

# **MUNICIPAL STORMWATER MANAGEMENT PLAN**

**BOROUGH OF HARVEY CEDARS,  
OCEAN COUNTY, NEW JERSEY**

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## **INTRODUCTION**

The Municipal Stormwater Management Plan (MSWMP) documents the strategy for the Borough of Harvey Cedars ("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 or regardless of area of land disturbance requires an approval from the Borough Land Use Board for minor or major subdivision or site plan. 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.

The plan 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. The final component of this plan is 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.

## 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 which some species cannot adapt.

In addition to increases in runoff peaks, volumes, and loss of groundwater recharge (see Figure2), 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 soils, 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.

## **BACKGROUND**

Harvey Cedars Borough encompasses a total area of 1.19 square miles, with 0.55 square miles being land area, and 0.65 square miles comprised of water area, and is located within Ocean County, New Jersey. The most recent census data indicates that the population has slightly increased from 359 in 2000 to 380 in 2004, an increase of 21, or 5.5%. The 2000 census also indicates that 1,205 housing units are located within the Borough, which is more than triple the number of people living year round within the Borough. These figures indicate that this is a resort community, with population surges during the summer months.

Harvey Cedars Borough is located on the barrier islands known as Long Beach Island, and is surrounded by water on two sides; on the east is the Atlantic Ocean, and on the west is the Barnegat Bay. To both the north and south of Harvey Cedars are segments of Long Beach Township. Figure 3 depicts the Borough boundary on the USGS quadrangle maps. Figure 4 provides an aerial view of the Borough from 2002 orthophotography.

Since the Borough of Harvey Cedars is an island town, with water on both sides of it's coasts, it is influenced by tidal patterns. The existing stormwater infrastructure is capable of handling design storm events during low tide. However, during a rain storm within high tide, the stormwater piping and inlet system becomes flooded.

No changes in development patterns or population have occurred within the Borough in many years. Occasional tidal flooding is expected within this type of community, and it is not necessary to make any changes to the existing system.

Figure 5 provides wellhead protection areas, which are required as part of the MSWMP.

## GOALS

The goals of this MSWMP are to:

### **1. Reduce Flood Damage To Life And Property**

#### Policies:

- a. Maintain surface drainage to reduce the threat of flooding, through proper maintenance of the stormwater drainage system infrastructure, with practices that are protective of water quality.
- b. Preserve open stormwater drainage infrastructure where feasible, to best accommodate peak storm flows, maintain flood storage capacity, and promote water quality.
- c. Adhere to standards, policies, and practices which comply with Federal Emergency Management Agency (FEMA) Flood Management Program requirements to insure that the Borough maintain flood insurance coverage under this program.

#### Implementation Actions:

- a. Continue evaluation of maintenance practices and implement appropriate BMPs to assure that the Borough adequately maintains the stormwater drainage system capacity in an environmentally responsible manner.
- b. Evaluate and refine programs including educational outreach, inspection, and enforcement components to reduce the negative stormwater impacts from land alteration, erosion, sedimentation, and excessive runoff.
- c. Review and amend the Municipal Code as needed to comply with FEMA requirements for floodplain development.

### **2. Minimize, To The Extent Practical, Any Increase In Stormwater Runoff From Any Development**

#### Policies:

- a. Through the development review process, the Borough will ensure that development is protective of significant open waterways, wetlands, and riparian areas.
- b. The borough shall ensure that all development does not exceed maximum impervious coverages permitted in the ordinance to control stormwater runoff.

Implementation Actions:

- a. The Borough will review development proposals for impacts on open drainageways, wetlands, and riparian areas, and protect the functions and benefits of these areas as provided for in the Development Code and Engineering Design Standards and Procedures Manual.
- b. The Borough will work cooperatively with citizens, businesses, and agencies to protect and improve surface waterways, seek opportunities for stewardship partnerships, further enhance educational opportunities, and continue participation in intergovernmental work groups.

**3. Reduce Soil Erosion From Any Development Or Construction Project**

Policies:

- a. The Borough will implement permitting programs, educational outreach, compliance inspections and enforcement activities as needed to reduce erosion, sedimentation, illicit discharges and other pollution impacts to waterways.

Implementation Actions:

- a. Enhance erosion and illicit discharge detection and compliance efforts, including permitting and Code enforcement.

**4. Assure The Adequacy Of Existing And Proposed Culverts And Bridges, And Other Instream Structures**

Policies:

- a. The Borough will seek funding and partnership opportunities for restoration efforts.
- b. The Borough will implement inspection procedures to ensure structures are operating as designed.

Implementation Actions:

- a. Provide adequate funding for public maintenance of the stormwater drainage system, and ensure ongoing maintenance of private stormwater features through development agreements.
- b. Provide operation and maintenance manual which will outline preventative and corrective measures.

**5. Prevent, To The Greatest Extent Feasible, An Increase In Nonpoint Pollution**

Policies:

- a. The Borough will educate the general public and provide technical assistance to businesses, industries, and agencies regarding practices and obligations for keeping pollutants out of the stormwater drainage system.
- b. The Borough will enforce Codes prohibiting the discharge of any deleterious material to the stormwater drainage system.
- c. The Borough will continue to maintain cooperative partnerships with local water providers, to address local stormwater quality issues.
- d. The Borough will seek to form partnerships with neighborhoods or groups interested in providing stewardship of local waterways.
- e. The Borough will develop, implement, and enforce appropriate building, design, and Municipal codes to address water quality compliance issues, including pollution, habitat, and aesthetic issues, to encourage the development of urban waterways that are positive amenities in the community.

Implementation Actions:

- a. The Borough will review development proposals for impacts on open drainageways, wetlands, and riparian areas, and protect the functions and benefits of these areas as provided for in the Development Code and Engineering Design Standards and Procedures Manual.
- b. The Borough will work cooperatively with citizens, businesses, and agencies to protect and improve surface waterways, seek opportunities for stewardship partnerships, further enhance educational opportunities, and continue participation in intergovernmental work groups.
- c. The Borough will implement and continue to refine/improve BMPs for all Borough activities with potential to impact water quality and/or the functions of waterways, wetlands, and riparian areas.
- d. The Borough will continue to support outreach and education efforts regarding water quality, riparian and wetland areas, including business, contractor, and developer outreach programs to educate these parties about their impacts on stormwater quality.



- e. Continue to maintain enforcement and compliance activities, including inspections, technical assistance, and Code enforcement.

**6. Maintain The Integrity Of Waterways For Their Biological Functions, As Well As For Drainage**

Policies:

- a. The Borough will maintain its open channels and waterways in a manner that is protective of their natural stormwater management and habitat functions for the benefit of the citizens of the Borough, local wildlife, including threatened or endangered species, and future generations.
- b. The Borough will, through the Development Code and Engineering Design Standards and Procedures Manual, protect existing significant open waterways and encourage site planning and landscaping that enhances the attractiveness and natural functions of the water features.

Implementation Actions:

- a. The Borough will continue to support outreach and education efforts regarding water quality, riparian and wetland areas, including business, contractor, and developer outreach programs to educate these parties about their impacts on stormwater quality.
- b. The Borough will ensure that municipal inspectors are adequately trained to protect and maintain the integrity of the waterways.

**7. Minimize Pollutants In Stormwater Runoff 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**

Policies:

- a. The Borough will develop targeted education and outreach and technical assistance programs regarding practices and obligations for keeping debris and pollutants out of the stormwater drainage system and train stakeholder groups in appropriate erosion control and sediment prevention practices, as well as stormwater management BMPs.

- b. The Borough will develop, implement, and enforce appropriate building, design, and Municipal Codes to address water quality compliance issues, including pollution, habitat, and aesthetic issues, to encourage the development of urban waterways that are positive amenities in the community.

Implementation Actions:

- a. Increase educational outreach to schools to increase awareness of children regarding the need to keep litter and pollutants out of urban drainageways.
- b. Continue to maintain enforcement and compliance activities, including inspections, technical assistance, and Code enforcement.
- c. The Borough will review development proposals for impacts on open drainageways, wetlands, and riparian areas, and protect the functions and benefits of these areas as provided for in the Development Code and Engineering Design Standards and Procedures Manual.
- d. The Borough will work cooperatively with citizens, businesses, and agencies to protect and improve surface waterways, seek opportunities for stewardship partnerships, further enhance educational opportunities, and continue participation in intergovernmental work groups.
- e. The Borough will implement and continue to refine/improve BMPs for all Borough activities with potential to impact water quality and/or the functions of waterways, wetlands, and riparian areas.
- f. Continue to support spill response training for Borough staff, including training and coordination with other jurisdictions for area or regional major event response.
- g. Consider support for limiting extremely hazardous chemical use in wellhead protection zones.
- h. Support public hazardous waste disposal events.

**8. To Provide Long Term Operation And Maintenance Of The BMP's For Preventative, Corrective And Aesthetic Maintenance After Construction**

Policies:

- a. The Borough shall ensure compliance with the operation and maintenance manual, and shall plan for enforcement in the event of non-compliance.

Implementation Actions:

- a. The Borough shall provide operation and maintenance manuals, including guidelines, schedules, checklists, etc. for all stormwater BMP's.

**9. To Protect Public Safety Through Proper Design And Operation Of Stormwater Management Basins**

It shall be noted that there are no stormwater basins in the Borough due to tidally influenced conditions.

## **TOTAL MAXIMUM DAILY LOADS (TMDLs)**

A Total Maximum Daily Load (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 source, 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 BMPs.

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 the state of 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.

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 TMDLs are needed.

For Harvey Cedars Borough, there are two major bodies of water (see Figure 6) surrounding the coasts. On the east is the Atlantic Ocean and on the west is the Barnegat Bay. Barnegat Bay is in Watershed Management Area 13, Atlantic Coastal Water Region. TMDL's for this region were established and approved in September 2006 and are scheduled for adoption. Barnegat Bay is broken up into thirteen TMDL subgroups. Harvey Cedars is in Subgroup A: Barnegat Bay-2,3,4,11,12,13 and Subgroup B: Barnegat Bay-16,21,32b, and is impaired for shellfishing for Total Coliform with no required reductions. The Atlantic Ocean is also impaired for Total Coliform along with Dissolved Oxygen, with no required reductions.

The Borough does not have any outfalls to the Ocean, so there is limited impact from the Borough. Sources of the minimal impacts could be caused by direct runoff from developed areas or by tidally influenced flooding of the conveyance system and roadways, and the subsequent draining down of the systems after the storm event, at low tide, and the pollutants that are carried to the ocean. The Plan will help to reduce the loads by encouraging less impervious area, more native vegetation (less fertilizers), less pollution in the conveyance system, and overall less disturbance than was previously permitted.

## **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.

Non-structural measures to be considered first shall include site design and preventative source controls. To confirm the effectiveness of such measures, applicants must verify the control of stormwater quantity impacts as detailed in the Stormwater Management rules. The tests of assuring control of the quantity impacts as detailed in these rules will be incorporated into the Borough's Stormwater Ordinance.

Specific attention is called to NJAC 7:8-5.4(a)3iv, regarding tidal flood hazard areas. It states that the stormwater runoff quantity analysis shall only apply if the increased volume of stormwater runoff could increase flood damages below the point of discharge. For the Borough, which is within a Flood Zone, there is no danger of increased flood damages, as the outfalls are all to the Barnegat Bay. Therefore, no stormwater quantity analysis will be required of developers only a water quality analysis. The stormwater quality controls for total suspended solids and nutrient load shall meet the design and performance standards as specified in NJAC 7:8-5.

The general standards for structural measures will be specified in the Stormwater Management rules and will be incorporated into the Borough's Ordinance. These measures shall be incorporated as needed to meet the soil erosion standards included in the Borough's Stormwater Ordinance. The design standards for the specific structural stormwater management measures are those included in the New Jersey Stormwater Best Management Practices Manual. Other designs or practices may be used if they are approved by the Ocean County Soil Conservation District. The design and construction of such facilities must comply with the Soil Erosion and Sediment Control Standards as well as any other applicable state regulation, including the Freshwater Wetland Protection Act rules, the Flood Hazard control rules, the Surface Water Quality Standards, the Coastal Area Facilities Review Act, Waterfront Development and Harbor Facilities Act, and the Dam Safety rules. The requirement to be consistent with all other applicable rules will be included in the Borough's Stormwater Ordinance. Stormwater runoff quality controls for total suspended solids and nutrient loads shall meet the design and performance standards as specified in the Stormwater Management rules.

During construction, Borough Inspectors will observe the construction of the project to ensure that the stormwater management measures are constructed and function as designed. Should it be determined that stormwater management measures are not being constructed, maintained or operating as designed, after construction, enforcement will be required. The Borough will reserve the right to implement a fine schedule in the event of repeated non-compliance warnings being issued, with all monies being utilized to address the standard being violated.

Where the Borough assumes maintenance responsibility, preventive maintenance shall be performed on a regular basis and will be appropriate for the particular structural management measure being implemented. These maintenance measures shall be in accordance with N.J.A.C. 7:8-5 and may include: periodic inspections, vegetation management, sediment, debris and trash removal and mosquito control. Corrective maintenance shall be performed on an as needed basis for structural repairs or replacements, removal of outlet and pipe blockages, erosion restoration, snow and ice removal, etc. The person or persons responsible for maintenance shall keep a detailed log of all preventative and corrective maintenance for the structural management measures incorporated into the design of the development, including a record of all inspections and work orders.

In order to ensure adequate long term operation as well as preventative and corrective maintenance of both structural and non-structural stormwater management facilities, the designers of such facilities should submit to the Borough a maintenance plan indicating specific maintenance tasks and schedules as indicated in N.J.A.C. 7:8-5.8 "Maintenance Requirements". This maintenance plan will require the ultimate user of said BMP's to provide an annual certification that the stormwater management measure approved are functioning as designed and that the proper maintenance and inspection of said measures have been performed. Random spot inspections by the Borough will be conducted to ensure compliance along with appropriate enforcement actions such as fines to be levied should non-compliance result.



## **PLAN CONSISTENCY**

The Borough is not within a Regional Stormwater Management Planning Area and no TMDLs 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 TMDLs. 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 municipality will utilize the most current update of the RSIS in the stormwater management review of residential areas. This Municipal Stormwater Management Plan will be updated to be consistent with any future updates to 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 Ocean County 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.

The revised General Ordinance<sup>s</sup> of the Borough of Harvey Cedars was reviewed, and the following changes are recommended:

### **CHAPTER XIII – ZONING**

This chapter provides design requirements for all zoning districts including maximum impervious coverages, lot dimensions, setbacks, etc. The chapter can be revised to indicate that if variances are granted on any zoning requirements, the developer shall be required to mitigate for any improvements resulting in additional impervious area than the ordinance allows for.

#### **Section 16-7 Design Standards**

**16-7.3 Lots:** This section provides requirements for lot dimensions, layout, minimum elevation, etc. It can be revised to include language instructing, wherever possible, the land to be graded to allow the land to treat the stormwater before it drains into the street.

**16-7.11 Native Vegetation:** This section requires that native vegetation shall be left intact to the maximum extent possible. It can be revised to require developers to utilize, whenever possible, native vegetation for proposed landscaping, which will minimize the need for fertilizers.

**16-7.16 Seeding and 16-7.17 Topsoil:** These sections provide requirements for stable ground cover for all open areas of a subdivision. They can be amended to include language requiring that properties are covered with stabilizing material to secure proper drainage, prevent collection of stormwater and to prevent adverse impacts on adjacent properties.

**18-5 Recycling:** This section establishes a program for the mandatory separation of materials, as listed in 18-3 a. and b., including placement for disposal, time frames for various materials, leaf disposal, and unauthorized collections. It should be amended to provide language included within the NJDEP Model Ordinances on Improper Disposal of Waste and the Yard Waste Collection Program. This should include the prohibition of the spilling, dumping, or disposal of materials other than stormwater to the municipal separate storm sewer system (MS4) operated by the Borough of Harvey Cedars. Also, language shall be included stating that activities such as sweeping, raking, blowing or otherwise placing yard waste that is not containerized at the curb or along the street is only allowed during the seven (7) days prior to a scheduled and announced collection, and shall not be placed closer than ten feet from any storm drain inlet.

## **CHAPTER XIX – STREETS AND SIDEWALKS:**

This chapter provides requirements for the materials acceptable for street surfaces, as well as excavation regulations and restrictions, and permitting rules. This chapter should be amended to include requirements on curbing and sidewalk. The curbing can include language allowing for curb cuts or flush curbs with curb stops to allow vegetated swales to be used for stormwater conveyance and to allow the disconnection of impervious area. The sidewalk section should indicate that developers should design sidewalks to discharge stormwater to neighboring lawns, where feasible, to disconnect the impervious surfaces. Also, the chapter can be revised to state that permeable paving materials, such as clamshells, should be utilized where appropriate, to the maximum extent possible, to minimize the impervious surfaces.

In addition to the above recommended revisions to the Ordinance, sections can be added including:

- **Animals:** providing regulations and restrictions on pet waste and prohibiting wildlife feeding.
- **Littering:** providing language restricting illegal dumping on or along any street, road, right-of-way or from a boat into any waterway.
- **Landscaping:** Requiring minimum landscaping improvements for development, including a list of preferred species and shade tree recommendations.
- **Buffers:** Requiring developers to provide buffers between residential and nonresidential lots by proposing landscaping meeting specific height, species and quantity/location requirements. Buffers can be used as stormwater management agents.
- **Offstreet Parking:** Adding this section could allow developers to use permeable paving materials, such as clamshell, within parking areas, to minimize stormwater runoff and promote groundwater recharge.

## **LAND USE/BUILD-OUT ANALYSIS**

Since the Borough of Harvey Cedars contains 1.19 square miles, 0.55 square miles of which is land area, we are not required to prepare a Land Use/Build-Out Analysis. This analysis is only required of municipalities with more than one square mile of vacant or agricultural lands. A Land Use Map is included as Figure 7, and a HUC 14 (Hydrologic Unit Code) Watershed Area Map is Figure 8.

## MITIGATION PROJECT CRITERIA

Mitigation is defined as an action by an applicant providing compensation or offset actions for onsite stormwater management requirements where the applicant has demonstrated the inability or impracticality of strict compliance with the stormwater management requirements set forth in NJAC 7:8, in an adopted regional stormwater management plan, or in this local ordinance, and has received a waiver from strict compliance from the municipality. Mitigation, for the purposes of this ordinance, includes both the mitigation plan detailing how the project's failure to strictly comply will be compensated, and the implementation of the approved mitigation plan within the same HUC-14 within which the subject project is proposed.

The mitigation project should be implemented in the same drainage area as the proposed development, preferably on the same site. The project must provide additional groundwater recharge benefits, or protection from stormwater runoff quality and quantity from previously developed property that does not currently meet the design and performance standards outlined in the Municipal Stormwater Management Plan. The developer must ensure the long-term maintenance of the project, including the maintenance requirements under Chapters 8 and 9 of the NJDEP Stormwater BMP Manual.

If a suitable site cannot be located on the site or in the same drainage area as the proposed development after extensive research, as discussed above, the mitigation project may provide mitigation that is not equivalent to the impacts for which the variance or exemption is sought, but that addresses the same issue. For example, if a variance is given because the 80 percent TSS requirement is not met, the selected project may address water quality impacts due to a fecal impairment.

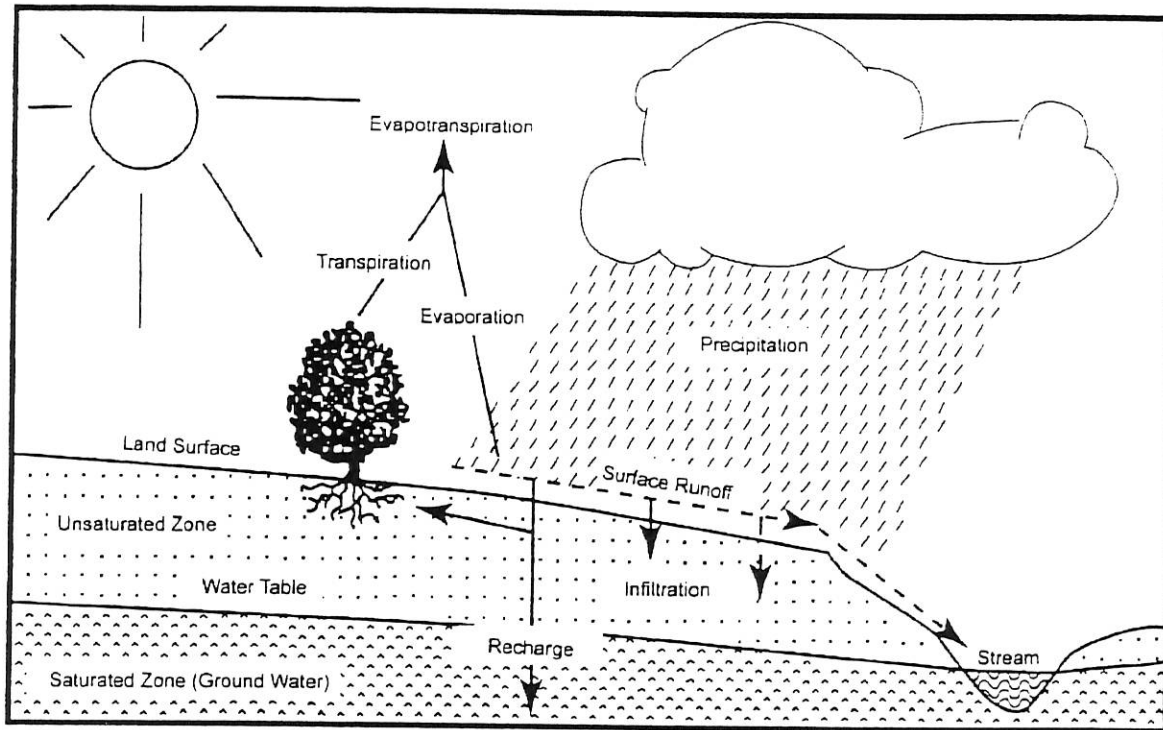
Two mitigation options are provided below, but this shall not be considered all-inclusive. If a developer can provide any different options for mitigation, they shall be presented to the Borough Engineer for his approval.

- Retrofit existing stormwater collection inlets, throughout the Borough, with grates and/or curb pieces as required in Appendix C of the NJBMP Manual.
- Install prefabricated stormwater filtration systems to provide water quality at the Borough's outfalls. Units installed shall be approved by the NJDEP and a maintenance schedule shall be provided.

The issuance of a waiver under a Land Use Permit by the NJDEP does not automatically waive the requirement for mitigation to be performed under the municipal review. It shall also be noted that the applicant is required to obtain all the required permits for any mitigation project which will be performed under the municipal review.

When submitting for a CAFRA permit and requesting a waiver from the performance standards, the NJDEP can require a mitigation plan regardless of the Borough's decision to require one.

Figure 1: Groundwater Recharge in the Hydrologic Cycle



Source: New Jersey Geological Survey Report GSR-32.



