

**BOROUGH OF LONGPORT
ATLANTIC COUNTY
NEW JERSEY**

STORMWATER MANAGEMENT PLAN

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Original prepared March, 2005

Adopted March 21, 2007

Updated 08/2015

STORMWATER MANAGEMENT PLAN
for the
BOROUGH OF LONGPORT
ATLANTIC COUNTY

**This Document has been prepared in accordance with the requirements of
N.J.A.C. 7:8-1, et seq Stormwater Management.**

Introduction:

This is the Stormwater Management Plan for the Borough of Longport (**Borough**) located in Atlantic County, New Jersey. This Plan is one of the documents necessary to comply with N.J.A.C. 7:14A, and more specifically, N.J.A.C. 7:14A-25, of the Municipal Stormwater Regulations promulgated by the State of New Jersey.

The purpose of this Plan is to provide guidance for stormwater improvements in both new building construction and reconstruction of existing drainage systems to mitigate runoff, increase groundwater infiltration, and reduce adverse pollutant load to the groundwater and surface waters. This can be accomplished generically in many ways for upland landlocked communities; however, the **Borough** is what is referred to as a barrier island. As an island, rainfall runoff is usually directed to the nearest Bay or Ocean and there is little capability for detention or recharge..

As in most barrier island communities along the New Jersey Coast, the **Borough** is generally urbanized with public water and sewer, improved roadways, underground drainage, and relatively high building density. Accordingly, this Plan will deal with issues like improvement to the existing infrastructure, public education on pollutants, and regulations and enforcement of regulations dealing with littering and animal waste.

The **Borough** is nearly 100% developed and is currently undergoing increased redevelopment due to higher property values. As such, mitigation of runoff quantity must be controlled through zoning controls and zoning enforcement. Mitigation of runoff quality can only be controlled through a change in public attitude and, if necessary, increased regulation and enforcement.

While the overall Stormwater Regulations make reference to groundwater infiltration and recharge and decreases in peak runoffs, the focus of barrier island communities tends to be more to the quantitative element of stormwater runoff. Certainly quality is important to public safety and private property; however, with tidal effects, high groundwater, limited space, and an already existing pattern of development, there is little potential for natural quality efforts to take place. Most importantly, there is a very short time of concentration for runoff to discharge; leaving very little time for percolation and infiltration. However, the Borough has made efforts to remove impervious material where possible. An increased movement towards creating more vegetative surface in the 'governor's strip' (area between curb and sidewalk) as well as encouragement in using porous paving in reconstructing concrete patios where existing properties exceed impervious coverage limits has help to create some percolation and dissipation of runoff.

7:8-2.2 Goals:

As stated above, the primary goals for a Barrier Island Community Stormwater Management Plan relate to stormwater quantity and stormwater quality. Short distances to outfall points, a large developed roadway pattern, and the high price of land causing maximization of building coverages limit the capabilities of employing recharge and retention basins. However, there are specific goals that deal with stormwater on barrier islands; as follows:

1. Reduction of stormwater flooding to eliminate, or reduce, damage to private property and effect on public safety.
2. Enforce zoning regulations to control stormwater runoff by reducing impervious coverages and encourage groundwater infiltration, where appropriate.
3. Increase Public Awareness on pollutants which degrade the quality of the surrounding surface waters.
4. Increase regulation and enforcement, if necessary, to comply with the elimination of solids and animal wastes into the surface water stream.
5. Perform an evaluation of the **Borough** drainage system to determine pipe condition as well as hydraulic capability of each drainage leg.
6. Perform an elevation study of the **Borough** roadway system to determine drainage patterns and alternate drainage routes, if necessary.
7. Prepare a Stormwater Capital Improvement Plan for the **Borough** with cost estimates and priorities for future budget allocations.
8. Where existing drainage systems currently interconnect with County, coordinate with the County of Atlantic as to maintenance/improvement responsibilities and cost sharing.
9. Increase maintenance of the existing drainage system.

The end result of these goals is to lessen street flooding where possible while removing the detrimental pollutant load normally generated by existing residential development.

Stormwater Discussion:

In short, a hydrologic cycle is rain either percolating into the ground (groundwater recharge) or infiltrating the river banks at flood stages; then returning to the air through vegetative transpiration, natural evaporation, or seepage from river banks at low flow conditions. This cycle on Barrier Island Communities is nearly non-existence where 85-95% of the rain runs off property and into either the Bay or Ocean through gravity stormwater systems and/or pumping stations. With limited pervious recharge areas on barrier islands, small lot sizes, and short times of concentration to stormwater collection structures (inlets and pipes), there is little available percolation potential into the ground. All stormwater runoff is discharged into the Ocean or Bay waters leaving only the evaporation cycle from the Bay and Ocean.

With an inherent high rate of runoff, the potential of flooding increases proportionately with storm intensity and high tide conditions. Most barrier islands are relatively flat and drain generally from the Beach to the Bay; due to the history of the oceanfront sand dunes being the highest points on the island and eventually being leveled towards the Bay for developmental purposes. With the limited width of many barrier islands, there is a short time between rainfall entering the drainage system and its subsequent discharge into the Ocean or Bay. Since most ocean outfalls have very limited drainage areas (normally the first block inland from the Ocean, the amount of time between rain runoff to the street and discharge into the Ocean is very short (in some instances less than 10 minutes)

Since many high tide situations occur during heavy rainfall events it is logical to assume some correlation between rainfall and substantial flooding on barrier islands. On small barrier islands, it is not the amount of runoff that is important (rain does not effectively increase the elevation of the Bay or Ocean to create any flooding); it is the quality of that runoff which has a more detrimental effect; and to which this Plan attempts to address. Most street flooding is short term due to either high tides or hydraulically restricted piping. Many barrier islands suffer beach closings after rainfall events because any residual pollutants in the street or on the adjoining developed properties is conveyed directly with the surface water outfalls into the Bay or Ocean. As such, Stormwater Quality and not Stormwater Quantity becomes the more primary issue on urbanized barrier islands.

On older established barrier island communities, it is the existing drainage systems, coupled with intensity of development, that create the problem with quality. Most drainage systems evolved around the time that the first main roadway that paralleled the ocean was built. As dunes were leveled for development, roads were built and low points for roadway drainage created. These could have been located at old stream beds or channels or merely high and low areas between former dunes. As development expanded from the Ocean front to the Bay, additional roads were built in a urban-like network of cross streets and main thoroughfares were created.

Stormwater Discussion (cont'd):

As each development progressed from Ocean towards the Bay, the last low point ended with an outfall at the meadow's edge; and the next development merely extended the outfall further towards the Bay. In some instances the water was merely channeled on the surface through curb and gutter construction. In other instances, drainage piping was laid with whatever size pipe that the former development utilized. As the islands got wider more of the same small pipe was added and constructed deeper into the meadow.

In many cases the size of the pipe was whatever was available to the developer with the slope of the pipe was a flat as possible due to the high groundwater. Little hydraulic consideration was given to placement or alignment. In many cases, even smaller piping diameters were used for pipe extensions.

To further complicate matters, many of the roadway crossing were constructed as a 'siphon' or 'bubble up' system. These systems convey water from the higher side of the intersection to the lower side by a combination of inlets and underground piping or channels. While they functioned fairly well under low intensity storms; gravel roadways, and sporadic residential development, these systems are woefully inadequate to meet current hydraulic standards. In addition, these systems retain water during non storm events. As evaporation takes place, the biological mass becomes more concentrated. Therefore, the 'first flush' during a storm event places a large biological loading on the adjacent bay and ocean waters. This can result in beach closing due to high bacteria counts.

Lastly, increased land values have resulted in substantial redevelopment of the barrier islands resulting in increased lot coverages; high maintenance landscaping, and increased population density. The additional loading of fertilizers and animal waste not only adds to the current base loading; but provides a catalyst for bacteria growth in the hydraulically restricted and antiquated drainage systems.

Background:

The Borough of Longport is one of four incorporated Municipalities on the oceanfront barrier island known as Absecon Island, lying between Absecon Inlet and Great Egg Harbor Inlet. Located adjacent to the Great Egg Harbor Inlet, at the southwest end of Absecon Island, the Borough of Longport encompasses approximately 1.6 square miles; of which 0.4 square miles is upland and approximately 1.2 square miles is water. The Borough has a year round population of approximately 800 (777 Census 2010). The Borough locator with reference to a U.S.C.G Quadrangle Map is provided in **Figure 1**. The overall Taxing Map Key Sheet is provided in **Figure 2**. As can be seen from the Municipal Map, Longport Borough is bounded to the Northwest by Risley's Channel, a tidal salt water body and Intra coastal Waterway, and to the Southeast by the Atlantic Ocean.

Background (cont'd):

Of the total developable area, approximately 98% is zoned Single Family Residential with the remaining area of a Commercial or Mixed Use. There are effectively no undeveloped areas within the Borough save those already dedicated and deed-restricted to recreational and open space; or created through subdivision of existing developed property. With the exception of these areas, 100% of the Borough is already developed. The Borough continues to undergo developmental pressures due to increased land values. Many properties, particularly along both the Ocean and Bay waterfronts, have seen substantial demolition and new construction with an influx of new second home investors. Additionally, many long time residents have reinvested in their properties through building expansion, both horizontally and vertically. Hurricane Sandy rebuilding has only added to this situation.

The New Jersey Department of Environmental Protection (NJDEP) has established an Cooperative Coastal Monitoring Plan whereby the Agencies that participate in said Plan perform sanitary surveys of the beach areas and monitor concentrations in near shore coastal and estuarine waters to assess the acceptability of these waters for recreational bathing. The Program includes monitoring at 187 Ocean Stations and 139 Bay Stations. Within the Borough of Longport, there are three monitoring stations located along the Ocean; as provided in **Figure 3**. During 2004-15 there were no ocean closings within the Borough for either bacteria or floatables.

As stated above, the two major adjacent waters are the Tidal Bay, known locally as Risley's Channel, and the Atlantic Ocean. Both of these are salt water bodies. In both surface and ground fresh water situations the issue of contamination relates to the TMDL (Total Maximum Daily Load) which loading is allocated to the various sources of the pollutant and the ability to use the water body for one or more of its designated uses. On the other hand, salt water recreational uses are subject to opening and closing procedures of the State Sanitary Code. In 2004, the Code required that consecutive sampling that exceeded 104 enterococci per 100 ml of sample required closing. Generally, the sampling locations within the Borough registered 2 or less.

While the Borough of Longport has two (2) stormwater outfalls directly into the Ocean, there are numerous pipe and surface outfalls into the Tidal Bay. The purpose here for relating stormwater outfalls with Ocean and Bay monitoring is that there has been an assumed correlation that, based on previous year closings, there was an increase in closings when there was an increase in intense periods of rainfall. Therefore, in addition to issues such as floatable debris, there is a direct and immediate connection with the quality of the runoff and the quality of the immediate Bay or Ocean Waters. An Interlocal Agreement with the Atlantic County Utilities Authority (ACUA), results in inlet cleaning at least once per year and effective reduction in both floatables and bacteria.

While obsolescent drainage systems potentially contribute to a degradation in runoff quality, there is also the issue of hydrologic capacity. While barrier islands are generally flat and narrow, there are isolated lower elevation areas subject to both tidal and drainage flooding. As most intense storm events coincide with high tide events, stormwater systems that may function reasonably well under low tide conditions are severely restricted under high tide events. Excessive flooding leads not only to potential surcharging of stormwater systems but also sanitary sewer systems through infiltration into exposed sewer vent caps, ground level residential toilet installations and vented manhole covers.

Design and Performance Standards:

One of the requirements for a Municipal Stormwater Management Plan is that it addresses stormwater related water quality, groundwater recharge, and water quantity impacts due to both proposed major developments as well as existing land uses. Referencing the Stormwater Regulation definitions, it is the term 'major development' that the difference in Stormwater Management Plan obligations between the Borough of Longport and, for example, another community with 'developing potentials' becomes clear.

The Borough of Longport is effectively 100% developed. The Borough is also within the CAFRA Regulated Jurisdictional Area; which means that most, if not nearly all, development is reviewed under the NJDEP Land Use Regulation Program, which enforces environmental regulations on all new stormwater design. Based on the lot sizes within the Zoning Districts, any individual land development would not meet the requirements for a 'major development' under the new Stormwater Regulations. Finally, there are no onsite private drainage facilities since all water is currently channeled from private land to the road system and controlled through Municipally owned stormwater drainage structures.

With the CAFRA permitted 80% impervious coverages in PA5 areas, existing high groundwater tables, small lot sizes, and significant land costs, the Borough of Longport has little capability for establishing local requirements for onsite retainage or basin design which could actually serve effective environmental benefits. Accordingly, a plan imposing technical stormwater criteria for onsite retention for 'major development' would have no impact on current stormwater runoff. Simply, a stormwater runoff plan within the Borough of Longport would solely deal with the Borough's obligations to improve infrastructure and encourage police action through regulatory enforcement of 'best management' criteria..

The Plan:

Accepting the fact that technical regulation requiring the installation of (non-public) private onsite retention of stormwater runoff will not be beneficial in improving the quality of the runoff or lessening the quantity of runoff, the Borough's Stormwater Plan reduces to employment of the Statewide Basic Requirements as applicable to the existing infrastructure. As such, the Longport Borough Stormwater Pollution Prevention Plan (SPPP), attached hereto, constitutes the Basic Plan. This, coupled with enforcement of both existing and future ordinances will complete the Plan.

The increase in policing of the current ordinances pertaining to litter, wildlife feeding, pets, etc will compliment the Basic Requirements Standards. The current policing levels and maintenance obligations do not cause immediate concern since salaries and wages relate directly to current Municipal Tax obligations. However, the financial obligations of increased regulatory policing through enforcement by building/zoning and/or administrative personnel may not be financially accomplished or readily accepted by the General Public, since it also increases the Public's tax obligations. As it stands now, most communities, and particularly the Borough of Longport, do not have surplus tax revenues to permit either additional policing personnel or increased infrastructure improvements.

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Original Prepared March, 2005
Original Adopted March 21, 2007

REVISION SHEETS

1. **2007 - SPPP Form 10 - Ordinances** - Amended April, 2007 to include Ordinance amending Chapter 82 relating to Wildlife Feeding

2. **2014**
 - SPPP Team Members - Modified to reflect personnel changes**
 - SPPP Form 2 - Modified Team Member designation. Updated to include reference to adoption of Reexamination Report**
 - SPPP Form 3 - Modified Team Member designation**
 - SPPP Form 5 - Modified Team Member designation**
 - SPPP Form 6 - Modified Team Member designation**
 - SPPP Form 7 - Modified Team Member designation**
 - SPPP Form 8 - Modified Team Member designation. Updated Records**
 - SPPP Form 10 - Modified Team Members. Updated Ordinances**
 - SPPP Form 11 - Modified Team Member - Added Winchester Avenue**
 - SPPP Form 13 - Updated Drainage System Inspection Reports**
 - SPPP Form 14 - Modified Team Member designation**