

A4 MUNICIPAL ORDINANCES – SUMMARY OF RECOMMENDATIONS

The NJDEP Stormwater BMP Manual provides a Model Stormwater Control Ordinance for Municipalities that is applicable to all site plan and subdivision land development applications classified as Major Development under NJ stormwater management requirements. Municipalities in Passaic County have (1) adopted the model ordinance in entirety, with or without revision, (2) incorporated selected sections into other municipal regulations, or (3) developed their own regulations without incorporating the model ordinance. For example:

- Haledon has adopted the ordinance and added specific descriptions of nonstructural stormwater management strategies such as buffer areas that can be used to disconnect impervious surfaces and treat stormwater runoff and sidewalks graded to discharge stormwater to neighboring lawns where feasible, also to disconnect impervious surfaces.

- Wanaque has adopted parts of the model ordinance, but not in entirety.
- Pompton Lakes applies requirements for stormwater management through its Zoning and Land Use Design Standards. Specific requirements for stormwater quality control are not provided.

For municipalities that have not already done so, adoption of the NJDEP model with revisions to address specific local conditions and needs ordinance is recommended. In addition, following from recommendations for the Passaic County Site Plan and Subdivision Resolutions (see Appendix A-3), the following revisions are recommended to advance the implementation of LID/GSI at the municipal level.

TABLE A4.1 SUMMARY OF RECOMMENDATIONS (CONTINUED)

TYPE OF REVISION	RECOMMENDED CHANGE	NOTES
New/Amended Definition	Best Management Practice (BMP) - A strategy or technique to prevent or mitigate the negative impacts of stormwater runoff. BMPs can be nonstructural or structural.	Add definitions, including, but not limited to, stormwater-related terms.
	Channel Protection – Management of peak rates from smaller storm events to protect the quality of stream channels and banks, fish habitat, and manmade infrastructure from the erosive forces and downstream sedimentation due to high stream velocities.	Consider adding a specific requirement to protect stream channels from degradation, for example, retain or detain runoff from all DCIA within the limits of earth disturbance from a 1-year, 24-hour Natural Resources Conservation Service Type II storm such that runoff takes a minimum of 24 hours and a maximum of 72 hours to drain.
	Development – The division of a parcel of land into two or more parcels; the construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any building or other structure, or of any mining excavation or landfill; and any use or change in the use of any building, or other structure, or land, or extension of use of land.	
	Directly Connected Impervious Area (DCIA) – an impervious surface that is directly connected to the drainage system either on the surface or subsurface.	
	Disconnected Impervious Area (DIA) – an impervious surface that directs stormwater runoff to a pervious surface or BMP.	

TABLE A4.1 SUMMARY OF RECOMMENDATIONS (CONTINUED)

TYPE OF REVISION	RECOMMENDED CHANGE	NOTES
<p>New/Amended Definition</p>	<p>Earth Disturbance – the addition of impervious surface (e.g., full-depth pavement); exposure or movement of soil or bedrock (e.g., grading, excavation, and full-depth pavement removal); or clearing, cutting, or removing vegetation. Mill and overlay of existing pavement that does not expose soil is not considered earth disturbance.</p>	
	<p>Extended Detention – temporary storage of stormwater in a BMP designed to address both the runoff quality and quantity impacts of land development. Practices that provide extended detention store runoff from the Water Quality Design Storm and allow settling of pollutants while also reducing the peak rate or runoff from the small storms that cause localized flooding and damage to stream channels. Extended detention systems can also be designed to reduce the peak flow from larger storms.</p>	
	<p>Erosion – The detachment and movement of soil or rock fragments by water, wind, ice, and gravity.</p>	
	<p>Green Stormwater Infrastructure (GSI) – Engineered products, technologies, and structural, small-scale BMPs dispersed throughout a development site to store, infiltrate, evapotranspire, and/or recycle stormwater runoff close to its source. GSI practices mimic natural processes to enhance overall environmental quality and provide utility services. Plants and soil are key components in most GSI systems. When used as components of a stormwater management system, GSI practices such as green roofs, porous pavement, rain gardens, and vegetated swales can produce a variety of environmental benefits. In addition to effectively retaining and infiltrating rainfall, these technologies can simultaneously help filter air pollutants, reduce energy demands, mitigate urban heat island effects, and sequester carbon while also providing communities with aesthetic and natural resource benefits.</p>	
	<p>Green Street – a transportation corridor that incorporates LID and GSI elements and promotes nonmotorized forms of transportation.</p>	
	<p>Impervious Area or Cover – Any structure, surface, or improvement that reduces and/or prevents absorption of stormwater into land. Porous paving, paver blocks, gravel, crushed stone, crushed shell, elevated structures (including boardwalks), and other similar structures, surfaces, or improvements are considered impervious cover by NJDEP for the purposes of calculating stormwater runoff to be managed. Grass, lawns, or any other vegetation are not considered impervious cover.</p>	
	<p>Impervious Surface – A surface that has been compacted or covered with a layer of material so that it is highly or completely resistant to infiltration by water.</p>	
	<p>Infiltration – The process by which water from precipitation seeps into the soil.</p>	

TABLE A4 1 SUMMARY OF RECOMMENDATIONS (CONTINUED)

TYPE OF REVISION	RECOMMENDED CHANGE	NOTES
New/Amended Definition	<p>Low Impact Development (LID) – Ecologically sensitive planning and design strategies and techniques that preserve and/or closely mimic natural or pre-development hydrologic processes. LID may include both nonstructural and structural stormwater BMPs, such as clustering uses to minimize the amount of impervious area and installing green roofs on buildings. LID usually operates at a scale larger than an individual BMP and may include an entire development site or even a watershed. At the watershed scale, LID can include protection and restoration of riparian corridors and floodplains. LID is a versatile approach that can be applied to new development, urban retrofits, and revitalization projects. This design approach incorporates strategic planning with micromanagement techniques to achieve environmental protection goals while still allowing for development or infrastructure rehabilitation to occur.</p>	
	<p>Major Development – Any development that will ultimately result in the disturbance of one or more acres of land, or increase impervious surfaces by one-quarter acre (or 10,890 square feet) or more, per N.J.A.C. 7:8. Disturbance for the purpose of these regulations is the placement of impervious surface or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation.</p>	<p>Consider redefining to</p> <ul style="list-style-type: none"> • Reduce amount of earth disturbance that triggers requirements to 2,500 SF. • Reduce threshold for impervious surface to 2,500 SF. <p>Consider adding Replaced Impervious Area – Existing impervious area that is removed full depth to existing soil and then replaced with new impervious surface. Mill and overlay of pavement or other repairs that leave the aggregate subbase in place and/or do not expose soil do not constitute replacement and are not counted toward determination of the regulatory threshold.</p>
	<p>Nonstructural BMP – A strategy or technique to prevent the creation of stormwater runoff through site planning and design. Examples of strategies include protecting natural resources, minimizing the amount of site disturbance during construction, reducing the amount of impervious area proposed, and clustering uses. Nonstructural BMPs typically apply to an entire site and are not fixed or specific to one location.</p>	
	<p>Replaced Impervious Area – Existing impervious area that is removed full depth to existing soil and then replaced with new impervious surface. Mill and overlay of pavement or other repairs that leave the aggregate subbase in place and/or do not expose soil do not constitute replacement and are not counted toward determination of the regulatory threshold.</p>	
	<p>Retrofit – The modification of an existing development specifically to provide and/or improve stormwater management.</p>	
	<p>Stormwater Runoff – Water flow on the surface of the ground or in storm sewers, resulting from precipitation.</p>	
	<p>Water Quality Design Storm – In New Jersey, defined as 1.25 inches of rainfall falling uniformly in 2 hours.</p>	

TABLE A4.1 SUMMARY OF RECOMMENDATIONS (CONTINUED)

TYPE OF REVISION	RECOMMENDED CHANGE	NOTES
<p>New/Amended Definition</p>	<p>Water Quality Requirement – required improvement of stormwater runoff quality through reduction in pollutant load concentrations, as well as by managing the quantity and timing of stormwater discharge. Pollution-reducing practices make use of physical, chemical, and biological processes to remove nutrients, metals, organics, and other contaminants from stormwater. Infiltration is a key pollution-reducing practice. Extended detention with slow release reduces peak flows in the combined sewer during wet weather events, thus reducing the frequency and magnitude of combined sewer system overflows.</p>	
	<p>Water Quality Volume – volume of runoff that must be managed to meet stormwater management requirements for the Water Quality Design Storm.</p>	
<p>Design Standards</p>	<p>Add requirements for prioritized use of nonstructural LID and structural LID/GSI practices before use of other structural BMPs or before use of conventional gray stormwater controls for all development projects. Highest priority is accorded to vegetated and infiltrating systems, i.e., bioretention, green roofs, pervious paving, and subsurface infiltration.</p>	
	<p>A waiver from meeting the LID/GSI requirements in these Regulations may be issued by the Municipal Engineer if the applicant demonstrates the impracticability of implementing these requirements. A waiver request must be submitted to the Municipal Engineer for consideration. The waiver request must be signed and sealed by a professional engineer and shall include a technical explanation and supporting documentation for the waiver request. Recognized circumstances demonstrating potential impracticability include the following:</p> <ul style="list-style-type: none"> • Insufficient land area for treatment • Steep slopes • Unsuitable soil conditions for infiltration • Existing soil contamination • Risk of groundwater contamination <p>When infiltration is not an option for all or part of the water quality storm volume, the unfiltered volume must be managed by a detention-based system with a controlled release rate, or as directed by the Municipal Engineer.</p>	<p>Add conditions for a waiver from use of LID/GSI to meet water quality control requirements through infiltration.</p>
	<p>Remove conflicts related to use of GSI in other municipal codes, rules, and standards (see Municipal Code Inventory below). Make approved use of GSI explicit.</p>	<p>Curb height requirements, type of pavement materials, and restrictions on landscaping in the right-of-way pose potential obstacles to GSI implementation.</p>
	<p>Require a mitigation fee for instances where a project cannot meet its stormwater management requirements.</p>	

TABLE A4.1 SUMMARY OF RECOMMENDATIONS (CONTINUED)

TYPE OF REVISION	RECOMMENDED CHANGE	NOTES
<p>Design Standards</p>	<p>Reduce the size of projects that trigger stormwater management requirements, specifically, projects that create 2,500 square feet or more of new and/or replaced impervious area. All projects should meet water quality control requirements for TSS, nitrogen and phosphorus removal rates specified by NJDEP for major development using nonstructural LID and GSI practices.</p>	<p>Potential approaches to establishing a lower threshold include the following:</p> <ul style="list-style-type: none"> • Redefining the major development category to reduce the size of projects that trigger stormwater management requirements under the NJ Stormwater Rule. • Reducing the size of projects that trigger stormwater management requirements without redefining the major development category or creating a new category. The Municipality retains the flexibility to decide on a case-by-case basis whether to accept lower performance standards on projects that cannot achieve full compliance. • Establishing a regulatory category such as “minor development” for projects that do not meet the definition of major development.
	<p>Remove conflicts related to use of GSI in other municipal codes, rules, and standards (see Municipal Code Inventory below). Make approved use of GSI explicit.</p>	<p>Curb height requirements, type of pavement materials, and restrictions on landscaping in the right-of-way pose potential obstacles to GSI implementation.</p>
	<p>Require a mitigation fee for instances where a project cannot meet its stormwater management requirements.</p>	
<p>Maintenance Requirements</p>	<p>Add requirement to provide a Maintenance Plan for the stormwater BMPs incorporated into the design of the land development.</p>	<p>The Plan should include preventive and corrective maintenance.</p>
	<p>Add requirement to provide annual Inspection Reports to demonstrate compliance with Maintenance Plan requirements.</p>	
	<p>Municipal inspectors will periodically conduct random postconstruction assessments of projects.</p>	

MUNICIPAL CODE INVENTORY

Completing a municipal code inventory and scorecard can provide a clear understanding of how other rules, regulations, and policies affect implementation of stormwater management in ways that are not always obvious or immediately apparent. Drainage, sewer, watercourse, development, and zoning bylaws may have requirements that can prohibit or hinder LID/GSI projects, such as the requirement that sidewalks be made of concrete, with no provision for porous concrete or permeable pavers. Also, information about development rules is not always found in codes or regulations and may instead be placed in supporting design manuals, review checklists, guidance documents or construction specifications. The range of municipal documents where such information is found includes the following:

- Comprehensive Plan
- Zoning Ordinance
- Zoning Overlay District Regulations (such as a Conservation Overlay District enacted after the Zoning Law)
- Site Plan and Subdivision Ordinances
- Highway Specifications, Street Standards or Road Design Manual
- Parking Requirements
- Building and Fire Regulations/Standards
- Flood Damage Prevention Regulations
- Wetland and/or Watercourse Ordinance

- Grading Ordinance
- Erosion and Sediment Control Ordinance
- Stormwater Management Ordinance or Drainage Criteria
- Tree Protection or Landscaping Ordinance
- Steep Slopes Ordinance
- Emergency Response Master Plans
- Hazard Mitigation Plans
- Sewer Ordinance
- Building Codes
- Architectural Standards and Guidelines
- Landscape Standards and Guidelines
- Streetscape Design Standards and Guidelines
- Public Works Department Specifications

The Center for Watershed Protection has developed a tool to assess community land development rules to support LID and GSI. The tool is a simple worksheet that is intended to help communities evaluate their local development regulations to identify revisions that allow or require site developers to minimize impervious cover, conserve natural areas and use runoff reduction practices to manage stormwater. The guidance document and associated worksheet (MS Excel file) are available online at

<https://owl.cwp.org/mdocs-posts/better-site-design-code-and-ordinance-cow-worksheet-2017-update/>

<https://owl.cwp.org/mdocs-posts/cow-scoring-spreadsheet/>

The University of Wisconsin Sea Grant Institute, in collaboration with the National Oceanic and Atmospheric Administration Coastal Storms Program, has also developed a guidance document and scorecard to audit local codes and ordinances. The document includes a section on the impact of code revisions on runoff volume reduction and TSS reduction for several types of GSI practices. This resource document can be downloaded at

<http://seagrant.wisc.edu/Home/Topics/CoastalCommunities/Details.aspx?PostID=2462>