



# Green Roof Policies, Incentives and Guidelines

A Reference Guide to current North American Green Roof policies, incentives and guidelines that will aid market growth

This document was created between October 2013 and March 2014 by Inhabitect, LLC working as the Policy Educator for Green Roofs for Healthy Cities. It is meant to be used as a tool to better understand the many policies, incentives and guidelines that existing in North America. Each of these has the potential to help grow the green roof market place and be used as an example of what has been done in the past.

Any reader is encouraged to email additional examples, worthy of publication, to Green Roofs for Healthy Cities at [policy@greenroofs.org](mailto:policy@greenroofs.org). The goal is to continue to add to this document as new policies are written and developed.

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# Canada

## British Columbia:



## Vancouver:

**Name of Policy:** Greenest City: 2020 Action Plan

**Provider:** City of Vancouver

**Type of Policy:** Building By-Law

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** Not clear

**Details:** In order to support the City's goal of becoming the greenest city in the world by 2020 and to continue to demonstrate leadership in green buildings, amendments have been made to the 2012 British Columbia Building Code to further protect the environment by increasing energy and water efficiency performance requirements for both newly constructed buildings as well as buildings that are undergoing renovations. Should the City Council accept these provisions, the Building By-law will set energy efficiency requirements for all building types including all forms of residential, commercial, institutional and industrial buildings.

- The City Council has approved an amendment to the 2014 Building By-law to establish reasonable requirements to allow for green roofs and rain water harvesting systems without alternative solutions and to remove barriers to the use of green roofs on all buildings

## **Web Links:**

<https://vancouver.ca/green-vancouver/greenest-city-2020-action-plan.aspx>

<http://former.vancouver.ca/ctyclerk/cclerk/20130924/documents/rr1.pdf>

## **Contacts:**

Greenest City 2020 Action Plan

604-873-7000

**Status:** Current program

**Success/Failure:**





**Vancouver:**

**Name of Policy:** Rezoning Policy for Sustainable Large Developments

**Provider:** City of Vancouver – Planning Department

**Type of Policy:** Rezoning Standards

**Established:** 2013

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** This policy states that any development rezoning applications that involve a land parcel or parcels having a total site size of 8,000 m<sup>2</sup> (1.98 acres) or more, or contain 45,000 m<sup>2</sup> (484,375 sq. ft.) or more of new development floor area must provide defined plans or studies on the following:

- Sustainable Site Design
- Access to Nature
- Sustainable Food Systems
- Green Mobility
- Rainwater Management
- Zero Waste Planning
- Affordable Housing
- Low Carbon Energy Supply

Projects that are limited in scope may be excluded from the requirements of this policy, including text amendments to the existing zoning for minor changes to large sites or projects that contain less than 4,700 m<sup>2</sup> (50,590 sq. ft.) of new development.

The requirement that directly references green roofs is the Rainwater Management section. A Rainwater Management Plan recognizes rainwater as a resource to enhance the community and environment. This contributes towards Vancouver's Clean Water Greenest City target to reduce per-capita residential water consumption by 20% by 2020. It also supports several other 2020 Greenest City goals.

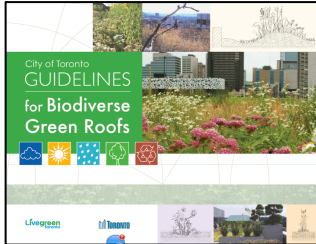
All projects are required to produce a Rainwater Management Plan that demonstrates how the project will meet requirements for water quantity and quality. This plan has numerous requirements that must be completed as well as many the must be considered, addressed, or incorporated. One of these is to utilize open space on rooftops for green roof plantings.

**Web Links:**

<http://former.vancouver.ca/commsvcs/BYLAWS/bulletin/R019.pdf>

**Contacts:**  
**Status:**  
**Success/Failure:**

**Ontario:**



**Toronto:**

**Name of Document:** Guidelines for Biodiverse Green Roofs

**Provider:** City of Toronto

**Type of Policy:** Design Guideline

**Established:** 2013

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The Guidelines for Biodiverse Green Roofs identify, describe and illustrate best practices for creating habitat and promoting biodiversity on green roofs in Toronto. They are intended to support and expand the *Toronto Green Roof Construction Standard Supplementary Guidelines*. These guidelines are primarily designed for use by architects and landscape architects involved in designing green roofs but they may also be of interest to others who wish to understand how green roofs can be designed to enhance and support biodiversity.

**Web Links:**

[http://www.toronto.ca/greenroofs/pdf/biodiversegreenroofs\\_2013.pdf](http://www.toronto.ca/greenroofs/pdf/biodiversegreenroofs_2013.pdf)

**Contacts:**

Green Roofs

416-392-0191

[sustainablecity@toronto.ca](mailto:sustainablecity@toronto.ca)

**Status:** Current

**Success/Failure:**



**Toronto:**

**Name of Policy:** Eco-Roof Incentive Program

**Provider:** City of Toronto

**Type of Policy:** Toronto Green Roof Tax Credit

**Established:** 2009

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The City of Toronto launched the Eco-Roof Incentive Program in 2009 to support the uptake of eco-roofs by building owners, make buildings more sustainable and promote the creation of green jobs. The Eco-Roof Incentive Program promotes the installation of green and cool roofs on Toronto's existing buildings and new buildings not subject to the Green Roof By-law.

Applications are currently being accepted for green and cool roof projects and will be reviewed on a monthly basis, subject to funding availability. Eligible green roof projects will receive \$75 / square meter (\$6.97/sf) up to a maximum of \$100,000.

**Eligibility Criteria**

The Eco-Roof Incentive Program provides funding for existing buildings, and new buildings not subject to the [Green Roof By-law](#). The program was expanded in 2012 to include new and existing Toronto Public and Separate School Board buildings.

**What buildings are eligible?**

Buildings must be located in the city of Toronto.

**What green roof projects are eligible?**

The Eco-Roof Incentive Program provides funds for green roof projects on:

- Existing residential, industrial, commercial, and institutional buildings new residential, industrial, commercial, and institutional buildings with a gross floor area of less than of 2,000 m<sup>2</sup> (21,527.82 sf).
- New and existing Toronto Public and Separate School Board buildings of any size

To be eligible for the Eco-Roof Incentive Program, a Green Roof must also meet the following specifications:

- Be designed and constructed in conformance with the requirements of the Toronto Green Roof Construction Standard.
- Will have minimum coverage of available roof space\* in accordance with the following chart:

Gross Floor Area (Size of Building)	Minimum Coverage of Available Roof Space (Size of Green Roof)
Less than 4,999 m <sup>2</sup>	20%
5,000-9,999 m <sup>2</sup>	30%
10,000-14,999 m <sup>2</sup>	40%
15,000-19,999 m <sup>2</sup>	50%
20,000 m <sup>2</sup> or greater	60%

\* Available roof space is defined as the total roof area minus areas designated for renewable energy devices.

**Web Links:** [www.toronto.ca/livegreen/greenbusiness\\_greenroofs\\_eco-roof.htm](http://www.toronto.ca/livegreen/greenbusiness_greenroofs_eco-roof.htm)

**Contacts:**

Annemarie Baynton  
Eco-Roof Coordinator Environment and Energy Office  
416-392-1848  
[abaynto@toronto.ca](mailto:abaynto@toronto.ca)

**Status:** Applications are being accepted for cool & green roof projects

**Success/Failure:**



**Toronto:**

**Name of Policy:** Green Roof By-Law

**Provider:** City of Toronto

**Type of Policy:** Building requirement/By-Law

**Established:** 2012

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The Bylaw requires green roofs on new commercial, institutional and residential development with a minimum Gross Floor Area of 2,000m<sup>2</sup> as of January 31, 2010. Starting April 30, 2012, the Bylaw will require compliance with the Bylaw for new industrial development. Use the green roof screening form as a tool to



determine quickly whether you will be required to build a green roof. Details of the requirements are provided below. The green roof coverage requirement is graduated, depending on the size of the building. The table below shows how the requirement ranges from 20-60 percent of Available Roof Space for commercial, institutional and residential development. Available Roof Space is defined as the total roof area minus areas designated for renewable energy, private terraces and residential outdoor amenity space (to a maximum of 2m<sup>2</sup>/unit). A tower roof on a building with a floor plate less than 750m<sup>2</sup> is also excluded from available roof space.

<b>Gross Floor Area *</b> <b>(Size of Building)</b>	<b>Coverage of Available Roof Space</b> <b>(Size of Green Roof)</b>
2,000 - 4,999 m <sup>2</sup>	20%
5,000-9,999 m <sup>2</sup>	30%
10,000-14,999 m <sup>2</sup>	40%
15,000-19,999 m <sup>2</sup>	50%
20,000 m <sup>2</sup> or greater	60%

\*Note: Residential buildings less than 6 stories or 20m in height are exempt from being required to have a green roof.

#### **Web Links:**

Eco-Roof By Law:

[http://www.toronto.ca/livegreen/greenbusiness\\_greenroofs\\_eco-roof.htm](http://www.toronto.ca/livegreen/greenbusiness_greenroofs_eco-roof.htm)

Zoning and Environment: Green Roofs

<http://www1.toronto.ca/wps/portal/contentonly?vnextoid=3a7a036318061410VgnVCM10000071d60f89RCRD>

#### **Contacts:**

Green Roofs

416-392-0191

[sustainablecity@toronto.ca](mailto:sustainablecity@toronto.ca)

#### **Status:**

**Success/Failure:**



**Toronto:**

**Name of Policy:** Toronto Green Roof Construction Standard

**Provider:** City of Toronto

**Type of Policy:** Construction Standard

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** Whether constructing a green roof voluntarily, or as required by the Green Roof Bylaw, all green roofs in the City of Toronto, at a minimum, must conform to the Toronto Green Roof Construction Standard. The Standard can be found in Article IV of the Green Roof Bylaw (Municipal Code Chapter 492, Green Roofs). It complements the other sections of the Green Roof Bylaw which relate to definitions, coverage requirements, exemptions, and applications etc.

The purpose of the Toronto Green Roof Construction Standard is to govern the design and construction of green roofs by setting out minimum requirements that meet the City's objectives and the Ontario Building Code requirements. Mandatory provisions are included in the Toronto Green Roof Construction for the following areas:

- Green Roof Assembly
- Gravity Loads
- Slope Stability
- Parapet Height and /or Overflow Scupper Locations
- Wind Uplift
- Fire Safety
- Occupancy and Safety
- Waterproofing
- Drainage
- Water Retention
- Vegetation Performance
- Plant Selection
- Irrigation
- Maintenance

**Web Links:**

[www1.toronto.ca/wps/portal/contentonly?vgnextoid=77420621f3161410VgnVCM10000071d60f89RCRD&vgnextchannel=3a7a036318061410VgnVCM10000071d60f89RCRD](http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=77420621f3161410VgnVCM10000071d60f89RCRD&vgnextchannel=3a7a036318061410VgnVCM10000071d60f89RCRD)

**Contacts:**

Green Roofs

416-392-0191  
[sustainablecity@toronto.ca](mailto:sustainablecity@toronto.ca)

**Status:**

**Success/Failure:**

## United States

### California:



### Los Angeles:

**Name of Policy:** Green Building Program

**Provider:** City of Los Angeles - Department of Public Works

**Type of Policy:** Building Ordinance

**Established:** 2010

**Applicable to Green Roofs:** It should due to qualifications within LEED

**Applicable to Green Walls:** It should due to qualifications within LEED

**Details:** Since January 1, 2010, non-residential buildings over 10,000 square feet and other large-scale residential buildings and subdivisions must meet LEED, GreenPoint Rated, or prior to January 2011, California Green Builder standards, or the equivalent, as determined by the Department of Public Works, depending on type of use and size of development.

### Low Impact Development

Low Impact Development (LID) is an approach to site design and development that manages and treats stormwater and other urban runoff. It retains rainwater on-site, prevents pollution in the waterways, and recharges the watershed and groundwater with on-site infiltration systems. Features of LID include best management practices (BMPs), which are designed to allow re-absorption into the ground and to prevent water from flowing across pavement and other impermeable surfaces and collecting oil, debris, and other pollution before dispersing into the stormwater and river channels that lead out to the ocean. Examples of such BMPs include: permeable paving and decking, rain gardens, rain barrels and dry wells, smart irrigation, planter boxes, swales, and infiltration trenches.

All projects, including remodels and additions, are required to implement BMPs listed in the Low Impact Development Technical Manual, maintained by the Public Works Department. Large residential and all non-residential projects must submit a Low Impact Development Plan for review and approval by Public Works. Calculations will be needed as part of the LID Plan to ensure that a certain amount of rainwater can be collected and treated on-site.

**Web Links:** <http://planning.lacounty.gov/green>

[http://planning.lacounty.gov/assets/upl/general/A\\_DRAFT\\_TechManUpdate\\_031011.pdf](http://planning.lacounty.gov/assets/upl/general/A_DRAFT_TechManUpdate_031011.pdf)

**Contacts:**

Green Building Program  
commplan@planning.lacounty.gov  
213-974-6425

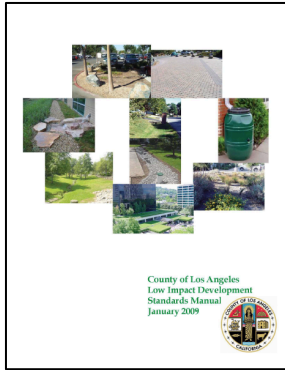
Los Angeles County  
Department of Regional Planning  
320 W. Temple Street 13th Floor  
Los Angeles, CA 90012  
(213) 974-6411  
Contact: zoningldcc@planning.lacounty.gov  
Website: <http://planning.lacounty.gov/spGreenBuildingProgram.htm>

Los Angeles County  
Department of Public Works  
900 S. Fremont Avenue  
Alhambra, CA 91803  
(626)458-3173—Building & Energy Efficiency  
(626) 458-3551—Construction Recycling  
Contact: [http://dpw.lacounty.gov/bsd/gb/index.cfm?p=contact\\_us](http://dpw.lacounty.gov/bsd/gb/index.cfm?p=contact_us)  
Websites: <http://dpw.lacounty.gov/bsd/gb/> and <http://dpw.lacounty.gov/epd>

**Status:**

**Success/Failure:**





## **Los Angeles:**

**Name of Document:** LID Technical Manual

**Provider:** Los Angeles County

**Type of Policy:** Design Manual

**Established:** 2009

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The Los Angeles County LID Technical Manual specifically covers design guidelines for green roof applications. It is important for designers to follow the guidelines outlined in this document when planning a green roof in Los Angeles.

- Proprietary green roof applications must comply with the vendor's guidelines for installation and maintenance. In the case of a conflict between vendor guidelines and County requirements, the stricter shall apply.
- Good quality waterproofing material must be used on the roof surface.
- Soil of adequate fertility and drainage capacity at depths of 2 to 6 inches and weight of 10 to 30 pounds per square foot shall be applied for an extensive green roof. For an intensive green roof, a minimum soil depth of 8 inches and weight of 60 pounds per square foot should be used. The building structure must be shown to be adequate to hold the additional weight.
- Vegetation shall be self-sustaining plants without the need for fertilizers or pesticides. Soil coverage to prevent erosion shall be established immediately upon installation by using mulch, vegetation mats, or other approved protection method. Ninety percent plant coverage shall be achieved within two years.
- Temporary irrigation to establish plants is recommended. A permanent irrigation system using potable water may be used, but an alternative means of irrigation such as air conditioning condensate or other non-potable sources is recommended.

- Alternative sources should be analyzed to determine if the source has chemicals that might harm or kill the vegetation.
- Maximum roof slope shall be 10 percent, unless the applicant can provide documentation for runoff control on steeper slopes.

**Web Links:** [http://planning.lacounty.gov/assets/upl/project/green\\_la-county-lidmanual.pdf](http://planning.lacounty.gov/assets/upl/project/green_la-county-lidmanual.pdf).

**Contacts:**

**Status:**

**Success/Failure:**



### **Los Angeles:**

**Name of Ordinance:** City Ordinance No. 2008-0063

**Provider:** City of Los Angeles

**Type of Ordinance:** City Ordinance

**Established:** 2009

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** All City Council controlled departments were directed to budget for Leadership in Energy and Environmental Design (LEED) Silver level starting July 1, 2009, for all City funded construction projects 7,500 square feet or larger. Green Roofs help meet achieve this requirement in many ways. Each green roof manufacturer should be able to guide designers though the qualifications of their products.

This includes new construction, major renovations and tenant improvements (defined as construction cost exceeding a valuation of 50 percent of the replacement cost of the existing building), and core and shell projects. These construction projects should minimally meet all of the LEED prerequisites and should prioritize the LEED points for energy savings. Any project with a historic designation or if deemed to be potentially eligible by a qualified expert for historic designation shall be exempt from this requirement.

**Web Links:**

[http://planning.lacounty.gov/assets/upl/project/green\\_20080507-green-building-](http://planning.lacounty.gov/assets/upl/project/green_20080507-green-building-)

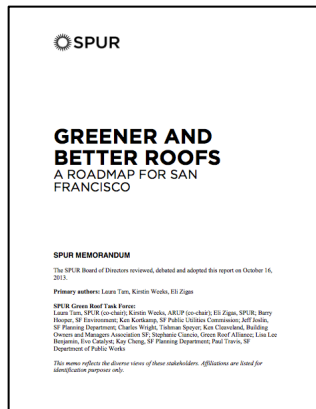
programordinances.pdf

**Contacts:**

Department of Regional Planning  
(213) 974-6411  
zoningldcc@planning.lacounty.gov

**Status:** Current

**Success/Failure:**



**San Francisco:**

**Name of Document:** Greener and Better Roofs: A Roadmap for San Francisco

**Provider:** SPUR

**Type of Document:** SPUR Green Roof Task Force Report

**Established:** 2013

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No – it was green roof specific

**Details:** The SPUR Green Roof Task Force was convened around the question of what could be done to support the development and broader implementation of green roofs in San Francisco. Inspired by the CitiesAlive conference coming to San Francisco in October 2013; a recent increased interest in urban agriculture, biodiversity and green roof policy; and a study trip to Switzerland attended by numerous San Francisco stakeholders, SPUR convened a task force in August 2013 that included members representing various city departments and the local construction and development industry. The group met over the course of six weeks to consider existing policies that support green roofs and to devise a policy roadmap for how to move forward on green roofs in the coming months and years.

The task force recognized that green roof policy overlaps considerably with broader green infrastructure policy, and with all the many ways to better utilize roofs, including producing renewable energy, collecting rainwater and creating publicly accessible open space. As well, the group recognized that green walls and other forms of living

architecture provide many of the same public and private benefits: beautification, air quality improvement, urban heat island reduction and more. However, we limited our scope to greening roofs based on the recognition that this type of improvement to the built environment has a specific set of challenges and opportunities. Our recommendations focus on ways to reduce barriers, create incentives, educate the building and development industry, and study opportunities to regulate green roofs someday in the future. Some of these recommendations also apply to creating more usable or better roofs overall, and/or to living walls.

In this memo, we describe the current policy landscape for green roofs in San Francisco, briefly describe the green roof policy development process that has been successful in other cities, along with a few case studies, and lay out a road map with near-term and long-term recommendations about what San Francisco can do to create a more favorable environment for greening rooftops in the future

**Web Links:**

<http://www.spur.org/publications/spur-memorandum/2013-10-21/greener-and-better-roofs>

[http://www.spur.org/sites/default/files/publications\\_pdfs/SPUR\\_Greener\\_and\\_Better\\_Roofs.pdf](http://www.spur.org/sites/default/files/publications_pdfs/SPUR_Greener_and_Better_Roofs.pdf)

**Contacts:**

SPUR  
415-781-8726  
info@spur.org

**Status:** Recent report – next steps are in motion

**Success/Failure:** Too early to tell (3/2014)



**San Francisco:**

**Name of Study:** City and County of San Francisco 2030 Sewer System Master Plan

**Provider:** San Francisco Public Utilities Commission

**Type of Policy:** Planning Case Study

**Established:** 2009

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The San Francisco Public Utilities Commission used a GIS-based analysis to



identify maximum potential for specific green infrastructure practices across its watershed based on physical constraints. The results of this analysis estimated a maximum of 38% of the total city area was available for conversion to green roofs, downspout disconnection, bioretention, urban trees, and permeable pavement. Modeling scenarios for San Francisco later incorporated goals related to this maximum potential for green infrastructure. A watershed-based planning process called *The Urban Watershed Assessment* will use this information to inform San Francisco's Sewer System Improvement Program (SSIP).

**Web Links:** [//sfwater.org/modules/showdocument.aspx?documentid=560](http://sfwater.org/modules/showdocument.aspx?documentid=560)

**Contacts:**

San Francisco Public Utilities Commission  
415-551-3000

**Status:** Complete

**Success/Failure:** This case study aligns with the SPUR document in that it identifies a lot of green roof potential in San Francisco.



**Palo Alto:**

**Name of Policy:**

**Provider:**

**Type of Policy:** Green Roof Rebate

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The Palo Alto Green Roof Rebate provides \$1.50 per square foot for the installation of a green (vegetated) roof to minimize storm runoff from rooftops. The rebates are limited to a maximum of \$1,000 per single-family residential property and \$10,000 for commercial/industrial and multi-family residential properties.

**Web Links:**

<http://www.cityofpaloalto.org/gov/depts/pwd/stormwater/rebates/default.asp>

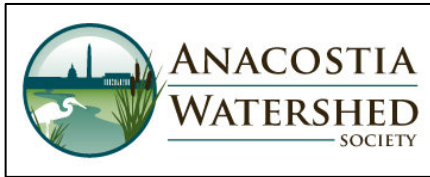
<http://www.cityofpaloalto.org/gov/depts/pwd/stormwater/rebates/greenroofs.asp?BlobID=14858>

**Contacts:**

**Status:** Current as of July 2012

**Success/Failure:** Available to residential, commercial, or governmental property owners in the City of Palo Alto, California.

## **District of Columbia:**



## **Washington, DC:**

**Name of Policy:** Green Roof Rebate Program

**Provider:** District Department of the Environment (DDOE)

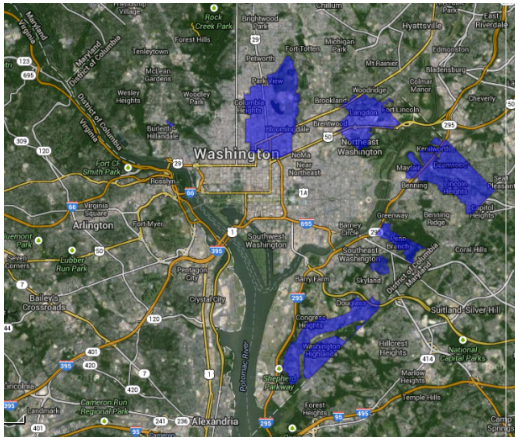
**Type of Policy:** Rebate Program

**Established:** 2007

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The Anacostia Watershed Society (AWS) is currently accepting applications for the District's new green roof rebate program which provides base funding of \$7 for every square foot of planted area– or – up to \$10/square foot in targeted sub-watersheds (see 2014 map below).



To be eligible for this new rebate amount, projects must register after Oct. 1, 2013. Rebates are available for new green roofs on existing buildings of any size and new construction projects that add a green roof that exceeds their requirements for a DCRA stormwater management permit. If your roof is under 2,500 square feet, you can also complete our structural engineering rebate form.

Residential, commercial, and institutional rebates are available on a first-come, first-served basis, for qualified buildings of any size.

The Rebate Program can help defray the cost of a structural analysis for existing

buildings that are smaller than 2,500 square feet. The rebate will be for the actual cost of the structural analysis, or up to \$250, whichever is less.

**Web Links:**

<http://www.anacostiaws.org/programs/stewardship/green-roofs>

<http://ddoe.dc.gov/greenroofs>

**Contacts:**

DDOE

[ddoe@dc.gov](mailto:ddoe@dc.gov)

202-535-2600

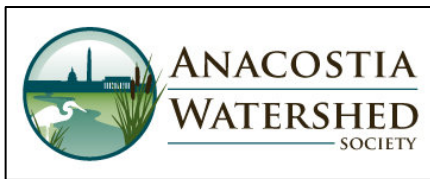
Anacostia Watershed

[greenroofs@anacostiaws.org](mailto:greenroofs@anacostiaws.org)

513-352-5340

**Status:** Active

**Success/Failure:**



**Washington, DC:**

**Name of document:** Green Roof Toolkit

**Provider:** Adapted from a document by DC Greenworks by the Anacostia Watershed Society for DDOE

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** This is a document created to educate readers on green roofs and how to navigate region policy.

Visit [ddoe.dc.gov](http://ddoe.dc.gov) or [anacostiaws.org](http://anacostiaws.org) for more information

**Web Links:**

<http://green.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/GR%20Toolkit%2012.22.11.pdf>

**Contacts:**

DDOE

[ddoe@dc.gov](mailto:ddoe@dc.gov)

202-535-2600

Anacostia Watershed  
[greenroofs@anacostiaws.org](mailto:greenroofs@anacostiaws.org)  
513-352-5340



### **Washington, DC:**

**Name of Policy:** RainSmart Homes Program

**Provider:** District Department of the Environment (DDOE)

**Type of Policy:** Incentive/Rebate

**Established:**

**Applicable to Green Roofs:** Not at this time

**Applicable to Green Walls:** No

**Details:** The RiverSmart Homes program offers incentives to District of Columbia homeowners interested in reducing stormwater pollution from their properties.

This District-wide program offers incentives to homeowners interested in reducing stormwater runoff from their properties. Homeowners receive up to \$1,200 to adopt one or more of the following landscape enhancements:

- Shade Tree Planting
- Rain Barrels
- Pervious Pavers
- Rain Garden
- BayScaping

### **Benefits of RiverSmart Homes to the Homeowner**

RiverSmart Homes landscaping enhancements can provide numerous benefits to homeowners, such as:

- Beautifully landscaped properties
- Cost savings
- Reduced heating and cooling bills
- Reduced stress and better health
- Higher property values



Most of these benefits can also be associated with green roof technology. While green roofs are not currently covered under this program they would enhance the overall stormwater performance when tied to the recognized technologies. This program could be tied to the Green Roof Rebate Program.

**Web Links:**

<http://ddoe.dc.gov/riversmarthomes>

<http://ddoe.dc.gov/service/riversmart-homes-overview>

**Contacts:**

DDOE

(202) 535-2252

**Status:** Active

**Success/Failure:**

**Georgia:**



**Atlanta:**

**Name of Policy:** Post-Development Stormwater Management Ordinance

**Provider:** Department of Watershed Management

**Type of Policy:** Stormwater Management Ordinance

**Established:** 2013

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:**

The Department of Watershed Management has revised the Post-Development Stormwater Management Ordinance to promote the use of Green Infrastructure techniques on new and redevelopment projects in the City, and to address specific problems that have emerged since the original ordinance was adopted in 2004. The ordinance was amended by Atlanta City Council effective February 13, 2013.

Green infrastructure is an alternative approach to managing stormwater runoff that emphasizes infiltration, evapotranspiration (uptake of water by plants), and reuse. The goal of green infrastructure is to mimic the natural hydrologic function of our watershed. Examples of this approach on development sites include preserving conservation areas, reducing impervious surfaces, and installing structural measures such as green roofs, vegetated swales, permeable pavement, infiltration planters, cisterns, and rain gardens.

**Revised Runoff Reduction requirement:**

Adds a Runoff Reduction requirement that promotes the use of Green Infrastructure. Projects must treat the first 1.0" of stormwater runoff with green infrastructure. This replaces the previous Water Quality (WQ) requirement of capturing 1.2" of runoff and removing 80% of the total suspended solids (TSS).

**Revises detention pond requirements:**

The previous ordinance required new and redevelopment sites to reduce the peak flow rates leaving the site by 30%, up to the 100-year storm event. The revised ordinance shifts focus to the management of the more polluted runoff generated from the first flush of all storms, while still providing protection for major storm events.

**Revises requirements for Single Family Residences:**

New homes and large additions (>1,000 ft<sup>2</sup> of impervious surface) are now required to manage the first 1.0" of runoff on their site. Detention requirements do not apply.

Stormwater Consultation Meeting:

Under the revised ordinance, the following projects are required to have a consultation meeting with Site Development staff to review the stormwater concept plan prior to the submittal of a Building or Land Disturbance Permit application:

**Commercial Projects**

- New developments that add any impervious surface OR disturb more than one acre of land.
- Redevelopment projects that add or replace more than 500 square feet of impervious surface OR disturb more than one acre of land.

**Residential Projects**

- Projects reviewed for Preliminary Plat approval.
- New Multifamily, Townhome, Apartment, Subdivision (not individual lots), and Condo developments
- 

**Web Links:**

[www.atlantawatershed.org/greeninfrastructure](http://www.atlantawatershed.org/greeninfrastructure)

**Contacts:**

Cory Rayburn,  
(404)330-6249  
[crayburn@atlantaga.gov](mailto:crayburn@atlantaga.gov)

**Status:** Active

**Success/Failure:**

## **Illinois:**



## **Chicago:**

### **Green Permit Program**

**Name of Policy:** Green Permit Program

**Provider:** Chicago Department of Buildings

**Type of Policy:** Expedited Permitting

**Established:** 2006

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** In order to foster further Green development, The Chicago Department of Buildings (DOB) has developed the Green Permit Program. This program offers expedited Building Permits for projects that incorporate Green building techniques, and seek approval for certification from the United States Green Building Council under the Leadership in Energy and Environmental Design (LEED®) Green Building Rating System.

#### **Requirements:**

Must include at least two Green Permit Menu Items if no green roof is used. Projects consisting solely of installation of a green roof or renewable energy equipment on an existing building are also eligible for the Green Permit Program.

Green roofs improve the urban environment by combating the urban heat island, reducing stormwater runoff, and reducing the energy use of the building beneath.

For projects with no other green roof requirement, provide 50% green roof. For projects with a green roof required by Department of Planning and Development, add 25% to the DPD green roof requirement.

#### **Permit, Drawings, and Calculations requirements include:**

- Structural calculations must be signed and sealed by an Illinois licensed Architect or Engineer
- Green Roof details must be provided by Green Roof Manufacturer

**Fee Structure:**

A credit of \$0.05 per square foot of green roof provided will be applied to your total permit fee.

**Web Links:**

[www.cityofchicago.org/city/en/depts/bldgs/supp\\_info/helpful\\_tips\\_foranyoneapplyingforagreenpermitmenuitems.html](http://www.cityofchicago.org/city/en/depts/bldgs/supp_info/helpful_tips_foranyoneapplyingforagreenpermitmenuitems.html)

[www.cityofchicago.org/city/en/depts/bldgs/provdrs/green\\_permit.html](http://www.cityofchicago.org/city/en/depts/bldgs/provdrs/green_permit.html)

**Contacts:**

Sophie Marie Martinez

312-743-3600

sophiemartinez@cityofchicago.org

**Status:** Current

**Success/Failure:**



**Chicago:**

**Name of Policy:** Green Roof Grant Program

**Provider:** City of Chicago

**Type of Policy:** Grant program

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The City of Chicago is no longer accepting green roof grant applications at this time. When active the Grant Program had offered up to up to 50% of cost or \$100,000 for green roof development of green roofs covering 50% or more of a rooftop space.

**Web Links:**

[www.cityofchicago.org/city/en/depts/dcd/supp\\_info/chicago\\_green\\_roofs.html](http://www.cityofchicago.org/city/en/depts/dcd/supp_info/chicago_green_roofs.html)

**Contacts:** No available

**Status:** Not currently active

**Success/Failure:**



### **Chicago:**

**Name of Policy:** Consent Decree

**Provider:** Metropolitan Water Reclamation District of Greater Chicago (MWRD)

**Type of Policy:** Consent Decree

**Established:** 2011

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** On June 7, 2013, the U.S. Department of Justice, on behalf of EPA and the State of Illinois, filed a motion asking the federal district court in Chicago to approve a December 2011 consent decree with the Metropolitan Water Reclamation District of Greater Chicago (MWRD). The settlement will protect public health and improve water quality by capturing high flows of storm water and wastewater from the combined sewer system that serves Chicago and 51 surrounding communities.

The decree requires MWRD to meet an enforceable schedule to complete a tunnel and reservoir plan (known as the Deep Tunnel or TARP). By 2017, MWRD is required to add 8.3 billion gallons of storage capacity -- more than quadrupling its current capacity and significantly reducing combined sewer overflows. All remaining work on TARP required under the consent decree must be completed by 2029.

The decree requires MWRD to distribute rain barrels in urban neighborhoods and to install permeable pavement, green roofs, rain gardens and other green infrastructure measures throughout the MWRD service area. MWRD will prioritize projects to reduce flooding and basement backups, with the highest priority given to neighborhoods where the socio-economic need is greatest. MWRD is also required to develop a comprehensive land use policy to implement green infrastructure on MWRD-owned properties.

The consent decree also requires MWRD to pay a civil penalty of \$675,000. The settlement is not final or enforceable unless and until it is approved by the Court.

### **Web Links:**

<http://www.epa.gov/Region5/chicagoriver/>

### **Contacts:**

Peter Cassell

[cassell.peter@epa.gov](mailto:cassell.peter@epa.gov)

312-886-6234

**Status:** Current



**State of Illinois:**

**Name of Policy:** Illinois Green Infrastructure Grant Program (IGIG)

**Provider:** Illinois EPA

**Type of Policy:** Grant Program

**Established:** 2011

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** Grants are available to local units of government and other organizations to install green infrastructure best management practices (BMP's) to control stormwater runoff for water quality protection in Illinois.

**Stormwater Retention and Infiltration Category:**

The maximum Illinois Green Infrastructure Grant (IGIG) is \$750,000 or 75 percent of the eligible project cost, whichever is lower

- Minimum local match is 25 percent
- Typical IGIG grant range is \$100,000—\$750,000
- Project length is up to 36 months

Potential stormwater technologies include: Green Roofs, Porous and Permeable Pavements, Infiltration Basins and Trenches.

**Green Infrastructure Small Projects Category:**

The maximum Illinois Green Infrastructure Grant (IGIG) is \$750,000 or 75 percent of the eligible project cost, whichever is lower

- Minimum local match is 25 percent
- Typical IGIG grant range is \$15,000—\$75,000
- Project length is up to 24 months

Potential stormwater technologies include: Green Roofs, Wetland/Prairie/Riparian Restoration, Wetland Detention Basins, Cisterns, Rain Barrel Programs and Rain Gardens



**Web Links:** <http://www.epa.state.il.us/water/financial-assistance/igig.html>  
<http://www.epa.state.il.us/water/financial-assistance/publications/igig-brochure.pdf>

<http://www.epa.state.il.us/water/financial-assistance/publications/igig-progress-report.pdf>

**Contacts:**

Illinois Environmental Protection Agency  
Bureau of Water  
Watershed Management Section  
217-782-3362  
[www.epa.state.il.us/water](http://www.epa.state.il.us/water)

**Status:** Application deadline for 2014 season “close of business” Dec. 15, 2014

**Success/Failure:**

**Indiana:**



**Bloomington:**

**Name of Policy:** Unified Development Ordinance

**Provider:** City of Bloomington

**Type of Policy:** Development Ordinance

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The City of Bloomington recognizes sustainability as a key component of nurturing Bloomington's long-term environmental, economic and social integrity. The City's Unified Development Ordinance offers developers certain bonuses and allowances for buildings including features that help meet particular sustainability goals. These benefits are for developers, not individual residents.

**Energy and resource efficiency**

Features that meet the energy and resource efficiency goal include green roofs, improved building performance rating, the use of non-polluting and/or renewable

on-site energy sources, recycling and/or salvaging at least 50 percent of non-hazardous construction and demolition debris, or utilizing building materials and products sourced within a 500 mile radius.

**Web Links:** <https://bloomington.in.gov/green-building-incentives>

**Contacts:** <https://bloomington.in.gov/contact>

**Status:**

**Success/Failure:**



### **Indianapolis:**

**Name of Policy:** Green Infrastructure Grant Program

**Provider:** City of Indianapolis' Office of Sustainability and United Water collaborate

**Type of Policy:** Grant Program

**Established:** 2010

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** Each year, the City of Indianapolis' Office of Sustainability and United Water collaborate on the Green Infrastructure Grant Program to promote green infrastructure construction, such as green roofs, porous pavement and rain gardens. The primary goal of green infrastructure is to capture storm water where it falls so that it can be cleaned, infiltrated into the soil and slowly released into rivers and streams.

In 2010, \$100,000 in funding was granted to organizations who utilize green infrastructure projects designed to improve water quality and reduce storm water runoff. Non-profit organizations committed to efforts in sustainable development within Marion County can apply for up to \$20,000 per organization with 20 percent matching funds required. Some For-Profit entities are eligible with proper approval.

### **Web Links:**

<http://www.indy.gov/eGov/City/DPW/SustainIndy/GreenInfra/Pages/GreenInfrastructureGrantProgram.aspx>

**Contacts:** [greengrant@unitedwater.com](mailto:greengrant@unitedwater.com)

**Status:** Uncertain

**Success/Failure:**

## **Kentucky:**



## **Lexington:**

**Name of Policy:**

**Provider:**

**Type of Policy:**

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** Yes

**Details:** Lexington residents seeking an opportunity to help improve the city's environment were invited to apply for a 2013 Sustainability Grant. Lexington's Department of Environmental Quality and Public Works offered the grants, to be used by residents to work collaboratively and creatively to improve the environmental health of Lexington.

Grants were available for a wide range of projects including rain gardens, green roofs, community gardens, streamside restoration, recycling programs, beautification projects (outside only), rain barrel projects, the cleanup and restoration of illegal dumpsites, litter projects, planting street trees and other projects that are determined to improve the environmental health of the community and meet the principles of sustainability.

Public and private schools, all neighborhood and homeowner associations that are incorporated and have a complete slate of elected officers, as well as churches were eligible to apply for this grant.

Eligible applicants had the chance to apply for a maximum amount of \$2,500. These are 100% matching grants. A match can be materials or in-kind services or a combination of both.

### **Web Links:**

<http://www.lexingtonky.gov/index.aspx?page=24&recordid=3690&returnURL=/index.aspx?page=1>

### **Contacts:**

Louise Caldwell-Edmonds  
(859) 425-2800  
louise@lexingtonky.gov

**Status:** Expired

**Success/Failure:** Unknown



**Louisville:**

**Name of Policy:** Sustain Louisville Plan for Greener City - Cool Green Roof program

**Provider:** Louisville Metro Council

**Type of Policy:**

**Established:** 2011

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** Mayor Greg Fischer recently released a draft report called, Sustain Louisville Plan for a Green City, and is asking citizens to read it and provide his office with feedback. This input was considered for the final report is released in March 2011. The program developed a citywide alternative energy strategy as well as a citywide green infrastructure program to reduce storm water runoff (implemented as a Cool Green Roof program). There are 60 initiatives contained in the plan to make Louisville greener and more environmentally friendly.

The Louisville Metro Council unanimously passed an ordinance adopting changes to the Land Development Code via a resolution introduced in March 2011. These changes will reward builders and developers for incorporating green building practices into their projects by providing for greater development intensity on qualifying projects. The changes also encourage builders and developers to orient their buildings to account for the sun, to add more windows to reduce energy used on lighting and to reduce surface water runoff by using green roofs or adding open space.

Land Development Code for all of Louisville (Jefferson County)

Green Development Design Criteria (Appendix 5A)

Construct or renovate a building on a site that meets the following criteria:

- Is located on a previously developed site
- Is within 1/2 mile of at least 10 basic services
- Has pedestrian access between the building and the services
- Maintain 20% of site area as vegetated open space. A green roof shall count as vegetated open space.

Conservation Subdivisions (Chapter 7 Part 11)

Clusters shall be sited to achieve the following goals:

- Prevent downstream impacts due to runoff through storm water Best Management Practices (BMPs) as determined by the Metropolitan Sewer District (MSD). Such BMPs include minimizing impermeable areas, and using

bioswales, rain gardens, permeable pavements, small-scale, infiltration, and green roofs.

**Web Links:**

<http://www.louisvilleky.gov/NR/rdonlyres/C120EC4C-05B1-4B7A-8B6F-9C589BAAE5C0/0/LDC2013G.pdf>

<http://www.louisvilleky.gov/Department/PlanDesign/ldc.asp>

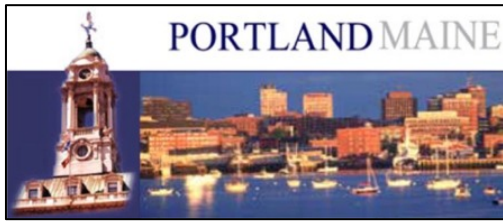
**Contacts:**

Planning and Design Services Department  
502-574-6230

**Status:**

**Success/Failure:**

**Maine:**



**Portland:**

**Name of Policy:** Stormwater Fee Reduction Program

**Provider:** City of Portland

**Type of Policy:** Stormwater Fee reduction

**Established:** 2013

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The City Council of Portland, ME has recently approved of a plan that will create stormwater fees to help defray the looming \$170 million cost of upgrading the city's aging sewer system. This vote will charge property owners a stormwater fee for the amount of pavement, roof coverage and other hard surfaces on their property. Both homeowners and business owners will pay, although businesses with large parking lots and building footprints, that shed more rainwater, will get hit harder than other landowners. The details include a preliminary estimate of the future stormwater rate, which will raise money for costly projects to keep dirty storm runoff out of waterways. The fee can be reduced for properties whose owners install rain barrels, rain gardens, green roofs and commercial treatment centers.

**Green Roof credits requirements (Sec. 24-85)**

- Green roofs installed and maintained according to the city's stormwater credit manual are eligible for a set charge reduction credit if at least 50% of the

developed land's roof area is covered with a green roof and the total green roof area is at least 600 square feet.

- Green roofs installed and maintained according to the city's stormwater credit manual are eligible for a set charge reduction credit per 2400 square feet (minimum increment) of green roof area.

**Web Links:**

<http://www.maine.gov/dep/land/stormwater/stormwaterbmps/#manual>

**Contacts:**

Marianne Hubert,  
(207) 215-6485  
[Marianne.E.Hubert@maine.gov](mailto:Marianne.E.Hubert@maine.gov)

**Status:** Currently active

**Success/Failure:**

**Maryland:**



**Anne Arundel County:**

**Name of Policy:** Stormwater Management Tax Credit

**Provider:** Department of Public Works

**Type of Policy:** Tax Credit

**Established:** 2008

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The bill was enacted for the purpose of establishing a credit toward real property taxes for the implementation of stormwater management techniques. The value of the credit is 10% of the cost materials and installation per year for five years. The maximum total amount is \$10,000.00 over the five years.

**Web Links:** <http://www.aacounty.org/DPW>

**Contacts:**

Dee Pullen  
Department of Public Works  
410-222-7500

**Status:** Current

**Success/Failure:**



**Anne Arundel County:**

**Name of Policy:** RainScaping Campaign

**Provider:**

**Type of Policy:**

**Established:**

**Applicable to Green Roofs:** Not yet

**Applicable to Green Walls:** No

**Details:** Homeowners and communities throughout Anne Arundel County are taking action to reduce polluted runoff and prevent it from reaching our waterways. RainScaping practices improve water quality, restore habitat, and add beauty to the landscape. Additional significant benefits are increased property values and a reduction in a community's carbon footprint.

**Web Links:**

<http://www.rainscaping.org/index.cfm/fuseaction/home.home/index.htm>

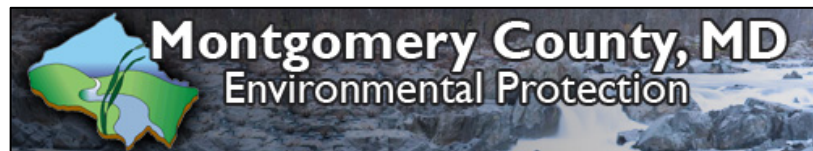
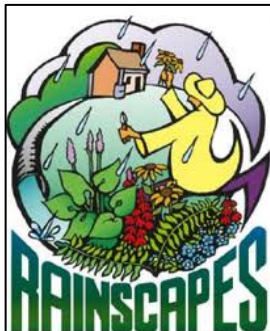
**Contacts:**

Zora Lathan

info@rainscaping.org

**Status:**

**Success/Failure:**



**Montgomery County:**

**Name of Policy:** RainScapes Reward Rebate



**Provider:** Montgomery County – Department of Environmental Protection

**Type of Policy:** Tax Rebate

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** Currently, only extensive green roofs constructed on existing buildings (retrofits), whether applied in an integrated approach (applying the layered components directly onto the roof's surface) or in modular units (placed on top of the existing roof), are eligible for rebates under the RainScapes Rewards Rebates program. Green roofs for new construction are not eligible for rebates at this time.

Projects **are not** eligible if they are associated with permit approval requirements for new building construction, additions, or renovations.

- Residential: \$10.00/SF with a lifetime maximum of \$2,500 per parcel
- Commercial: \$10.00/SF with a lifetime maximum of \$10,000 per parcel

The program is funded each fiscal year (The FY begins July 1 and ends June 30). Annual funds for the programs are limited, so rebates will be awarded on a first-come-first-served basis.

The RainScapes program also provides technical assistance to help with the installation of your green roof.

**Web Links:**

<https://www.montgomerycountymd.gov/DEP/water/rainscapes.html>

[www.montgomerycountymd.gov/DEP/water/rainscapes-rebates.html](http://www.montgomerycountymd.gov/DEP/water/rainscapes-rebates.html)

**Contacts:** rainscapes@montgomerycountymd.gov

**Status:** Funds are awarded on a first-come-first-serve basis beginning on the first day of the fiscal year which begins on July 1st.

**Success/Failure:**



**Prince George County:**

**Name of Policy:** Rain Check Rebate Program

**Provider:** Department of Environmental Resources (DER)

**Type of Policy:** Tax Rebate

**Established:** 2012

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** An applicant is eligible for a rebate as long as: 1) the project is established on property located in Prince George's County; 2) the application for the project was approved within 12 months of the completion date; 3) DER inspected the completed project and found it to be in compliance with its original approved application; and 4) the project follows DER's best practice guidelines and criteria for that type of project. If the property is part of a Homeowners' Association (HOA), the applicant must provide a letter or other documentation showing HOA approval of the project.

The amount of a rebate cannot exceed the cost of the project. The maximum rebate is \$2,000 for residential projects and \$20,000 for commercial, multi-family dwelling, nonprofit entities, or not-for-profit organizations, including housing cooperatives.

- Individual Residence OR Individual Members of a Housing Co-op: \$10.00/SF (300 square feet or ¼ root retrofit cost, minimum)
- Commercial, Multi-Family Dwelling, Non-Profit, Not-for-Profit Organizations and Housing Co-op: \$10.00/SF if less than 6" of planting material. \$20.00/SF if over 6" planting material (300 square feet or ¼ root retrofit cost, minimum)

**Web Links:**

[www.princegeorgescountymd.gov/sites/StormwaterManagement/RainCheck/Pages/default.aspx](http://www.princegeorgescountymd.gov/sites/StormwaterManagement/RainCheck/Pages/default.aspx)

**Contacts:** DERRebatesandCredits@co.pg.md.us

**Status:**

**Success/Failure:**

**Massachusetts:**



**Devens:**

**Name of Policy:** DEC Vegetated (Green) Roof Construction Standard

**Provider:** Devens Enterprise Commission (DEC)

**Type of Policy:** Green Roof Construction Standard

**Established:** 2011

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls: Yes**

**Details:** This standard is using green roofs as greenhouse gas mitigation element for projects needing air permits and projects located within a specific Viewshed Overlay District specified by DEC. Each of these buildings is required to use green roofs and walls as screening. This furthers the State's policy of reducing greenhouse gas emissions and is consistent with Compliance with the Executive Office of Energy and Environmental Affairs 2008 Notice of Project Change for Devens, improved air quality in a non-attainment zone, sustainable redevelopment goals of the Devens Reuse Plan and Bylaws.

Vegetated Rooftops and Vegetated Walls:

To the maximum extent feasible buildings within the Viewshed Overlay District that are visible from Prospect Hill at the Sears Estate and/or the Fruitland's Museum and/or residential uses outside of Devens shall have:

- Vegetated roofs that comply with the DEC's Vegetative Roof Policy.
  - All projects that require a MassDEP Air Quality Permit shall have a roof that is at least 30% vegetated. This vegetated portion shall comply with the DEC's Policy for Construction of Vegetated Roofs.
- Vegetated walls on the sides of the building facing and visible from Prospect Hill at the Sears Estate and/or the Fruitlands Museum and/or residential uses outside Devens.

Landscaping plans for projects located in the Viewshed Overlay District shall show the design and location of vegetated roofs and walls.

Requirements:

- A designer of a vegetated roof shall apply the measures described in this policy.
- Adherence to the Mandatory Provisions is considered an acceptable solution for the design and construction of a vegetated roof.
- A vegetated roof designed to the DEC Vegetated Roof Construction Standard may be constructed on both combustible and non-combustible buildings.
- A member of the vegetated roof design and construction team shall be an accredited Green Roof Professional (GRP) with knowledge of vegetated roof design, installation and maintenance procedures and best practices.
- Strict standards have been set for each component and process involved in the design and construction phases of the vegetated roof:
  - Green Roof Assembly
  - Gravity Loads
  - Slope Stability
  - Parapet Height
  - Wind Uplift
  - Fire Safety
  - Occupancy and Safety
  - Waterproofing
  - Drainage
  - Water Retention

- Vegetation and Plant Selection

- Irrigation
- Maintenance

#### **Web Links:**

[www.devensec.com/development/DEC\\_vegetated%20Roof\\_policy\\_revised\\_January\\_2012.pdf](http://www.devensec.com/development/DEC_vegetated%20Roof_policy_revised_January_2012.pdf)

[www.devensec.com/development/Green\\_Roof\\_Insp\\_Report\\_Checklistrev1.pdf](http://www.devensec.com/development/Green_Roof_Insp_Report_Checklistrev1.pdf)

#### **Contacts:**

Peter Lowitt

Land Use Administrator and Director

Devens Enterprise Commision

[peterlowitt@devensec.com](mailto:peterlowitt@devensec.com)

(978) 772-8831

**Status:** Current

**Success/Failure:** This program has lead to one large green roof and multiple green walls under construction. All have been triggered by the viewshed regulations.

#### **Michigan:**



#### **Grand Rapids:**

**Name of Document:** Green Grand Rapids

**Provider:** City of Grand Rapids

**Type of Document:** Ordinance Update

**Established:** Updated 2011

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** Green Grand Rapids updates the citywide 2002 Master Plan with a focus on the importance of green infrastructure, sustainability and quality of life in maintaining the city's livability and competitive edge in attracting and retaining residents and businesses. Grand Rapids is thinking green – from planting trees, to encouraging walking and cycling, protecting water quality and improving both close-to-home and river-related recreation opportunities.

#### Local Food (pg 62)

Objective EOL 13: Support community gardening to promote the availability of lower cost fresh local food, good nutrition and community cohesion and pride:

- Allow for roof top gardening

#### Objectives and Policies (pg 77)

Objective N3: Improve the quality of water resources.

- Encourage stormwater best management practices (BMP's e.g, rain gardens, vegetated swales, green roofs) in all private developments.

#### Zoning Ordinance and Map Update (pg 90)

A green space provision encourages the installation of green roofs or other stormwater management technologies.

#### Monitoring and Reporting (pg 95)

Greening: Increase the number and square footage of green roofs by 2015.

#### **Web Links:**

<http://grcity.us/design-and-development-services/Planning-Department/Green-Grand-Rapids/Pages/default.aspx>

#### **Contacts:**

Suzanne M. Schulz  
Planning Department Director  
[planning@grcity.us](mailto:planning@grcity.us)  
616-456-4100

**Status:** Current

**Success/Failure:**



#### **Grand Rapids:**

**Name of Policy:** Minimum required greenspace provision

**Provider:** City of Grand Rapids

**Type of Policy:** Zoning Ordinance

**Established:** Updated 2012

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** Yes

**Details:** The City of Grand Rapid's minimum greenspace requirements, for residential and mixed use/commercially zoned districts, are designed to ensure a sufficient amount of area for recreation, nature, and greenspace within the City as well as to provide pervious surfaces to assist in stormwater management.

The minimum required greenspace provision applies to each lot in its entirety. This requirement (% of lot area) can vary anywhere between 5% and 30% on its zone district, its neighborhood classification, if it is residential, mixed use or commercial. Greenspace includes all natural pervious land surfaces that are covered with soil (and usually with lawns, landscaping, or other plant materials) or waterbodies; and does not include permanent structures, sidewalks, patios, decks, or pavement of any type including gravel except as permitted for a stormwater credit.

**Residential Zoned Districts:**

Stormwater Credit: No more than 25% of pervious surfaces, such as grass pavers, uncovered decks, brick pavers with a sand base, pervious concrete and asphalt, may be applied toward the greenspace requirements of this Section.

**Multiple-Family Exception.**

A reduction of not more than 25% of the required greenspace is permitted for development projects that satisfy at least one of the following criteria:

- The submission of a stormwater mitigation plan that retains 100% of all stormwater on site, as approved by the City's Environmental Protection Services Department (EPSD); and submittal of a LEED checklist and proof of registration that demonstrates the intent to apply for LEED building certification, or other generally recognized sustainable building certification.
- Payment in lieu to the Grand Valley Regional Biosolids Authority Purchase of Development Rights (PDR) program. The payment shall be the percentage of the Market Value of the total amount of property equivalent to that percent of the property being used for the greenspace reduction. (Example: a given property with a Market Value of \$200,000 and a 10% greenspace requirement may reduce greenspace by 2.5% with a payment of \$5,000 to the Regional Biosolids Authority (2.5% of \$200,000))

An Administrative Departure for a multi-family property may be approved to permit permanent planters, vegetated walls and green roofs that are readily accessible and safe for residential occupants to be included in greenspace calculations. These items shall be measured in square feet of surface area.

**Mixed-use/Commercial Zoned Districts:**

Stormwater Credit. No more than 25% of pervious surfaces, such as grass pavers,

uncovered decks, brick pavers with a sand base, pervious concrete and asphalt, may be applied toward the greenspace requirements of this Section.

Greenspace Credits. Landscape buffers, permanent planters, landscape islands, rain gardens, vegetated walls and green roofs that are readily accessible and usable by building tenants may be included in greenspace calculations.

Exception. A reduction of not more than 50% of the required greenspace is permitted for development projects that satisfy at least one of the following criteria:

- The submission of a stormwater mitigation plan that retains 100% of all stormwater on site, as approved by the City's Environmental Protection Services Department (EPSD); and submittal of a LEED checklist and proof of registration that demonstrates the intent to apply for LEED building certification, or other generally recognized sustainable building certification.
- Payment in lieu to the Grand Valley Regional Biosolids Authority Purchase of Development Rights (PDR) program. The payment shall be the percentage of the Market Value of the total amount of property equivalent to that percent of the property being used for the greenspace reduction. For example, a given property with a Market Value of \$200,000 and a 10% greenspace requirement may reduce greenspace by 5% with a payment of \$10,000 to the Regional Biosolids Authority (5% of \$200,000).

**Web Links:**

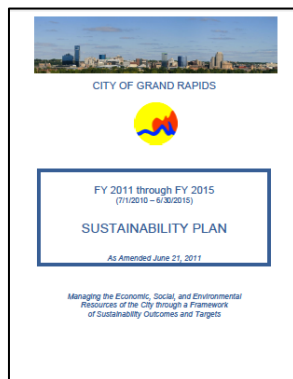
<http://grcity.us/design-and-development-services/Planning-Department/Documents/Zoning-Ordinance-Text-and-Maps.pdf>

**Contacts:**

Suzanne M. Schulz  
Planning Department Director  
[planning@grcity.us](mailto:planning@grcity.us)  
616-456-4100

**Status:**

**Success/Failure:**





## **Grand Rapids:**

**Name of Document:** Sustainability Plan

**Provider:** City of Grand Rapids

**Type of Document:** Strategic Plan

**Established:** 2011

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The City of Grand Rapids subscribes to the methods of Plan-Do-Check-Act in order to ensure that they are achieving the desired results, while remaining flexible and sensitive to the influences of a constantly changing environment.

### **Plan:**

The Sustainability Plan FY 2011-2015 is a multi-year, adaptable document that is driven and influenced by other plans and strategies that may be developed throughout the duration of the Plan. Each department uses the Sustainability Plan as they plan their activities and justify their budget proposals.

### **Do:**

Departments then carry out the activities necessary to collectively accomplish the desired targets and outcomes by the stated deadlines.

### **Check:**

Results are assessed by reviewing quarterly reports submitted by departmental “Target Champions” on our public *City Scorecard* to ensure that we are making progress on meeting the desired targets and outcomes. A gap analysis is used to demonstrate which targets have been met, which are progressing well toward reaching the target, and which are not yet making progress. Annual results and final, five-year results will be compiled and reported to the City Commission and the public.

### **Act:**

Based on the data collected in the annual gap analysis, informed decisions can be made on amending the Sustainability Plan which also feeds into our budget planning and activities each year.

*Note: The “Targets” listed below can, at least in part, all be met with the implementation of green roof policy in Grand Rapids.*

## **ECO 1 – A Strong Economy**

### **ECO 1.1 - Outcome: Increase business investment**

By effectively leveraging public resources, Grand Rapids can improve the business environment and diversify of their economic base. While the ultimate goals are to increase business investment in real and personal property and to accelerate job

creation in the city, there are numerous tools and programs to help accomplish these goals. These include brownfield clean-up incentives, the reuse of obsolete buildings, assembly of land for redevelopment, flexible financing tools, and a streamlined development approval process. Grand Rapids is continually integrating the latest technology in their efforts to improve customer service and achieve greater efficiencies. Biotechnology, health services, green businesses, and applied clean technologies are high priorities for business investment.

Target 4: 20% of jobs created or retained with incentives will be in green or applied clean technology industries by June 30, 2015.

ENV 2.2 - Outcome: Improve the quality of the Grand River and its tributaries

The Grand River is Grand Rapids's single most precious natural resource. It provides a site for economic development and recreation as well as important ecological processes that support fish populations, vegetation, wetlands, and birdlife. The Grand River and the areas surrounding it provide a natural method of stormwater containment during the spring thaw and significant rain events.

Target 1: Achieve 100% compliance with NPDES permit requirements annually.

Target 2: Achieve water quality index of 70 or higher on Grand River annually.

Target 3: Achieve 100% compliance with Stormwater Pollution Prevention Initiative (SWPPI), Public Education Program (PEP), and Illicit Discharge Elimination Program (IDEP) permits annually.

Target 4: Reduce wastewater flow by at least 5% by 2014.

Target 5: Eliminate three of the remaining seven Combined Sewer Overflow points by June 30, 2015.

Target 6: Increase the number and square footage of green roofs within the city by June 30, 2015.

Target 7: Reduce stormwater discharge by at least 50,000 gallons per rain event by June 30, 2013.

Target 8: Reduce road salt consumption by at least 25% by June 30, 2015.

Target 9: At least 5% of reconstructed streets, alleys, and City parking lots to be constructed of pervious or porous pavement by June 30, 2015.

ENV 3.2 Ensure quality design and construction of the built environment in accordance with the City's Master Plan and Zoning Ordinance

The Grand Rapids Master Plan ([http://www.ci.grand-](http://www.ci.grand-rapids.mi.us/master-plan)

rapids.mi.us/index.pl?page\_id=2661) and Zoning Ordinance ([http://www.ci.grand-rapids.mi.us/index.pl?page\\_id=5831](http://www.ci.grand-rapids.mi.us/index.pl?page_id=5831)) promote quality design, high-intensity mixed-use development, efficient land use, greening of the cityscape, and alternatives to automobile dependence. These principles help reduce urban sprawl, support the integrity of the natural environment, and encourage sustainable economic development in an era of declining energy resources.

Target 3: Increase the number of sustainable building (such as LEED, Green Built, etc.) certified commercial and residential projects in Grand Rapids by 25% by June 30, 2015.

Target 4: Increase the number of sustainable residential (re)development projects by 200 housing/rental units by June 30, 2015.

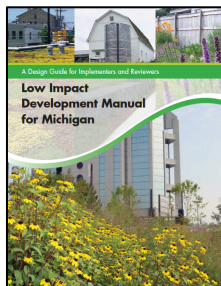
Target 5: Increase the number of properties restored and protected within the ecological framework

**Web Links:** [grcity.us/enterprise-services/officeofenergyandsustainability/Documents/Sust%20Plan%20as%20amended%206-21-11.pdf](http://grcity.us/enterprise-services/officeofenergyandsustainability/Documents/Sust%20Plan%20as%20amended%206-21-11.pdf)

**Contacts:**

**Status:**

**Success/Failure:**



**State of Michigan:**

**Name of Document:** Low Impact Development Manual of Michigan

**Provider:** Michigan DEQ and Southeast Michigan Council of Governments

**Type of Document:** LID Manual and reference

**Established:** 2008

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** This manual provides communities, agencies, builders, developers, and the public with guidance on how to apply LID to new, existing, and redevelopment sites. The manual provides information on integrating LID from the community level down to the site level. It not only outlines technical details of best management practices, but also provides a larger scope of managing stormwater through policy decision, including ordinances, master plans, and watershed plans.

This manual views Low Impact Development (LID) as the cornerstone of stormwater management and has a goal of mimicking a site's pre-settlement hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source. Because LID uses a variety of useful techniques for controlling runoff, designs can be customized according to local regulatory and resource protection requirements, as well as site constraints. Green roofs are well (Green Roofs are represented with pages 301-314 (Chapter 7) as well as within the Components and performance spec section on pg 434) represented within this manual and fit well into a sites overall LID plans.

**Web Links:**

<http://library.semcog.org/InmagicGenie/DocumentFolder/LIDManualWeb.pdf>

**Contacts:**

Southeast Michigan Council of Governments

313-961-4266

[www.semcog.org](http://www.semcog.org)

[infocenter@semcog.org](mailto:infocenter@semcog.org)

**Status:**

**Success/Failure:**

**Minnesota:**



**Minneapolis:**

**Name of Policy:** Minneapolis Stormwater Utility Fee Credit

**Provider:** Minneapolis Public Works

**Type of Policy:** Utility Fee Credit

**Established:** 2005

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** Any building that improves their stormwater management, such as installing a green roof, receives a credit against mandated stormwater usage fees paid to the city.

- Up to 50 percent credit (reduction) in your stormwater utility fee for management tools/practices that address **stormwater quality**

- 50 percent or 100 percent credit (reduction) in your stormwater utility fee for management tools/practices that address **stormwater quantity**

Note that maximum credits are cumulative and cannot exceed 100 percent credit. Property owners can apply for either the "Standard Quantity Reduction Credit" or the "Additional Quantity Reduction Credit."

#### Standard Quantity Reduction Credit.

The Standard Quantity Reduction Credit is a 50 percent credit on a property's stormwater fee. The "Standard Quantity" credit is based on a property's stormwater quantity management tools/practices being able to retain the *10-year, 24-hour type II SCS* storm event. To qualify for this credit, the property owner must demonstrate that stormwater from the property is controlled with an on-site constructed stormwater quantity management tool/practice (BMP).

#### Additional Quantity Reduction Credit.

The Additional Quantity Reduction Credit is a 100 percent credit on a property's stormwater fee. To be eligible for the "Additional Quantity" credit, a property's stormwater quantity management tools/practices must be able to retain the *100-year, 24-hour type II SCS* storm event. To qualify for this credit, the property owner must demonstrate that stormwater from the property is controlled with an on-site constructed stormwater quantity management tool/practice (BMP).

#### **Web Links:**

[www.minneapolismn.gov/publicworks/stormwater/fee/stormwater\\_fee\\_stormwater\\_mngmnt\\_feecredits](http://www.minneapolismn.gov/publicworks/stormwater/fee/stormwater_fee_stormwater_mngmnt_feecredits)

[www.minneapolismn.gov/publicworks/stormwater/](http://www.minneapolismn.gov/publicworks/stormwater/)

#### **Contacts:**

Public Works: Division of Service Water and Sewer

Karl Westermeyer

612-673-2965

[karl.westermeyer@minneapolismn.gov](mailto:karl.westermeyer@minneapolismn.gov)

Paul Chellsen

612-673-2406

[paul.chellsen@minneapolismn.gov](mailto:paul.chellsen@minneapolismn.gov)

**Status:** Current

**Success/Failure:**



#### **State of Minnesota:**

**Name of Organization:** Minnesota Green Roofs Council

**Type of Organization:** The Minnesota Green Roofs Council is a 501(c)3 not-for-profit organization. They actively spread the word about green rooftop technology as a sustainable building strategy and promote green roofs' many benefits.

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:**

**Web Links:** <http://www.mngreenroofs.org>

**Contacts:**

[www.mngreenroofs.org/about-mgrc/contact-us/](http://www.mngreenroofs.org/about-mgrc/contact-us/)

**Status:** Currently active

#### **Missouri:**



#### **St. Louis:**

**Name of Policy:** Project Clear - Rainscaping Program

**Provider:** Metropolitan St. Louis Sewer District

**Type of Policy:** Reimbursement Program

**Established:** 2013

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** A Consent Decree between the United States of America, the Missouri Coalition for the Environment Foundation and Metropolitan St. Louis Sewer District ("MSD") has been entered with an Effective Date of April 27, 2012. Under the Consent Decree, MSD has agreed to make extensive sewer system infrastructure improvements to reduce overflows of untreated raw sewage. These infrastructure improvements will include projects for the elimination of infiltration and inflow sources that cause or contribute to capacity-related sanitary sewer overflows and Building Backups. This Consent Decree was the catalyst for the Metropolitan St.

Louis Sewer District's (MSD) Long Term Control Plan (LTCP) which includes Project Clear.

MSD's Project Clear, the 23-year, \$4.7 billion initiative to plan, design, and build system-wide improvements to address water quality and alleviate many wastewater concerns in the St. Louis region, includes \$100 million in green infrastructure investments.

The Long Term Control Plan (LTCP) outlines a green infrastructure, or Rainscaping, program as part of the selected long-term Combined Sewer Overflow (CSO) controls. The overall goals of this green infrastructure program are to "identify and implement projects and programs that will significantly reduce CSOs and provide additional environmental benefit," as well as reduce CSO overflow volumes to the Mississippi River. Rainscaping projects will redirect stormwater from reaching the combined sewer system by capturing and diverting it to locations where it is detained, infiltrated into the ground, evaporated, taken up by plants and transpired, or reused.

While the core of MSD's Rainscaping pilot program will be stormwater retrofitting conducted in partnership with the City of St. Louis, MSD will continue to seek to build partnerships with other municipalities, schools, community development organizations, and private developers. The goal is to engage partners to identify joint opportunities to incorporate Rainscaping into ongoing programs and future redevelopment projects.

### **Potential Eligible Project Elements**

The following list shows eligible project elements. Other elements related to the green infrastructure program may be eligible if they are in accordance with the program objectives.

- Impervious area reduction
- Porous pavement
- Reinforced turf
- Amended soils
- Planter boxes
- Bioretention/Rain gardens
- Impervious area sheet flow to buffer
- Rooftop disconnection to rain barrel
- Rooftop disconnection to cistern: irrigation reuse
- Rooftop disconnection (splash to grade)
- Green roofs
- Blue roofs
- Green streets
- Curb extensions/Street bumpouts
- Educational Signage for Green Infrastructure
- Other techniques as approved by MSD

### **Eligible Recipients**

The following entities are eligible for financial partnering:



- Municipalities and local government agencies
- Schools
- Non-profit organizations
- Community development organizations
- Business owners
- Private developers

This is a reimbursement program. Grantees must have adequate funding available to cover all aspects of their green infrastructure project. MSD plans to spend approximately \$5 million per year on the green infrastructure program.

- Preference is given to projects that can manage at least 1.14 inches of stormwater rainfall from the contributing drainage area.
- A reduction of runoff volume must be demonstrated and supported with calculations.

**Web Links:**

<http://www.projectclearstl.org/get-the-rain-out/early-action-program/>  
<http://www.projectclearstl.org>

**Contacts:**

Mark A. Koester, P.E.  
 Metropolitan St. Louis Sewer District  
 (314) 768-6327  
 makoes@stlmsd.com

**Status:** This program is still current. The 2014 and 2015 submittal details are below.

2014 Submittals

- The application period is from August 1, 2013 to October 31, 2013.
- Applications are due to MSD by October 31, 2013 at 5:00 p.m.
- MSD will notify the applicants of their decision by March 1, 2014.
- Construction must begin prior to September 1, 2014.

2015 Submittals

- The application period is from August 1, 2014 to October 31, 2014.
- Applications are due to MSD by October 31, 2014 at 5:00 p.m.
- MSD will notify the applicants of their decision by March 1, 2015.
- Construction must begin prior to September 1, 2015.

**Success/Failure:**

**New York:**



**Bronx:**

**Name of Policy:** Environmental Revolving Loan Fund and Environmental Grant Program

**Provider:** The Bronx Overall Economic Development Corporation

**Type of Policy:** Loan and Grant program

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** Up to \$1.15 million in funding is available for eligible project activities that include strategies to increase energy efficiency and/or reduce pollution. Projects include: weatherization technology; lighting upgrades; solar/wind technology; green building components; boiler retrofits; and new energy technology.

**Environmental Revolving Loan Fund (RLF)** - Provides low interest loans to Bronx businesses and building owners to incentivize the use of energy efficient measures and new technology which improve the air quality of the borough. The Environmental RLF will target several areas of energy efficiency and new technology, including green roof development.

The minimum loan is \$10,000 and the maximum is \$100,000. The terms can be up to 10-years and an application fee of \$250 applies. It is meant to cover the difference between standard technology and “green technology” (ie. the extra cost of putting on a green roof as opposed to putting on a conventional roof).

**Environmental Grants Program** – Encourages non-profit organizations and small businesses to utilize new technologies to achieve energy efficiency and implement mitigation strategies. Proposed program components may include: Free Energy Surveys (Audits) for Businesses and Non-Profits; Green Roof Demonstration Project; Weatherization technology; Lighting Upgrades; Solar/Wind Technology; Green Building; and Boiler Retrofits.

**Web Links:** <http://www.boedc.com/environment/>

**Contacts:**

Kate Shackford

[kshackford@boedc.org](mailto:kshackford@boedc.org)

**Status:** Proposals are reviewed on an ongoing basis. There are very limited grants available.

**Success/Failure:**



**New York City:**

**Name of Plan:** The NYC Green Infrastructure Plan

**Provider:** planNYC and NYC Environmental Protection

**Type of Plan:** Green Infrastructure

**Established:** 2007

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The Bloomberg administration has a goal to invest up to \$1.5 billion over the next 20 years on new green infrastructure that will help reduce the flow of sewage into the New York City's waterways. This Green Infrastructure Plan represents the collaborative efforts of 25 City agencies. It is an alternative approach to improving water quality that integrates —green infrastructure, such as swales and green roofs, with investments to optimize the existing system and to build targeted, smaller-scale grey or traditional infrastructure. This is a multi-pronged, modular, and adaptive approach to a complicated problem that will provide widespread, immediate benefits at a lower cost.

This strategy builds upon and reinforces the strong public and government support that will be necessary to make additional water quality investments. A critical goal of the green infrastructure component is to manage runoff from 10% of the impervious surfaces in combined sewer watersheds through detention and infiltration source controls, one option being green roofs.

**Web Links:**

[http://www.nyc.gov/html/dep/pdf/green\\_infrastructure/NYCGreenInfrastructurePlan\\_LowRes.pdf](http://www.nyc.gov/html/dep/pdf/green_infrastructure/NYCGreenInfrastructurePlan_LowRes.pdf)

<http://www.nyc.gov/html/gbee/html/incentives/roof.shtml>

**Contacts:**

[www.nyc.gov/html/planyc2030/html/contact/contact.shtml](http://www.nyc.gov/html/planyc2030/html/contact/contact.shtml)

**Status:** Currently in place

**Success/Failure:** The updated PlaNYC document has 132 initiatives and boasts more than 400 specific milestones as of December 31, 2013.

NYCDEP's GI Grant Program Partially funded by NYSDEC EBP Settlement Fund. DEP awarded over \$10 million in funding to 30 different partners since 2011. Recipients contributed \$5.4 million in matching funds. Projects will prevent 15 MG of stormwater from entering the combined sewer system each year. 2013 grant recipients announced May 1, 2013.

\$192 million is budgeted for green infrastructure in combined sewer areas through 2015.



**New York City:**

**Name of Policy:** Green Roof and Solar Tax Abatement Program

**Provider:** New York City Buildings Department

**Type of Policy:** Tax Abatement

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** New York City Buildings Department's Green Roof and Solar Tax Abatement Program Team have revised the PC1 form to reflect new required items: PTA3 and PTA4 Abatement Eligibility Approval. Each of these must be checked off the list in order to be considered for a green roof or solar panel property tax abatement.

**Web Links:**

[www.nyc.gov/html/dob/html/sustainability/green\\_roof\\_faq.shtml](http://www.nyc.gov/html/dob/html/sustainability/green_roof_faq.shtml)

[http://www.nyc.gov/html/dob/downloads/rules/1\\_RCNY\\_105-01.pdf](http://www.nyc.gov/html/dob/downloads/rules/1_RCNY_105-01.pdf)

<http://assembly.state.ny.us/leg/?sh=printbill&bn=A02516&term=>

**Contacts:**

Nicole Palmer

Department of Buildings - Development Coordinator

NYC Development Hub

[greenroofandsolar@buildings.nyc.gov](mailto:greenroofandsolar@buildings.nyc.gov)

212-393-2897

**Status:**

**Success/Failure:**



**New York City:**

**Name of Policy:** Green Infrastructure Grant Program

**Provider:** NYC Department of Environmental Protection

**Type of Policy:** Grant Program

**Established:** 2011

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The New York City Department of Environmental Protection offers a grant program for private property owners in combined sewer areas of New York City. If selected, DEP will provide funds for the design and construction of the green infrastructure system. Eligible projects include blue roofs, rain gardens, green roofs, porous pavement and rainwater harvesting on private property in combined sewer areas.

All proposed green infrastructure systems must manage a 1" volume of stormwater runoff from its contributing impervious area.

- This requirement is meant to encourage cost-effective projects given that 90% of storms in NYC are 1.2" or less.
- Note: Projects that propose to manage 3x, 4x, and 5x that amount are not necessarily better projects.

**Web Links:**

[www.nyc.gov/html/dep/html/stormwater/nyc\\_green\\_infrastructure\\_grant\\_program.shtml](http://www.nyc.gov/html/dep/html/stormwater/nyc_green_infrastructure_grant_program.shtml)

<https://a826-web01.nyc.gov/GIGrant/Default.aspx>

2013 Green Infrastructure Map

[http://www.nyc.gov/html/dep/pdf/green\\_infrastructure/2013\\_gi\\_grant\\_reference\\_map.pdf](http://www.nyc.gov/html/dep/pdf/green_infrastructure/2013_gi_grant_reference_map.pdf)

**Contacts:**

GIOutreach@dep.nyc.gov

GIGrantProgram@dep.nyc.gov

sustainability@dep.nyc.gov

718-595-6500

**Status:** The online application for the 2014 program has not yet opened (2/21/14). Up to \$6 million will be available for green infrastructure projects such as rain gardens, green roofs and porous pavement on privately owned property.

**Success/Failure:** The Green Infrastructure Grant Program has awarded approximately \$6.2 million to 18 private property owners to build green infrastructure projects in the combined sewer areas of New York City. Since its introduction in 2011, the Grant Program has sought to strengthen public-private partnerships and public engagement in regard to the design, construction and maintenance of green infrastructure. For the 2011 grant cycle, DEP awarded \$3 million among 11 projects across four boroughs and three waterbodies. Projects included rooftop farms, permeable pavement, raingardens, as well as green and blue roofs. Notably, the first completed Grant Program projects were the rooftop farm at Brooklyn Navy Yard and the rain garden permeable pavement installation at Queens College, which were completed in summer 2012.

The Grant Program awarded over \$3 million to eight proposals for in the 2012 cycle. Projects are also spread across four boroughs, and include green roofs, rain gardens, porous pavement, and bioinfiltration. DEP hosts workshops throughout the City to equip applicants with the tools necessary to submit successful applications and works to improve the Grant Program each cycle by sending surveys to all applicants. DEP has expanded the Grant Program by announcing up to \$6 million available for the 2013 cycle. The Order requires the extension of DEP's current Grant Program and a commitment to use a minimum of \$3 million of Environmental Benefits Program (EBP) funds<sup>1</sup> by 2015 to expand available grant funding for applicants. By the end of 2012, three grant projects were identified for EBP grant funds in the Bronx, Brooklyn, and Manhattan.



**New York City:**

**Name of Policy:** The Green Innovation Grant Program

**Provider:** NYC DEP

**Type of Policy:** Grant Program

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The New York City Department of Environmental Protection is offering \$6 million in new funding grant program for community groups, non-profits and

property owners who are implementing projects that will help absorb rainwater to prevent combined sewer overflows in combined sewer areas within the five boroughs New York City. The minimum requirement is to manage 1" of stormwater runoff from the contributing impervious area. If selected, DEP will provide funds for the design and construction of the green infrastructure system. Eligible projects include blue roofs, rain gardens, green roofs, porous pavement and rainwater harvesting on private property in combined sewer areas.

**Web Links:**

[http://www.nyc.gov/html/dep/html/stormwater/nyc\\_green\\_infrastructure\\_grant\\_program.shtml](http://www.nyc.gov/html/dep/html/stormwater/nyc_green_infrastructure_grant_program.shtml)

<http://www.efc.ny.gov/Default.aspx?tabid=461>

**Contacts:**

NYS Environmental Facilities Corporation  
518.402.7461

Suzanna Randall  
Green Program Manager  
518-402-7461  
GIGP@efc.ny.gov

**Status:** The DEP will accept applications for the green projects in the spring and fall. Grant applicants will be given opportunities to review ideas with DEP engineers before applying.

**Success/Failure:**



**State of New York:**

**Name of Policy:** State of New York Green Building Construction Act

**Provider:** State of New York

**Type of Policy:** Direct financial incentive

**Established:** 2009

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** In 2009 a New York State Law was passed that provided larger cities (only NYC meets the size requirement) the opportunity to receive a one year tax credit of up to \$100,000 (or \$4.50 per sq/ft) for green roof installs that encompass at least 50% of available roof space. This opportunity expired in early 2013 and was recently updated and improved.

The following modifications have passed the New York State legislature and were signed into law by the governor. The official program will begin running July 1<sup>st</sup>, 2014. The new value of the tax abatement had been doubled increasing the per project cap to \$200,000 and has increased the incentive to \$5.23/SF. While not as high as some organizations would have liked to see this increase is closer to the true costs of a green roof system in New York City.

Other modifications:

- This bill amended the definition of the term "green roof" to allow for the inclusion of a controlled flow roof drain, and to add native and agricultural plant species to the list of "live plants" that can be used to meet the requirement that 80% of the vegetation layer of a green roof must be covered by live plants.
- This bill also established an overall cap on the amount that would be spent in any one year on the abatement program (\$750,000 in City fiscal year 2015 and \$1,000,000 in City fiscal years 2016, 2017, 2018, 2019). The aggregate amount of abatements would be allocated by the New York City Department of Finance among eligible applicants on a pro-rate basis.
- Given that rooftop farms tend to be larger than typical green roofs (generally around one acre in size), the abatement value cap would also be increased.

Reason for support:

- The green roof tax abatement incentive is part of a larger comprehensive green infrastructure program in the City to capture the first inch of rainfall on 10% of the impervious areas in combined sewer watersheds through detention or infiltration techniques. However, due to the multiple sustainability benefits associated with green roofs, the green roof tax abatement is applicable citywide in both combined and separate storm sewer areas.
- Green roofs provide considerable benefits to New York City, but the expense of installation remains prohibitive to building and homeowners. This proposal would continue, with some modifications, the previous abatement, which was intended to offset some of the costs associated with green roof installation.
- The property tax abatement program would be extended for five years.



- In addition to creating areas for stormwater retention, rooftop farms have the added benefit of providing affordable and local produce to New York City residents, another goal of Mayor Bloomberg's PlaNYC.
- On green roofs with a growth medium depth of less than three inches the option of a controlled flow roof drain would be included as an additional water holding layer (blue roof), consistent with DEP's Stormwater Performance Standard and Guidelines for the Design and Construction of Stormwater Management Systems. Controlled flow roof drain systems provide temporary ponding on a rooftop surface and slowly release the ponded water through roof drains.

**Web Links:**

[http://assembly.state.ny.us/leg/?default\\_fld=&bn=AB7058&term=2013&Actions=Y&Memo=Y&Text=Y](http://assembly.state.ny.us/leg/?default_fld=&bn=AB7058&term=2013&Actions=Y&Memo=Y&Text=Y)

**Contacts:** Not available at this time (2/21/14)

**Status:** This program is currently available. The original bill was amended and is accepting applications through July 30<sup>th</sup>, 2019.

**Success/Failure:**



**State of New York:**

**Name of Policy:** Green Building Tax Credit (Part 638)

**Provider:** New York Department of Environmental Conservation

**Type of Policy:** Tax Credit

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:**

Intent and Purpose:

(a) Intent: Green buildings minimize environmental impact and maximize the preservation of open space. Section 19 of the Tax Law is intended to encourage building owners and developers to design, construct and operate buildings that are energy efficient, utilize recycled materials, provide clean air, and incorporate renewable and energy efficient power generation.

(b) Purpose. The purpose of this Part is to set forth:

(1) certain standards and other requirements that must be met for a base building to be a green base building and for tenant space to be designated as green tenant space, as those terms are defined in section 19 of the Tax Law; and

(2) the methods by which taxpayers must demonstrate compliance with those standards and requirements to be eligible for the green building tax credit.

(1) Standard. The taxpayer must incorporate eligible materials, finishes and furnishings into the construction and interior build-out of the base building or tenant space. This Part may be satisfied by either a performance-based path or a listed materials path.

(b) The requirements of at least one option under each material category specifically listed in subclauses (1) through (9) of this clause must be met. If a specific material type is not used, the requirement for that material does not apply.

(3) Substitution option 3: green roof.

(i) This substitution option can only be used for base buildings in which the roof area is at least 10 percent of the total floor area, excluding parking areas within the building.

(ii) Use a green roof for at least 50 percent of the roof area, using layering technology and either one of two types of green roof: extensive or intensive. Percentage of roof area must be calculated as the area (in square feet) of the green roof divided by the total area of roof surface (in square feet) multiplied by 100.

As Defined: Green roof. Vegetative cover on top of a building above, at or below grade, of one of two types: extensive or intensive.

**Web Links:** [www.dec.ny.gov/regs/4475.html](http://www.dec.ny.gov/regs/4475.html)  
<http://www.dec.ny.gov/about/556.html>

**Contacts:**

**Status:**

**Success/Failure:**



### **State of New York:**

**Name of Policy:** New York Passes Property Tax Exemption Legislation

**Provider:** State of New York Department of Taxation and Finance

**Type of Policy:** Tax Exemption

**Established:** 2012

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** Under this law, New York State municipalities are allowed to pass legislation authorizing property-tax exemptions for green buildings, renovations, improvements, and other projects, starting in 2013. The bill offers up to 10 years of property-tax exemptions for construction and improvements within any municipality that enacts legislation mirroring the bill.

The level of exemption corresponds to the level of LEED certification or other similar green certification achieved for each project. For a project that receives LEED Silver certification, the bill offers a 100-percent property tax exemption that tapers off by 20 percent each year for the following five years. (In the building's fourth year, the exemption rate would be 80 percent; in its fifth year, it would be 60 percent; and so on.)

Buildings or restorations with higher LEED certifications may enjoy longer property tax exemptions. Projects certified LEED Gold in a municipality that enacts the bill will enjoy a 100-percent exemption for four years, before tapering off 20 percent each year. LEED Platinum-certified projects could be 100-percent exempt for six years.

The value of green construction or renovation must exceed \$10,000 for the law to apply; normal repairs and maintenance will not pass muster. "Such exemption shall be to the extent of any increase in assessed value resulting from the construction or reconstruction of a property meeting LEED certification," the bill further states.

**Web Links:** [http://www.tax.ny.gov/pit/credits/green\\_building\\_credit.htm](http://www.tax.ny.gov/pit/credits/green_building_credit.htm)  
[www.tax.ny.gov/pdf/current\\_forms/misc/DTF630i.pdf](http://www.tax.ny.gov/pdf/current_forms/misc/DTF630i.pdf)

**Contacts:** [www.tax.ny.gov/help/contact/telephone.htm](http://www.tax.ny.gov/help/contact/telephone.htm)

**Status:** Only projects begun in or after January 1, 2013 are eligible.

**Success/Failure:**



**Syracuse (Onondaga County):**

**Name of Policy:** Save the Rain Program

**Provider:** Onondaga County - Department of Water Environment Protection

**Type of Policy:** Stormwater Management Plan and Funding

**Established:** 2010

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The Save the Rain program is a comprehensive stormwater management plan intended to reduce pollution to Onondaga Lake and its tributaries. Funding is made available only for project features associated with the installation of green infrastructure solutions and elements of the project that are needed to mitigate stormwater runoff.

**Eligible Costs include:**

- 1) The design and engineering costs for site specific Green Infrastructure measures for the property and development of a maintenance plan
- 2) Construction costs to modify site and install green infrastructure

There are two separate funds that are available to interested private property owners.

**Onondaga County Green Improvement Fund (GIF):**

The County's Department of Water Environment Protection (WEP) is implementing a two year Demonstration Program, the Green Improvement Fund to provide financial assistance for the installation of Green Infrastructure (GI) Technologies including but not limited to: tree trenches, planter boxes, porous pavement, bioswales, rain gardens, green roofs, green streetscapes and cisterns. The purpose of Onondaga County's Green Improvement Fund (GIF) is to support the development of green infrastructure and stormwater mitigation techniques on private property located in the City of Syracuse.

**Onondaga County's Suburban Green Infrastructure Program (SGIP):**

Much like the GIF program the purpose of Onondaga County's Suburban Green

Infrastructure Program (SGIP) is to provide financial assistance for the installation of Green Infrastructure (GI) Technologies including but not limited to: tree trenches, planter boxes, porous pavement, bioswales, rain gardens, green roofs, green streetscapes and cisterns. The main difference is that eligible privately owners must be within the Onondaga County sanitary sewer district but outside of the City of Syracuse.

**Web Links:**

<http://savetherain.us/about/>  
<http://savetherain.us/green-improvement-fund-gif/>  
<http://savetherain.us/green-programs/green-infrastructure/green-roofs/>  
<http://savetherain.us/sgip/>

**Contacts:**

Department Water Environment Protection (DWEPP)  
Project Coordinator  
Madison Quinn  
315-435-2260 ext. 325  
madisonquinn@ongov.net

Syracuse - Center of Excellence  
Khris Dodson  
315-443-8818  
[kdodson@syracusecoe.org](mailto:kdodson@syracusecoe.org)

**Status:** The GIF application period is currently closed. It will re-open Spring 2014. (A priority map is developed each year to identify which areas are ideal for green infrastructure improvements. Not everyone is eligible from year to year.)

**Success/Failure:** Since its inception, GIF has provided \$3.93 million in funding to 37 local green infrastructure projects. These projects have captured more than 12,000,000 gallons of stormwater throughout the City of Syracuse.

**North Carolina:**



**Raleigh:**

**Name of Policy:** Stormwater Quality Cost Share Program

**Provider:** City of Raleigh's Stormwater Utility Division

**Type of Policy:** Cost Share Program

**Established:** 2009

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The City of Raleigh's Stormwater Utility Division offers a Stormwater Quality Cost Share Program to homeowners, businesses, and public or government Agencies wanting to improve the quality of stormwater runoff on their property.

The City Stormwater Quality Cost Share Policy is a program, which provides financial and technical assistance in reducing water quality impacts from development. This policy is available to any property owner whose property is subject to the City of Raleigh Stormwater Utility Fee and where the proposed improvements will provide water quality benefits in excess of current regulatory requirements.

Examples of projects considered as improvements to the water quality of Raleigh's streams and lakes include:

- Cisterns
- Rain gardens and bio-retention devices
- Back yard wetlands and stormwater wetlands
- Green roofs
- Underground infiltration devices
- Permeable pavement
- Removal and/or conversion of impervious surfaces
- Stream buffer restoration/critical planting
- Stream restoration and shoreline restoration

Eligibility requirements:

1) Any landowner, including residential, commercial, or public entity, paying the stormwater utility fee is eligible to petition for assistance in this program.

2) If the proposed project is part of new construction of the property, it must provide water quality benefits exceeding current regulatory requirements for stormwater management.

3) Projects receiving cost share funding will not be eligible for credits included in the City of Raleigh Stormwater Utility Credit and Adjustment Manual. However, these projects may be eligible for an adjustment based on reductions in impervious area or the use of semi-impervious surfaces.

The City's funding portion will be based on the least cost alternative for the proposed project.

There are two different cost share formulas available for petitioners.

- Petitioner agrees to maintain the project to ensure it functions properly for 5 years, the cost share formula will be 50% City and 50% property owner.
- Petitioner agrees to maintain the project to ensure it functions properly for 10 years, the cost share formula will be 75% City and 25% property owner.

**Web Links:**

[www.raleighnc.gov/services/content/PWksStormwater/Articles/StormwaterQualityCostShareProgram.html](http://www.raleighnc.gov/services/content/PWksStormwater/Articles/StormwaterQualityCostShareProgram.html)

Sustainable Raleigh Project Locator:

<http://maps.raleighnc.gov/iMAPS/?config=sustainable>

**Contacts:**

Stormwater Utility Help

919-996-3940

StormwaterUtilityHelpingU@raleighnc.gov

Mark T. Senior, PE

Senior Project Engineer

Stormwater Utility Division

City of Raleigh Public Works Department

919-996-4012

[mark.senior@raleighnc.gov](mailto:mark.senior@raleighnc.gov)

Ben Brown

City Engineer

Stormwater Utility Division

City of Raleigh Public Works Department

919-996-3515

[ben.brown@raleighnc.gov](mailto:ben.brown@raleighnc.gov)

**Status:**

**Success/Failure:**



**Raleigh:**

**Name of Policy:** Stormwater Facility Credit

**Provider:** City of Raleigh

**Type of Policy:** Stormwater Fee Discount

**Established:**

**Applicable to Green Roofs:** Not yet – Likely in 2014

**Applicable to Green Walls:** No

**Details:** A maximum 50% credit against stormwater fees for installing Stormwater Facilities exceeding City requirements specified in the Stormwater Ordinance. To qualify, customers must demonstrate that their existing Stormwater or New Stormwater Facility manages stormwater generated from their immediate property and/or upstream tributary areas.

**Web Links:**

[www.raleighnc.gov/services/content/PWksStormwater/Articles/StormwaterQualityCostShareProgram.html](http://www.raleighnc.gov/services/content/PWksStormwater/Articles/StormwaterQualityCostShareProgram.html)

**Contacts:**

Stormwater Utility Help

919-996-3940

StormwaterUtilityHelpingU@raleighnc.gov

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Ben Brown

City Engineer

Stormwater Utility Division

City of Raleigh Public Works Department

919-996-3515

[ben.brown@raleighnc.gov](mailto:ben.brown@raleighnc.gov)

**Status:** Raleigh does not currently identify green roofs for credit in our stormwater fee system. Adding green roofs and other State approved stormwater management practices may occur in the future.

This is an opportunity for local Ambassadors to work with the City to move this forward.



**Success/Failure:**

**Ohio:**



**Cincinnati:**

**Name of Policy:** Green Roof Loan Program

**Provider:** Ohio Environmental Protection Agency, Metropolitan Sewer District of Greater Cincinnati and the Cincinnati Office of Environment & Sustainability

**Type of Policy:** Loan Program

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The Ohio Environmental Protection Agency, Metropolitan Sewer District of Greater Cincinnati and the Cincinnati Office of Environment & Sustainability have created the first Green Roof Loan Program of its kind in Ohio.

The Ohio EPA has made \$5,000,000 available for linked-deposit, below-market-rate loans to install green vegetative roofs within the service area of Metropolitan Sewer District. These can be installed on residential, commercial and/or industrial buildings.

**Web Links:** <http://www.cincinnati-oh.gov/oes/residential-programs/green-roof-loans/>

**Contacts:**

Office of Environmental Quality

**Robin Henderson**

513-352-5340

[robin.henderson@cincinnati-oh.gov](mailto:robin.henderson@cincinnati-oh.gov)

**Status:**

**Success/Failure:**



**Cincinnati:**

**Name of Policy:** Green Infrastructure - Green Demonstration Project

**Provider:** Metropolitan Sewer District of Greater Cincinnati

**Type of Policy:** Grant reimbursement

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The Metropolitan Sewer District of Greater Cincinnati (MSD) is initiating its Green Infrastructure Program through sponsorship of green storm water control demonstration projects. These storm water controls can be classified as either non-structural or structural. Non-structural BMPs limit the impact of development with effective planning and practice.

Examples of non-structural controls could include development and implementation of planning or management strategies that address source control, community education and outreach controls intended to change behavior, and creation and implementation of institutional controls. Structural controls involve design and construction of controls that physically influence the volume or velocity of storm water runoff. These can be infiltration-oriented, such as rain gardens, infiltration basins, and porous pavement or non-infiltration oriented such as vegetated roofs and rain barrels.

For this initial effort, MSD will select projects that demonstrate the:

- Ability of these controls to significantly reduce the volume of stormwater reaching Hamilton County, Ohio's combined and sanitary sewer systems,
- Applicability, effectiveness and cost of traditional and emerging green storm water management controls
- Long-term sustainability of green infrastructure. Ideally the projects will be located in high-visibility areas and will be accessible to the public.

#### Applicant Eligibility

Municipalities, municipal authorities, professional organizations, 501(c)3 non-profit organizations, community organizations, private developers in partnership with units of government, and businesses in Hamilton County are eligible to submit proposals. Partnerships are encouraged. To ensure long-term sustainability of projects that involve construction or implementation of project activities on public or private property the applicant must be the property owner or have ongoing legal authority to build and maintain those structures.

#### Funding

Funding for these demonstration projects is limited and competitive. It is recommended that large projects seek funding from more than one source as MSD may not be able to provide all needed funds. MSD may offer services in addition to or in lieu of funds where appropriate.

**Web Links:**

[www.city-egov.cincinnati-oh.gov/Webtop/ws/council/public/child/Blob/23654.pdf?rpp=-10&m=3&w=doc\\_no%3D%27200801156%27](http://www.city-egov.cincinnati-oh.gov/Webtop/ws/council/public/child/Blob/23654.pdf?rpp=-10&m=3&w=doc_no%3D%27200801156%27)

**Contacts:**

Nancy Ellwood  
513-557-5918  
[nancy.ellwood@cincinnati-oh.gov](mailto:nancy.ellwood@cincinnati-oh.gov)

**Status:** Competitive grant program administered by Metropolitan Sewer district. For green roofs and other stormwater management BMPs

**Success/Failure:****State of Ohio:**

**Name of Policy:** Alternative Stormwater Infrastructure Loan Program

**Provider:** Ohio Development Services Agency

**Type of Policy:** Loan Program

**Established:**

**Applicable to Green Roofs:** It should be – Green Roof technology EPA approved

**Applicable to Green Walls:** No

**Details:** The Alternative Stormwater Infrastructure Loan Program offers below-market rate loans for the design and construction of green infrastructure as part of economic development projects. Up to \$5,000,000 in loan funds per project are available to governmental entities through the program. Development partners are encouraged to partner with the governmental entity for their projects. The funds can pay for design, demolition, construction, materials and administrative costs associated with the green infrastructure project. This program targets a specific challenge of redevelopment projects by reducing the cost to businesses and communities that need to minimize both the financial and environmental impact of their stormwater runoff.

**Web Links:**

[https://development.ohio.gov/cs/cs\\_altstormwater.htm](https://development.ohio.gov/cs/cs_altstormwater.htm)

<https://development.ohio.gov/files/redev/ASILPPoliciesFINAL.pdf>

**Contacts:**

Monica Stefanoff

Brownfield Specialist  
Office of Redevelopment Community Services Division  
Monica.Stefanoff@development.ohio.gov  
redevelopment@development.ohio.gov

**Status:**  
**Success/Failure:**



**State of Ohio:**

**Name of Policy:** Section 319(h) Grant: Clean Water Act

**Provider:** Ohio EPA

**Type of Policy:** Grant program

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** In 2013 the Ohio EPA was soliciting proposals for local nonpoint source project implementation grants awarded under Section 319(h) of the Clean Water Act. These grants were being awarded with federal funding that is immediately available due to either previous thrift or were returned unspent by previous grantees. Local grants of up to \$100,000 each are available to local governments, county and municipal park districts, soil & water conservation districts, and conservation nonprofit organizations with land managing responsibilities.

**Eligible Applicants:** The following entities are eligible to apply for and receive grant funding under this supplemental section 319 grant cycle:

- Local municipalities, counties and townships
- County and municipal park districts
- Soil & water conservation districts
- 501(c)(3) nonprofit conservation groups with land management responsibilities

**Eligible Projects:**

Water quality improvement projects eligible for grant funding include:

- Small lowhead dam removal projects
- Stream restoration and re-naturalization using “green” designs
- Riparian restoration and protection such as streambank stabilization using “green” designs

- Wetland restoration and protection
- Innovative stormwater demonstration projects (includes green roofs)

#### Innovative Storm Water Demonstration Projects

Uncontrolled runoff from storm events may be a serious contributor of nonpoint source pollutants to some of Ohio's streams. Many urban areas in Ohio are required to regulate and/or manage storm water flow and do so under storm water permits issued by Ohio EPA. (Grants may not be used to implement any activities required under storm water or as mitigation for other permits such as those issued under section 401 of the Clean Water Act). Recent trends in storm water management have identified innovative practices and techniques that are showing promise in the management of storm water. Ohio EPA is interested in promoting these practices by funding HIGHLY VISIBLE local projects that demonstrate these innovative storm water management practices. Eligible projects include, but are not limited to the following:

- Retrofitting public commons or parking areas with permeable pavement or pavers
- Installing small scale green roofs on public buildings
- Installing bio-filtration islands and/or vegetated retention structures such as large public rain gardens\* or large infiltration planting areas

#### **Web Links:**

<http://epa.ohio.gov/dsw/nps/index/tabid/3900/LiveTabId/120841/Default.aspx>  
<http://epa.ohio.gov/portals/35/nps/319docs/Supplemental FFY13 319 RFP.pdf>

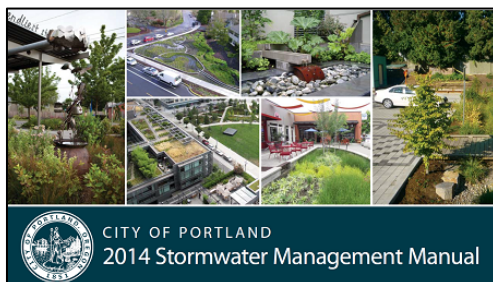
#### **Contacts:**

Ohio EPA  
 614-644-3020  
[www.eopa.ohio.gov](http://www.eopa.ohio.gov)

**Status:** Uncertain – Most recent deadline for application was March 29, 2013

**Success/Failure:**

#### **Oregon:**



**Portland:**

**Name of Program:** Portland Stormwater Management Manual

**Provider:** City of Portland

**Type of Policy:** Stormwater management requirement

**Established:** 2014

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The City's stormwater management approach relies on the use of vegetated surface infiltration facilities to comprehensively meet multiple requirements.

Vegetated facilities allow the applicant to meet pollution reduction, flow and volume control and infiltration requirements.

Impervious area reduction techniques can help mitigate the impacts of development by reducing the amount of stormwater runoff generated. Impervious area reduction techniques can mimic the passive treatment of pre-development conditions. Green roofs, trees and pervious pavement can reduce the amount of impervious area that requires stormwater management by intercepting rainfall directly and should be considered first as site conditions allow.

**Web Links:** [www.portlandoregon.gov/bes/64040](http://www.portlandoregon.gov/bes/64040)

**Contacts:**

Bureau of Environmental Services

503-823-7740 or 503-823-7103

**Status:** Current

**Success/Failure:**



**Portland:**

**Name of Policy:** Floor Area Ratio (FAR)

**Provider:** Bureau of Environmental Services Sustainable Stormwater Division

**Type of Policy:** FAR

**Established:** 2009

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The City of Portland offers a Floor Area Ratio (FAR) bonus in its building code. Private Developers may build an extra three square feet of building per foot of green roof they construct without additional permits.

### How does the Ecoroof FAR apply?

The amount of FAR bonus allowed to a developer or builder depends on the percentage of ecoroof coverage in relation to the building footprint. Building proposals in the Central City Plan District with a green roof may receive bonus floor area as follows:

- 10-30% green roof coverage earns one (1) square foot of additional floor area per square foot of green roof;
- 30-60% green roof coverage earns two (2) square feet additional floor area per square foot of green roof; and
- 60% or greater green roof coverage earns three (3) square feet of additional floor area per square foot of green roof.

### **Web Links:**

#### **Contacts:**

Sustainable Stormwater Management  
City of Portland Environmental Services  
503-823-7863

[matt.burlin@portlandoregon.gov](mailto:matt.burlin@portlandoregon.gov)

#### **Status:**

#### **Success/Failure:**



### **Portland:**

**Name of Policy:** Grey to Green Initiative

**Provider:** Bureau of Environmental Services Sustainable Stormwater Division

**Type of Policy:** Direct Financial Subsidy

**Established:** 2008

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** Grey to Green was a five-year Environmental Services initiative that provided funding for green roof outreach and construction. Portland offered \$5/square foot of new green roof. Funded by various city bureaus and community partners to boost green infrastructure in Portland. The Grey to Green initiative and Environmental Services' ongoing investment in green infrastructure projects and programs helps implement the Portland Watershed Management Plan, protect existing sewer and stormwater infrastructure, and meet other city goals.

### **Web Links:**

[www.portlandoregon.gov/bes/47203](http://www.portlandoregon.gov/bes/47203)

**Contacts:**

Matt Burlin  
Sustainable Stormwater Management  
City of Portland Environmental Services  
503-823-7863  
[matt.burlin@portlandoregon.gov](mailto:matt.burlin@portlandoregon.gov)

**Status:** Expired May 2013 – no further direct financial incentives

**Success/Failure:** Between 2008 and 2013, public and private partners in the Grey to Green initiative helped expand the city's green infrastructure, improve the environment and support jobs through numerous programs. The goal was to construct 43 acres of new green roofs between 2008 and 2013. 191 green roofs covering 11 acres of rooftop were completed. That's the equivalent of more than eight football fields of new green roofs covering buildings and managing millions of gallons of stormwater before it reaches the sewer system.

Many of these projects were constructed despite the economic downturn in the early years of Grey to Green with assistance from the city's Ecoroof Incentive program. There are now a total of 398 green roofs in Portland, with more underway. More development projects are pairing green roofs with photovoltaic panels, or adding habitat features, to maximize benefits on Portland's rooftops. Portland's green roof industry has grown considerably, with over 300 members in the industry group called GRiT (Greenroof info Think-tank).



**Portland:**

**Name of Policy:** Clean River Rewards Program

**Provider:** City of Portland

**Type of Policy:** Utility Fee Discount Program

**Established:** 2006

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The discount program is divided into two categories for registration purposes:

- Residential includes single family and duplex properties.
- Commercial includes commercial, multi-family residential (3 units or greater), industrial, and institutional properties.



### Program Requirements

- You must register to receive a discount.
- For residential properties, the discount is based on managing stormwater runoff from roof areas only.
- For commercial properties, the discount is based on managing stormwater runoff from both roof and paved areas.
- How you manage stormwater cannot threaten or damage property or the environment.
- The maximum discount is 100% of the on-site stormwater charge.
- The city will charge penalties and retract awarded discounts if a ratepayer files a fraudulent registration.

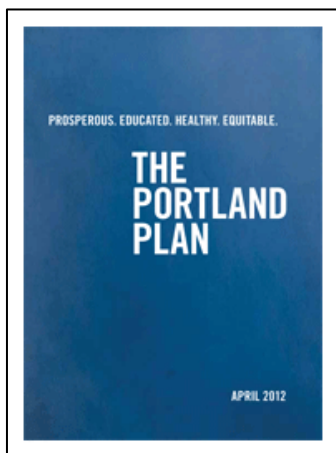
**Web Links:** <https://www.portlandoregon.gov/bes/article/390568>

### **Contacts:**

Matt Burlin  
Sustainable Stormwater Management  
City of Portland Environmental Services  
503-823-7863  
[matt.burlin@portlandoregon.gov](mailto:matt.burlin@portlandoregon.gov)

**Status:** The discount remains in effect through June 2017. To maintain the discount, the utility account must remain active, stormwater facilities must be properly maintained and operated, and the city must be granted access to the property for limited inspections of stormwater facilities.

### **Success/Failure:**



### **Portland:**

**Name of Program:** The Portland Plan

**Provider:** City of Portland – Office of Planning and Sustainability

**Type of Policy:** Comprehensive Action Plan

**Established:** Updated 2012

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** ?

**Details:** Green roofs are included in the Comprehensive Planning and Climate Action Plan (The Portland Plan) adopted by the City of Portland.

**Web Links:** [www.portlandonline.com/portlandplan/index.cfm?c=56527](http://www.portlandonline.com/portlandplan/index.cfm?c=56527)

**Contacts:**

The Portland Plan

(503) 823-7700

**Status:**

**Success/Failure:**

**Name of Organization:** Green Roof information think-tank (GRiT)

**Type of Organization:** GRiT is a network of businesses, government agencies, non-profit organizations, students and community members, joining together to grow the knowledge and use of green roofs in the Pacific Northwest.

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

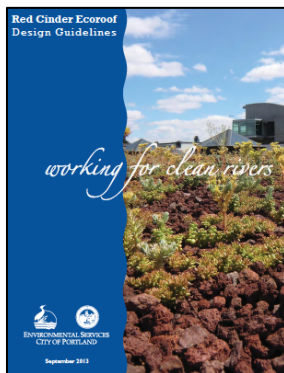
**Details:**

**Web Links:** [greenroofthinktank.groupsite.com/main/summary](http://greenroofthinktank.groupsite.com/main/summary)

**Contacts:**

[greenroofthinktank.groupsite.com/join](http://greenroofthinktank.groupsite.com/join)

**Status:** Currently active



## **Portland:**

**Name of Guideline:** Red Cinder Ecoroof Design Guidelines

**Provider:** City of Portland - Sustainable Stormwater Division, Ecoroof Team

**Type of Guideline:** Green Roof Design

**Established:** 2013

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** This document was developed to provide Ecoroof guidelines for design, construction and operations and maintenance for vegetation and media portions of

the BES Red Cinder Ecoroof. This information, along with the standard specification, should result in a high-quality, inexpensive, utilitarian ecoroof suitable for most BES facilities. While this document is intended to provide information for project managers that can help them to determine the best ecoroof for their project, it does not include detailed information about the membrane, structural support, or safety access and details. The designer of record will need to seek additional guidance for those features, although this document does include considerations for each type of membrane, along with a table outlining weights for each of the major components that the designer of record can use to help establish weight requirements for structural design. It should also be noted that these guidelines are not considered to be “standard” within the majority of the industry meaning that the designer must choose what is best for their particular project.

The sedum ecoroof is low-growing and will retard colonization by other plants for many years. This ecoroof is intended to be self sustaining, greatly extend the life of the roof membrane, manage stormwater, be low-cost to build and maintain, need minimal to no irrigation or fertilization, and to create pollinator habitat.

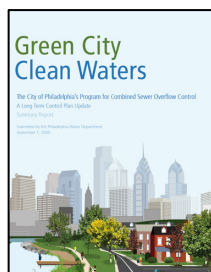
**Web Links:** [www.portlandoregon.gov/bes/article/464519](http://www.portlandoregon.gov/bes/article/464519)

**Contacts:**

Matt Burlin  
Sustainable Stormwater Management  
City of Portland Environmental Services  
503-823-7863  
[matt.burlin@portlandoregon.gov](mailto:matt.burlin@portlandoregon.gov)

**Status:** Current

**Pennsylvania:**



**Philadelphia:**

**Name of Policy:** Green Roofs Tax Credit

**Provider:** Philadelphia Water Department (PWD)

**Type of Policy:** Tax Credit

**Established:** 2007

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The City of Philadelphia offers a credit of 25% of all costs incurred to construct a green roof up to \$100,000. To qualify, green roof must cover 50% of the rooftop. The Green Roof Tax Credit can be applied against Philadelphia's Business Income and Receipts Tax liability.

The Green Roof Tax Credit is available to business owners constructing an addition to their roof that supports living vegetation and includes a synthetic, high quality waterproof membrane, drainage layer, soil layer and light weight medium plants.

- The applicant may claim a credit against the Business Privilege Tax of twenty-five percent of all costs incurred to construct the Green Roof, provided that the total credit shall not exceed \$100,000.
- The tax credit shall be applied against the applicant's total Business Privilege Tax liability for the Tax Year during which the applicant certifies the completion of the Green Roof.
- Any unused credits may be carried forward until fully used.
- The credit is not refundable and cannot be transferred to any other entity.
- A business may receive only one Green Roof Tax Credit per building, but may receive a credit for each building it owns.

After approval, the applicant must execute a commitment agreement with the Revenue Department setting forth the following:

- The plans for the Green Roof, which must provide for a Green Roof covering at least fifty percent of the building's rooftop or seventy-five percent of Eligible Roof Top Space.
- The total projected costs for the construction of the Green Roof.
- The maximum Green Roof Tax Credit the applicant may claim.
- The applicant's commitment to maintain the Green Roof for a period of five years after the date of its completion and the applicant's acknowledgement that it is bound to repay any tax credits taken for failure to abide by terms of the commitment agreement.
- A business seeking the credit for multiple buildings is limited per building to 25% of the actual costs incurred to complete the Green Roof for a given building, subject to the \$100,000 maximum credit per building.

**Web Links:** [www.phillywatersheds.org/whats\\_in\\_it\\_for\\_you/residents/green-roofs](http://www.phillywatersheds.org/whats_in_it_for_you/residents/green-roofs)  
[www.philadelphiaretail.com/pdf/GreenRoofTaxCredit.pdf](http://www.philadelphiaretail.com/pdf/GreenRoofTaxCredit.pdf)

**Contacts:**

Philadelphia Industrial Development Corporation  
215-496-8020  
[info@pidc-pa.org](mailto:info@pidc-pa.org)

**Status:** Active

**Success/Failure:**

**Tennessee:**



**Nashville:**

**Name of Policy:** Green Roof Credit

**Provider:** City of Nashville – Metro Water Services

**Type of Policy:** Sewer Fee Rebate

**Established:** 2012

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** As part of an effort to encourage Low Impact Development (LID) and Green Infrastructure (GI) in Metro Nashville, Metro Water Services is offering a green roof credit for private properties within the combined sewer system area. Through this measure they are providing a \$10 reduction in a property's sewer fees for every square foot of vegetative roof.

**Site Requirements:**

- Property must be entirely within the combined sewer area.
- The property must be privately owned.
- The green roof must cover 50% of the rooftop space.

**Design Requirements:**

The green roof shall be compliant with the Metropolitan Stormwater Management Manual and should include the following:

- Impermeable waterproof membrane layer
- A drainage layer (e.g. gravel or a proprietary mat)
- Filter Fabric between the drainage layer and growing media
- Growth media at least four inches thick containing no more than 15% organic matter
- A vegetation layer with 80% coverage of live, hardy, drought resistant plants
- Access for inspection and maintenance

**Submittal Requirements:**

- A "Plans Submittal Form" with the Green Roof Credit box checked
- An executed and recorded Maintenance Document Green Roof Plans designed and stamped by a registered professional engineer, architect, or landscape architect and including the following:
- Site Plan indicating the location of the building on the lot and the property

- map and parcel number
- Roof Plan showing the location and dimensions of the green roof and the locations of the roof drains
- A cross section showing the specific roof components and their thickness, where applicable.
- Landscape plans showing the size, spacing, and species of the planting material.
- A project that is applying for Grading Permit should follow the traditional application process (See Appendix A) and should check the “Green Roof Credit” box on the application.

#### Other Requirements:

- An architect, a structural engineer, or other qualified professional must evaluate the design to ensure that the building has the structural capacity to support a vegetated roof.
- The Green Roof shall be compliant with applicable building codes.

#### Credit Details:

- The credit will be applied to the monthly sewer charges for a property. The maximum total credit amount will equal \$10 multiplied by the square footage of green roof installed. The sewer charges will be credited for 60 months or until the maximum total is reached, whichever comes first.

#### **Web Links:**

<http://www.nashville.gov/Water-Services/Developers/Low-Impact-Development/Green-Roof-Rebate.aspx>

#### **Contacts:**

Rebecca Dohn  
Rebecca.Dohn@Nashville.gov  
615.880.2420

#### **Status:**

#### **Success/Failure:**



#### **State of Tennessee:**

**Name of Policy:** Green Development Grant Program

**Provider:** Tennessee Department of Environment and Conservation, Tennessee Stormwater Association, the Tennessee Valley Authority and the Tennessee Department of Transportation

**Type of Policy:** Grant Program

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The Tennessee Department of Environment and Conservation in partnership with the Tennessee Stormwater Association, the Tennessee Valley Authority and the Tennessee Department of Transportation, today awarded \$85,000 to four local governments to fund green infrastructure and low-impact development projects beginning January 2014.

The Green Development Grant Program provides funding through a competitive process for projects such as rain gardens, green roofs, pervious concrete applications, trees and tree boxes, in addition to outreach and education efforts designated to promote green development in Tennessee communities.

**Web Links:** [www.tnstormwater.org/blog/green-infrastructure-grant/](http://www.tnstormwater.org/blog/green-infrastructure-grant/)

**Contacts:**

**Status:** A total of \$85,000 will be available in grant funds for allocation again in 2015, with grants ranging from \$10,000 to \$30,000. The grants require 20 percent local match. Applications for the next round of Green Development Grants are due by August 15, 2014, and grant awards will be announced in October 2014. Grant applications will be reviewed and ranked by a team comprised of representatives from each of the partner agencies.

**Success/Failure:** This year's grant cycle represents the third time the Green Development grants have been offered to local governments.

### **Texas:**



### **Austin:**

**Name of Policy:** Various: See below

**Provider:** City of Austin – Office of Sustainability

**Type of Policy:** Numerous options

**Established:** 2011

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** Projects in Austin that incorporate green roofs can earn incentives from the City of Austin. In acknowledgement of the many benefits associated with green roofs and to encourage their use, the City of Austin offers a number of incentives for projects incorporating green roofs. There are currently no existing rebates or price reductions for green roofs. The opportunities available are listed below.

### **Planned Unit Development (PUD)**

#### **Tier 1 Open Space Requirements (§2.3.1.C)**

10-20% of the total project area must be open space. The definition of open space includes roofs, allowing accessible green roofs to count as open space.

#### **Tier 1 Green Building Requirements (§2.3.1.D)**

Projects must achieve a PUD 2-Star Green Building Rating. Green roofs can help achieve one basic requirement and up to four additional points on the rating scale.

#### **Tier 1 Landscaping Requirements (§2.3.1.H)**

Projects must exceed the minimum landscaping requirements of the City Code. The “over and above” landscaping can be met using a green roof.

#### **Tier 2 Options (§2.4)**

Green roofs can qualify as “other creative or innovative [environmental] measures.”

### **Impervious Cover**

#### **Impervious Cover Measurement (§25-1-23)**

Subsurface parking structures are not considered impervious if the average soil depth above the structure is at least 4 feet, with a minimum depth of 2 feet. The soil and landscaping above a subsurface garage is a form of green roof.

### **Open Space**

#### **Commercial Design Standards (§25-2, Subchapter E, Section 2.7)**

Private common open space or pedestrian amenities are required for a minimum of 5% of the site for all commercial projects over 2 acres and all multifamily and condominium uses with more than 10 dwelling units. The definition of open space includes roofs, allowing accessible green roofs to count as open space. Up to 50 percent of required open space may be located above ground level if at least 50 percent of the open space above ground level is designed as a green roof.

### **Building Design**

#### **Commercial Design Standards (§25-2, Subchapter E, Section 3.3)**

Under the commercial design standards, buildings must earn one base point and may be required to earn additional points if certain design features are present. Buildings can earn two points by providing a sustainable roof – which includes an



option where a minimum of 50 percent of the total roof surface is vegetated (or “green”).

### **Parkland Dedication**

#### **Standards for Dedicated Parkland (§25-1-603)**

The Director of the Parks and Recreation Department determines whether land offered for parkland dedication complies with the standards for dedication. Green roofs can potentially qualify for this credit if they are publicly accessible, provide proper signage, and provide three traditional park amenities. A green roof park would require private ownership and maintenance and such private facilities can receive no more than 50% dedication credit.

### **Reflective Roofing**

#### **Austin Energy Code (§25-12-263, 502.5)**

The Energy Code requires a high reflectivity for flat roofs. However, there is an exception to this requirement for vegetated (or “green”) roofs.

### **Green Building**

#### **Austin Energy Green Building Rating System**

Green roofs can help achieve one basic requirement and up to four additional points under the Green Building rating system, including:

- Roofing to Reduce Heat Island (BR3);
- Site Development Protect or Restore Open Areas (S6a);
- Site Development Maximize Vegetated Open Area (S6b);
- Additional Heat Island reduction -Roof (S7b); and
- Innovation -Extra credit points possible for demonstrated innovations.
- Stormwater Management

#### **Parking Lot Detention (DCM 8.3.4.J)**

Flood detention requirements may be met on a site using "parking lot detention." This method of engineered shallow ponding could be employed on a green roof.

#### **Innovative Water Quality (ECM 1.6.7)**

Biofiltration, rainwater harvesting, or other adopted water quality controls could be integrated into green roof design.

### **Density Bonus (Floor Area Ratio)**

#### **Downtown Density Bonus Program Proposed**

Pending Adoption varying square feet of bonused floor area is earned for each one square foot of planted bed provided on a vegetated roof. The percent vegetated roof cover is a function of square feet of planted bed provided on a vegetated roof

divided by total roof area. Total roof area excludes parapets, ancillary installations (e.g., HVAC equipment, water heaters, photovoltaic and solar thermal panels), and integrated photovoltaic systems.

Percent Vegetated Roof Cover	Square Feet of Bonused Floor Area : Square Feet of Vegetated Roof Cover			
	No Public Access	3rd Floor Public Access or Higher	2nd Floor Public Access	"On-Site Publicly Accessible Open Space"
30 - 49%	2:1	3:1	5:1	7:1
50% or greater	3:1	4:1	6:1	8:1

\*This is the only case where both Green Roof and Open Space bonuses apply to a single area.

**30 - 49% Vegetated Roof Cover**

**50% or Greater Vegetated Roof Cover**

### Web Links:

<http://www.austintexas.gov/departments/green-roofs>

[http://www.austintexas.gov/sites/default/files/files/Sustainability/Green\\_Roof/Existing\\_Credit.pdf](http://www.austintexas.gov/sites/default/files/files/Sustainability/Green_Roof/Existing_Credit.pdf)

### Contacts:

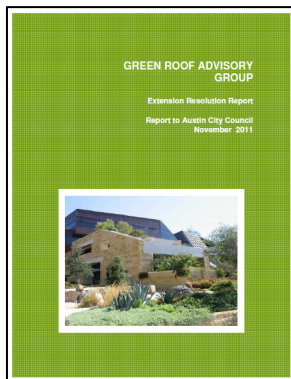
Dylan Siegler

[Dylan.siegler@austintexas.gov](mailto:Dylan.siegler@austintexas.gov)

512-974-2651

**Status:** Active

**Success/Failure:**



**Austin:**

**Name of Group:** Green Roof Advisory Group (GRAG)

**Type of Group:** Green Roof Task Group

**Established:** 2009

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** In August 2009, the Austin City Council declared its support for green roofs by passing Resolution 20090827-057, directing the City Manager to convene an advisory green roof stakeholder group to explore the feasibility of offering energy and stormwater credits and other incentives, based on performance, to encourage the creation of green roofs in Austin. The Green Roof Advisory Group (GRAG) was formed and worked with City staff to produce a Final Report that was presented to Council in August 2010. It included a Five-Year Policy Implementation Plan, first year of which covered from October 2010 to October 2011. GRAG requested an extension to initiate implementation of the group's recommendations regarding outreach and education, design considerations, and existing and proposed development incentives outlined in the Five-Year Plan. The Council, recognizing the need for continued GRAG support in order to complement staff efforts to promote green roofs in the City, passed Resolution 20101104-023, extending the Advisory Group (see Appendix B) until October 28, 2011.

In this resolution City Council charged GRAG with assisting staff in accomplishing three specific tasks:

- A downtown density bonus proposal by the end of December 2010;
- Green roof performance standards by the end of April 2011; and
- Publication of web support materials by the end of August 2011.

This report summarizes the progress on Year 1 of the Five-Year Policy Implementation Plan and the three 2010 City Council Resolution tasks. This work was accomplished by GRAG stakeholders, in collaboration with City staff from the Watershed Protection Department, Austin Energy, Planning & Development Review, and Austin Water. All three of these tasks have been accomplished and significant progress has been made on the activities of the Policy Implementation Program.

**Web Links:**

[http://www.austintexas.gov/sites/default/files/files/Sustainability/Green\\_Roof/2011\\_GRAG\\_report\\_to\\_council.pdf](http://www.austintexas.gov/sites/default/files/files/Sustainability/Green_Roof/2011_GRAG_report_to_council.pdf)

**Contacts:**

Dylan Siegler

[Dylan.siegler@austintexas.gov](mailto:Dylan.siegler@austintexas.gov)

512-974-2651

**Status:** Group is still active

**Success/Failure:**



**Dallas:**

**Name of Policy:** Dallas Green Building Ordinance

**Provider:** City of Dallas

**Type of Policy:** Building Ordinance

**Established:** 2009

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** Dallas is one of the first major cities in the nation to pass comprehensive green building standards for both new residential and commercial construction. Dallas recognizes the fundamental link between the building codes' intent of "safeguarding the public health, safety and general welfare" and preserving a safe and healthy natural environment. Incorporating sustainability through energy efficiency, water conservation and resource reuse and reduction translates into a stronger economy and area growth.

The Dallas Green Building Ordinance recognizes green roofs in a few areas. All new construction must:

- Meet minimum requirements of the Dallas Green Construction Code
- Be certifiable under LEED, Green Built Texas or equivalent
  - Formal certification not required
- Must be eligible for 1 LEED credit for "Water Use Reduction" (20% reduction)

**Heat Island mitigation:**

The Dallas Green Building Ordinance requires that proposed projects shall install an Energy Star qualified roof on all roofs with a slope of 2:12 or greater. There is an exception that, subject to approval by building officials, allows the installation of a green (vegetated) roof.

**Stormwater:**

The Dallas Green Building Ordinance requires that all proposed project lots must be designed so that at least 70% of the built environment, not including any areas under a roof, is permeable or designed to capture water runoff for infiltration onsite. The following areas may be counted toward the 70% requirement:

- Vegeative landscape such as grass, trees and shrubs
- Permeable paving
- Impermeable surfaces that are designed to direct all runoff toward an appropriate permanent infiltration feature such as a vegetated swale, onsite rain garden or rainwater cistern.

Note: Green (vegetated) roofs are not specifically called out under the stormwater section but it is likely they would qualify with the proper approval of a building official.

**Web Links:**

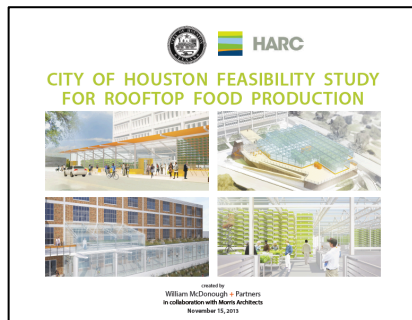
[http://www.dallascityhall.com/building\\_inspection/greenBuilding.html](http://www.dallascityhall.com/building_inspection/greenBuilding.html)

**Contact:**

214-948-4362

**Status:** Ordinance was effective October 1, 2013

**Success/Failure:**



**Houston:**

**Name of Program:** Go Healthy Houston Initiative

**Provider:** GeoTechnology Research Institute (GTRI) at the Houston Advanced Research Center (HARC)

**Type of Study:** Feasibility study for rooftop food production

**Established:** 2013

**Applicable to Green Roofs:** Yes (Food Roofs)

**Applicable to Green Walls:** Yes (Vertical food walls)

**Details:** This study explores the potential for a rooftop and public-space food production prototype in downtown Houston. It was inspired by the work begun by Mayor Annise Parker under the Go Healthy Houston Initiative. The Go Healthy Houston Task Force, with the assistance of the Mayor's Office of Sustainability and the City's Health and Human Services Department, local organizations such as Urban Harvest and Recipe for Success, as well as local hospitals and universities (among many others) initiated a cross-community campaign to promote food origin

awareness; provide access to fresh, unprocessed fruits and vegetables; and spur grass roots enthusiasm.

In Houston, as in numerous US cities, there has been a movement to reclaim underused land (as well as human capital); to transform the cityscape through citizen engagement. It is necessarily an approach that succeeds with many small victories.

This report endeavors to make the case for an equally effective but different approach. The goal is to inspire entrepreneurs and businesses to action at a large scale. The study intended to show, by example, the potential for food production in a dense, integrated and diverse city fabric: where it becomes a part of the urban ecology; where waste streams become nutrient flows; and where people of all ages and abilities are engaged. This visioning of alternative design futures has the potential to truly inspire the people of Houston and all our cities.

Like other major cities, Houston has many underutilized rooftop spaces. Reusing and repurposing unused underutilized urban sites in a productive way engages the public and improves the quality of city spaces. Given high land values and high density in cities, rooftops represent an opportunity to locate agricultural space in close proximity to consumers.

Optimized rooftops can host production of a wide variety of consumable goods, including:

- Fresh produce
- Fish
- Poultry
- Eggs
- Cheese
- Honey
- Wax
- Flowers
- Medicine
- Mushrooms
- Fruits
- Compost

**Web Links:**

[http://www.harc.edu/sites/default/files/documents/projects/131115\\_FINAL%20REPORT\\_Houston%20Rooftop%20Food\\_WM+P.pdf](http://www.harc.edu/sites/default/files/documents/projects/131115_FINAL%20REPORT_Houston%20Rooftop%20Food_WM+P.pdf)

**Contacts:**

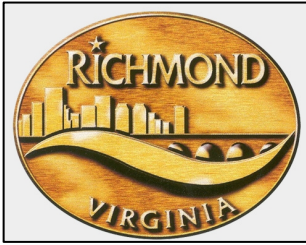
<http://www.harc.edu>

(281) 367-1348

**Status:** Complete

**Success/Failure:** A great report is available that shows the promise of rooftop farms in the Houston region. This study could be used to develop similar analysis in other regions of North America.

## Virginia:



### Richmond:

**Name of Policy:** Nutrient Management Training and Certification Regulations

**Provider:** Virginia Department of Conservation and Recreation

**Type of Policy:** Fast Track Permitting (4VAC5-15)

**Established:** 2012

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The 2014 update to the standards incorporate recommended fertilizer application rates for nitrogen application rates. This amendment is a revision to the Department of Conservation and Recreation's Virginia Nutrient Management Standards and Criteria (standards).

Within their goals for reducing nitrogen in the Commonwealth's water bodies they have acknowledged various qualifying post-construction controls that aid in reducing stormwater runoffs. Various best management practices have been acknowledged and may include but are not limited to rainwater harvesting, vegetated roofs, bioretention, filtering practices, extended detention ponds, etc.

### **Web Links:**

[www.register.dls.virginia.gov/vol30/iss11/v30i11.pdf](http://www.register.dls.virginia.gov/vol30/iss11/v30i11.pdf) (see page 1418)

### **Contacts:**

David C. Dowling

Policy and Planning Director

Department of Conservation and Recreation

(804) 786-2291

david.dowling@dcr.virginia.gov.

**Status:** Current

**Success/Failure:**

## Washington:



**Seattle:**

**Name of document:** Consent Decree

**Involved parties:** King County and the City of Seattle

**Type of Plan:** Consent Decree

**Established:** 2013

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** King County and the City of Seattle have agreed to invest in a the major upgrade of to local sewage and combined stormwater collection, piping and treatment under settlements with the Department of Justice and the U.S Environmental Protection Agency (EPA). The state of Washington was a co-plaintiff and partner in these settlements.

The city of Seattle and King County have agreed to make a total of \$1.46 billion in sewer-system upgrades to reduce the amount of polluted water that enters Puget Sound and other waterways, under settlements reached with the federal government. The settlements resolve claims by the U.S. Environmental Protection Agency (EPA) and the state Department of Ecology that the county and city violated the federal Clean Water Act by discharging raw sewage and other pollutants into local waters. The consent decree was negotiated over several years by local, state and federal officials and was filed in U.S. District Court in Seattle. The settlements allow the county and city greater flexibility to use so-called green infrastructure such as green roofs, rain gardens and bioswales to improve water quality.

**Violations:**

**King County:**

Between 2006 and 2010, the County discharged approximately 900 million gallons of raw sewage to waters of the United States on an annual basis through unauthorized discharges involving combined sewer overflows (CSOs), in violation of CWA Section 301. During this time period, the County also violated its NPDES permit effluent limitations, including total suspended solids, fecal coliform, pH, and settleable solids, at one of its wastewater treatment plants, in violation of CWA Section 402. Furthermore, between 2006 and 2009, the County allowed wastewater to bypass secondary treatment at one of its wastewater treatment plants, in violation of its NPDES permit terms and CWA Section 402.

**Seattle:**



Between 2007 and 2010, the City discharged approximately 200 million gallons of raw sewage to waters of the United States on an annual basis through unauthorized discharges involving combined sewer overflows (CSOs), including dry weather overflows, and sanitary sewer overflows (SSOs), in violation of CWA Section 301. During this time period, the City also improperly operated and maintained its combined sanitary sewer (CSS), resulting in unauthorized discharges of raw sewage to public and private properties through overflow events, including basement backups.

### **Integrated Planning and Green Infrastructure:**

#### **King County:**

The Consent Decree provides the County with the opportunity to propose the integration of water quality improvement projects with its Long Term Control Plan through an Integrated Planning Proposal that the County would need to submit to EPA for review and approval by June 30, 2018. The Consent Decree also allows the County to substitute green infrastructure projects for gray infrastructure projects at four of its approved CSO control projects.

#### **Seattle:**

The Consent Decree provides the City with the opportunity to propose the integration of water quality improvement projects with its Long Term Control Plan through an Integrated Planning Proposal that the City would need to submit to EPA for review and approval by June 30, 2018. The Consent Decree also allows the City to substitute green infrastructure projects for gray infrastructure projects at several CSO control projects.

#### **Web Links:**

<http://www2.epa.gov/enforcement/seattle-washington-and-king-county-washington-settlement>

#### **Contacts:**

Amanda J. Helwig  
U.S. EPA  
Office of Civil Enforcement Water Enforcement Division  
(202) 564-3713  
[helwig.amanda@epa.gov](mailto:helwig.amanda@epa.gov)

**Status:** Current

**Success/Failure:**



**Seattle:**

**Name of Policy:** Green Factor Program

**Provider:** Department of Planning and Development

**Type of Policy:** Code Requirement

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** Yes

**Details:** Seattle Green Factor is a score-based code requirement that increases the amount and improves the quality of landscaping in new development. If your project is required to meet the Seattle Green Factor, you must reach a minimum score established by zoning. You can choose from a “menu” of landscape credits for various features, including green roofs, rain gardens, vegetated walls, and trees and shrubs. You can receive bonus credits if you plant along the sidewalk, use native plants, or create a food garden.

Seattle Green Factor landscaping requirements (for 30% equivalent plant coverage in Commercial and Neighborhood Commercial (NC) zones and 50% coverage in multi-family residential zones) can be met in part through use of green roofs. Green roofs with over 4” of growing media receive more value than roofs with over 2” and less than 4” of media depth. All permeable paving and structural soil credits together may not count for more than one third of the lot's Green Factor score.

Green Walls qualify and count towards landscaping requirements. For vegetated walls, use the square footage of the portion of the wall covered by vegetation. All vegetated wall structures, including fences counted as vegetated walls, shall be constructed of durable materials, provide adequate planting area for plant health, and provide appropriate surfaces or structures that enable plant coverage.

**Web Links:**

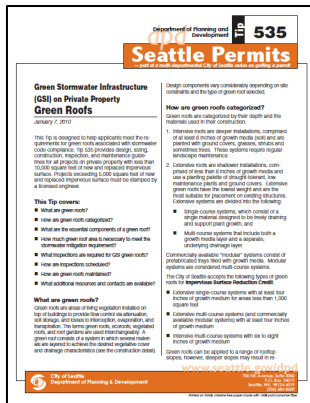
[www.seattle.gov/dpd/cityplanning/completeprojectslist/greenfactor/whatwhy/](http://www.seattle.gov/dpd/cityplanning/completeprojectslist/greenfactor/whatwhy/)  
[www.seattle.gov/dpd/cityplanning/completeprojectslist/greenfactor/documents/default.htm](http://www.seattle.gov/dpd/cityplanning/completeprojectslist/greenfactor/documents/default.htm)

**Contacts:**

Dave LaClergue  
Sustainable Urban Designer  
206-733-9668  
[dave.laclergue@seattle.gov](mailto:dave.laclergue@seattle.gov)

Janet Oslund  
(206) 386-9738

**Status:** New legislation may amend this section!  
**Success/Failure:**



## Seattle:

**Name of Document:** Green Stormwater Infrastructure on Private Property (Green Roofs)

**Provider:** Seattle Dept. Of Planning and Development

**Type of Document:** Client Assist Memo (Tip 535)

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** This tip was designed to help applicants meet the requirements for green roofs associated with the Seattle stormwater code compliance. Tip 535 provides design, sizing, construction, inspection, and maintenance guidelines for all projects on private property with less than 10,000 square feet of new and replaced impervious surface. Projects exceeding 5,000 square feet of new and replaced impervious surface must be stamped by a licensed engineer.

## This Tip covers:

- What are green roofs?
- How are green roofs categorized?
- What are the essential components of a green roof?
- How much green roof area is necessary to meet the stormwater mitigation requirement?
- What inspections are required for GSI green roofs?
- How are inspections scheduled?
- How are green roofs maintained?
- What additional resources and contacts are available?

The City of Seattle accepts the following types of green roofs for **Impervious Surface Reduction Credit**:

- Extensive single-course systems with at least four inches of growth medium for areas less than 1,000 square feet
- Extensive multi-course systems (and commercially available modular systems) with at least four inches of growth medium
- Intensive multi-course systems with six to eight inches of growth medium

Sizing factor for Green Roofs			
Courses/Growth Medium depth	GSI Credit	Pre-developed Pasture Standard	Peak Flow control Standard
Single-course/4-inches	0.59	0.46	0.71
Multi-course/4-inches	0.59	0.46	0.71
Multi course/8-inches	0.70	0.54	0.79

Example:

A 250 square feet green roof is proposed. Multiply 250 x 0.59 (assumes 4-inch growth medium depth). The roof will reduce your “effective” impervious surface by 147.5 square feet.

Inspections:

There are numerous builder and inspector specific inspections that are required for a Green Stormwater Infrastructure (GSI) project. These shall all be met before any earth disturbance takes place on the site. There are other green roof related inspections that are required after the green roof is installed. Review Tip 535 for additional information.

**Web Links:**

[http://www.seattle.gov/dpd/GreenBuilding/Resources/TechnicalBriefs/DPDS\\_009485.asp#seattleincentives](http://www.seattle.gov/dpd/GreenBuilding/Resources/TechnicalBriefs/DPDS_009485.asp#seattleincentives)

<http://www.seattle.gov/DPD/Publications/CAM/cam535.pdf>

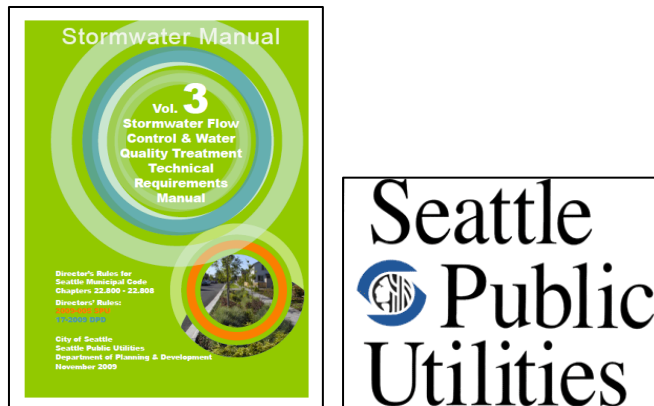
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Seattle Public Utilities  
206-733-9816  
[april.mills@seattle.gov](mailto:april.mills@seattle.gov)

**Status: ?**

## Success/Failure:



## Seattle:

**Name of Document:** Control & Water Quality Treatment Technical Requirements Manual (Vol. 3)

**Provider:** Seattle Public Utilities Department of Planning & Development

**Type of Document:** Technical Requirements Manual

**Established:** 2009

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** This document reviews specific design criteria for flow control BMPs and is divided into six major sections. One of these sections details information regarding numerous green stormwater infrastructure BMPs. One of these is green roofs which is recognized as a stormwater management facility that can control flow and water quality treatment purposes.

### **Flow Control credit:**

The flow control credit may be achieved by retaining trees, planting new trees, dispersing runoff, using permeable pavement surfaces, and installing green roofs. Flow control credits for each method are provided in Table 4.4 (pg 4-12). The credit values are based on the degree to which these methods achieve the flow control standards. A 100 percent credit means that the flow control goal is achieved and no further control is required for the impervious area managed by the BMP. If partial credit is received, the standard is not achieved and additional downstream flow control measures are required to meet the numerical flow control standards.

Flow Control Credits for Green Roofs under the Pre-Sized Approach for sites with less than 10,000 sf impervious surface (Table 4.4):

Single-course: 4-inch depth growth medium

Pre-developed Pasture Standard = 46%

Peak Control Standard = 71%

Multi-course: 4-inch depth growth medium  
Pre-developed Pasture Standard = 46%  
Peak Control Standard = 71%

Multi-course: 8-inch depth growth medium  
Pre-developed Pasture Standard = 54%  
Peak Control Standard = 79%

The impervious area mitigated by a BMP is calculated as:  
*Impervious Area Mitigated = [Flow Control Credit (%)/100] x [Existing Tree Canopy Area, Number New Trees Planted, Area Directed to Dispersion, Pavement Area, or Green Roof Area]*

**Design Criteria (Section 4.4.8.2):**

The following sections provide a description and suggested specifications for the common components of green roofs. Submittal for facility review shall include the following elements, described in detail in the subsequent sections:

- Waterproof membrane
- Root barrier
- Drainage layer
- Separation fabric (for multi-course systems)
- Growth medium (soil)
- Vegetation
- Irrigation plan
- Drain system

Depending upon the system, multiple elements can be combined in one layer. See the SPU GSI website (<http://www.seattle.gov/util/greeninfrastructure>) for a list of design references.

This document and the above info is in accordance with the following:

Director's Rules for  
Seattle Municipal Code  
Chapters 22.800 - 22.808

Directors' Rules:  
2009-005 SPU  
17-2009 DPD

**Web Links:**

<http://www.seattle.gov/util/MyServices/DrainageSewer/Projects/GreenStormwaterInfrastructure/index.htm>  
<http://www.seattle.gov/dpd/codes/dr/DR2009-17.pdf>

**Contacts:**

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Green Infrastructure Specialist  
[tracy.tackett@seattle.gov](mailto:tracy.tackett@seattle.gov)  
(206) 386-0052

**Status:****Success/Failure:****Seattle:**

**Name of Policy:** RainWise Rebate Program

**Provider:** Seattle Public Utilities

**Type of Policy:** Tax Rebate

**Established:**

**Applicable to Green Roofs:** No

**Applicable to Green Walls:** No

**Details:** Currently, the RainWise Rebate program does not extend to green roofs. Seattle Public Utilities is evaluating the inclusion of green roofs in 2014 and should have more information in by the end of the year.

**Web Links:** [rainwise.seattle.gov/city/seattle/rainwise\\_solutions](http://rainwise.seattle.gov/city/seattle/rainwise_solutions)

**Contacts:**

Steve Smith  
Public Engagement Planning & Communications  
Seattle Public Utilities  
[rainwise@seattle.gov](mailto:rainwise@seattle.gov)  
(206) 684-7987

**Status:** Not currently covering green roofs – Ambassador work needed

**Success/Failure:** N/A



## **Seattle:**

**Name of Plan:** Seattle Climate Action Plan

**Provider:** Office of Sustainability and Environment

**Type of Policy:** Long-term Action Plan

**Established:** 2013

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** Potentially

**Details:** Seattle is a progressive city with a commitment to environmental stewardship and a culture of innovation. The thoughtful, creative and ambitious actions that make up the Climate Action Plan provide a clear vision for Seattle residents and prepares the for climate change. Seattle is committed to getting to work immediately on the actions in this Plan and hope to lead the way for other cities. Here is a high light of how green roofs fit into and can be a part of this plan.

## **Actions to Implement by 2015**

### Utility Systems – Drainage systems

- Adopt a Green Stormwater Infrastructure (GSI) policy and implementation strategy affirming GSI as the preferred stormwater management approach.

### *Why this is good for the green roof market place?*

- Green roofs are widely recognized as a reliable Green Stormwater Infrastructure facility.
- The City of Seattle already has policy in place that recognizes green roofs as an approved option.

### Land Use and the Built Environment

- Consider future climate conditions when designing buildings and identify current or future opportunities to include elements such as on-site stormwater management, distributed power generation, and passive solar.
- Pilot an advanced green building standard, such as the Living Building Challenge, on a City facility to assess its appropriateness for resilient design and to promote similar levels of green building in the private market.
- Review development codes and incentives, and identify barriers and potential opportunities, to encourage private development to become more



resilient (e.g. increasing on-site stormwater retention).

*Why this is good for the green roof market place?*

- Green roofs manage stormwater on-site, at the point of contact.
- Green roofs are a qualifying technology within the Living Building Challenge.
- Private development incentives have been key to the growth of the green roof market in cities like Portland, OR.

#### Community Preparedness – Food Systems

- Expand community gardening and urban agriculture opportunities at P-patches, schools, and on rooftops and inventory vacant land that could be made available for farming.

*Why this is good for the green roof market place?*

- Rooftops are starting to be used around North America as a viable option for Urban Agriculture. There are many successful case studies that can be referenced.

#### **Actions to Implement by 2025**

##### Building Energy -Multifamily Residential & Commercial Buildings:

- New Buildings and Major Renovations should be meeting green/sustainability standards.
- 50% of permitted new construction projects achieve one of the following green building standards: Living Building Challenge, Built Green, LEED, or Evergreen Sustainable Development.

*Why this is good for the green roof market place?*

- Green roofs are an attractive and value added technology for developers to choose from to meet this goal.
- Green roofs are currently a qualifying option within each of these green building standards.

**Web Links:** [www.seattle.gov/environment/climate-change/climate-action-plan](http://www.seattle.gov/environment/climate-change/climate-action-plan)

#### **Contacts:**

Jill Simmons, Director

Tracy Morgenstern, Climate Protection Program Manager

Office of Sustainability and Environment

(206) 615-0817

**Status:** In progress

**Success/Failure:**

#### **Wisconsin:**



**Milwaukee:**

**Name of Policy:** Regional Green Roof Initiative:

**Provider:** Milwaukee Metropolitan Sewerage District (MMSD)

**Type of Policy:** Incentive Funding

**Established:** 2010

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The Milwaukee Metropolitan Sewerage District (MMSD) is providing incentive funding to increase green roof coverage within its service area. The Regional Green Roof Initiative will provide up to \$5 per square foot of an approved green roof project. In addition to managing stormwater, green roofs offer numerous additional environmental, economic, and social benefits.

**Web Links:**

**Contacts:**

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**Status:** Current

**Success/Failure:**

## **Federal Opportunities**



**United States:**

**Name of Policy:** Transportation Investment Generating Economic Recovery (TIGER Discretionary Grant program)

**Provider:** U.S. Department of Transportation

**Type of Policy:** Grant Program

**Established:**

**Applicable to Green Roofs:** Potentially – not specifically called out

**Applicable to Green Walls:** No

**Details:** The U.S. Department of Transportation recently announced that the Transportation Investment Generating Economic Recovery (TIGER Discretionary Grant program) has up to \$600 million available for capital projects related to highways, bridges, public transportation, rail, ports, and intermodal projects. A primary selection criterion specifically mentions addressing stormwater through natural means, avoiding impacts to water quality, and providing benefits like groundwater recharge, brownfield redevelopment, and stormwater mitigation including green infrastructure. Of this funding, \$35 million is available for project and regional-level planning that include factors like stormwater and future risks and vulnerabilities like extreme weather and climate change. Eligible applicants are State, local, and tribal governments, transit agencies, port authorities, metropolitan planning organizations, other political subdivisions of State or local governments, and multi-State or multi-jurisdictional groups applying through a lead applicant.

The TIGER program enables DOT to use a rigorous process to select projects with exceptional benefits, explore ways to deliver projects faster and save on construction costs, and make investments in our Nation's infrastructure that make communities more livable and sustainable.

**Web Links:**

[www.dot.gov/tiger](http://www.dot.gov/tiger)

<http://www.dot.gov/tiger/about>

**Contacts:**

**Status:** TIGER applications are due April 28, 2014

**Success/Failure:**



**United States:**

**Name of Policy:** Great Lakes Shoreline Cities Green Infrastructure Grants

**Provider:** US EPA

**Type of Policy:** Grant program

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** EPA has invited the 22 largest U.S. Great Lakes shoreline cities to apply for Great Lakes Restoration Initiative (GLRI) funding for green infrastructure projects that will improve Great Lakes water quality. These GLRI grants will be used for green infrastructure projects to reduce urban runoff and sewer overflows that foul beaches and impair Great Lakes water quality.

Up to \$8.5 million is available to U.S. Great Lakes shoreline cities in the following amounts:

- |                                     |                   |
|-------------------------------------|-------------------|
| • Population greater than 500,000   | Up to \$1,000,000 |
| • Population from 100,000 - 499,999 | Up to \$500,000   |
| • Population from 50,000 - 99,999   | Up to \$250,000   |

Eligible cities can use the grants to cover up to 50 percent of the cost of:

- |                   |                              |
|-------------------|------------------------------|
| • Rain gardens    | • Constructed wetlands       |
| • Bio-swales      | • Stormwater tree trenches   |
| • Green roofs     | • Other green infrastructure |
| • Porous pavement | measures installed on public |
| • Greenways       | property                     |

EPA encourages cities to work with non-governmental organizations and private sector partners on these projects.

**Web Links:** <http://www.epa.gov/grtlakes/fund/shoreline/>

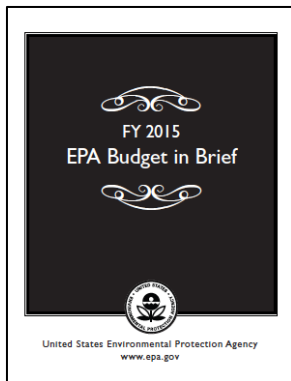
**Contacts:**

Patricia Thompson

[thompson.patricia@epa.gov](mailto:thompson.patricia@epa.gov)

312-886-6015

**Status:** Applications due: Sept. 15, 2013. Grants will be awarded to eligible Great Lakes shoreline cities on a “first-come, first awarded” basis – until funding runs out.



**United States:**

**Name of Document:** EPA Budget in Brief - 2015 Fiscal Year

**Provider:** EPA

**Type of Document:** 2015 Fiscal Year Budget

**Established:** 2014

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** No

**Details:** The mission of the Environmental Protection Agency (EPA) is to protect human health and the environment. The Agency's FY 2015 budget supports implementation of the EPA's priorities through focused efforts to develop and implement creative, flexible, cost-effective, common sense and sustainable actions to fight climate change, to protect public health, and to safeguard the environment.

The President's proposed fiscal year 2015 budget for the EPA dedicates \$5.0 million and adds 30 staff to strengthen green infrastructure activities to further sustainability goals, particularly in urban, underserved and economically distressed communities. Incorporating green infrastructure and enhancing stormwater management helps to create livable urban communities and improve the quality of urban waters. The proposed FY15 funding continues and increases EPA's commitment to expanding the use of green infrastructure through collaborative partnerships and capacity building.

The Safe and Sustainable Water Resources (SSWR) research program, funded at \$114.2 million in FY 2015, conducts research and provides the information and tools to EPA, water resource managers, and other decision makers at all levels of government. Research integrates social, economic, and environmental sciences to support the nation's range of growing water-use and ecological requirements.

The SSWR research program conducts research around two inter-related themes:

**Theme 1: Sustainable Water Resources:**

Integrates environmental, economic, social, and sciences to provide effective and efficient tools to ensure safe and sustainable water quality and availability. Research

focuses on protecting and restoring water resources for designated uses (e.g., drinking water, aquatic life, recreation, agriculture, industrial processes).

Theme 2: Sustainable Water Infrastructure Systems:

Focuses on developing innovative water infrastructure management approaches and techniques for reducing barriers to improved water-resources management. Research encompasses system design, treatment alternatives and potential negative/positive health effects, life-cycle analysis, best management practices (BMP), resiliency and viability. SSWR is increasingly focusing on unique needs for small water systems.

In FY 2015, the EPA will shift the emphasis of its Green Infrastructure research efforts away from performance monitoring of best management practices (BMP) at individual sites to work with communities and to expand research efforts with constructed and natural green infrastructure to a more holistic, watershed approach. This will include reinvesting \$2.3 million for the pilot-testing of approaches for:

- Integrating the use and placement of natural green infrastructure (wetlands, riparian buffers) and constructed green infrastructure (permeable pavement, green roofs, etc.) within the watershed for maximum stormwater interception and mitigation
- Mitigating flood events and “heat-island” effects that have associated public health and economic consequences, especially during extreme weather events and a warming climate
- Reducing sediment and nutrients in source water watersheds used for drinking water

Research on long-term performance monitoring and new BMP development will continue through support for extramural research at academic institutions.

**Web Links:**

[www2.epa.gov/sites/production/files/2014-03/documents/fy15\\_bib.pdf](http://www2.epa.gov/sites/production/files/2014-03/documents/fy15_bib.pdf)

**Contacts:** [www.epa.gov](http://www.epa.gov)

**Status:** Not implemented yet

**Success/Failure:** Not implemented yet

**United Kingdom:**



**London:**

**Name of Policy:** Various

**Provider:** Various

**Type of Policy:** Various

**Established:**

**Applicable to Green Roofs:** Yes

**Applicable to Green Walls:** Not sure

**Details:** Although there is no explicit national policy that requires or encourages the use of green roofs, there are key national policies that support them. These include *Securing The Future* – the UK Government’s sustainable development strategy 2005, and the *Climate Change* – the UK Programme 2006.

The use of green roofs would also be consistent with a range of policy guidance including:

- PPS1 - Delivering sustainable development
- PPG2 - Green belts
- PPS3 - Housing
- PPS9 - Biodiversity and geological conservation
- PPG17 - Planning for space, sport and recreation
- PPS25 - Development and flood risk

The vision of a greener London is in line with that the London Plan (consolidated with Alterations since 2004):

- Policy 4A.3 - Sustainable design and construction
- Policy 4A.9 - Adaptation to climate change
- Policy 4A.11 - Living roofs and walls
- Policy 4A.14 - Sustainable drainage
- Policy 4A.17 - Water quality
- Policy 4A.11 - Living roofs and walls - states:

The Mayor will, and boroughs should, expect major developments to incorporate living roofs and walls where feasible and reflect this principle in DPD policies. It is expected that this will include roof and wall planting that delivers as many of these objectives as possible:

- Accessible roof space
- Adapting to and mitigating climate change
- Sustainable urban drainage
- Enhancing biodiversity
- Improved appearance

Boroughs should also encourage the use of living roofs in smaller developments and extensions where the opportunity arises.

**Web Links:**

<http://www.environment-agency.gov.uk/business/sectors/91991.aspx>

The Green Roof Centre

[http://www.thegreenroofcentre.co.uk/green\\_roof\\_code/consultation](http://www.thegreenroofcentre.co.uk/green_roof_code/consultation)

<http://www.greenroofcode.co.uk>

Living Roofs.org

<http://www.livingroofs.org>

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