



Consulting, Municipal & Environmental Engineers  
Planners ■ Surveyors ■ Landscape Architects

One River Centre - Building Two  
331 Newman Springs Road, Red Bank, NJ 07701  
Tel: 732.383.1950 ■ Fax: 732.383.1984  
www.maserconsulting.com

# M u n i c i p a l   S t o r m w a t e r M a n a g e m e n t   P l a n

BOROUGH OF OCEANPORT  
Monmouth County, New Jersey

Adopted  
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**Prepared By:**

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**Joseph J. Layton, P.P., AICP**  
**N.J.P.P. License No. LI01443**

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**The original of this report was signed and sealed in accordance with N.J.S.A. 45:14a-12**

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## **Introduction**

This Municipal Stormwater Management Plan (MSWMP) documents the strategy for the Borough of Oceanport (“the Borough”) to address stormwater related impacts. The creation of this plan is required by N.J.A.C. 7:14A-25 Municipal Stormwater Regulations. This plan contains all of the required elements described in N.J.A.C. 7:8 Stormwater Management Rules. The plan addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new major development, defined as projects that disturb one or more acre of land. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the loss of groundwater recharge that provides baseflow in receiving water bodies. The plan describes long-term operation and maintenance measures for existing and future stormwater facilities.

This plan also addresses the review and update of existing ordinances, the Borough Master Plan, and other planning documents to allow for project designs that include low impact development techniques. In addition, the plan includes a mitigation strategy for when a variance or exemption of the design and performance standards is sought. As part of the mitigation section of the stormwater plan, specific stormwater management measures are identified to lessen the impact of existing development.

## **Goals**

The goals of this MSWMP are to:

- Reduce flood damage, including damage to life and property;
- Minimize, to the extent practical, any increase in stormwater runoff from any new development;
- Reduce soil erosion from any development or construction project;
- Assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;

- Maintain groundwater recharge
- Prevent, to the greatest extent feasible, an increase in nonpoint pollution;
- Maintain the integrity of stream channels for their biological functions, as well as for drainage;
- Minimize pollutants in stormwater from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the state, to protect public health, to safeguard fish and aquatic life and scenic and ecological values and to enhance the domestic, municipal, recreational, industrial, and other uses of water; and
- Protect public safety through the proper design and operation of stormwater basins.

To achieve these goals, this plan outlines specific stormwater design and performance standards for new development. Additionally, the plan proposes stormwater management controls to address impacts from existing development. Preventive and corrective maintenance strategies are included in the plan to ensure long-term effectiveness of stormwater management facilities. The plan also outlines safety standards for stormwater infrastructure to be implemented to protect public safety.

## **Stormwater Discussion**

Land development can dramatically alter the hydrologic cycle (see Figure 1) of a site and, ultimately, an entire watershed. Prior to development, native vegetation can either directly intercept precipitation or draw that portion that has infiltrated into the ground and return it to the atmosphere through evapotranspiration. Development can remove this beneficial vegetation and replace it with lawn or impervious cover, reducing the site's evapotranspiration and infiltration rates. Clearing and grading a site can remove depressions that store rainfall. Construction activities may also compact the soil and diminish its infiltration ability, resulting in increased volumes and rates of stormwater runoff from the site. Impervious areas that are connected to each other through gutters, channels, and storm sewers can transport runoff more quickly than natural areas. This shortening of the transport or travel time quickens the rainfall-runoff response of the drainage area, causing flow in downstream waterways to peak faster and higher

than natural conditions. These increases can create new and aggravate existing downstream flooding and erosion problems and increase the quantity of sediment in the channel. Filtration of runoff and removal of pollutants by surface and channel vegetation is eliminated by storm sewers that discharge runoff directly into a stream. Increases in impervious area can also decrease opportunities for infiltration, which in turn, reduces stream base flow and groundwater recharge. Reduced base flows and increased peak flows produce greater fluctuations between normal and storm flow rates, which can increase channel erosion. Reduced base flows can also negatively impact the hydrology of adjacent wetlands and the health of biological communities that depend on base flows. Finally, erosion and sedimentation can destroy habitat from which some species cannot adapt.

In addition to increases in runoff peaks, volumes, and loss of groundwater recharge, land development often results in the accumulation of pollutants on the land surface that runoff can mobilize and transport to streams. New impervious surfaces and cleared areas created by development can accumulate a variety of pollutants from the atmosphere, fertilizers, animal wastes, and leakage and wear from vehicles. Pollutants can include metals, suspended solids, hydrocarbons, pathogens, and nutrients.

In addition to increased pollutant loading, land development can adversely affect water quality and stream biota in more subtle ways. For example, stormwater falling on impervious surfaces or stored in detention or retention basins can become heated and raise the temperature of the downstream waterway, adversely affecting cold water fish species such as trout. Development can remove trees along stream banks that normally provide shading, stabilization, and leaf litter that falls into streams and becomes food for the aquatic community.

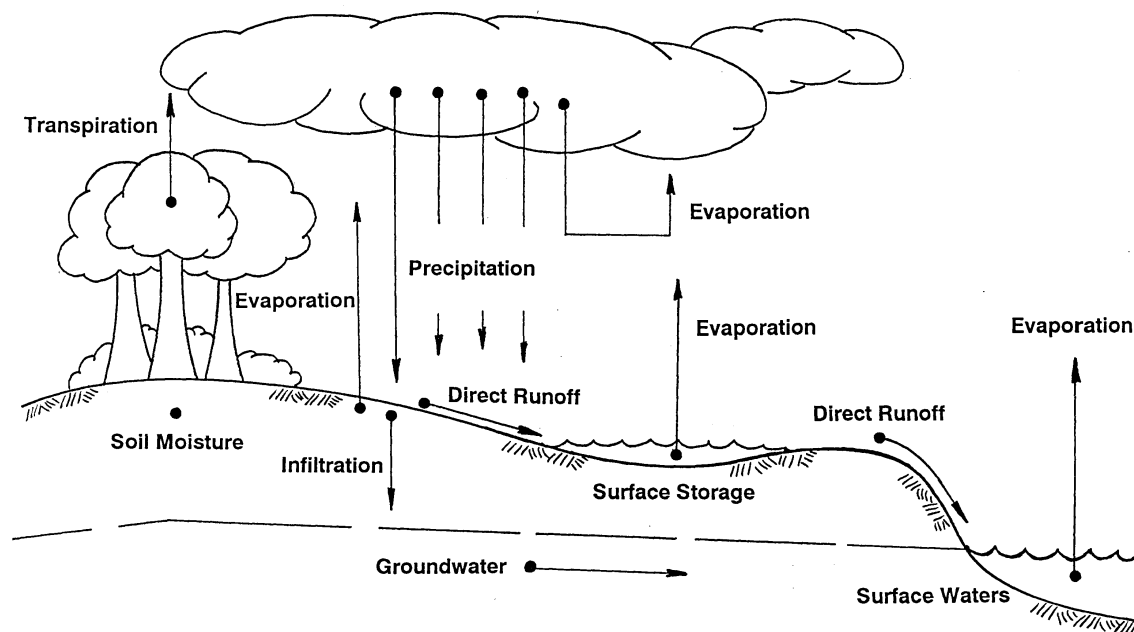


Figure 1 – Hydrologic Cycle

## Background

The Borough encompasses 3.80 square miles in the eastern portion of Monmouth County, New Jersey. The Borough is located on the Shrewsbury River. The Borough is generally a residential community, but does have a mix of commercial and professional uses. The most prominent uses are Fort Monmouth which extends across the municipal boundary into Eatontown and Monmouth Park, a thoroughbred horse racing facility operated by the New Jersey Sports and Exposition Authority. The municipality is a popular destination in the summer months due to access to a variety of water related activities and Monmouth Park. The Borough has no large areas of developable land remaining. The water bodies within and around the Borough are shown in Figure 2 and include the Shrewsbury River, Branchport Creek, Oceanport Creek and Blackberry Creek. The municipal boundary and topography of the Borough is shown in Figure 3.

According to the 2000 census, the Borough had 5,807 residents, which is 339 less than the 1990 census numbers. The population decrease by approximately 6 percent since 1990 is contrary to the overall state and county increases of approximately 9 percent respectively over the same period.

The Borough is situated in the Shrewsbury River Watershed Management Area (WMA) 12, which is part of the Atlantic Coast Water Region. The Borough contains portions of Hydrologic Unit Code (HUC) areas for three (3) areas. These HUC14 areas are shown in Figure 4.

The New Jersey Department of Environmental Protection (NJDEP) has established an Ambient Biomonitoring Network (AMNET) to document the health of the state's waterways. There are over 800 AMNET sites throughout New Jersey. These sites are sampled for benthic macroinvertebrates by NJDEP on a five-year cycle. Streams are classified as non-impaired, moderately impaired, or severely impaired based on the AMNET data. The data is used to generate a New Jersey Impairment Score (NJIS), which is based on a number of biometrics related to benthic macroinvertebrate community dynamics. Based on the AMNET data, there are no sites located in Oceanport. There are a number of estuaries draining into the Shrewsbury River that have been identified by the NJDEP as being somewhat impaired by total fecal coliform and dissolved oxygen. These estuaries have been classified as medium priority.

In addition to the AMNET data, the NJDEP and other regulatory agencies collect water quality chemical data on the streams in the state. This data show that the instream total fecal coliform and dissolved oxygen concentrations of a number of estuaries of the Shrewsbury frequently exceed the state's criteria. This means that these streams are an impaired waterway and the NJDEP is required to develop a Total Maximum Daily Load (TMDL) for these pollutants.

A TMDL is the amount of a pollutant that can be accepted by a waterbody without causing an exceedance of water quality standards or interfering with the ability to use a waterbody for one or more of its designated uses. The allowable load is allocated to the various sources of the pollutant, such as stormwater and wastewater discharges, which require an NJPDES permit to discharge, and nonpoint sources, which includes stormwater runoff from agricultural areas and residential areas, along with a margin of safety. Provisions may also be made for future sources in the form of reserve capacity. An implementation plan is developed to identify how the various sources will be reduced to the designated allocations. Implementation strategies may

include improved stormwater treatment plants, adoption of ordinances, reforestation of stream corridors, retrofitting stormwater systems, and other Best Management Practices (BMP's).

The New Jersey Integrated Water Quality Monitoring and Assessment Report (305(b) and 303(d)) (Integrated List) is required by the federal Clean Water Act to be prepared biennially and is a valuable source of water quality information. This combined report presents the extent to which New Jersey waters are attaining water quality standards, and identifies waters that are impaired. Sublist 5 of the Integrated List constitutes the list of waters impaired or threatened by pollutants, for which one or more TMDL's are needed.

In addition to water quality problems, the Borough has flooding problems. Flooding from the Shrewsbury River and its tributaries occurs throughout the northern portion of the Borough. Flooding from the Branchport Creek occurs along the southern portion of the Borough. The 100-year floodplain, shown in Figure 5, depicts the floodplain.

The Borough is almost fully developed. The existing land use, based on 1995/1997 aerial photography, is shown in Figure 6. The existing zoning is shown in Figure 7. A current aerial photo with parcel lot lines overlain on it is shown in Figure 8. The vast majority of land is residential suburban land with minimal groundwater recharge. The Borough is entirely within the State Plan Designation PA1 (Metropolitan Planning Area) where infiltration requirements are not applicable. However, groundwater recharge rates for native soils in this area are generally between 1 and 19 inches annually. The average annual groundwater recharge rates are shown graphically in Figure 9.

According to the NJDEP, "A Well Head Protection Area (WHPA) in New Jersey is a map area calculated around a Public Community Water Supply (PCWS) well in New Jersey that delineates the horizontal extent of ground water captured by a well pumping at a specific rate over a two-, five-, and twelve-year period of time for unconfined wells. ... The confined wells have a fifty foot radius delineated around each well serving as the well head protection area to be controlled by the water purveyor in accordance with Safe Drinking Water Regulations (see NJAC 7:10-11.7(b)1)."



WHPA delineations are conducted in response to the Safe Drinking Water Act Amendments of 1986 and 1996 as part of the Source Water Area Protection Program (SWAP). The delineations are the first step in defining the sources of water to a public supply well. Within these areas, potential contamination will be assessed and appropriate monitoring will be undertaken as subsequent phases of the NJDEP SWAP. As shown in Figure 10, the Borough does not have any well-head protection areas.

The Borough has a number of wetland areas. These wetland areas, shown in Figure 11, provide flood storage, nonpoint pollutant removal and habitat for flora and fauna.

### **Design and Performance Standards**

The Borough will adopt the design and performance standards for stormwater management measures as presented in N.J.A.C. 7:8-5 to minimize the adverse impact of stormwater runoff on water quality and water quantity and loss of groundwater recharge in receiving water bodies. The design and performance standards include the language for maintenance of stormwater management measures consistent with the stormwater management rules at N.J.A.C. 7:8-5-8 Maintenance Requirements, and language for safety standards consistent with N.J.A.C. 7:8-6 Safety Standards for Stormwater Management Basins. The ordinances will be submitted to the County for review and approval within 24 month of the effective date of the Stormwater Management Rules.

### **Plan Consistency**

The Borough is not within a Regional Stormwater Management Planning Area and no TMDL's have been developed for waters within the Borough; therefore this plan does not need to be consistent with any regional stormwater management plans (RSWMPs) nor any TMDL's. If any RSWMPs or TMDLs are developed in the future, this Municipal Stormwater Management Plan will be updated to be consistent.

The Municipal Stormwater Management Plan is consistent with the Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21. The Borough will utilize the most current update of the RSIS in the stormwater review of residential areas. This Municipal Stormwater Management Plan will be updated to be consistent with any future updates of the RSIS.

The Borough's Stormwater Management Ordinance requires all new development and redevelopment plans to comply with New Jersey's Soil Erosion and Sediment Control Standards. During construction, Borough inspectors will observe on-site soil erosion and sediment control measures and report any inconsistencies to the local Soil Conservation District.

### **Nonstructural Stormwater Management Strategies**

The Borough has reviewed the master plan and ordinances, and has provided a list of the sections in the Borough land use and zoning ordinances that are to be modified to incorporate nonstructural stormwater management strategies. These are the ordinances identified for revision. Once the ordinance texts are completed, they will be submitted to the county review agency for review and approval within 24 months of the effective date of the Stormwater Management Rules. A copy will be sent to the Department of Environmental Protection at the time of submission.

**Chapter 55** of the Borough Code, entitled "**Subdivision of Land**", and **Chapter 68**, entitled "**Zoning**" were reviewed in regard to incorporating non-structural stormwater management strategies. Several changes are recommended to these chapters accordingly:

## **CHAPTER 55 SUBDIVISION OF LAND**

### **ARTICLE IV Improvements**

**Section 55-15. Required Improvements** This section of the ordinance lists the requirements and standards of final subdivision approval for the following items:

**Item B. Storm Drains** indicates, culverts, catch basins and other drainage structures shall be installed in each subdivision in accordance with the map submitted to the Planning Board.

*This section should be revised to include language to encourage the used of natural vegetated swales in lieu of inlets and pipes and drainage improvements must conform to the Borough's Stormwater Management Ordinance.*

**Item E. Sidewalks** Indicates where sidewalks are required to be installed, they shall be four (4) feet wide and four (4) inches thick, of concrete, according to specifications required for curbing.

*Language should be added to require developers to design sidewalks to discharge stormwater to neighboring lawns and where feasible to disconnect these impervious surfaces, or use permeable paving materials where appropriate.*

**Item F Shade Trees.** Indicates subdivisions shall be required to plant such number of trees as shall be necessary, when taking into consideration existing trees, to provide at least one (1) tree every fifty (50) feet in front yards. Such trees shall be a minimum of two and one-half (2 ½) inches in diameter, measured one (1) foot from the butt, and shall be of a kind and size approved by the Shade Tree Committee. No tree shall be planted less than twenty-five (25) feet from an existing or proposed street light or street intersection. The subdivider shall be responsible for the care and/or replacement of such trees for a period of three (3) years from the date of approval.

*This section should be amended to require the use of native vegetation, which requires less fertilization and watering than non-native species.*

**Item G. Topsoil protection.** Topsoil moved during the course of construction shall be redistributed evenly to all areas of the subdivision and shall be stabilized by seeding or planting. Said seeding and planting must have attained a growth sufficient to stabilize the soil before this section of the ordinance will be considered as being complied with. No topsoil shall be removed from the subdivision site.

*This should be revised to include language requiring developers to comply with the New Jersey Soil Erosion and Sediment Control Standards and outline some general design principles, including: whenever possible, retain and protect natural vegetation; minimize and retain water runoff to facilitate groundwater recharge; and, install diversions, sediment basins, and similar required structures prior to any on-site grading or disturbance.*

## **ARTICLE V Design Standards**

**Section 55-23. Lots** describes the requirements and principles for the design of individual lots within a subdivision.

*The section should be amended to include language referencing the Municipal Stormwater Management Ordinance.*

**Item “D”** indicates where there is a question as to the suitability of a lot or lots for their intended use due to factors such as rock formations, flood conditions, topographic irregularities, erosion conditions, or similar circumstances, the Planning Board may withhold approval of such lots.

*This section should be amended to include language that encourages such features to be left in their natural state wherever possible. Other existing natural features, such as trees, brooks and drainage channels shall be preserved as well.*

**Item “E”** indicates all grading of the subdivision shall be in accordance with the final plan.

*This section should be amended to reference the Township’s Stormwater Management Ordinance, which should be updated to include all requirements outlined in N.J.A.C. 7:8. Additional language should be included to minimize the disturbance of large tracts of land, which is a key nonstructural stormwater management strategy.*

**Item “F”** indicates only those trees shall be removed as necessary to permit construction of streets, driveways, lawns and dwellings and other authorized structures.

*This section should be revised to set out a “critical footprint area” that extends beyond the driveway and building footprint where clearing of trees cannot occur. This would minimize land disturbance, which is a nonstructural stormwater management strategy.*

**Item G** indicates that five percent (5%) of the gross land area of any tract being subdivided as a major subdivision shall be allocated for public use for recreational facilities, such public use area to be in such location and improved as to grading and seeding in such manner as shall be acceptable to the Planning Board.

*This section should include language to allow these public lands to be used for stormwater management. Additional language should be included to encourage such lands to be preserved as natural wooded areas to better minimize disturbance of large tracts of land, which is a key nonstructural stormwater management strategy.*

**Section 55-24. Public use and service areas** indicates the uses of public lands

**Item C** of this section indicates that natural features such as trees, brooks, hilltops and views shall be preserved whenever possible in designing any subdivision containing such features.

*Other existing natural features, such as forested areas, brooks and drainage channels should be included for preservation as well.*

## **CHAPTER 68 ZONING**

### **ARTICLE V Supplementary Lot Regulations**

**Section 68-15. Landscaping** requires any use (except for nurseries and sales of new or used cars, trucks, trailers, and/or boats) to be landscaped in accordance with this section by providing a visual screen such as, but not limited to, a nontransparent fence, a minimum of four feet high,

or dense cover consisting of evergreen or evergreen-type hedges or shrubs, spaced at intervals of not more than six feet, located and maintained in good condition within 10 feet of the property line.

*The section should be amended to require the use of native vegetation species and salt tolerant species where applicable, which requires less fertilization and watering than non-native species. Additionally, language should be included to allow buffer areas to be used for stormwater management by disconnecting impervious surfaces and treating runoff from these impervious surfaces.*

**Section 68-21B. Off –Street Parking** indicates that any off-street parking and loading area shall be graded and drained so as to dispose of all surface water without detriment to surrounding uses.

*Language should be added to this section to allow for flush curb stops, or curbing with curb cuts to encourage developers to allow for the discharge of impervious area into landscaped areas for stormwater management to promote groundwater recharge.*

**Section 68-22.1 L Paving** for the multiple-family development zone indicates that all cartway paving shall be provided with curbing.

*This section should be changed to reference the design criteria for roadways in the RSIS since more flexibility in cartway design is offered. For example, curbs are not always required and can be replaced by roadside swales, which help treat runoff and promote recharge.*

**Section 68-23.1B Landscaping** discusses the portions of a property to be landscaped or which will contain landscape screening or buffers.

*Language should be added to allow landscape areas and buffer strips to be used for stormwater management, which disconnect impervious surfaces and treats runoff from these impervious surfaces.*

## **Land Use/Build-Out Analysis**

Since the Borough of Oceanport has a combined total of less than one square mile of vacant lands (tax records show a total of 162 acres classified as vacant and there are few agricultural lands), the Borough is not required to do a build-out analysis as per N.J.A.C. 7:8-4.2(c)10.

## **Mitigation Plan**

Due to the significance of the Shrewsbury River and its tributaries to the Borough from recreation and aesthetic perspectives, water quality must be safeguarded from development activities. The Borough does not believe it is in their interest to vary the design and performance standards in the stormwater rules. Thus, no variances and exemptions from the standards shall be granted. Applicants for development will be expected to mitigate the impacts of development on stormwater at their own site or other sites within the subject watershed that it controls.

It should also be noted that there is little or no land area within the Borough at strategic locations and owned by the municipality or other governmental agencies that would even allow for a flood control or water quality enhancement project if mitigation were to be allowed in the plan by the municipality. The majority of the remaining developable areas within the Borough are small scattered lots. Hence, it is more practical for any new development to provide on-site stormwater facilities rather than implementing a municipal system that would disrupt the existing built environment.

The Borough of Oceanport has eight different residential districts and four different non-residential districts. None of these districts have restrictions on the maximum amount of impervious coverage allowed. Maximum impervious coverage percentages are recommended for each zone in the Master Plan Reexamination Report of March 2005. These recommendations are repeated here:

**MAXIMUM IMPERVIOUS LOT COVERAGE**  
**RECOMMENDATIONS**

<b><i>ZONE DISTRICT</i></b>	<b>MAXIMUM IMPERVIOUS LOT COVERAGE (PERCENT)</b>
R-1	20%
R-2	32%
R-3	35%
R-4	40%
R-5	40%
R-7.5	45%
RM	45%
RMO	45%
VC	80%
B-1	60%
B-2	60%
I	60%