

# New Jersey Stormwater Best Management Practices Manual

February 2004

## A P P E N D I X B

# Municipal Regulations Checklist

### **A checklist for incorporating nonstructural stormwater management strategies into local regulations**

As part of the requirements for municipal stormwater management plans in the Stormwater Management Rules at N.J.A.C. 7:8-4, municipalities are required to evaluate the municipal master plan, and land use and zoning ordinances to determine what adjustments need to be made to allow the implementation of nonstructural stormwater management techniques, also called low impact development techniques, which are presented in *Chapter 2: Low Impact Development Techniques*. *Chapter 3: Regional and Municipal Stormwater Management Plans* provides information on the development of municipal stormwater management plans, including the evaluation of the master plan, and land use and zoning ordinances. This checklist was prepared to assist municipalities in identifying the specific ordinances that should be evaluated, and the types of changes to be incorporated to address the requirements of the Stormwater Management Rules.

## **Part 1: Vegetation and Landscaping**

Effective management of both existing and proposed site vegetation can reduce a development's adverse impacts on groundwater recharge and stormwater runoff quality and quantity.

### **A. Preservation of Natural Areas**

Municipal regulations should include requirements to preserve existing vegetated areas, minimize turf grass lawn areas, and use native vegetation.

- ☐ **Yes** ☐ **No** Are applicants required to provide a layout of the existing vegetated areas, and a description of the conditions in those areas?
- ☐ **Yes** ☐ **No** Does the municipality have maximum as well as minimum yard sizing ordinances?
- ☐ **Yes** ☐ **No** Are residents restricted from enlarging existing turf lawn areas?
- ☐ **Yes** ☐ **No** Do the ordinances provide incentives for the use of vegetation as filters for stormwater runoff?
- ☐ **Yes** ☐ **No** Do the ordinances require a specific percentage of permanently preserved open space as part of the evaluation of cluster development?

## **B. Tree Protection Ordinances**

Municipalities often have a tree ordinance to minimize the removal of trees and to replace trees that are removed. However, while tree ordinances protect the number of trees, they do not typically address the associated leaf litter or smaller vegetation that provides additional water quality and quantity benefits. Municipalities should consider enhancing tree ordinances to a forest ordinance that would also maintain the benefits of a forested area.

- ☐ Yes ☐ No Does the municipality have a tree protection ordinance?
- ☐ Yes ☐ No Can the municipality include a forest protection ordinance?
- ☐ Yes ☐ No If forested areas are present at development sites, is there a required percentage of the stand to be preserved?

## **C. Landscaping Island and Screening Ordinances**

Municipalities often have ordinances that require landscaping islands for parking areas. The landscaping islands can provide ideal opportunities for the filtration and disconnection of runoff, or the placement of small LID-BMPs. Screening ordinances limit the view of adjoining properties, parking areas, or loading areas. Low maintenance vegetation can be required in islands and areas used for screening to provide stormwater quality, groundwater recharge, or stormwater quantity benefits.

- ☐ Yes ☐ No Do the ordinances require landscaping islands in parking lots, or between the roadway and the sidewalk? Can the ordinance be adjusted to require vegetation that is more beneficial for stormwater quality, groundwater recharge, or stormwater quantity, but that does not interfere with driver vision at the intersections?
- ☐ Yes ☐ No Is the use of bioretention islands and other stormwater practices within landscaped areas or setbacks allowed?
- ☐ Yes ☐ No Do the ordinances require screening from adjoining properties? Can the screening criteria require the use of vegetation to the maximum extent practicable before the use of walls or berms?

## **D. Riparian Buffers**

Municipalities may have existing buffer and/or floodplain ordinances that require the protection of vegetation adjacent to streams. Municipalities should consult existing regulations adopted by the Department to ensure that riparian buffer or floodplain ordinances reflect the requirements of the Department within these areas. The municipality should consider conservation restrictions and allowable maintenance to ensure the preservation of these areas.

- ☐ Yes ☐ No Is there a stream buffer or floodplain ordinance in the community?
- ☐ Yes ☐ No Is the ordinance consistent with existing state regulatory requirements?
- ☐ Yes ☐ No Does the ordinance require a conservation easement, or other permanent restrictions on buffer areas?
- ☐ Yes ☐ No Does the ordinance identify or limit when stormwater outfall structures can cross the buffer?
- ☐ Yes ☐ No Does the ordinance give detailed information on the type of maintenance and/or activities that is allowed in the buffer?

## Part 2: Minimizing Land Disturbance

The minimization of disturbance can be used at different phases of a development project. The goal is to limit clearing, grading, and other disturbance associated with development to protect existing features that provide stormwater benefits. Zoning ordinances typically limit the amount of impervious surfaces on building lots, but do not limit the amount of area that can be disturbed during construction. This strategy helps preserve the site's existing hydrologic character, as well as limiting the occurrence of soil compaction.

### A. Limits of Disturbance

Designing with the terrain, or site fingerprinting, requires an assessment of the characteristics of the site and the selection of areas for development that would minimize the impact. This can be incorporated into the requirements for existing site conditions and the environmental impact statement. Limits of disturbance should be incorporated into construction plans reviewed and approved by the municipality. Setbacks should be evaluated to determine whether they can be reduced. The following maximum setbacks are recommended for low impact development designs:

- front yard – 20 feet;
- rear yard – 25 feet; and
- side yard – 8 feet.

☐ Yes ☐ No As part of the depiction of existing conditions, are environmentally critical and environmentally constrained areas identified? (Environmentally critical areas are areas or features with significant environmental value, such as steep slopes, stream corridors, natural heritage priority sites, and habitats of threatened and endangered species. Environmentally constrained areas are those with development restrictions, such as wetlands, floodplains, and sites of endangered species.)

☐ Yes ☐ No Can any of the existing setbacks be reduced?

☐ Yes ☐ No Are there maximum turf grass or impervious cover limits in any of the setbacks?

☐ Yes ☐ No Do the ordinances inhibit or prohibit the clearcutting of the project site as part of the construction?

☐ Yes ☐ No Is the traffic of heavy construction vehicles limited to specific areas, such as areas of proposed roadway? Are these areas required to be identified on the plans and marked in the field?

☐ Yes ☐ No Do the ordinances require the identification of specific areas that provide significant hydrologic functions, such as existing surface storage areas, forested areas, riparian corridors, and areas with high groundwater recharge capabilities?

☐ Yes ☐ No Does the municipality require an as-built inspection before issuing a certificate of occupancy? If so, does the inspection include identification of compacted areas, if they exist within the site?

☐ Yes ☐ No Does the municipality require the restoration to compacted areas in accordance with the Soil Erosion and Sediment Control Standards?

## **B. Open Space and Cluster Development**

Open space areas are restricted land that may be set aside for conservation, recreation, or agricultural use, and are often associated with cluster development requirements. Since open space can have a variety of uses, the municipality should evaluate its open space ordinances to determine whether amendments are necessary to provide improved stormwater benefits.

- ☐ Yes ☐ No Are open space or cluster development designs allowed in the municipality?
- ☐ Yes ☐ No Are flexible site design incentives available for developers that utilize open space or cluster design options?
- ☐ Yes ☐ No Are there limitations on the allowable disturbance of existing vegetated areas in open space?
- ☐ Yes ☐ No Are the requirements to re-establish vegetation in disturbed areas dedicated for open space?
- ☐ Yes ☐ No Is there a maximum allowable impervious cover in open space areas?

## **Part 3: Impervious Area Management**

The amount of impervious area, and its relationship to adjacent vegetated areas, can significantly change the amount of runoff that needs to be addressed by BMPs. Most of a site's impervious surfaces are typically located in the streets, sidewalks, driveway, and parking areas. These areas are further hampered by requirements for continuous curbing that prevent discharge from impervious surfaces into adjacent vegetated areas.

### **A. Streets and Driveways**

Street widths of 18 to 22 feet are recommended for low impact development designs in low density residential developments. Minimum driveway widths of 9 and 18 feet for one lane and two lanes, respectively, are also recommended. The minimum widths of all streets and driveways should be evaluated to demonstrate that the proposed width is the narrowest possible consistent with safety and traffic concerns and requirements. Municipalities should evaluate which traffic calming features, such as circles, rotaries, medians, and islands, can be vegetated or landscaped. Cul-de-sacs can also be evaluated to reduce the radius area, or to provide a landscape island in the center.

- ☐ Yes ☐ No Are the street widths the minimum necessary for traffic density, emergency vehicle movement, and roadside parking?
- ☐ Yes ☐ No Are street features, such as circles, rotaries, or landscaped islands allowed to or required to receive runoff?
- ☐ Yes ☐ No Are curb cuts or flush curbs with curb stops an allowable alternative to raised curbs?
- ☐ Yes ☐ No Can the minimum cul-de-sac radius be reduced or is a landscaped island required in the center of the cul-de-sac?
- ☐ Yes ☐ No Are alternative turn-arounds such as "hammerheads" allowed on short streets in low density residential developments?
- ☐ Yes ☐ No Can the minimum driveway width be reduced?
- ☐ Yes ☐ No Are shared driveways permitted in residential developments?

## B. Parking Areas and Sidewalks

A mix of uses at a development site can allow for shared parking areas, reducing the total parking area. Municipalities require minimum parking areas, but seldom limit the total number of parking spaces. Table 1 shows recommendations for minimum parking space ratios for low impact design:

**Table 1: Low Impact Development Parking Space Ratios**

Use	Parking Ratio per 1000 sq. ft. of Gross Floor Area
Professional office building	Less than 3.0
Shopping centers	Less than 4.5

- ☐ Yes ☐ No Can the parking ratios be reduced?
- ☐ Yes ☐ No Are the parking requirements set as maximum or median rather than minimum requirements?
- ☐ Yes ☐ No Is the use of shared parking arrangements allowed to reduce the parking area?
- ☐ Yes ☐ No Are model shared parking agreements provided?
- ☐ Yes ☐ No Does the presence of mass transit allow for reduced parking ratios?
- ☐ Yes ☐ No Is a minimum stall width of 9 feet allowed?
- ☐ Yes ☐ No Is a minimum stall length of 18 feet allowed?
- ☐ Yes ☐ No Can the stall lengths be reduced to allow vehicle overhang into a vegetated area?
- ☐ Yes ☐ No Do ordinances allow for permeable material to be used in overflow parking areas?
- ☐ Yes ☐ No Do ordinances allow for multi-level parking?
- ☐ Yes ☐ No Are there incentives to provide parking that reduces impervious cover, rather than providing only surface parking lots?

*Sidewalks can be made of pervious material or disconnected from the drainage system to allow runoff to re-infiltrate into the adjacent pervious areas.*

- ☐ Yes ☐ No Do ordinances allow for sidewalks constructed with pervious material?
- ☐ Yes ☐ No Can alternate pedestrian networks be substituted for sidewalks (e.g., trails through common areas)?

### **C. Unconnected Impervious Areas**

Disconnection of impervious areas can occur in both low density development and high density commercial development, provided sufficient vegetated area is available to accept dispersed stormwater flows. Areas for disconnection include parking lot or cul-de-sac islands, lawn areas, and other vegetated areas.

- ☐ Yes ☐ No Are developers required to disconnect impervious surfaces to promote pollutant removal and groundwater recharge?
- ☐ Yes ☐ No Do ordinances allow the reduction of the runoff volume when runoff from impervious areas are re-infiltrated into vegetated areas?
- ☐ Yes ☐ No Do ordinances allow flush curb and/or curb cuts to allow for runoff to discharge into adjacent vegetated areas as sheet flow?

## **Part 4: Vegetated Open Channels**

The use of vegetated channels, rather than the standard concrete curb and gutter configuration, can decrease flow velocity, and allow for stormwater filtration and re-infiltration. One design option is for vegetated channels that convey smaller storm events, such as the water quality design storm, and provide an overflow into a storm sewer system for larger storm events.

- ☐ Yes ☐ No Do ordinances allow or require vegetated open channel conveyance instead of the standard curb and gutter designs?
- ☐ Yes ☐ No Are there established design criteria for vegetated channels?