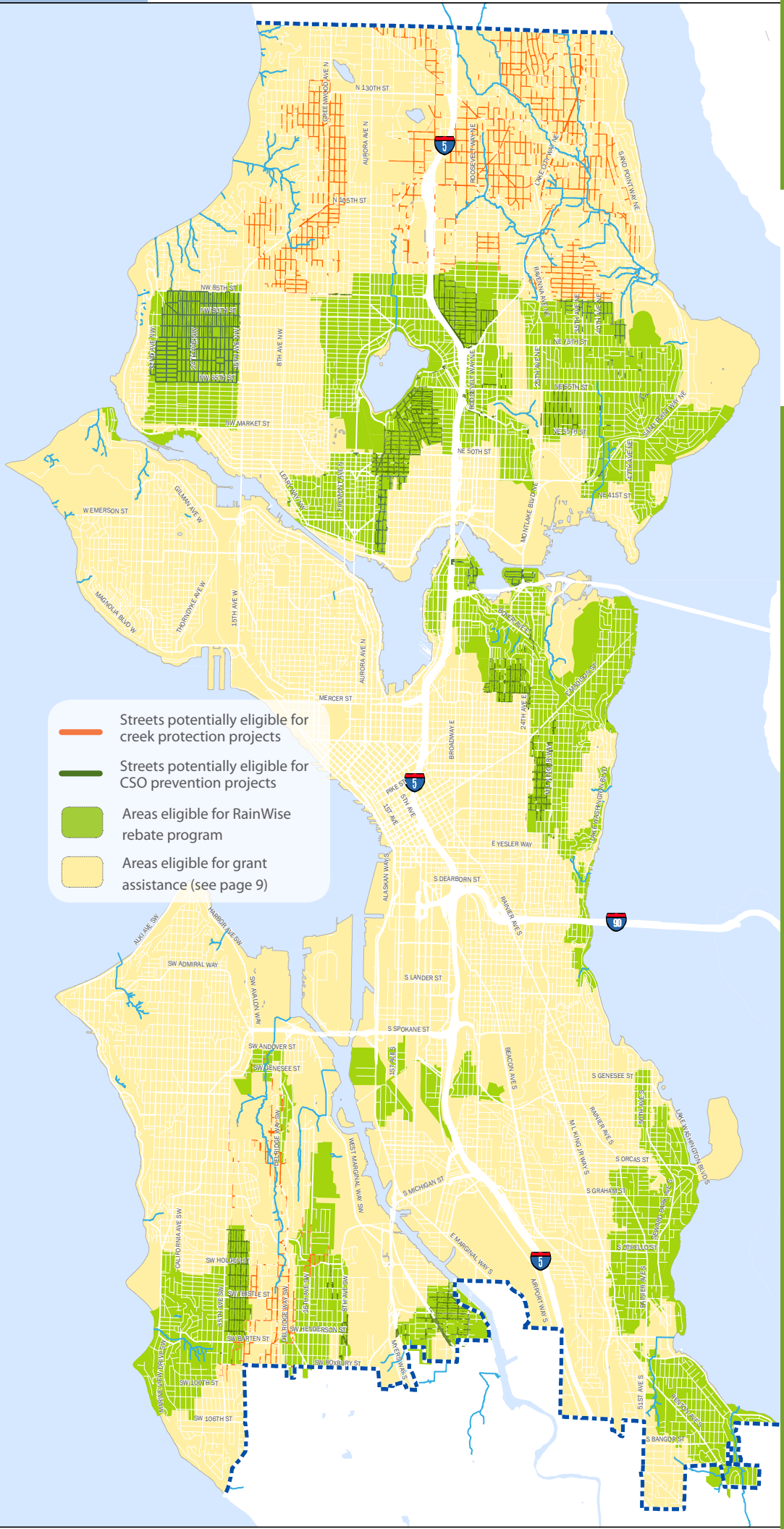
Technical in-kind resources for geotechnical analysis and land surveys are available to community-based groups developing smaller-scale, grant-funded projects. Eligible projects must submit the associated draft grant proposal to SPU or WTD for review, in order to be considered for in-kind technical support.

To initiate a partnering inquiry for CSO prevention, please contact us at: spu_roadside_rain_gardens@seattle.gov

Written technical guidance

Implement a rain garden in the public right-of-way

If you wish to install a roadside rain garden without direct technical or financial assistance from a Utility, please download the Voluntary Rain garden Client Assistance Memo here: http://web1.seattle.gov/dpd/cams/CamList.aspx (NOTE: This document will be available in July 2015.)



Partnering opportunities to bring GSI to parks, schools, community centers, or private space in your neighborhood

RainWise Rebates

In eligible parts of Seattle, property owners can receive rebates of up to $5,000 for installing rain gardens or stormwater cisterns on their property. See the current RainWise-eligible areas in map at left.

To confirm your property is eligible, and learn more about what you can do on your property to become "rainwise", please visit:

www.700milliongallons.org/rainwise

Grants

GSI projects are an eligible project type for a variety of competitive grant/funding programs across Seattle. Please see page 9 for additional information.

Technical Information

If you have questions about your rain garden plantings or maintenance, call the King County rain garden master gardener hotline at:
(206) 685-5104

For additional information, visit
www.12000raingardens.org/resources

If you are interested in removing paving on your property, get started here:
www.depave.org/puget-sound

GSI Partnership Examples

Swale On Yale

Seattle Public Utilities has partnered with Vulcan, Inc. to develop and fund the Swale on Yale project, which will significantly reduce the amount of pollution flowing from Capitol Hill into Lake Union. The total cost of the project is approximately $10 million. Vulcan, Inc. is contributing $1.2 million in addition to technical assistance and professional services.

Polluted runoff from this 435 acre shaded area is captured and treated in swales in the planting strip along four blocks to the west of I-5 before being released into Lake Union.

Highland Park "Depave" Project

Funded by a King County Wastewater Treatment Division Green Grant, the Highland Park Improvement Club, Sustainable Seattle, and Stewardship Partners collaborated to remove almost 3,500 square feet of asphalt and replace it with permeable paving and plants. Now the beautified courtyard soaks in 100% of the rain that falls on it!

Depaving projects that will remove an acre or more of impervious surface or that will install 2,000 square feet or more permeable paving require a Grading Permit from the City of Seattle.

Grant Assistance Available

Financial assistance for GSI projects in public shared space across Seattle is available through the following competitive grant programs.

Seattle Neighborhood Matching Funds
www.seattle.gov/neighborhoods/nmf

The Neighborhood Matching Funds provide neighborhood groups with City resources for community-driven projects that enhance and strengthen their own neighborhoods. All projects are initiated, planned, and implemented by community members in partnership with the City. There are three funds:

1) Small Sparks Fund awards up to $1,000 in matching grants. Residents can apply for this fund year round.

2) Small + Simple Projects Fund awards up to $25,000 in matching grants. There are three funding rounds per year.

3) Large Projects Fund awards up to $100,000 in matching grants. There is only one funding round per year, typically in the spring.

Seattle Neighborhood Park and Street Fund
www.seattle.gov/neighborhoods/npsf/default.htm

Neighborhood Park and Street Fund projects are proposed by the community and can be used for projects valued up to $90,000 to fund park or street improvements. Examples of relevant projects include natural area renovations in parks, crossing improvements, and traffic calming projects that integrate GSI.

King County WaterWorks Grants (replaces Green Grants)
www.kingcounty.gov/waterworks-grants

Non-profit organizations, schools, cities, counties, special purpose districts, and tribes are eligible to apply for approximately $850,000 in funding (in 2015) for projects that create a benefit to or improvement of water quality within King County Wastewater Treatment Division's service area. Grants will be awarded at three funding levels ranging from $5000 - $500,000.

King Conservation District Grants
www.kingcd.org/pro_gra.htm

The King Conservation District awards grants for projects that directly improve natural resources, provide education and outreach to increase awareness, build capacity to enhance implementation of natural resource improvement projects, and implement pilot or demonstration projects. Applications are solicited and awards made once a year, with the deadline usually in late spring.

Trees for Neighborhoods
www.seattle.gov/trees/treesforneighborhoods.htm

Seattle's Trees for Neighborhoods program provides up to four (4) free trees per household to plant in the public right-of-way or in private yards. Participants also receive water bags and training. There is one application round per year.

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