**EXHIBIT A**
**1% for Green GREEN STREET and**
**Grey to Green CULVERT PROJECTS**

**FACTUAL FINDINGS**
**PROPOSED EXEMPTION FROM COMPETITIVE BIDDING**

## SUMMARY

BES has two programs that would benefit from using alternative contracting methods in lieu of competitive sealed bidding or competitive price quotations. The first program is the "1% for Green program;" the second program is the City's culvert replacement program, which is part of the Grey to Green initiative.

The *1% for Green* program is designed to reduce storm water runoff from the public right-of-way (ROW) from entering into the City's storm water system. The culvert program is designed to remove fish passage barriers that restrict salmon recovery.

Both of these programs benefit from the assistance of private property owners and thus make an alternative contracting process desirable rather than using the competitive bidding process.

## I. BACKGROUND

Portland's *Watershed Management Plan* (PWMP) was adopted in 2006 (Resolution No. 36384, incorporated herein by reference). The *Framework for Integrated Management of Watershed Health*, which sets out the scientific basis for the plan, was adopted with the plan. The PWMP focuses efforts to protect and restore the natural systems within the city's boundaries, and lays out an integrated, system-wide approach. Since its adoption, the PWMP has been instrumental in assisting bureaus' consideration of watershed health as construction projects are designed and implemented.

Rather than focusing separately on single issues such as flooding, combined sewer overflows, or contaminated sediments, the PWMP considers all activities that affect watershed conditions including issues like transportation, redevelopment, and open space needs. Features like trees, ecoroofs, and swales integrated into the urban environment can capture and filter precipitation that would otherwise drain through outfall pipes directly into rivers and streams, or drain to the waste water treatment plant. Protecting existing habitat and providing access to that habitat can continue and improve the health of our rivers. The six strategies to achieve these goals are stormwater management, revegetation, aquatic, and terrestrial enhancement, protection and policy changes, operations and maintenance and education, involvement and stewardship.

While the PWMP builds on previous efforts, it is unique because it is the first plan to present the shared goals, objectives, strategies, and actions of the city's five watersheds.

It is a first step toward documenting all of the City's watershed work, as well as the functional and organizational relationships between the work elements.

## A. Green Streets

### 1. Background

The City of Portland adopted the Green Street Policy in April of 2007 (Resolution No. 36500 incorporated herein by reference). A Green Street is part of the City's sustainable stormwater strategy to meet the goals of the PWMP. (See attached information sheets).

### 2. Benefits of Green Streets

Green Streets transform impervious street surfaces into landscaped green spaces that capture stormwater runoff and let water soak into the ground as plants and soil filter pollutants. Green Streets convert stormwater from a waste directed into a pipe, to a resource that replenishes groundwater supplies. They also create attractive streetscapes and urban green spaces, provide natural habitat, and help connect neighborhoods, schools, parks, and business districts.

Green Streets are an innovative, effective way to restore watershed health. They protect water quality in rivers and streams, manage stormwater from impervious surfaces, and can be more cost efficient than new sewer pipes. Green Streets offer many benefits that sewer pipes cannot.
Green Streets:

- Clean and cool air and water
- Enhance neighborhood livability
- Increase community and property values
- Enhance pedestrian and bicycle access and safety
- Protect valuable surface and groundwater resources
- Add urban green space and wildlife habitat
- Help meet regulatory requirements for pollutant reduction and watershed resource management
- Reduce stormwater in the sewer system
- Save money on wastewater pumping and treatment costs

The plants absorb water and their roots help water soak into the ground. Green Streets can be attractive neighborhood amenities, and a variety of plants can provide a range of looks.

### 3. Current Green Street programs

Green Streets are currently constructed by developers as part of street improvement permits they obtain. These projects are governed by the requirements of BES's Stormwater Management Manual (SWMM). The purpose of the SWMM is to respond to regulatory mandates by providing stormwater management principles and techniques that help preserve or mimic the natural hydrologic cycle, minimize sewer system problems,

and improve water quality. The manual provides developers and design professionals with specific requirements for reducing the impacts of stormwater from new development and redevelopment, including green street construction details and requirements.

Ongoing monitoring proves they effectively reduce peak stormwater flows and runoff volume. Keeping stormwater runoff out of sewer pipes reduces sewer backups in basements, street flooding, and combined sewer overflows (CSOs) to the Willamette River. There are approximately 700 Green Street facilities throughout the City of Portland.

4. **The 1% for Green program**

Not all stormwater runoff is captured by the City's current Green Streets Policy and programs. For example, if ROW improvements are not required with a new development, if green streets are not identified as part of a CIP project, or if the SWMM is not triggered, there are few resources to construct green streets.

Because the City would benefit by additional Green Streets, BES established a 1% *for Green* program as one mechanism to encourage and fund additional green streets. The *1%* for *Green* program is also a mechanism to take advantage of the willingness of private property owners to make improvements in the public ROW.

The *1% for Green* program is funded by collecting one percent of the construction budget of City of Portland projects within the ROW that are not subject to the requirements of the SWMM.

Projects to be funded through this program involve the participation of private property owners. Private property owners have expressed a willingness to make improvements to the public Right of Way (ROW) for the purposes of stormwater management that are not covered under the Green Streets Policy discussed above. Therefore, the City wants to take advantage of private funding to support and facilitate construction in the ROW that is the basis of this request for exemption from competitive bidding.

The review process starts by first analyzing proposals from private property owners and City agencies who want to make improvements in the ROW. Any individual or entity can apply to receive *1% for Green* funding. The program is promoted through city bureaus, and information is distributed to neighborhood coalitions, and others interested in green streets. The green street projects are optional; they are not triggered by development requirements. If the applicant did not receive *1% for Green* funding, the projects would most likely not be constructed.

There will be actual competition among the applicants. Projects selected to receive *1% for Green* funding must achieve multiple objectives. In addition to meeting threshold program guidelines, applicants will be evaluated on additional project selection criteria. Such criteria include improving pedestrian and bike safety, innovative design, high visibility, and community involvement. If more applications are received than there are

funds to complete, then those scoring highest will be awarded the funds for their projects. Therefore, there will in fact be competition between applicants for receipt of funds who will seek a contractor to complete their individual project.

The review committee consists of representatives from the Water Bureau, Portland Department of Transportation (PDOT), Bureau of Environmental Services (BES), Bureau of Planning and Sustainability (BPS), Portland Development Commission (PDC) and the Watershed and Stormwater Advisory Committee (WASAC). Project applications will be accepted only if they meet the program guidelines and will be evaluated based on the additional project selection criteria. The committee makes recommendations to the Director of the Bureau of Environmental Services, Dean Marriott, for final approval.

The cost of constructing a Green Street through this program varies depending on the existing conditions, utility improvements, changes to the curb alignment, and if additional improvements such as curb ramps are included. The costs for design, construction, and public outreach will range from approximately $15,000 for simple projects to approximately $100,000 for larger complicated corner improvements.

To be selected for funding, the private party must provide a 10% match (financial or in kind services) for the project. The City will pay the remainder through the funds collected pursuant to the *1% for Green* program.

The anticipated total amount of *1% for Green* funds to be spent on projects with alternative contracting methods over the next five years is not to exceed $500,000. This is sufficient to fund approximately 25 green streets based on an average contribution of $10,000 per Green Street. This compares to the approximately $30 million BES will spend on its other green streets programs over the next five years. Therefore, the *1% for Green* program will constitute a very small portion of the money expected to be spent for Green Streets.

If this exemption is approved, the contractor who will be hired to construct the improvements will be hired by the private party. The City will contract with that private party to perform the portion of the project.

**B. CULVERTS**

1. Background

As noted above, the culvert program is designed to remove fish passage barriers that restrict salmon recovery.

Thirteen species of threatened or endangered salmon pass through the City of Portland at some point in their journey, four of which call Portland home. The City has committed to aid in the recovery of salmon and steelhead (Resolution Nos. 35715 and 35894). In 1998, the City of Portland's Endangered Species Act (ESA) Program responded to the listing of steelhead and salmon by identifying limiting factors for threatened fish.

Not surprisingly, lack of high quality habitat and access to habitat were among the top problems for salmon and steelhead in the City. The City, with the Oregon Department of Fish and Wildlife (ODFW) and METRO, inventoried all 200 culverts that prevent fish from moving up and down streams. The culverts were ranked to prioritize their replacement and repair. Since that time, eight culverts in Portland have been replaced or repaired using a competitive bidding process. However, not enough progress has been made.

2. Benefits of culvert replacement

The culvert replacements will improve hydraulic and fluvial functions, fish and wildlife habitat, as well as flood plain function, natural flood control, sediment transport, and large wood recruitment. The benefits are multiplicative in a single system. Therefore, there is a strong appeal to focus most of the efforts in a single system to restore an entire stream from mouth to headwaters.

3. Current efforts

The Grey to Green (G2G) program revitalized the lagging efforts on culverts. After updating existing data, the Science, Fish and Wildlife Program (formerly the ESA program), identified the top 25 fish passage barriers in the City. Science, Fish and Wildlife consulted with an external steering committee composed of representatives from NOAA Fisheries, U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife, Portland Bureau of Transportation, Portland Parks and Recreation, Bureau of Environmental Services, and the Johnson Creek Watershed Council, to determine which eight culverts the G2G program will fund.

As a result of these new efforts, , the culvert effort is now focused on rectifying all nine (9) passage barriers in Crystal Springs Creek in the next five years, with additional smaller efforts on other culvert replacement efforts. The need to repair culverts is expected to continue beyond Grey to Green's five year timeline.

4. Public and private efforts

At least seven (7) of the Grey to Green culverts are identified public culverts that the City will repair and replace through the standard competitive bidding process that has guided all prior culvert replacement projects. Estimates for these culvert repairs range from $200,000 to over $2,500,000.

There are some private parties who have expressed an interest in assisting, financially and with in kind services, in the culvert replacement efforts, but will need contributions - financial, staff and other - from the City to replace the culverts. Of the top 25 culvert barriers in the city, it is anticipated that no more than five of the culverts (two in Johnson Creek) will fall into the category of private parties assisting with restoring fish passage at barrier culverts. The two culverts in Johnson Creek are located at SE 28th Street near

Reed College (Crystal Springs Creek) and on Mitchell Creek on a property currently owned by the Centennial School District. These instances are being requested for exemption from the competitive bidding process. These culverts have been reviewed and recommended by an external culvert steering committee that includes federal, state, and local regulators, other city bureaus, and other watershed stakeholders. The class of private efforts requested for exemptions here will range in costs and may exceed $500,000 in some instances. Approximately 80% of the culvert projects will go through the standard competitive bidding process.

In general, it is anticipated that culvert replacements that will be exempt from the competitive bidding process will likely be a component of an improvement including but not limited to, river restoration, green street improvement, sidewalk improvement or other infrastructure changes to the property. The culvert replacement is a smaller piece of a much larger project. The larger watershed restoration efforts that includes culverts, and similar ones in the future, will receive private funding as well as public funding however the City is expecting to fully fund the culvert portion of the projects. Because the culverts are an identified problem for watershed health and are connected to other private improvements that will also benefit watershed health, the repair and/or replacement of these culverts is recommended for the Exemption from the Competitive Bidding process.

It is important to note that the private party may competitively bid the project, and non-construction elements of these private efforts may also involve competitively bid components. For example, the City has conducted a complete survey of the degree of blockage at each of the culverts in Crystal Springs, utilizing our on-call Professional, Technical, and Expert contracts, which are competitively bid every three years. Restoration in Crystal Springs would not be possible without these private efforts, and recovery of threatened salmon and steelhead depends on private, voluntary efforts. Not only will exempting these instances from the competitive bidding process advance the city's goals and programs, it will also save the tax payers money.

If this exemption is approved, the contractor who will be hired to construct the improvements will be hired by the private party or developer because the main focus of construction will be on the private party's own goals. The City will simply be paying the owner of the private property to add the culvert portion of the project to the private party's project.

If the private party was not able to select the contractor to work on the party's own property, it is likely the private party would be unwilling to undertake this construction. The City will contract with that private party to perform the culvert work.

## II. FINDINGS

These findings are based on the background material presented above.

## OPERATION, BUDGET AND FINANCIAL DATA

The City is seeking an exemption from the Competitive Bidding process for the *1% for Green* program and for a few culvert projects because the unique nature of the projects, the efficiencies of private projects in the same area, and the willingness of the landowner to manage and construct the project, results in a significant cost savings to the City. The City's interest is in being able to financially contribute to the efforts.

*1% for Green*
If the City were to do comparable projects, it would require finding a willing adjacent land owner, public involvement and outreach, permitting, project management, engineering, construction, and maintenance. Because the applicant already has a site identified, and has consent from surrounding neighbors, the city does not have to spend time and money on these tasks or coordinating with these tasks. There is additional savings in the *1% for Green* program because the projects require a 10% match (financial or in kind services) from the private party as well which would not occur if the City were to go out and try to complete these projects through our normal capitalization route.

*Culverts*
If the City were to do comparable projects, it would require public involvement and outreach to acquire permission from the neighboring landowner, permitting, project management, engineering, construction, and very careful coordination with the independent private effort already underway on the private property or at worst, undoing and damaging watershed investments that were constructed without consideration of the culvert replacements. The situations requested for exemption from competitive bidding involve private landowners that are already pursuing design, permitting and construction other elements of the project at the same location, and have consent from surrounding neighbors so the city does not have to spend time and money on these tasks. While culvert replacement does not require a financial match, these efforts more than account for significant financial and non-financial match by the private property owners.

Because the culverts are typically a component or proximately located to much larger projects, there are cost savings and efficiencies from the private land owner already having to prepare and pay for elements of their own projects, such as traffic control, river management, erosion control, and utility identification and management, including possible relocation. If the City were to excise its small portion of the project on public property and go through a standard competitive bidding process there would be significant duplication and risk, including financial impacts, that can otherwise be avoided. For example, traffic control would only have to happen once for an entire project instead of twice for two elements of the same project. In another example, if the City's portion of the project follows the private developers' project, any improvements made by the private party to the adjacent properties might be compromised by any

subsequent construction that would add reparation costs to the overall construction costs. As a result the City will achieve substantial cost savings when compared to the amount it would have to spend if it pursued and bid out the projects.

*Finding*

Both programs preserve City funds as compared to the low bid contracting process. A low bid competitive contracting process would unnecessarily duplicate construction efforts. A separate construction project funded by the City would cost more than if it is able to join a current ongoing project being conducted by the private party.

Furthermore, a low bid contracting process would not be able to take advantage of private money and non-monetary matching. The exemption from competitive bidding will improve operations and lessen the financial strain on the City's budget.

**PUBLIC BENEFITS**

The public benefits vary with the location and type.

*1% for Green*
For Green Streets, the benefits depend on the existing sewer infrastructure. 1) In combined sewer/stormwater areas the benefits include reducing flow into undersized pipes which helps prevent local basement sewer backups, and reducing the stormwater sent to the wastewater treatment plant, thus reducing the amount that must be treated there. 2) In the Municipal Separate Sewer System (MS4) green streets improve water quality of the runoff before it reaches the stream or river. 3) In UIC (Underground Injection Controls) areas, green streets can be used to bring UICs to compliance.

In addition to these system benefits, the projects must also have community benefits, for example, improved pedestrian and bike safety, education and demonstration component, wide community support, new sustainable stormwater technology and design, and/or catalyst for future improvements.

The public benefits from the *1% for Green* projects in particular because the projects are completely voluntary, there is not adjacent development and redevelopment that triggers ROW improvements. Thus without the *1% for Green* funding these projects with watershed and community benefits would not be feasible.

*Culverts*
With respect to culverts, the public enjoys benefits when an entire watershed is improved through the hydrology, water quality, fish, and wildlife communities and by decreased flooding. Culverts are catalysts in larger watershed restoration efforts that would not happen or have the exponential degree of benefits without the private party undertaking the culvert replacement. In addition, the private parties are able to foster excitement and goodwill to the City and the City's efforts on Grey to Green which the City would not be able to do independently.

Furthermore, the public benefits by the reduced cost that the City of Portland bears to build the project.

*Finding*
As compared to a low bid competitive method, the exemption from competitive bidding for both programs will generate similar or greater public benefit over a longer period of time, some of which are monetary while others are benefits to livability. In addition, by having construction performed at the same time as the private party's own construction, the public benefits because their neighborhood is subject to less disruption than if two projects were to be performed, each at a different time.

**VALUE ENGINEERING**

It is not clear what value engineering possibilities exist for these projects. However, if there are value engineering possibilities, in which the cost of construction can be reduced because of a change in the manner or method of construction, it seems likely that the Applicant will be the entity most likely to be able to incorporate value engineering ideas into the projects. .

For example, the contractor can look at performing the required work desired by the City in the context of the overall construction work to be performed and find the best, most efficient way to proceed with construction. Such efficiencies would never occur if two construction projects had to be performed. Therefore, some work, like excavation, would likely have to be performed twice. This will not occur if one project accomplishes both the private party's goals and the City's goals.

This is particularly true if the Applicant is paying a portion of the construction costs or other elements of the project and therefore has an incentive to save money. In addition, if this project was competitively bid, the City would not be able to take into account any value engineering ideas of various bidders on the project, which will then have to bid on the plans and specifications as drafted. They will have no incentive to reduce the cost of the project.

*Finding*

Both programs provide value engineering possibilities, while the competitive low bid process would not. Although it is unclear what value engineering aspects the projects will enjoy, it nonetheless is clear that both programs are more likely to produce value engineering proposals and reduce City costs than if the City were to use low bid competitive method.

**SPECIALIZED EXPERTISE REQUIRED**

Engineered, stamped drawings are required for permitting of green street projects and culverts. Accurate construction by experienced contractors is necessary for functioning

facilities. The Applicants will be required to obtain all permits required to complete the work.

*1% for Green*
Grading in and around the facility, proper soil handling and planting sequencing are all important for green streets, including landscape design, traffic engineering, and safety.

*Culverts*
Culvert construction requires specialized expertise in geomorphology, hydrology, utilities, riverine ecology, structural engineering, and fish and wildlife management.

*Finding*

Both programs provide opportunities to use specialized expertise beyond what the competitive bidding system would provide. Although it is unclear what aspects of specialized expertise will be required because the projects vary in scope and size, any specialized expertise that is required is more likely to arise and be utilized to save money by having one construction project taking into account all construction variables as opposed to two construction projects where the contractor cannot accomplish all the construction without knowledge of the other project. Awarding a contract through the exemption process is likely to produce the same or better specialized expertise since it is less likely to be compromised as compared to the low bid method.

**PUBLIC SAFETY**

*1% for Green*
Green Streets have public safety benefits in all areas of the city. In the combined sewer area Green Streets enhance public safety by reducing the risk of local basement sewer back up and combined sewer overflows. Projects in the municipal separate storm sewer systems (MS4) to improve water quality, reduce, and detain runoff to adjacent streams and rivers. Green Streets in areas with Underground Injection Controls (UIC) help to meet regulatory compliance to protect groundwater.

In some cases Green Streets are also designed with pedestrian and bike safety goals. Curb extensions can treat stormwater and making street crossings safer for pedestrians. Curb extension can prevent cars from parking adjacent to the corner, clearing site triangles for motorists, bicycles and pedestrians.

*Culverts*
Culverts also add public safety benefits. In Crystal Springs, many of the culverts are undersized and may exacerbate localized flooding. Providing larger culverts will not only benefit fish and wildlife, but will also convey any flood events downstream to Johnson Creek and to the numerous parks and floodplains that act as flood storage in the system. Some of the culverts are also in very poor condition. Restoration will also improve traffic and pedestrian safety through redevelopment of surface streets.

*Findings*
Both programs will enhance public safety in ways that the competitive low bid system would not. Primarily, these programs will permit one construction project to be undertaken, rather than two. This means that there is less duplication of construction effort, and less time for the public to be exposed to an ongoing construction site. No matter how much safety is emphasized, a shorter time frame for construction enhances public safety.

**MARKET CONDITIONS**

*1% for Green and Culverts Findings*

If the City had to use the competitive low bidding process it is likely that some of these projects would not be undertaken because of lack of funding and because of lack of private property owner support, which is essential. As a result, the exemption will stimulate the economy in ways that the competitive low bidding system would not.

**TECHNICAL COMPLEXITY**

The issue of technical complexity is similar to the issue of value engineering and specialized expertise. The City incorporates those findings in this category.

**FUNDING SOURCES**

*1% for Green*
Green Streets are funded and constructed in a variety of ways described above. BES funding for green street construction is primarily through capital (rate payer) dollars. Green Street projects compete with all BES pipe and wastewater treatment projects for capital funding. Small scale projects that take advantage of timing with adjacent construction, and property owners willing to partner do not compete for capital funding.

*1% for Green* collects one percent of the construction budget of City of Portland projects within the city right-of-way that are not subject to the requirements of the SWMM. Additional funding is provided by Off-site Management Fees collected from public and private projects that do not meet the SWMM requirements.

Approximately $500,000 is available over the next five years to fund private green street design and construction. The projected *1% for Green* budget over the next five years is approximately $2,000,000. The majority of *1% for Green* projects will not be exempt from the competitive bidding process.

Since the start of the *1% for Green* program in April of 2008, approximately $1million has been pledged to green street projects. To date, approximately $60,000 has been spent, three projects are complete, and five others are in construction. None of these projects used alternative bidding methods.

Applicants will be required to match the *1% for Green* funding with a minimum of 10% of the project cost.

*Culverts*
The culvert program is funded from multiple sources. Initially, the City of Portland has committed $2 million of capital funding from Grey to Green, in addition to the nearly $500,000 that was set aside from both the Bureau of Environmental Services and Transportation. In addition, because some of the culvert projects involve land acquisition, additional Grey to Green acquisition dollars and Portland Parks Natural Area dollars are committed.

The remainder of the project dollars must be raised from external sources. The City is pursuing multiple grant opportunities from Metro, United States Fish and Wildlife Service, National Marine Fisheries Service, and American Rivers, but those opportunities do not cover the total cost of the projects. Thus, it is in the best interest of the City to maximize opportunities for cost efficiencies, and identify partners. Assisting the private landowners to improve passage at public culverts and having those landowners bear the responsibility of shared soft costs (such as traffic control, permitting, stream diversions, etc.) is a significant cost savings to the City and is necessary to reach the ecological and financial goals of the project.

*Findings*
The exemption from competitive bidding will provide additional funding sources that would otherwise be unavailable from a low bid competitive method.

## III. FINDINGS REGARDING COMPETITION

Based on all the findings above, the following conclusion can be reached for both programs:

ORS 279C.335 (2) requires that an agency make certain findings as a part of exempting public contracts or classes of public contracts from competitive bidding. ORS 279C.335 (2) (a) requires an agency to find that: *It is unlikely that such an exemption will encourage favoritism in the awarding of public improvement contracts or substantially diminish competition for public improvement contracts.* This conclusion is appropriate for both these programs and is supported by the draft findings that were discussed above.

First, the Applicant is the only entity reasonably available to enter into a contract to construct and partially finance the Green Street Facility or culvert given the additional circumstances of the *1% for Green* program, and the localized adjacent landowner's efforts around the barrier culvert. Because the private property owner will be selecting the contractor and entering into the construction contract the City is not involved in the selection process and therefore will not be encouraging favoritism among contractors nor substantially diminishing competition.

## IV. FINDINGS REGARDING COST SAVINGS

Based on the findings above, the following conclusion can be reached for both programs:

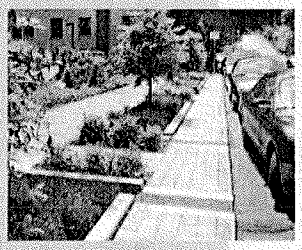
ORS 279C.335 (2) requires that a public agency make certain findings as part of exempting public contracts or classes of public contracts from competitive substantially diminishes bidding. ORS 279C.335 (2)(b) requires and agency to find that: *The awarding of public improvement contracts under the exemption will result in substantial cost savings to the public contracting agency.* This conclusion is appropriate for this Project because the Applicant is contributing its own funds to construct the *1% for Green* program and because the City is saving money with the culvert program because it is being combined with a privately funded construction project and it is anticipated that the City contribution to the private project will be less than if the City were to separately construct the improvement through the competitive low bid process.

*working green for clean rivers*

# Green Streets

## frequently asked questions

Urban stormwater runoff that isn't properly managed can pollute rivers and streams and contribute to combined sewer overflows (CSOs) to the Willamette River.



SW 12th and Montgomery streetside planters

### What is a Green Street and what are the benefits?

A Green Street is a natural stormwater management approach that uses plants and soil to slow, filter, and cleanse stormwater from streets. Traditional stormwater management directs runoff into pipes. A Green Street manages stormwater at its source, where rain falls.

SE 21st Street curb extension

Green Streets protect water quality in rivers and streams by removing up to 90% of pollutants. They replenish groundwater supplies, absorb carbon, improve air quality and improve neighborhood aesthetics, and provide green connections between parks and open space. Vegetated curb extensions improve pedestrian and bicycle safety, and calm traffic.

Green Streets reduce peak stormwater flows, free capacity in the pipes to carry more wastewater to the sewage treatment plant, and stop sewer backups in basements. They can eliminate the need to install or replace expensive underground collection, conveyance and treatment systems.

### How does Environmental Services choose a location?

Environmental Services prioritizes Green Street implementation where there is a need to reduce or remove stormwater runoff flowing to the sewer system, protect water quality in nearby streams and rivers, improve pedestrian and bicycle safety, and protect properties from sewer backup.

SE 23rd and Irving simple green street

The Sustainable Stormwater Management Program keeps a list of people who have expressed interest in having a facility in their neighborhood.
Contact Emily Hauth at 503-823-7378 or emilyh@bes.ci.portland.or.us to be placed on a list for evaluation.

### Where can I get more Green Street information?

Learn more online at www.portlandonline.com/sustainablestormwater.

ENVIRONMENTAL SERVICES
CITY OF PORTLAND
working for clean rivers
Dan Saltzman, Commissioner
Dean Marriott, Director

**How can I manage stormwater on my property?**
You may use ecoroofs, rain gardens, trees, downspout disconnection, parking lot swales, etc. to manage stormwater on your property. This may make you eligible for a discount on your onsite stormwater management bill. Call 503-823-1371 or visit www.cleanriverrewards.com for more information.

**Will the Green Street remove parking?**
It depends on the type of facility. Stormwater planters accommodate parking while curb extensions replace parking with landscape. Our goal is to not remove parking, but sometimes a curb extension is the only option. Curb extensions can enhance pedestrian safety by decreasing crossing distances, keeping site lines clear, and slowing traffic. The city continues to research a variety of design options to limit loss of parking.

**Will a Green Street near our house cause basement seepage?**
No. We have very strict criteria for determining how close a facility can be to a home. There is a separation requirement of at least four feet between the bottom of the facility and high groundwater, and at least a 4:1 slope away from the bottom of the facility to the lowest point of the nearest structure, usually a basement.

**If I live on a steep slope or have poor infiltration, is a Green Street an option?**
Yes. Typically in those situations the facility is lined. Lining prevents stormwater from infiltrating, but this type of Green Street still improves water quality and reduces peak flows.

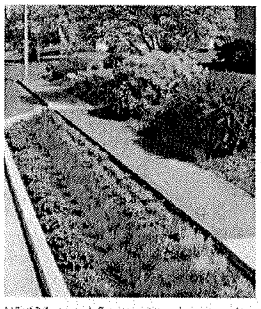
## plants and maintenance

**What kinds of plants will be in the facility?**
Environmental Services selects plants that can tolerate wet soil in the winter and dry conditions in the summer. The plants are a mix of native and non-native that grow 2 to 3 feet high, preferably evergreen. Rushes and sedges are commonly used. Flower bulbs add color. Street trees are planted whenever possible.

**Who will maintain the Green Street?**
Environmental Services maintains Green Streets as an important part of the city's stormwater infrastructure. City maintenance crews visit facilities as needed, but at least twice a year to weed, prune, clean out sediment, and replace plants. We welcome help from neighbors to keep the facilities free of litter and leaves.

**Will a Green Street breed mosquitoes?**
Mosquitoes breed in standing water. Green Streets are designed to drain in less than 48 hours to prevent breeding. The City of Portland works with Multnomah County Vector Control to monitor Green Street facilities for mosquito breeding. Vector Control has not found a facility yet that is a mosquito breeding ground. Make sure you remove any potential mosquito nurseries from your property. Look for standing water in buckets, barrels, old tires, wading pools, or trash cans, etc.

**How do we know the facility is working correctly?**
The city regularly monitors facilities, but if you see a problem, please report it to City of Portland Maintenance, 24 hours a day at 503-823-1700. Green Streets are designed to overflow to stormwater inlets when they reach capacity during heavy rain.


NE 131st and Fremont curb extension

**Does a Green Street collect pollutants?**
Plant roots and soil organisms in Green Street facilities help break down stormwater pollutants. The city is monitoring Green Street soil for pollutants of concern. Current soil analysis shows no evidence of pollutants accumulating in concentrations that pose a health risk. The city will continue to collect and analyze data.

**Will you take out the existing street trees?**
Trees catch and absorb rain, and are important to the city's sustainable stormwater management efforts. Environmental Services works closely with the City Forester's Office to determine possible impacts to existing trees. For more information on street trees, contact the City Forester's Office at 503-823-4489.

**For More Information**
www.portlandonline.com/sustainablestormwater

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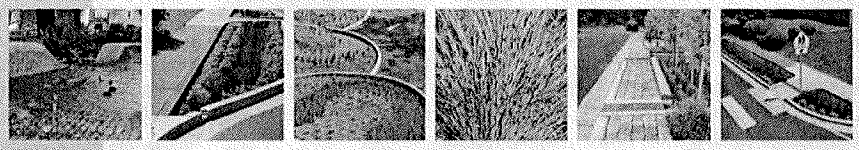
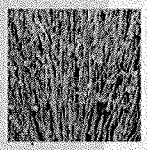
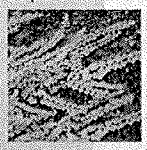
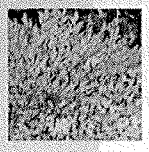
# Green Streets



Urban stormwater runoff that isn't properly managed can pollute rivers and streams and contribute to combined sewer overflows (CSOs) to the Willamette River. Green Streets reduce the negative impacts of stormwater runoff. They mimic natural conditions by using soil and vegetation to manage runoff on the surface, at the source.

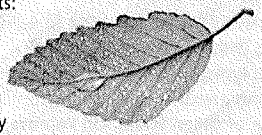






Green Streets transform impervious street surfaces into landscaped green spaces that capture stormwater runoff and let water soak into the ground as plants and soil filter pollutants. Green Streets convert stormwater from a waste directed into a pipe, to a resource that replenishes groundwater supplies. They also create attractive streetscapes and urban green spaces, provide natural habitat, and help connect neighborhoods, schools, parks, and business districts.

The City of Portland is committed to green development practices and sustainable stormwater management. Green Streets are an innovative, effective way to restore watershed health. They protect water quality in rivers and streams, manage stormwater from impervious surfaces, and can be more cost efficient than new sewer pipes. Green Streets offer many benefits that sewer pipes can't. Green Streets:



- Clean and cool air and water
- Enhance neighborhood livability
- Increase community and property values
- Enhance pedestrian and bicycle access and safety
- Protect valuable surface and groundwater resources
- Add urban green space and wildlife habitat
- Help meet regulatory requirements for pollutant reduction and watershed resource management
- Reduce stormwater in the sewer system
- Save money on wastewater pumping and treatment costs

The plants absorb water and their roots help water soak into the ground. Green Streets can be attractive neighborhood amenities, and a variety of plants can provide a range of looks.

Portland has been designing and building Green Streets for years. On-going monitoring proves they effectively reduce peak stormwater flows and runoff volume. Keeping stormwater runoff out of sewer pipes reduces sewer backups in basements, street flooding and combined sewer overflows (CSOs) to the Willamette River.

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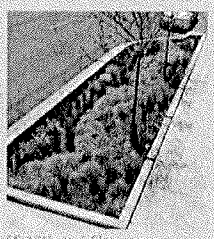
Dan Saltzman, Commissioner
David Morrell, Director

# Types of Green Streets

Green Streets have different shapes and sizes, but they all have stormwater management benefits and help protect watershed health. Here are some examples:

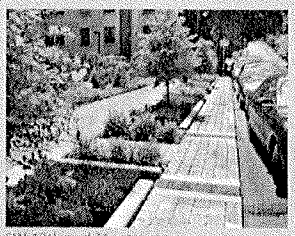
SE 42nd and Belmont



SE 12th and Clay

### Stormwater Curb Extension

Extending into the street, stormwater curb extensions transform the curb lane into a landscape area. Curb extensions can conveniently integrate a ramp for safe pedestrian crossing.

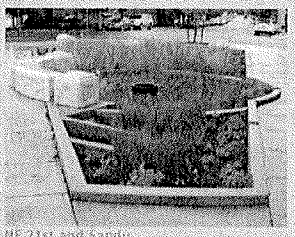


SW 12th and Montgomery

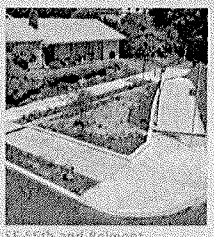
SE 92nd street

### Stormwater Street Planter

Stormwater Street Planters between the sidewalk and the curb work well in areas with limited space, and they allow for adjacent street parking or travel.



NE 21st and Sandy



SE 55th and Belmont

### Rain Gardens

Where there is plenty of space, rain gardens are ideal. They can also transform awkward street intersections into safe pedestrian and bicycle crossings.

N Williamette and Denver

NE 23rd and Irving

### Simple Green Street

Excavating an existing planting area behind a reinforced curb, making curb cuts for inflow and outflow, and landscaping with appropriate vegetation is a simple approach to capture and treat street runoff.

### For More Information

www.portlandonline.com/sustainablestormwater

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