

Stormwater Management: Low Impact Development

Ordinance template

By Brackett Smith and Neha Bhatt

This model policy is part of the Stormwater Management (LID) Policy Toolkit. Visit the “Policy Toolkits” page of the [Local Leaders Council web site](#) for more information and implementation tips.

The following sample sustainable stormwater management ordinance is based on New York City’s (NY) sustainable stormwater program. The New York-specific references have been removed to facilitate easier adaption by other most local governments. The original language is available in the New York City Administrative Code § 24–526.1. This template may be used to understand how stormwater programs can be set up and may easily be customized to fit other local circumstances.

New York’s ordinance clearly lays out the process for adopting a sustainable stormwater management plan, implementing sustainable practices, obtaining public input, and noting where regulations are needed to make a plan work. These provisions enable local governments to take the critical first steps to implementing a successful stormwater management plan centered on adopting low impact development standards for public and private sector development projects.

NYC’s law on stormwater management development regulations

<http://codes.lp.findlaw.com/nycode/ADC/24/5/24-526.1>

(New York City Administrative Code § 24–526.1)

NYC’s guidelines for Design and Construction

http://www.nyc.gov/html/dep/pdf/green_infrastructure/stormwater_guidelines_2012_final.pdf

= Ordinance template =

(a) Policy

(1) It is the goal of [city/county] to:

- (A) Reduce the volume of stormwater flowing into its sewer system, to improve water quality of its surface waters and to protect the public health through the restoration and protection of the ecological health of its watershed, and to enhance use and enjoyment of its watershed for recreational activities;
- (B) Require the implementation of green infrastructure on public property and on new private homes and developments; and

(C) Encourage homeowners and developers to retrofit existing homes and developments with green infrastructure by offering incentives.

(b) Definitions. For the purposes of this section only, the following terms shall have the following meanings:

- (1) “Best Management Practices” or “BMPs” mean source control measures.
- (2) “Bioretention” means using living vegetative systems to capture, store, and cleanse stormwater. Bioretention may be achieved by, among other things, rain gardens, vegetated buffers, swales, and medians.
- (3) “Bluebelt” means engineered and natural aquatic systems, such as existing wetlands, streams and ponds that control the movement of water and prevent flooding, as an alternative to constructing storm sewers.
- (4) “Bluerroof” means a rooftop detention system.
- (5) “Cisterns” means storage tanks that are used to capture and store rainwater and other precipitation.
- (6) “Downspout disconnections” means disconnecting downspouts from the sewer system, such that water from downspouts drains into bioretention devices, cisterns, or other stormwater control devices.
- (7) “Green infrastructure” means the implementation of various tools, primarily vegetation and soil, to manage stormwater and reduce stormwater runoff.
- (8) “Green park” means public and private parks that use stormwater management tools such as rain gardens, stormwater tree trenches and porous paving, among other tools, to capture runoff water from rain and snowstorms
- (9) “Green roof” means a living vegetative system partially or wholly covering a roof.
- (10) “Green street” means a street that incorporates environmentally beneficial engineering techniques into its design, including vegetative source control measures.
- (11) “Green wall” means a living vegetative system partially or wholly covering a wall.
- (12) “Gray-water reuse” means reuse of wastewater for beneficial purposes such as irrigation.
- (13) “High level storm sewer” means a storm sewer in which the catch basin connection is removed from the combined sewer under streets or in the public right-of-way and connected to a new storm sewer that will convey stormwater directly to ambient surface waters. As a general matter this type of separation is also called “partial separation.”
- (14) “Loading” means an amount of matter that is introduced into a receiving watershed.
- (15) “Low Impact Development” means development that mimics a landscape’s natural water cycle in order to reduce the negative impacts of stormwater runoff on bodies of water.
- (16) “Non-technological measure” or “non-technological source control measure” means a source control measure that does not use technology to control stormwater, such as operational strategies, procedural changes to design and construction protocols, or performance standards.
- (17) “[Designated water management agency]” means such office or agency as the [mayor/county commission chairman] shall designate.

(18) “Permeable pavement” means any area paved with material that permits water penetration into a suitably designed discharge bed. Permeable pavement may consist of any porous surface materials that are installed, laid, or poured.

(19) “Pollution loading” means an amount of pollutants that is introduced into a receiving watershed.

(20) “Rain barrel” means a barrel used to hold rainwater.

(21) “Source control measure” means any stormwater management practice designed to reduce and/or slow the flow of stormwater into a combined sanitary and stormwater sewer or a separate stormwater sewer, including, but not limited to, any such practices commonly referred to as “Low Impact Development” or “Best Management Practices.”

(22) “Subgrade storage chambers” means underground stormwater storage facilities that are designed to hold stormwater to prevent such water from entering combined or other sewer systems.

(23) “Technological measure” or “technological source control measure” means a source control measure that uses a technology to control stormwater, such as rooftop detention or a constructed bioswale.

(24) “Tree cover” means the extent to which an area is covered by the canopy of living trees.

(25) “Tree pit design” means the specifications according to which space is created for the planting of trees in paved areas, including but not limited to the depth and breadth of the planting area, the type of soil, and the type of barrier, if any, constructed around the perimeter of the planting area.

(26) “Vegetative source control measure” means a source control measure that relies on living vegetative systems to reduce and/or slow the flow of stormwater into a combined sanitary and stormwater sewer or a separate stormwater sewer.

(27) “Watershed” means any river, tidal estuary, bay, creek, canal, or other body of surface water.

(c) Development of sustainable stormwater management plan.

(1) The [designated water management agency] shall develop a proposed and final sustainable stormwater management plan. Such plan shall identify and provide for the implementation throughout the [city/county], on both public and private properties, of efficient, effective, and feasible technological and non-technological source control measures to reduce the volume of water flowing into the [city/county]'s sewer system and the pollution loadings carried by stormwater into the [city/county]'s watersheds.

(2) No later than [designated date], the [designated water management agency] shall submit a draft sustainable stormwater management plan that meets the requirements of this section to the [mayor/ chairman], [the council or commission], and the public for review and comment. Submission to the public may be made by posting a draft plan on the internet.

(3) [At a later designated date], the [designated water management agency] shall submit a final sustainable stormwater management plan that meets the requirements of this section to [the mayor/chairman], the [council/commission], and the public. This plan shall be reviewed and revised by the [designated water management agency] as necessary to achieve such plan's goals.

(4) [Designated water management agency] shall review the sustainable stormwater management plan at least once every four years. Any such revisions and the reasons for such revisions shall be indicated in such plan.

(5) [At a designated date two years after the sustainable stormwater management plan's designation], and [at a designated date] every second year thereafter, the [designated water management agency] shall submit a report to [the mayor/chairman], the [council/commission], and the public. This report shall include the implementation status of the measures included in the plan prepared pursuant to this ordinance, including a quantitative assessment, where susceptible to quantification, and a qualitative assessment of the progress made toward achieving each of the milestones identified in such plan and, where revised, an explanation for such revision.

(d) Sustainable stormwater management plan elements.

(1) The plan shall include, but not be limited to, the following:

(A) a statement of goals related to reducing the volume of stormwater flowing into the [city/county]'s sewer system, improving water quality in the [city/county]'s watershed, protecting the public health through the restoration and protection of the ecological health of the [city/county]'s watershed, enhancing use and enjoyment of the [city/county]'s watershed for recreational activities, and such other aspects of stormwater management deemed appropriate.

(B) an identification and description of the technological and non-technological measures included in such plan, including, for each such measure, (i) a statement regarding the general site conditions required and types of properties where each such measure is typically feasible for implementation and (ii) identification to the greatest extent feasible of the areas in the [city/county] that satisfy those conditions and a prioritization of such areas according to the magnitude of potential benefits achievable through implementation of source control measures;

(C) for each of the technological measures included in such plan, (i) an identification of the agencies and/or offices of the [city/county] that would oversee and/or be responsible for constructing, permitting or otherwise approving or promoting such measures and (ii) any prerequisites to adoption of such technological measures, including but not limited to technical studies, pilot projects, funding and budgetary considerations, and federal, state or local legislative or regulatory action;

(D) for each of the non-technological measures included in such plan, (i) an identification of protocol amendments and the agencies and/or offices of the [city/county] that would be responsible for adopting such measures and (ii) any prerequisites to adoption of such measures, including but not limited to funding and budgetary considerations, and federal, state or local legislative or regulatory action;

(E) descriptions of any modeling methodologies used to identify technological measures, a statement of all inputs used to complete any modeling run, and the results of any modeling, or a compilation of other supporting data, whether derived from a model or not;

(F) for each of the specific goals, measures and prerequisites included in such plan, (i) a timeline setting forth target dates to achieve interim and final milestones, including but not limited to protocols for monitoring, assessing, and reporting

progress toward achieving such milestones, provided that such milestones shall, where susceptible to quantification, be expressed quantitatively, and any potential prerequisites to achieving such milestones, including but not limited to technical studies, pilot projects, and federal, state or local legislative action; and (ii) identification of budgetary authorizations, appropriations, or other allocations that are necessary to implement the measures and goals included in such plan;

(G) protocols for signage and for a program of public notification to inform the public of the location and occurrence of combined sewer overflow events, which such program shall include a mechanism to alert potential users of the watershed affected by combined sewer overflow events, through the use of radio, print media, internet, 311, email alerts or similar modes of communication, of the estimated nature and duration of conditions that are potentially harmful to users of such watershed;

(H) a methodology to be used for quantitatively measuring the performance of source control measures undertaken and/or monitored by the [city/county] where feasible;

(I) a summary of public input provided during the development of the sustainable stormwater management plan, steps taken to solicit public input about such plan, the [designated water management agency]'s responses to comments received from the public, and a summary of steps the department has taken and will take to involve the public, including organizations and members of the public with relevant knowledge and expertise, in the implementation of such plan.

(e) Initial assessment of measures.

(1) In addition to any other source control measure the [designated water management agency] deems appropriate in the plan prepared pursuant to this section, the [designated water management agency] shall assess the technical and environmental feasibility, benefits, costs and cost-effectiveness of including the following source control measures:

(A) amending the protocols, procedures and/or rules and regulations applicable to the scoping, design, preliminary and final budget approval, and operations and maintenance of [city/county] owned or [city/county]-financed projects, to require the consideration of source control measures and other stormwater controls at the earliest possible stage;

(B) establishing performance, construction and/or design standards for the minimization and control of stormwater runoff from new or existing roads, bridges, and other portions of the public right-of-way;

(C) establishing performance, construction and/or design standards for the minimization and control of stormwater runoff from new or existing public open space, public building green roofs, parks, or plazas;

(D) requiring mandatory technological source control measures on public and private property, including, but not limited to, bluebelts, green roofs, bioretention, tree cover and tree pit design, permeable pavement, wetland preservation and creation, green streets, green walls, blue roofs, rain barrels, cisterns, downspout disconnections, subgrade storage chambers, and gray-water reuse; provided that such plan shall prioritize vegetative source control measures where feasible;

(E) creating incentives, including, but not limited to, tax incentives, grant programs, low-interest financing, expedited permitting, and restructuring of water and sewer rates, to encourage the owners of new and existing private buildings to use Low Impact Development to retrofit or construct buildings and make improvements with appropriate source control measures;

(F) amending provisions in the building code, housing maintenance code, zoning resolution, and other applicable federal, state and local laws, rules and regulations applicable to all new or existing public or private construction projects or property, to require the implementation of source control measures and to institute quantitative performance standards for the minimum amount of stormwater that must be retained, detained, infiltrated, and/or reused on-site;

(G) using new and existing public open space, public building roofs, parks, and plazas for detention, retention, infiltration, reuse and natural filtering of stormwater;

(H) implementing a public education program to increase awareness about the need to reduce the flow of stormwater into the [city/county]'s sewer systems and watershed, and about specific methods and practices for doing so;

(I) supplementing high-level storm sewers with source control measures to reduce stormwater runoff volume and/or pollutant loadings at sites where high-level storm sewers are built, have been proposed, or are under consideration;

(J) promoting water conservation;

(K) adapting ongoing ambient water quality monitoring programs to provide for regular collection of samples in the immediate vicinity of combined sewer outfalls during or immediately following combined sewer overflow events; and

(L) encouraging the development of existing and new local markets, job training, and employment opportunities to support the implementation and maintenance of source control measures.

(2) For purposes of the assessments carried out pursuant to paragraph one of this subdivision benefits considered shall be quantified to the greatest extent practicable and shall include, but not be limited to (i) water quality benefits to particular watershed, stormwater capture rates, reductions in combined sewer overflow discharge volumes, the potential savings in hard infrastructure, construction and maintenance costs, and reduction of the [city/county]'s operating expenses for sewage treatment and (ii) non-water quality related environmental, public health, aesthetic, and economic benefits, such as those associated with cooling and cleansing the air, reducing energy demand, sequestering and reducing emissions of greenhouse gases, beautifying neighborhoods, providing habitat for birds and other wildlife, and developing new local markets that can stimulate job growth.

(f) Public input.

(1) The [designated water management agency] shall solicit public input during the development of the sustainable stormwater management plan. Opportunities for such input shall include, at a minimum, (i) a thirty day comment period immediately following the release of the draft plan pursuant to this section, at which time the [designated water management agency] shall consider all comments received on such plan and (ii) quarterly public forums at which representatives of the [designated water management agency] shall provide updates

on the [designated water management agency]'s progress in preparing such plan and invite feedback from participants. The [designated water management agency] shall respond to all substantive comments received during the comment period.

(2) The [designated water management agency] shall involve the public and organizations and members of the public with relevant knowledge and expertise in the implementation of the measures included in such plan.

(g) Reporting. Each management report and preliminary management report submitted to the [council/commission] by the [mayor/chairman] shall include, with respect to each agency or office identified in this section, quantitative indicators of progress towards implementing the measures included in the sustainable stormwater management plan.