

**MUNICIPAL STORMWATER  
MANAGEMENT PLAN FOR THE  
TOWN OF KEARNY  
HUDSON COUNTY, NEW JERSEY**



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## **Introduction**

This Municipal Stormwater Management Plan (MSWMP) documents the strategy for the Town of Kearny (“the Town”) 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, water quantity, and the loss of groundwater recharge that provides base flow in receiving water bodies. The plan describes long-term operation and maintenance measures for existing and future stormwater facilities.

A “build-out” analysis has not been included as the Town does have one square mile of agricultural or vacant land. The plan also addresses the review and update of existing ordinances, the Town 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.

## **Goals**

The goals of this MSWMP are to:

1. Reduce floor damage, including damage to life and property  
Special flood areas are identified on Flood Insurance Rate Maps that are based on 100-Year Storm Event. By following the NJDEP requirements, the floodplain will cover larger areas. This is due to the fact that the NJDEP regulatory flood is based on 100-year storm under full developed conditions which may also be represented by an increase of 25% to the 100-year flood flow under existing conditions. The NJDEP regulations further require that structures that span the flood plain and/or act as control structures for the watercourse, such as bridges, culverts or low dams, to be designed so that any increase in flood elevations, upstream or downstream, will not subject existing residential or commercial buildings to increased flood damages during this flood and more frequent floods. Adhering to this requirement, will limit development adjacent to waterways and reduce flood damage.
2. Minimize, to the extent practical, any increase in stormwater runoff from any new development  
The Town currently follows the New Jersey Residential Site Improvement Standards (RSIS) that do not allow increase in stormwater runoff in residential development. As indicated herein this plan, the Town has adopted a Stormwater Control Ordinance. This ordinance allows no increase in stormwater runoff from any new development or re-development that disturbs one or more acre of land. The applicant has to provide hydrologic and hydraulic calculations demonstrating one of the following:

- Post-construction runoff hydrographs for the two, 10, and 100-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events.
  - No increase, as compared to the pre-construction condition, in the peak runoff rate of stormwater leaving the site for the two, 10 and 100-year storm events and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site.
  - Design stormwater management measures so that the post-construction peak runoff rates for the two, 10 and 100-year storm events are 50, 75 and 80 percent, respectively, of the pre-construction peak runoff rates.
3. Reduce soil erosion from any development or construction project  
This goal is achieved through adherence to the New Jersey’s Soil Erosion and Sediment Control standards. The Town of Kearny’s Stormwater Management Ordinance shall require all new development and redevelopment plans to comply with the State’s Soil Erosion and Sediment Control Standards.
  4. Assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures  
The adequacy of existing and proposed culverts and bridges, and other in-stream structures is assured by adherence to NJAC 7:13 “Flood Hazard Area Control Act Rules”. The NJDEP regulations under this chapter specify all the requirements needed to assure the adequacy of existing and new structures, without causing any adverse effects upstream or downstream, for the regulatory flood and more frequent events. An NJDEP Land Use Permit for any new bridge or modifications/alterations to existing structures as defined in NJAC 7:13, is required.
  5. Maintain groundwater recharge  
This goal is achieved through the adoption of the design and performance standards for Stormwater Management Measures as presented in N.J.A.C. 7:8-5. Subsections 7:8-5.4 “Groundwater Recharge Standards” and 7:8-5.7 “Calculation of Stormwater Runoff and Groundwater Recharge” describe the specific standards and calculation technique to maintain the groundwater recharge. Figure C-4 illustrates the approximate groundwater recharge rates within the Town.
  6. Prevent, to the greatest extent feasible, an increase in nonpoint pollution  
Nonpoint pollution is generally attributed to stormwater runoff from agricultural and residential areas. By requiring residential developments to meet the RSIS regulations regarding water quality, and by further adopting the design and performance standards for Stormwater Management Measures as presented in N.J.A.C. 7:8.5, Subsection 7:8-5.6 “Stormwater Runoff Quality Standards”, which describes the stormwater management measures to achieve water quality and provides guidance to achieve the same, this goal shall be achieved.
  7. Maintain the integrity of stream channels for their biological functions, as well as for drainage.

This goal is achieved by adopting the design and performance standards for Stormwater Management Measures as presented in N.J.A.C. 7:8-5. This goal is furthermore achieved by adhering to NJAC 7:13 “Flood Hazard Area Control Act Rules” regarding the protection of vegetation areas adjacent to watercourses.

8. 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.

This goal is achieved through the adoption of the design and performance standards for Stormwater Management Measures as presented in N.J.A.C. 7:8-5, Subsection 7:8-5.5 “Stormwater Runoff Quality Standards”. These standards require the reduction of the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm by 80 percent of the anticipated load from the redeveloped/developed site. This subsection includes the list of Best Management Practices, and the TSS Percent Removal Rate achieved through implementation.

9. Protect public safety through the proper design and operation of stormwater basins.

This goal is achieved through the adoption of the design and performance standards for Stormwater Management Measures as presented in N.J.A.C. 7:8-5, Subsection 7:8-5.8: “Maintenance Requirements”, and Subsection 7:8-6 “Safety Standards for Stormwater Management Basins”. The latter subchapter sets forth requirements to protect public safety through the proper design and operation of stormwater management basins. New developments shall be required to provide a “Stormwater Management and Maintenance Plan” in which the responsible party for maintenance of the facility is identified and detailed schedules and procedures pursuant to NJAC 7:8-5.8 “Maintenance Requirements” are included therein. The existing facilities maintained by the Town or privately, will continue to be maintained by same.

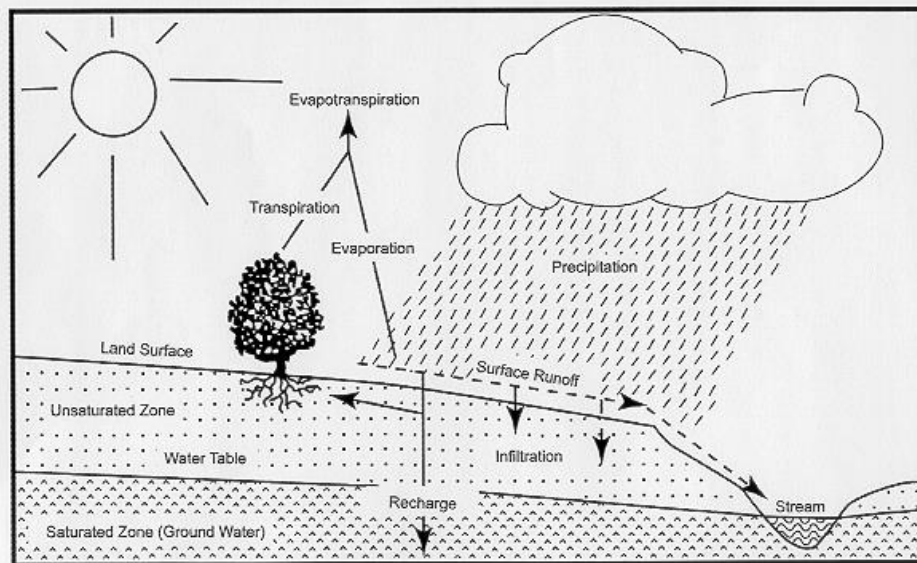
To achieve these goals, this plan outlines specific stormwater design and performance standards for new development. Additionally, the plan proposes stormwater management controls to address impacts from existing development (see Mitigation Plans section). Preventative and corrective maintenance strategies are included in the plan to ensure long-term effectiveness of stormwater management facilities (see Design and Performance Standards section). 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 C-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. Increase 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.

Figure C-1: Groundwater Recharge in the Hydrologic Cycle



Source: New Jersey Geological Survey Report GSR-32.

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.

## **Background**

The Town of Kearny encompasses a 9.10 square mile area in Hudson County, New Jersey. The population of the Town has increased from 35,735 in 1980, to 40,513 in 2000, to 42,000 in 2020. The Town is a stable community, but is increasing its population. A portion of the Town along the Town's eastern boundary at the Hackensack River is under the jurisdiction of the New Jersey Sports and Exhibition Authority (NJSEA), formerly the New Jersey Meadowlands Commission (NJMC). The NJ Meadowlands Commission was created by an act of the New Jersey Legislature in 1968 and was passed into law in January 1969. It was formed to regulate the development with the Meadowlands and is formed on 10 Bergen County & 4 Hudson County communities. It has jurisdiction over 19,485 acres, 30.4 square miles, within these municipalities. Figure C-3 depicts the Town boundary on the USGS quadrangle maps.

At this point in time, 84.9 percent of the Town is considered developed (see Land Use Table in Appendix). There are 878.10 acres (1.37 square miles) of developable lands which includes vacant and agricultural parcels within the Town. Since only 0.07 square miles of developable land is under the Town of Kearny's jurisdiction (1.30 square miles under NJMC jurisdiction), a build-out analysis is not required. In addition, the Town of Kearny is located within the Planning Area 1 (PA-1), Metropolitan Planning Area as identified on the New Jersey State Plan Policy Map.

The Town has full sanitary sewer service and has septic systems located within the Town to the west of Schuyler Avenue (i.e. 590 Belleville Turnpike). It does have combined sewers as illustrated on the Combined Sewer Overflow Mapping (Figure C-10). Sanitary waste flows are collected by sanitary and / or combined sewers that are under the jurisdiction of the Passaic Valley Sewerage Authority.

Domestic water and fire service flow are provided by the Town of Kearny conveyance system. The Town is aware of private water wells located within the Town. These wells are not utilized for domestic consumption (drinking water). Typically, the wells are for industrial processes. No public wellheads are located within the Town and Zones of Influence for public wellheads located within adjacent municipalities do not encroach the boundary of the Town of Kearny. Figure C-5 depicts the Town boundary and the location of public wellheads and their zones of influence.

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 following streams and rivers traverse the Town:

1. Passaic River along the Town's western boundary (tidally influenced)
2. Frank Creek within the center of Town (tidally influence)
3. Saw Mill Creek along the Town's northern boundary (tidally influenced)
4. Hackensack River along the Town's eastern boundary (tidally influence)
5. There are a series of unnamed tributaries to these watercourses located within the Town

These watercourses contain floodplains as shown on FEMA (Federal Emergency Management Agency) FIRMs (Flood Insurance Rate Maps). Figure C-10 (Flood Insurance Rate Map) illustrates the 100-year floodplain affected areas throughout the Town.

The Town of Kearny is located within three Watershed Management Areas (WMA4, WMA5, and WMA 7). WMA4, WMA5, and WMA7 are the Lower Passaic WMA, Hackensack and Pascack WMA, and Arthur Kill WMA, respectively. There are five HUC14s within the Town. They are as follows:

1. 02030103150040 –Passaic River Lower – 4<sup>th</sup> Street to Second River (WMA 4)
2. 02030103150050 –Passaic River Lower – Newark Bay to 4<sup>th</sup> Street Bridge (WMA 4)
3. 02030103180090 – Hackensack River – Amtrak Bridge to Route 3 (WMA 5)
4. 02030103180100 – Hackensack River – below Amtrak Bridge (WMA 5)
5. 02030104010020 – Newark Bay / Kill Van Kull – 74d 07m 30s (WMA7)

The watercourses within the Town are not categorized as Category One (C-1) Streams by the NJDEP. These watercourses do not flow to a reservoir utilized for drinking water.

The aforementioned watercourses are moderately impaired based on AMNET data. 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 shows that the instream water quality constituents frequently exceed the state's criteria. This means that these rivers are impaired waterways and the NJDEP is required to develop a Total Maximum Daily Load (TMDL) for these pollutants for each waterway.

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 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 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. The following are the watercourses with its location, sublist, and sublist constituents:

1. Passaic River (tidal) at Route 7 in Kearny  
This watercourse is on Sublist 3 for fecal coliform. It is on Sublist 1 for Temperature, pH, Dissolved Oxygen, Unionized Ammonia.
2. Hackensack River (tidal) at the Pulaski Skyway  
This watercourse is on Sublist 5 for Phosphorus, Fecal Coliform. It is on Sublist 1 for Temperature, Dissolved Oxygen, pH, Unionized Ammonia.

In addition to water quality issues, the Town has exhibited water quantity problems including flooding, stream bank erosion, and diminished base flow in its streams. Many of the culverts associated with road crossings in the Town are undersized. During severe storm events, these undersized culverts do not have adequate capacity, thereby causing flooding upstream.



These culverts were designed for much different hydrologic conditions (i.e., less impervious area) than presently exist in the Town. As the impervious area increased in the Town, the peak and volumes of stream flows also increased. The increased amount of water resulted in stream bank erosion, which resulted in unstable areas at roadway/bridge crossings (stream section and culvert obstructions), and degraded stream habitats. The high impervious area of the Town has significantly decreased groundwater recharge, decreasing base flows in streams during dry weather periods. Lower base flows can have a negative impact on instream habitat during the summer months. A map of the groundwater recharge areas are shown in Figure C-4. Well head protection areas, also required as part of the MSMP, are shown in Figure C-5.

Brownfields are typically defined as abandoned, idled or under-utilized industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination, possibility groundwater contamination. When development of these Brownfield parcels is to occur within the Town, they are / will be redeveloped following NJDEP site remediation standards and regulations.

### **Streams**

There is one stream located within the Town of Kearny, the Passaic River Tributary (Franks Creek).

According to NJDEP Geo-Web, the Town of Kearny is located within Watershed Management Area 4 (“WMA4”). WMA4 is also known as “Lower Passaic and Saddle” (refer to Figure C-8).

The Town of Kearny also contains one sub-watershed, identified with a 14-digit Hydrologic Unit Code (“HUC-14”), (refer to Figure C-7). The HUC-14 sub-watershed is indicated and described below:

- HUC-14 No.: 02030103150050– Passaic R Lwr (Nwk Bay to 4<sup>th</sup> St brdg).

The HUC-14 sub-watershed is contributory to the Passaic River (02030103150050), all watercourses and tributaries within the HUC-14 sub-watershed are classified as Perennial Streams.

A TMDL is the amount of a pollutant that can be accepted by a water body without causing an exceedance of water quality standards or interfering with the ability to use a water body 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 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 water is attaining water quality standards, and identifies waters that are impaired. Water waterbodies are classified through the use of Sublists. Sublist 1 and 2 waterbodies are unimpaired. Sublist 3 waterbodies have limited assessment or data availability. Sublist 4 waterbodies are impaired due to pollution rather than pollutants or have had a TMDL or other enforceable management measure approved by the EPA expected to achieve Water Quality Standards. Sublist 5 of the Integrated List constitutes the list of waters impaired or threatened by pollutants, for which one or more TMDLs are needed.

### **Design and Performance Standards**

The Town 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, 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 Stormwater Control Ordinance has been adopted by the Town and has been approved by Hudson County.

During construction, Town inspectors will observe the construction of the project to ensure that the stormwater management measures are constructed and function as designed. If the Town determines that non-compliance is occurring, the Town shall issue non-compliance citations, stop work orders, and fines to ensure compliance. Penalties are listed within the adopted Town Stormwater Control Ordinance.

Once construction is completed, long-term maintenance is required for existing and future stormwater facilities to ensure long-term operation for all project governed by the requirements set forth within the Stormwater Control Ordinance. The ordinance will require a maintenance and repair plan that will provide specific preventative maintenance tasks and schedules along with the name of the person or people responsible for preventive or corrective maintenance. The person responsible for maintenance will be required to evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as necessary.

To ensure proper operation and maintenance and facility repair, the Town will notify the responsible person in writing should a stormwater facility become a danger to public safety, public health, or require maintenance or repair. Upon receipt of the written notice, the responsible person will have fourteen days to effect maintenance and repair of the facility in a manner that is approved by the municipal engineer. The Town, in its discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair, the municipality or County may immediately proceed to do so and shall bill the cost to the responsible person.

### **Plan Consistency**

The Town is within a Regional Stormwater Management Planning Area (New Jersey Meadowlands Commission), but no TMDLs have been developed for waters within the Town. If any other RSWMPs or TMDLs are developed in the future, this Municipal Stormwater Management Plan will be updated to be consistent.

This Plan is also to be consistent with the New Jersey Meadowlands Commission District-wide Floodplain Management Plan. This plan was developed by the floodplain management task force. This plan is expected to resolve issues of jurisdiction, responsibility, prioritize solutions, and identify proper funding mechanisms.

The Municipal Stormwater Management Plan is consistent with the Residential Site Improvement Standards (RSIS) as 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 updated to the RSIS.

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

### **Nonstructural Stormwater Management Strategies**

The Town has reviewed the master plan and ordinances, and has provided a list of the sections in the Town land use and zoning ordinances that are to be modified to incorporate nonstructural stormwater management strategies. These are the ordinances identified for possible revision if deemed necessary by the Town. Once the ordinance texts are completed (if they have been revised by the Town), they will be submitted to the county review agency for review and approval. A copy will be sent to the Department of Environmental Protection at the time of submission.

Chapter 32 FLOOD DAMAGE PREVENTION, Chapter 36 SUBDIVISION AND SITE PLAN and Chapter 38 ZONING were reviewed with regard to incorporating nonstructural stormwater management strategies. Several changes will/may be considered to the followings Sections within these Chapters:

**Section 36-10.5 Public Use and Service Areas; Floodways** states that natural features shall be preserved whenever possible in designing any [subdivision](#) containing such features. This section will be amended to expand to forested areas and tree stands, to ensure that leaf litter and other beneficial aspects of the forest and tree stands are maintained.

**Section 38-2.2 Definitions** states that a yard shall mean an [open space](#), which lies between the principal or accessory [building](#) or buildings and the nearest [lot](#) line and is unoccupied and unobstructed from the ground upward except as herein permitted. This section will be amended to include that care be taken to preserve native trees and shrubbery located within this yard / setback area. In addition, the section will be amended to state that native plant species shall be planted in yard / setback areas where feasible.

**Section 36-2.2 Definitions as used in this chapter** will be amended to provide the definition of a cluster development and will provide requirements to subdivide a lot into smaller conforming lots. A cluster development is a subdivision option utilized to preserve land for public and agricultural purposes, to prevent development on environmentally sensitive areas, and to aid in reducing the cost of providing streets, utilities and services in residential developments. This cluster option is an excellent tool for reducing impervious roads and driveways. The option allows for small lots with smaller front and side yard setbacks than traditional development options. It also minimizes the disturbance of large tracts of land, which is a key nonstructural stormwater management strategy. The

section will include a cluster development subdivision option. The option will include a percentage of the total tract to be preserved as open space for residential area. It will also include language promoting the use and / or preservation of native vegetation.

**Section 36-12.5 Landscaping and Buffer Areas** requires buffers for development. Buffers are a pervious coverage setback for a lot to its boundary line. This section will be amended to include a definition of a buffer which is to preserve existing natural features within this area, such as trees, brooks, swamps, hilltops, and views, and that care be taken to preserve trees to enhance soil stability and landscaped treatment of the area. The section will be amended to supplement proposed buffer areas with native landscaping. Structural buffering methods (berms, walls, fences, etc.) shall not be considered until all landscaping methods have been exhausted. Additionally, language will be included to allow buffer areas to be used for stormwater management by disconnecting impervious surfaces and treating runoff from these impervious surfaces.

This section will also be amended to restrict and control the removal of matured trees throughout the Town. This revision is to recognize that the preservation of matured trees and forested areas are a key strategy in the management of environmental resources, particularly watershed management, air quality, and ambient heating and cooling. This complies with minimizing land disturbance, which is a nonstructural stormwater management strategy.

**Section 38-4.1 Application. The Schedule of General Requirements shall apply to the uses of land** requires a setback / distance from the boundary line in which a building can not be placed. This schedule will be amended to include a note that care be taken to preserve native trees and shrubbery located within this setback area. In addition, another note will be added to the schedule that native plant species shall be planted in setback areas where feasible.

**Section 36-10.4 Lots** states that the Town can withhold approvals for a lot due to flooding conditions. This section will be amended to limit improvement and maintenance within the floodplain which shall follow all applicable state regulatory requirements.

**Section 32-5.2 Specific Standards** requires development restriction within floodplains. The section will be amended to limit improvement and maintenance within the floodplain which shall follow all applicable state regulatory requirements.

**Section 36-10.8 Topsoil Protection, Soil Erosion and Sediment Control** states that soil erosion control measures will be required as part of subdivision plan preparation. In addition, this section will be amended to state that developers will not be permitted to encroach upon areas outside of the approved limit of disturbance shown on the approved Soil Erosion and Control Plan for the development.

**Section 36-10.2 Streets** addresses the design standards for Town streets. Street paving widths are a function of the type of development, number of units served, whether a street is curbed, whether on-street parking is permitted, and whether on-site topographical constraints allow design flexibility. This section will be amended to encourage developers to limit on-street parking to allow for narrower paved widths that will conform to the New Jersey Residential Site Improvement Standards where applicable.

**SCHEDULE II Schedule of Area, Yard and Bulk Requirements** has the improved lot coverage requirements for developments within the Town to govern impervious coverage. The table will be

amended to include a note stating that if a developer is given a variance to increase the permitted improved lot coverage, the developer must mitigate the impact of the additional impervious surfaces. This mitigation effort must address water quality, flooding, and groundwater recharge as described in the Town Stormwater Control Ordinance which is to be enacted.

**Section 36-12.1 General Requirements and 36-12.7 Street Improvements** states the requirement of curbing within the Town. This section will be amended to allow 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 areas where feasible.

**Section 36-12.6 Utility Improvements** states that provisions shall be made for the drainage of surface runoff waters in and from the premises so that flooding and erosion of the property and the property of others will be prevented. This section will be amended to require that all streets be provided with inlets and pipes where the same are necessary for proper drainage. In addition, this section will be amended to encourage the use of natural vegetated swales in lieu of inlets and pipes where appropriate. Language will be added to allow for use of natural vegetated swales for the water quality design storm, with overflow for larger storm events into storm sewers where feasible. Also, this section will be amended by referencing the Town's Stormwater Control Ordinance which will be updated to include all requirements outlined in N.J.A.C. 7:8-5.

**Section 36-12.2 Off-Street Parking Requirements.** describes the procedure for construction of any new driveway or accessway to any street. This section will be amended to allow the use of pervious paving materials to minimize stormwater runoff and promote groundwater recharge where appropriate.

**Section 36-14.1 Applicability, Improvements Required** discusses off-tract improvements for both site plans and minor subdivisions. Language will be added to this section to require that any off-site and off-tract stormwater management and drainage improvements for site plans and subdivision plans must conform to the Town Stormwater Control Ordinance.

**Section 36-12.7 Street Improvements** describes sidewalk requirements for the Town. Language will be added to this section to require developers to design sidewalks to discharge stormwater to neighboring lawns where feasible to disconnect these impervious surfaces, or use permeable paving materials where appropriate.

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

As an analysis of the existing land use per the NJDEP GIS, vacant land and agricultural land under the Town of Kearny jurisdiction contains less than one square mile (0.07 square miles as per table in Appendix). For this reason, a land use / building-out analysis is not required for the Town of Kearny.

### **Mitigation Plans**

This mitigation plan is provided for a proposed development that is granted a variance or exemption from the stormwater management design and performance standards. Presented is a hierarchy of options (1 and 2).

### **Mitigation Project Criteria**

1. The mitigation project must be implemented in the same drainage area as the proposed development. 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.

The applicant can select one of the following projects listed to compensate for the deficit from the performance standards resulting from the proposed project. More detailed information on the projects and a current list of additional projects can be obtained from the Town Engineer. Listed below are some specific projects that can be used to address the mitigation requirement.

#### **Groundwater Recharge**

- a. Within Town Parks (to be specified by Town Engineer)

#### **Water Quality**

- a. Within Town adjacent to outlet control structures to Town watercourses (to be specified by Town Engineer)

#### **Water Quantity**

- a. Within Town roadway right-of-ways – additional stormwater conveyance structures or systems (to be specified by Town Engineer)
- b. Within Town property – additional stormwater management facilities (to be specified by Town Engineer)

Possible strategies to be implemented at these aforementioned sites would be as follows:

- a. Dry Wells
- b. Extended Detention Basins
- c. Infiltration Basins
- d. Manufactured Treatment Devices
- e. Pervious Paving Systems

- f. Sand Filters
- g. Vegetative Swales

Site viability of these strategies would have to be evaluated by the Town on a site by site basis.

2. If a suitable site cannot be located in the same drainage area as the proposed development, as discussed in Option 1, 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 requirements are not met, the selected project may address water quality impacts due to a fecal impairment. Listed below are specific projects that can be used to address the mitigation option.

### **Water Quality**

- Re-establish a vegetative buffer (minimum 50 foot wide) along a Town Pond or Watercourse. The buffer and preservation could occur through a conservation easement.
- Provide goose management measures including public education at a Town Park and / or field

The Town of Kearny shall permit the perspective development to provide funding or partial funding for an environmental enhancement project that has been identified in the Municipal Stormwater Management Plan or towards an environmental enhancement project that has been deemed by the Town as an environmentally sensitive area. The funding shall be equal to or greater than the cost to implement the mitigation outlined above or in subsequent environmental reports, including costs associated with but not limited to purchasing the property or easement for mitigation, and the cost associated with the long-term maintenance requirements of the mitigation measure.