STORMWATER MANAGEMENT PLAN

MARCH 2005
REVISED OCTOBER 2006

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October 11, 2006

Peter Kortright III, Director of Master Planning
COUNTY OF BERGEN
DEPARTMENT OF PLANNING AND
ECONOMIC DEVELOPMENT
1 Bergen County Plaza, 4th floor
Hackensack, NJ 07601-7076

RE: Borough of Allendale Stormwater Management Plan

Dear Mr. Kortright:

On behalf of the Borough of Allendale, we are submitting the Borough of Allendale Stormwater Management Plan, dated March 2005, revised October 2006. The Stormwater Management Plan has been revised in accordance with your comments from the pre-application meeting held on March 14, 2005.

Should you have any questions or require any additional information please do not hesitate to contact John Yakimik or myself at (973) 338-9100.

Sincerely,

Dewberry

Nicole S. Habeiche, P.E.
Project Engineer

Enclosure

cc: Les Shenkler, AIA, CFM, Borough Administrator
George Higbie, Superintendent of Public Works
Jeff Picinich, Allendale Water and Sewer
Gwen Gabbert, Borough Clerk
(all w/ enclosures)

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Introduction

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

Goals

The goals of this plan are to:

- reduce flood damage, including damage to life and property;
- minimize, to the extent practical, any increase in stormwater runoff from any new development;
- reduce soil erosion from any development or construction project;
- assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;
- maintain groundwater recharge;
- prevent, to the greatest extent feasible, an increase in nonpoint pollution;
- maintain the integrity of stream channels for their biological functions, as well as for drainage;
- minimize pollutants in stormwater 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 and;
- protect public safety through the proper design and operation of stormwater basins.

To achieve these goals, this plan outlines specific stormwater design and performance standards for new development. Additionally, the plan proposes

stormwater management controls to address impacts from existing development. Preventative and corrective maintenance strategies are included in the plan to ensure long-term effectiveness of stormwater management facilities. The plan also outlines safety standards for stormwater infrastructure to be implemented to protect public safety.

Stormwater Discussion

Land development can dramatically alter the hydrologic cycle (See Figure 1) of a site and, ultimately, an entire watershed. Prior to development, native vegetation can either directly intercept precipitation or draw that portion that has infiltrated into the ground and return it to the atmosphere through a process known as evapotranspiration. Development can remove beneficial vegetation and replace it with lawn or impervious cover, reducing the site's evapotranspiration and infiltration rates. Clearing and grading a site can smooth and eliminate natural 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 causes flow in downstream waterways to peak faster and higher than natural conditions.

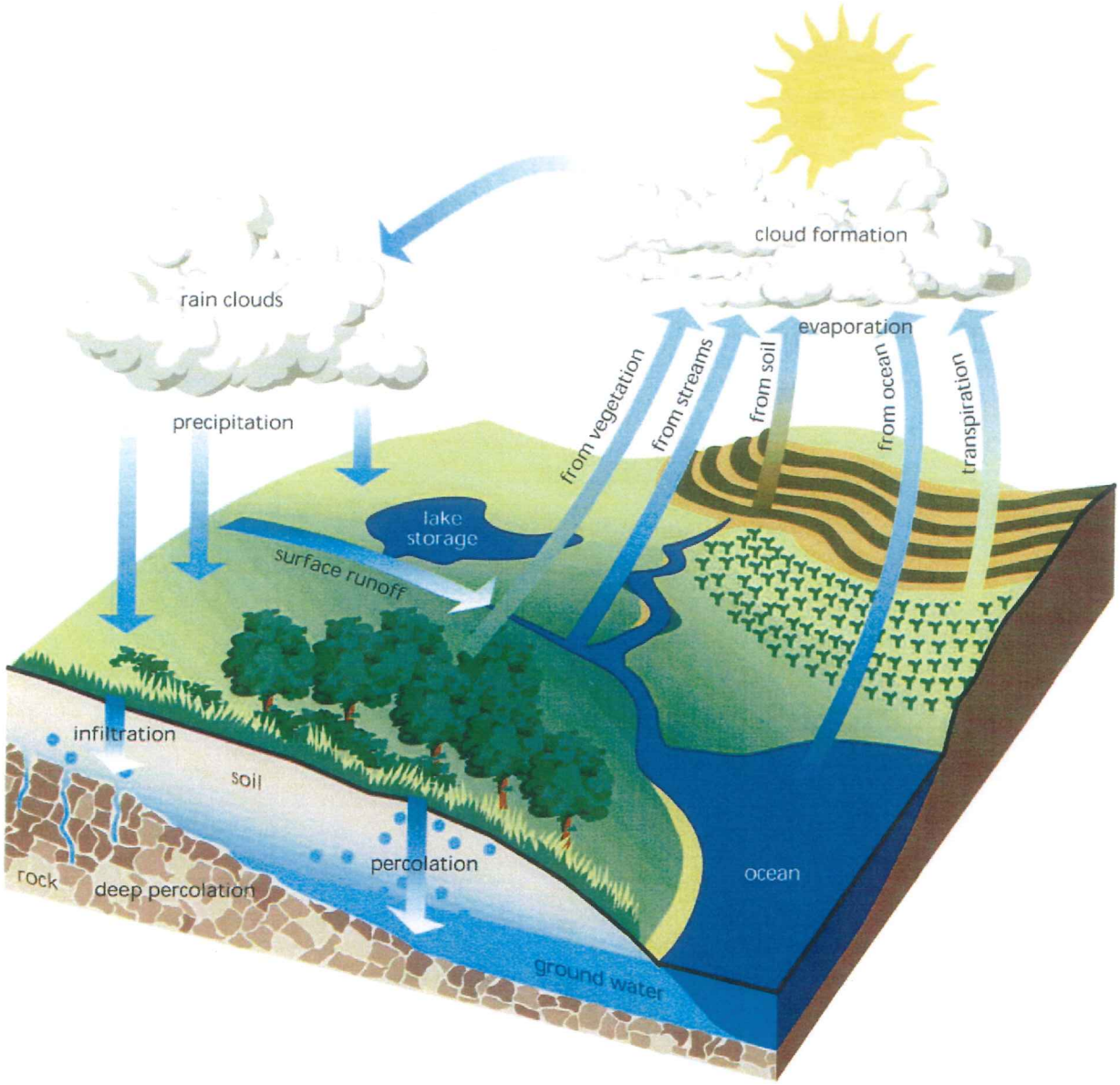
These increases can create new and aggravate existing downstream flooding and erosion problems and increase the quantity of sediment in channels. Filtration of runoff and removal of pollutants by surface and channel vegetation is eliminated by storm sewers which discharge runoff directly into waterways. 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 habitats at a faster rate than some species are able to adapt.

In addition to increases in runoff peaks, volumes, and loss of groundwater recharge, land development often results in the accumulation of pollutants on the land surface that runoff can 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.

Increased pollutant loading from land development can adversely affect water quality and aquatic plant and animal species in more subtle ways as well. 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 once released, 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 species.

Figure 1: The Hydrologic Cycle



Source: Northern Arizona University, http://www.cet.nau.edu/Projects/SWRA/research.html, April 2005.

Borough Statistics

The Borough encompasses an area of approximately 3.15 square miles in northwestern Bergen County, New Jersey. The United States Geological Survey (USGS) map showing the Borough of Allendale is provided in the Appendix. It is comprised of mainly residential properties, both single family homes and townhouse developments, with two small concentrations of industrial properties one, located near the geographic center of the Borough and another in the northeast corner adjacent to New Jersey Route 17.

Figure 2 illustrates that the Borough is nearly fully developed, with a housing density of 686 units per square mile, which is approximately 50% over the State-wide average but below the County-wide average. In the period between 1970 and 2000, the Borough saw a population increase of 459 (7%) with a corollary housing unit increase of 496 units (30.1%) over the same period. This data is summarized in Table 1.

Table 1: Thirty Year Growth Statistics

Year	Population	Change		Dwelling Units	% Change	
1970	6240	n/a	n/a	1647	n/a	n/a
1980	5901	-339	-5.4%	1727	+80	+4.8%
1990	5900	-1	-0.0%	1915	+188	+10.9%
2000	6699	+799	+13.5%	2143	+228	+11.9%
30 years		+459	+7.3%		+496	+30.1%

During the 20 year period from 1970 to 1990, population decreases were evident across the County, attributable to decreases in the average household size. However, the number of dwelling units continued to rise, and therefore the availability of open space decreased. The increased number of dwelling units can be attributed to extensive multi-family residential development of open spaces, resulting from the imposition of affordable housing rules and zoning changes which created multi-family zones that previously did not exist. The resulting increased development value of open spaces has hampered the Borough's ongoing efforts to preserve them. Today, most of the large tracts of open space not owned by the Borough are within the design and planning phases of multi-family development. The Existing Development Plan, Land Use Plan and the Zoning Map for Allendale are provided in the Appendix. In 2005, the Borough adopted revisions to the land use element of its Master Plan.

Source: New Jersey Department of Environm
Map Aerial Photography 2002

There is no potential for any future large developments of over 20 dwelling units within the borough due to the lack of available land, with the exception of the "Whitney" townhouse development on Chestnut Street. The "Whitney" is proposed to comprise 150 units on approximately 20 acres of land.

The New Jersey State Development and Redevelopment Plan ("NJSDRP") states that the level of development in the State can be expected to continue. The Borough is within the State Planning Area 1 (PA1) and described as "Metropolitan", as designated by the NJSDRP. The NJSDRP defines the policy objectives within a Metropolitan Planning Area (MPA) to "Provide for much of the state's future redevelopment; revitalize cities and towns; promote growth in compact forms; stabilize older suburbs; redesign areas of sprawl; and protect the character of existing stable communities." The NJSDRP indicates that developable land will be populated in accordance with the magnitude of growth within the entire planning area. Furthermore this suggests that all open space currently within the Borough will be developed to match the suburban and sometimes urban nature of the New York metropolitan area in northeastern New Jersey.

Increased development within and upstream of the Borough has in turn increased the impervious coverage, stormwater runoff volumes and pollutant loads to the wetlands and waterways of the Borough. As a result, this has created the need for innovative stormwater management. These increases pose a significant threat to the environmental quality of preserved open spaces, such as the municipally-owned Celery Farm Nature Preserve (Celery Farm) and various areas of private wetlands. Figure 3 illustrates the wetland areas within the Borough.

The Borough of Allendale Water & Sewer Department Facilities consist of five active wells which rely on the local aquifer. Wells #11 and #17 are capable of producing up to 500,000 gallons per day (GPD). Wells #2, #4, and #15 are capable of producing 450,000 GPD. All wells are treated with chlorine solution as required to conform to the New Jersey Department of Environmental Protection (NJDEP) standards. The New Street Treatment Facility provides year round treatment for Wells #2, #4 and #15 using diffused bubbling aeration and chlorination. The average daily demand of the water system is approximately 853,000 GPD with a peak of 2,000,000 GPD. The Water Department maintains an interconnection with United Water, and also has emergency interconnection with the communities of Ramsey and Ridgewood. The Borough also has two water storage tanks including a 1,000,000-gallon ground storage tank with a booster pump station and a 400,000 elevated tank located in Ramsey. In order to comply with the New Jersey SWMP, all proposed "major developments", which is one that disturbs at least one acre of land or creates at least 0.25 acres of new or additional impervious surface, must include nonstructural and/or structural stormwater management measures that prevent the loss of groundwater recharge at the project site. This requirement is included because the loss of

groundwater recharge can adversely impact the health of streams and wetlands and ultimately aquifer recharge.

The Sanitary Sewer Department consists of a gravity-based collection system. Wastewater is collected through 34 miles of clay piping that range in size from 8 inch to 24 inch diameter sewer mains. The wastewater collection system delivers wastewater to the Northwest Bergen Sewer Authority in Waldwick, New Jersey. There are no known septic systems within the Borough.

The USGS and the NJDEP classify watersheds based on physical boundaries which are felt to be more ecologically sound units for environmental planning and management than the more typically used county or municipal boundaries. The Borough lies within Watershed Management Area 4 (WMA-4) and sub-watershed Hohokus Brook HUC 14, which includes the Lower Passaic River (from the Pompton River confluence downstream to Newark Bay) and its tributaries, including the Saddle River (HUC 11). The drainage area of WMA-4 is approximately 180 square miles and includes portions of five counties (Essex, Hudson, Morris, Bergen and Passaic) and 66 municipalities.

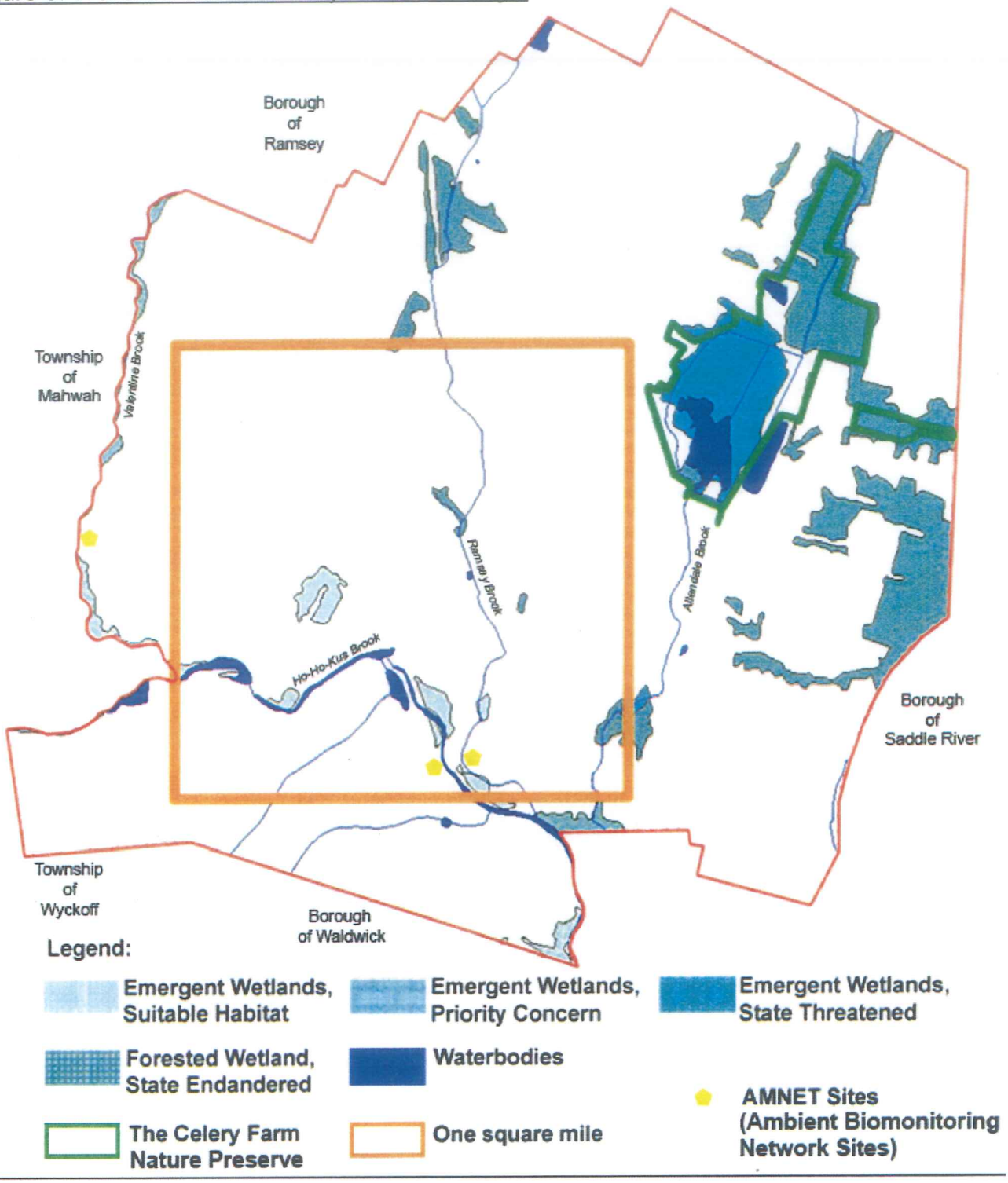
The Borough continues to attempt to preserve open space, through land purchases funded by private citizens, County and State grant programs, and municipal bonds. The Borough has recently received County grants to improve Crestwood Lake Park and to acquire open space. The Borough is very proud of its successful efforts to protect and preserve, the Celery Farm which consists of 105 acres of pristine wetlands, inhabited by various wildlife species in a highly populated region of the State. The Celery Farm comprise multiple parcels, some purchased by the Borough and others, dedicated from bordering developments through the Borough Planning Board. The Celery Farm itself accounts for nearly 6% of the Borough's total land area, and is further augmented by additional acreage in various conservation easements also dedicated in perpetuity by bordering developments as part of Planning Board approvals. The NJDEP map (Figure 3) has been modified to indicate the boundary of the Celery Farm (outlined in green).

Figure 3 has also been modified to provide a visual comparison between the magnitude of one square mile (outlined in orange) and the Borough's total land area. As the figure illustrates, there is no longer one square mile of "*vacant or agricultural lands*" within the Borough, and therefore a build-out analysis is not required for or included with this plan. *[ref.: NJAC 7:8-4.2(c)10)]*

The Borough contains various water bodies and streams which collect and transmit runoff from developed upland areas into sensitive wetlands which are illustrated in Figure 3 as follows:

- Valentine Brook is located along the west side of the Borough and flows from north to south, terminating at Hohokus Brook;

Figure 3: Wetlands and Waterways in the Borough:



Base Map Source: New Jersey Department of Environmental Protection, http://www.nj.gov/dep/gis, April 2005

- Ramsey Brook located in the center of the Borough, flows from the Borough of Ramsey, from north to south, terminating at Hohokus Brook;
- Allendale Brook located on the east side of the Borough, flows from the Borough of Ramsey, north to south, into the Borough of Waldwick and;
- Hohokus Brook which flows from the west to east, collects the flow from Valentine Brook and Ramsey Brook. Allendale Brook joins Ho-Ho-Kus Brook in Waldwick.

NJDEP'S requirements for stream buffers (measured from the top of bank) within which vegetation is protected are as follows:

- Three hundred (300) feet along Category One Waters if stormwater management regulations apply;
- Fifty (50) feet along Category One Waters if stormwater management regulations do not apply;
- Fifty (50) feet along trout associated waters;
- Fifty (50) feet along waters associated with threatened and endangered specie, and;
- Fifty (50) feet along waters when acid producing soils will be exposed
- Twenty-five (25) feet along waters not listed above.

The waterways listed above, located within the Borough of Allendale are all classified as Fresh water Non-trout associated (FW2-NT). In addition, it should be noted that none of these waterways are classified as Category One waters by the NJDEP. Therefore the maximum stream buffer within the Borough is 50 feet.

Silt and pollutants deposited from heavy storm events over the past decade, most notably during Tropical Storm Floyd, have created localized flooding conditions in many locations which has led to property damage and threatened wildlife within the Borough's wetlands.

The Borough has encountered difficulty in obtaining permits to remove sediment from effected areas. The NJDEP has required substantial proof of the sedimentation, which would require the Borough to have had a stream profile survey completed before the sedimentation occurred in order to measure how much sedimentation has occurred. Each of the 9 flooding sites (A. thru I.) shown on Figure 4 were part of a stream cleaning permit application the Borough had submitted to the NJDEP, which was recently closed. The Borough, as recommended by the NJDEP, is applying for a permit to clean a stretch of Allendale Brook at the Celery Farm. In addition, the Borough, and in some instances the County, have been able to or are moving to acquire permits to replace the deteriorating structures shown at sites 1-7 on Figure 4.

The reader will note that the aerial photograph in Figure 2 indicates an apparent lake, which is not shown as a water body on any other figure within the SWMP. Although this "lake" is locally known as Crestwood Lake, it is a man-made sand

bottom pool, as designated by the NJDEP. The pool is a chlorinated swimming area, filled by wells and Ramsey Brook in the spring. In the fall, the pool is slowly drained into Ramsey Brook. For this reason, the Borough maintains a NJDEP chlorination permit, which strictly controls chlorination levels. An integral part of controlling the chlorination levels in Crestwood Lake, is the all volunteer Allendale Geese Patrol (AGP) which utilizes canines to discourage geese from congregating and defecating. Aside from the AGP, all other domestic pets are barred by ordinance from the beach area adjacent to the pool.

The 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. Three of these sites are located in the Borough, as shown on Figure 3. These sites are sampled by NJDEP on a five-year cycle for benthic macro-invertebrates, which are an important part of the aquatic food chain, serving as a nutrient source for both fish and plants. All three stations within the Borough have indicated readings of "non-attainable". In addition, the stations test for pollutant loadings, classifying each location as non-impaired, moderately impaired, or severely impaired. All three stations within the Borough indicate a "moderate" level of pollutant loading, which may be attributable to non-point sources such as lawn fertilizers and decaying organic matter within wooded areas. As a result of these "moderate" readings, the NJDEP is required to develop a Total Maximum Daily Load (TMDL) for sampled pollutants in each waterway.

A TMDL is the amount of a pollutant that can be accepted by a waterbody without exceeding Federal 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 a New Jersey Pollutant Discharge Elimination System (NJPDES) permit, and nonpoint sources, which includes stormwater runoff from agricultural areas and residential areas. 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 strategies.

Currently, in accordance with Federal law and resulting from the moderate impairments indicated at the AMNET sites, the NJDEP has established TMDL's for fecal coliform on the Ramsey Brook and HoHoKus Brook in the Borough. The impairments are attributed to geese in the Borough and in upstream municipalities, and potentially compromised septic systems in upstream municipalities.

As is evident from the aerial photography shown in many of the figures in this plan, the Borough is quite developed and therefore maintains an extensive system of stormwater inlets, manholes, and underground piping. In addition,

there are privately owned stormwater systems, maintained by the homeowners' associations of recently constructed townhouse and condominium developments. As would be expected, there are many instances where Borough and private systems flow directly into waterways and wetlands.

However, many of these systems transmit runoff into the larger, more extensive system owned by the County, which traverses through the Borough. Figure 4 highlights the County roadway system within the Borough, under which exists a portion of the County stormwater system. The system is more extensive than the figure can fully show, since it also crosses private and Municipal parcels through drainage easements too numerous to graphically display.

As such, much of the stormwater runoff collected by the Municipal system is collected by the County system and transmitted to local waterways, water bodies, and wetlands through that system. Maintenance and monitoring of County-owned stormwater outfalls will be coordinated with the County through the Regional Stormwater Management Plan currently being developed.

Water quantity increases have also contributed to the overburdening of road culverts and drainage systems in the Borough. During severe storm events, these structures do not have adequate capacity, thereby causing backwater flooding, roadway flooding, structural deterioration, and bank erosion. The locations of these structures and known localized flood areas resulting from excessive sedimentation are also depicted on Figure 4.

Drainage structures within the Borough were designed for much different hydrologic conditions than which presently exist. As the impervious areas increased within the Borough and upstream municipalities, the peak volumes of stream flows have also increased. The increased amount of water has resulted in stream bank erosion, unstable areas at bridge crossings, and degraded stream habitats.

As described in the Master Plan for the Borough of Allendale, coverage by buildings and other improvements should be limited to avoid excessive runoff, loss of vegetation, over intensive lot development and related impacts. Therefore the maximum allowable impervious cover for Single Family and Two-Family Residential zones within the Borough are as follows:

- Lots less than 10,000 square feet in area, the maximum allowable impervious coverage shall be 55% of the lot area.
- Lots over 40,000 square feet in area, the maximum allowable impervious shall be 27.5 % of the lot area.
- Lots with areas between 10,000 square feet and 40,000 square feet, the maximum percentage of allowable impervious coverage shall be equal to 55 divided by the square root of the lot area

The increase in impervious area of local development has significantly decreased

groundwater recharge, decreasing base flows in streams during dry weather periods. Lower base flows can also have a negative impact on the aquatic habitat during the summer months. A map of the groundwater recharge areas are shown in Figure 5. Maintenance of groundwater recharge is imperative for the Borough because it maintains its own well-fed water supply utility. Wellhead protection areas within the Borough are shown in Figure 6.

Design and Performance Standards

The Borough has long standing ordinances similar to those now being mandated by NJAC 7:8. The Borough will ammend these ordinances to comply with the approved design and performance standards for stormwater management measures as presented in NJAC 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 NJAC 7:8-6 Safety Standards for Stormwater Management Basins.

In addition to modifying the existing Borough ordinances, Borough inspectors will continue to observe the construction of all projects to ensure that the stormwater management measures are constructed and function as designed.

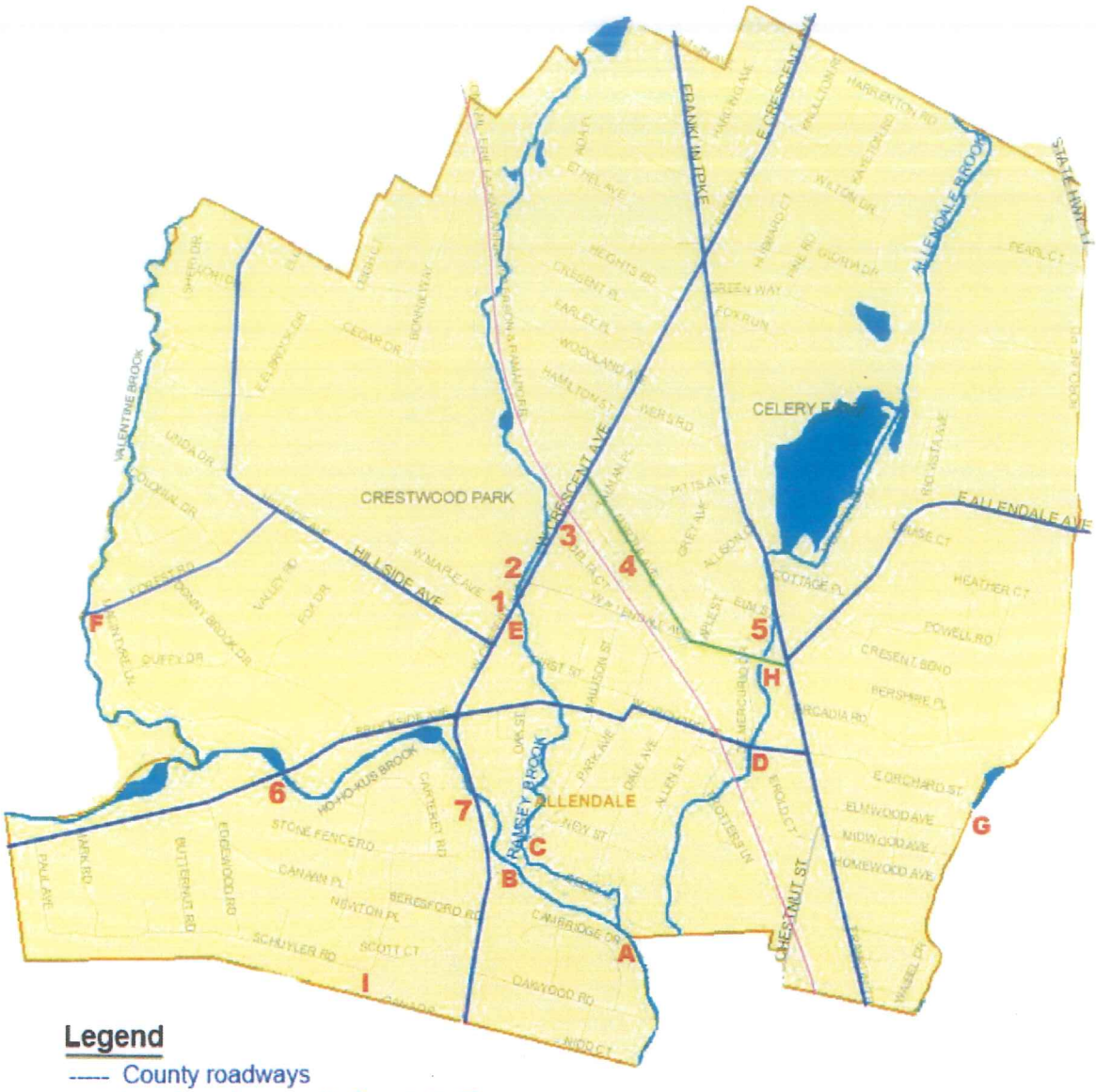
Plan Consistency

Bergen County is currently creating a County Stormwater Management Plan ("CSWMP") that will be in accordance with the State SWMP. This SWMP will be modified as is necessary to comply with any future CSWMP.

The Municipal Stormwater Management Plan is consistent with the Residential Site Improvement Standards (RSIS) under NJAC 5:21. The municipality will utilize the most current update of the RSIS in the stormwater management review of residential areas. The Borough's SWMP will be updated to be consistent with any future updates to the RSIS.

The Borough ordinances currently require all permit applicants to comply with New Jersey's Soil Erosion and Sediment Control Standards, as enforced within the County. During construction, Borough inspectors observe on-site soil erosion and sediment control measures, enforcing County requirements for projects which are not within its jurisdiction and reporting noted inconsistencies for projects which are.

Figure 4: County Roads and Flooding Sites in the Borough:



Legend

- County roadways
- Local roadways with County traffic
- Local roadways
- Rail line

Sructures

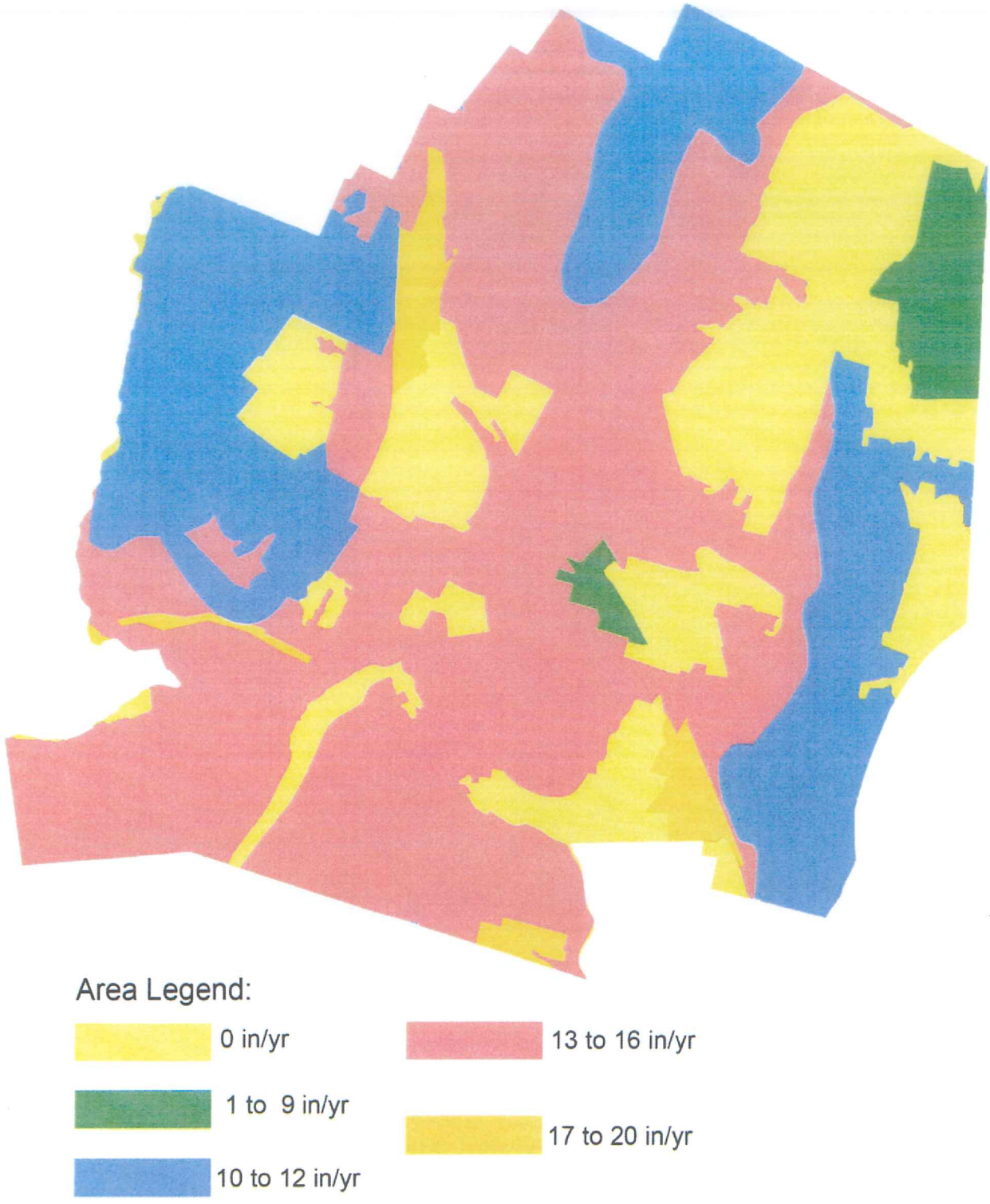
1. West Crescent Avenue Bridge
2. Crestwood Park Culvert
3. (un-named) County Drain Pipe
4. Myrtle Avenue Culvert
5. Elm Street Culvert
6. Brookside Avenue Bridge
7. West Crescent Avenue Bridge

Areas of Roadway Flooding

A. HoHoKus Brook at Cambridge Drive
B. HoHoKus Brook at Park Avenue
C. Ramsey Brook at Park Avenue
D. Allendale Brook at West Orchard Street
E. Ramsey Brook at West Crescent Avenue
F. Valentine Brook at Forest Road
G. Smokis Voll Brook (various sites)
H. Allendale Brook at West Allendale Avenue
I. (un-named) Tributary of HoHoKus Brook at Schuyler Road

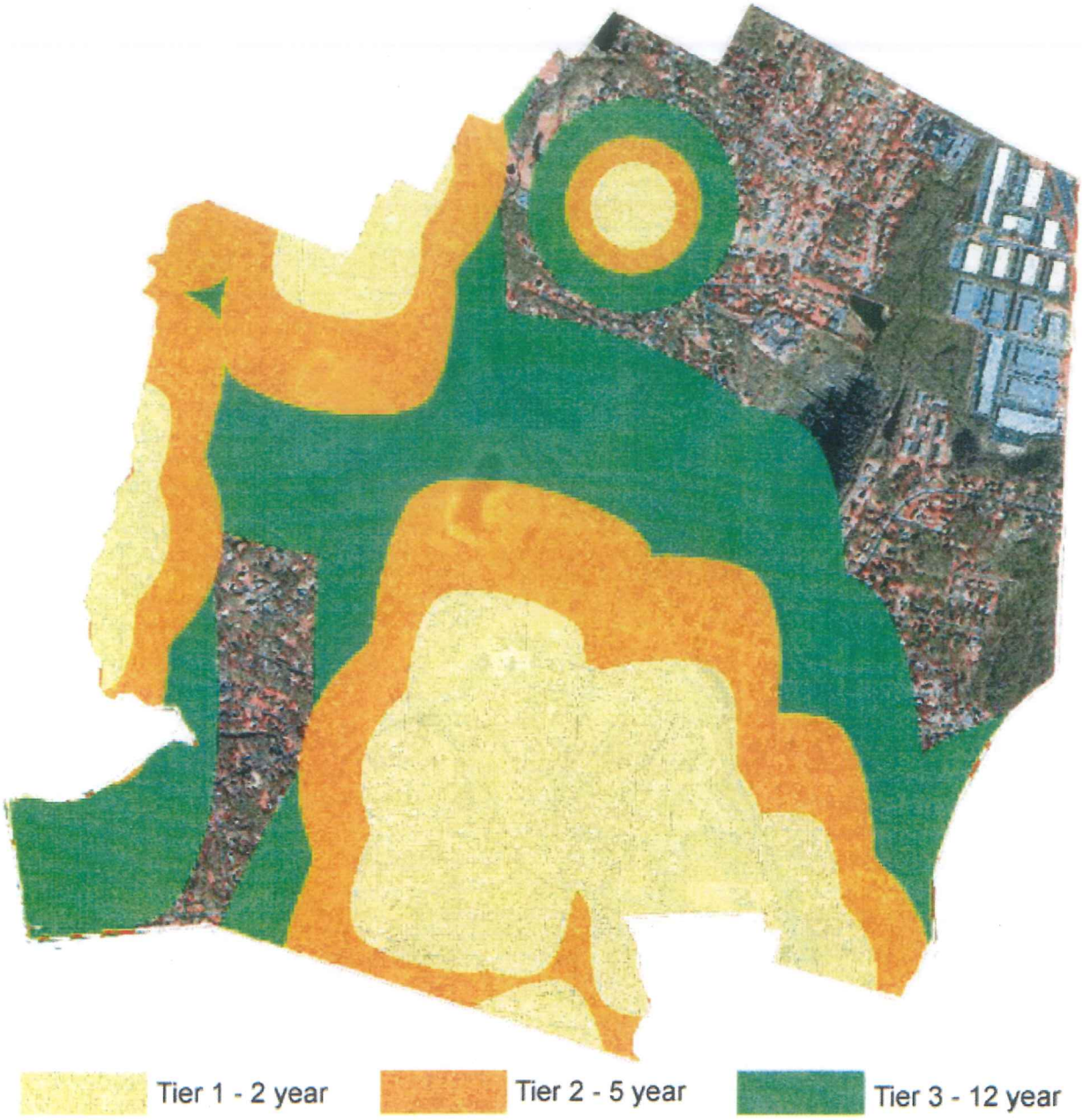
Source: Bergen County Geographic Information System, http://gis.co.bergen.nj.us, March 2005.

Figure 5: Groundwater Recharge Areas in the Borough:



Source: New Jersey Geographical Information Network, https://njgin.state.nj.us, March 2005.

Figure 6: Wellhead Protection Areas:



Source: New Jersey Department of Environmental Protection, http://www.nj.gov/dep/gis, Map created March 2005, Aerial Photography 2002)

Non-Structural Stormwater Management Strategies

As was stated in the section entitled "Design and Performance Standards", the Borough has long standing ordinances similar to those now being mandated by NJAC 7:8. However, the Borough has undertaken the process of reviewing its master plan and ordinances, and has provided a list of the sections in the Borough land use and zoning ordinances that will require minor modifications to incorporate nonstructural stormwater management strategies. Affected sections of the Municipal Code are as follows:

§ 40:7 Powers and Duties Generally: The current code specifies the powers of the Planning Board. Language will be added, with the approval of the Municipal Governing Body, to specifically deny the Board the ability to grant variances which contradict the RSIS and NJAC 7:8 which are not considered "de-minimus".

§ 40:16 Powers: The current code specifies the powers of the Zoning Board. Language will be added, with the approval of the Municipal Governing Body, to specifically deny the Board the ability to grant variances which contradict the RSIS and NJAC 7:8 which are not considered "de-minimus".

§ 93 Animals: The model ordinance provided by the NJDEP has been reviewed, and adopted by the Municipal Governing Body to regulate the proper disposal of pet waste.

§ 132:15(A)9 Application for Subdivision: The current code states "*Stormwater detention facilities, if any, which shall be designed to contain an amount equal to the increase in volume of the runoff which would result from development of the site.*" The language will be modified, with the approval of the Municipal Governing Body, to state "*Stormwater detention facilities shall be designed to contain an amount equal to the increase in volume of the runoff which would result from development of the site, and will comply with the stricter of the design standards outlined in RSIS or NJAC 7:8.*"

§ 147:16(3) Required improvements for major subdivisions and site plans: The current code mandates the use of curbs and/or gutters for collection and redirection of stormwater runoff. Language will be added, with the approval of the Municipal Governing Body, to allow the use of curb cuts and flush curbs in conjunction with vegetated swales.

§ 147:29 Drainage: The current code mandates compliance with NJDEP Chapter 232, Laws of 1975. Language will be added, with the approval of the Municipal Governing Body, to incorporate compliance with NJAC 7:8.

§ 147:35 Parking: The current code specifies requirements for off-street parking. Language will be added, with the approval of the Municipal Governing Body, to incorporate compliance with NJAC 7:8.

§ 147:36(B) Paving and Curbs: The current code mandates a six inch curb

reveal when curbs are constructed. Language will be added, with the approval of the Municipal Governing Body, to allow the use of curb cuts and flush curbs in conjunction with vegetated swales.

§ 225:10(B)7 Fees, escrows and general requirements: The current code outlines requirements for applicants importing, exporting, or moving soil over a threshold of 50 cubic yards. Language will be added, with the approval of the Municipal Governing Body, to mandate the use of groundwater recharge tanks proportional to the increased impervious coverage on site.

§ 228:3(A)4 Regulations and methods of disposal and collection: The current code mandates composting of leaves and grass clippings for commercial, industrial, and institutional facilities. Composting is required through the use of private means, or the municipal composting facility. The language will be modified, with the approval of the Municipal Governing Body, to indicate "biodegradable organic site waste", providing for a larger range of combustible items.

§ 228:3(B)5 Regulations and methods of disposal and collection: The current code mandates composting of leaves and grass clippings for residences, and allows for curbside pick-up of containerized items. The language will be modified, with the approval of the Municipal Governing Body, to indicate "biodegradable organic yard waste", providing for a larger range of combustible items.

§ 262:1 Diversion of water into storm sewers: The current code discusses discharge of stormwater into municipal storm sewers. Language will be added, with the approval of the Municipal Governing Body, to mandate the use of overland flow and/or groundwater recharge tanks.

§ 270:62 Impervious Surfaces: The current code mandates limitations on impervious coverage based on lot size. In addition, the Borough includes the use of gravel for private driveways and parking areas as a pervious surface. Language will be added, with the approval of the Municipal Governing Body, to mandate the use of groundwater recharge tanks proportional to the maximum impervious coverage allowed on site.

In 2006, the Borough adopted ordinances regulating stormwater control, wildlife feeding, solid waste, littering, disposal of pet waste and illicit connections as required by N.J.A.C. 7:14A-25.

Mitigation Plans

The Borough is required to outline a mitigation plan, in the event that there are instances in which it deems it necessary to grant variances or exemptions from the design and performance standards of a SWMP. The mitigation requirements

should offer a hierarchy of options that clearly offset the effect on groundwater recharge, stormwater quantity control, and/or stormwater quality control that was created by granting the variance or exemption.

Option 1
The mitigation project must be implemented in the same drainage area as the proposed development and provide mitigation that is equivalent to the variance that is sought. 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 Best Management Practices (BMP) Manual.

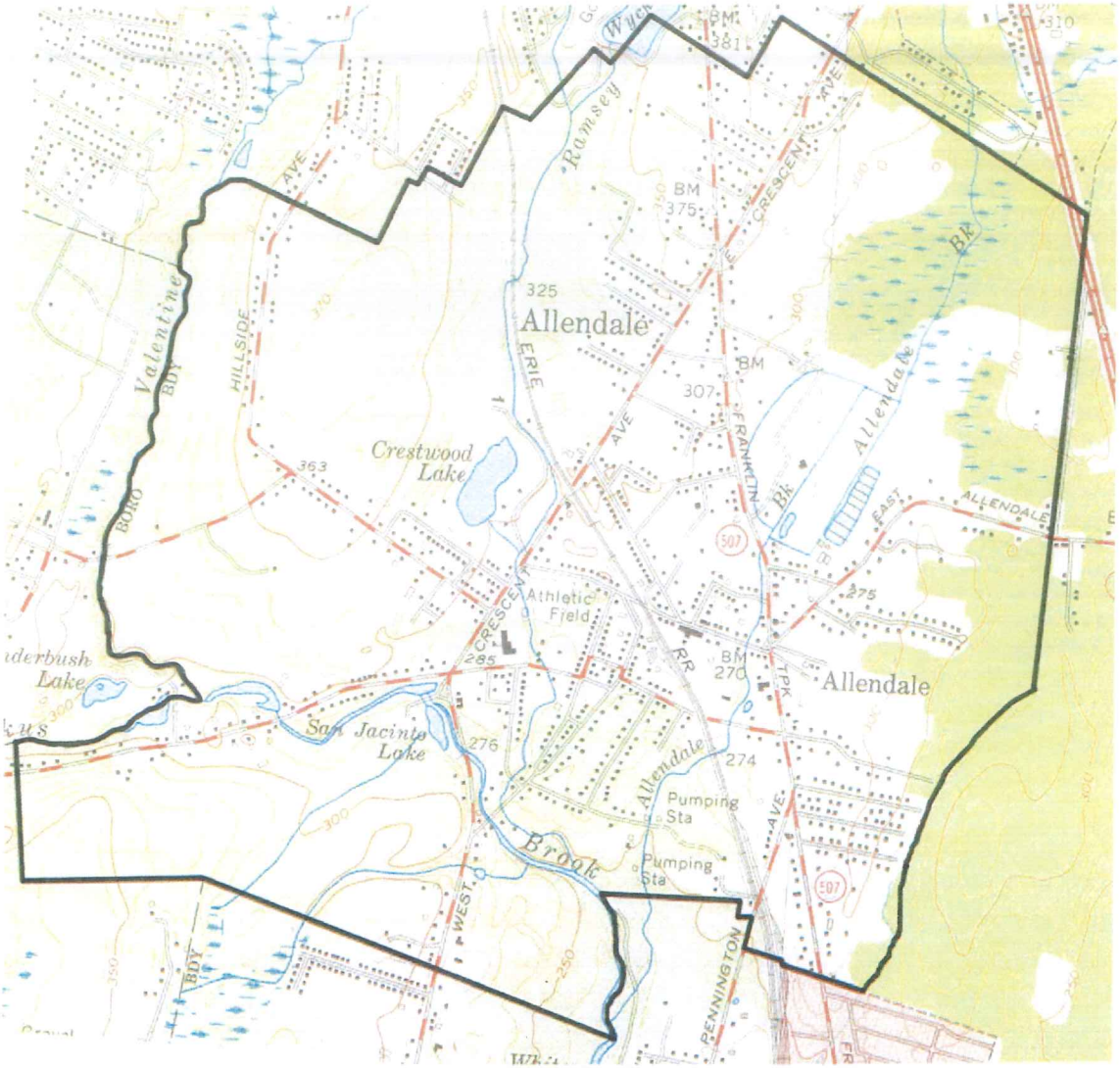
Option 2
If a suitable site cannot be located in the same drainage area as the proposed development, as discussed in Option 1, the mitigation project may provide mitigation that is not equivalent to the impacts for which the variance or exemption is sought, but that addresses the same issue.

Option 3
The Borough of Allendale may allow a developer to provide funding or partial funding to the municipality for an environmental enhancement project that has been identified in a Municipal Stormwater Management Plan, or towards the development of a Regional Stormwater Management Plan.

The funding must be equal to or greater than the cost to implement the mitigation outlined above, including costs associated with purchasing the property or easement for mitigation, and the cost associated with the long-term maintenance requirements of the mitigation measure.

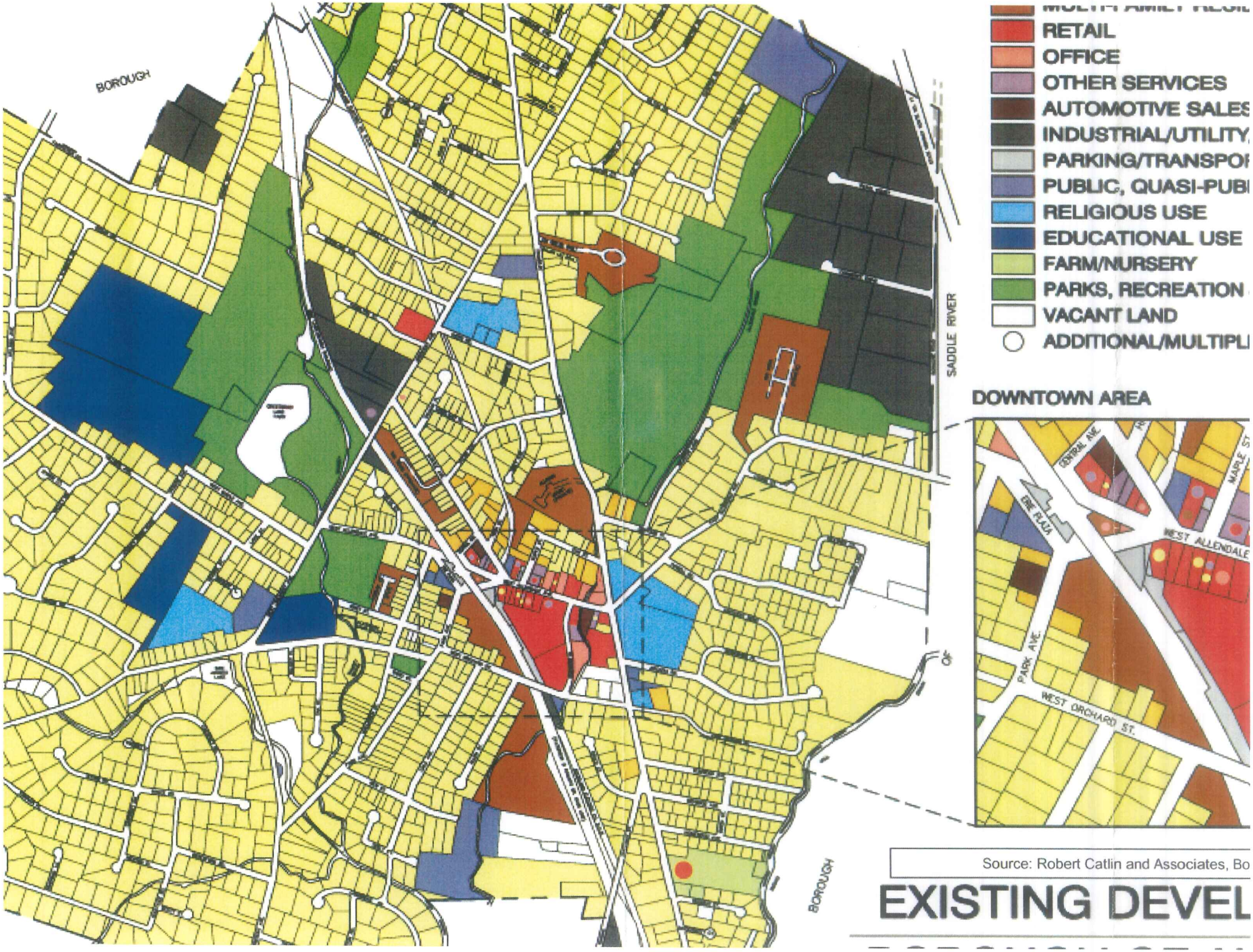
The Borough intends to hold all applicants before its Boards to the entirety of its SWMP. No variances or exceptions are anticipated.

APPENDIX



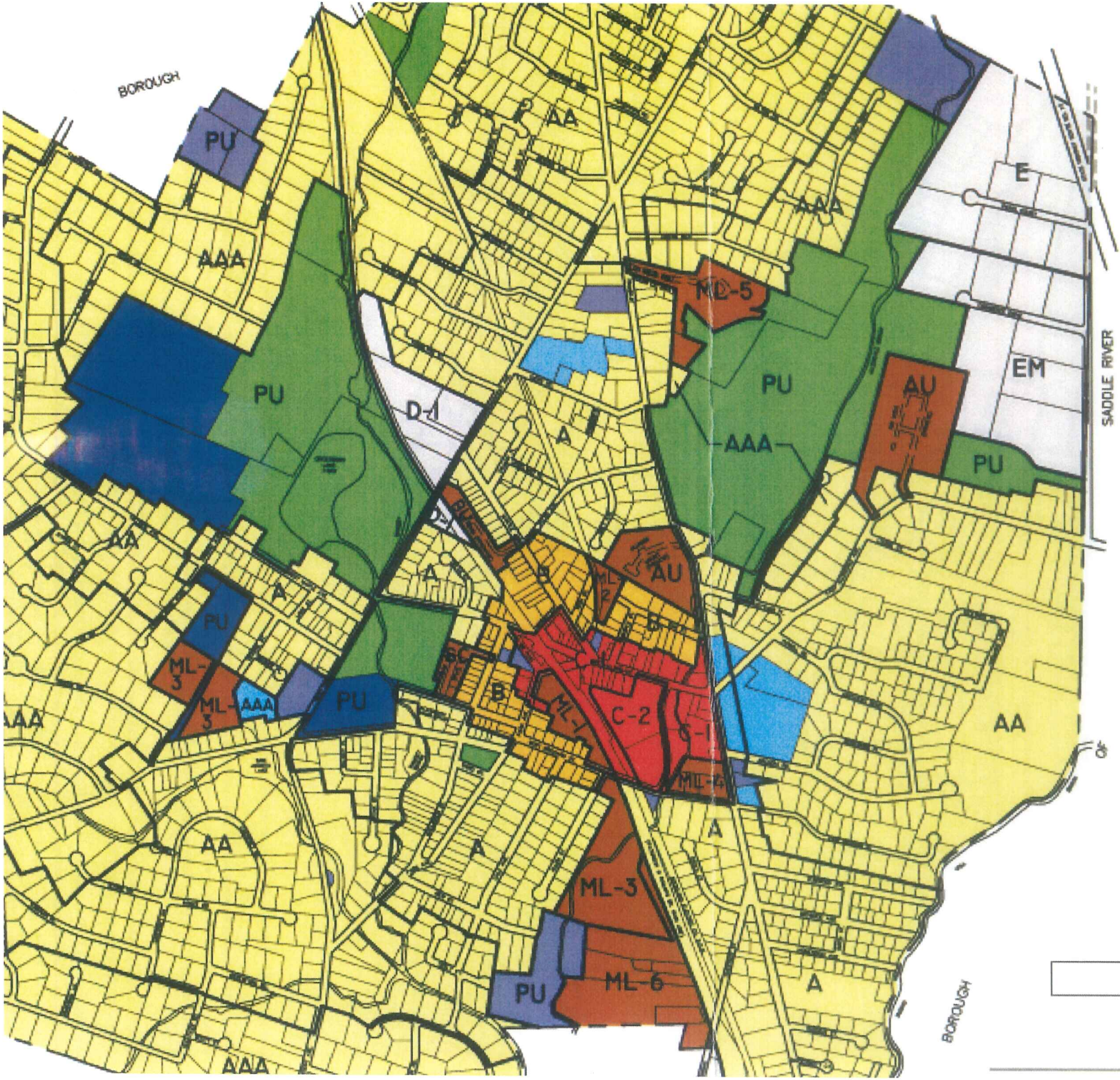
U.S.G.S. RAMSEY NJ-NY & PARK RIDGE NJ-NY QUADRANGLE

Source: Mapped, edited and published by the Geological Survey Control by USGS, USC&GS & New Jersey Geodetic Survey, 1955.



Source: Robert Catlin and Associates, Bo

EXISTING DEVEL



AA SINGLE FAMIL
A SINGLE FAMIL

TWO-FAMILY RES

B TWO-FAMILY

MULTI-FAMILY RE

AU TOWNHOUSE
BU GARDEN APA
ML-1 MULTIPLE DW
ML-2 TOWNHOUSE
ML-3 TOWNHOUSE
ML-4 MULTI-FAMILY
ML-5 TOWNHOUSE
ML-6 TOWNHOUSE/
SC SENIOR CITIZE

COMMERCIAL-BU

C-1 BUSINESS
C-2 SHOPPING CE

INDUSTRIAL

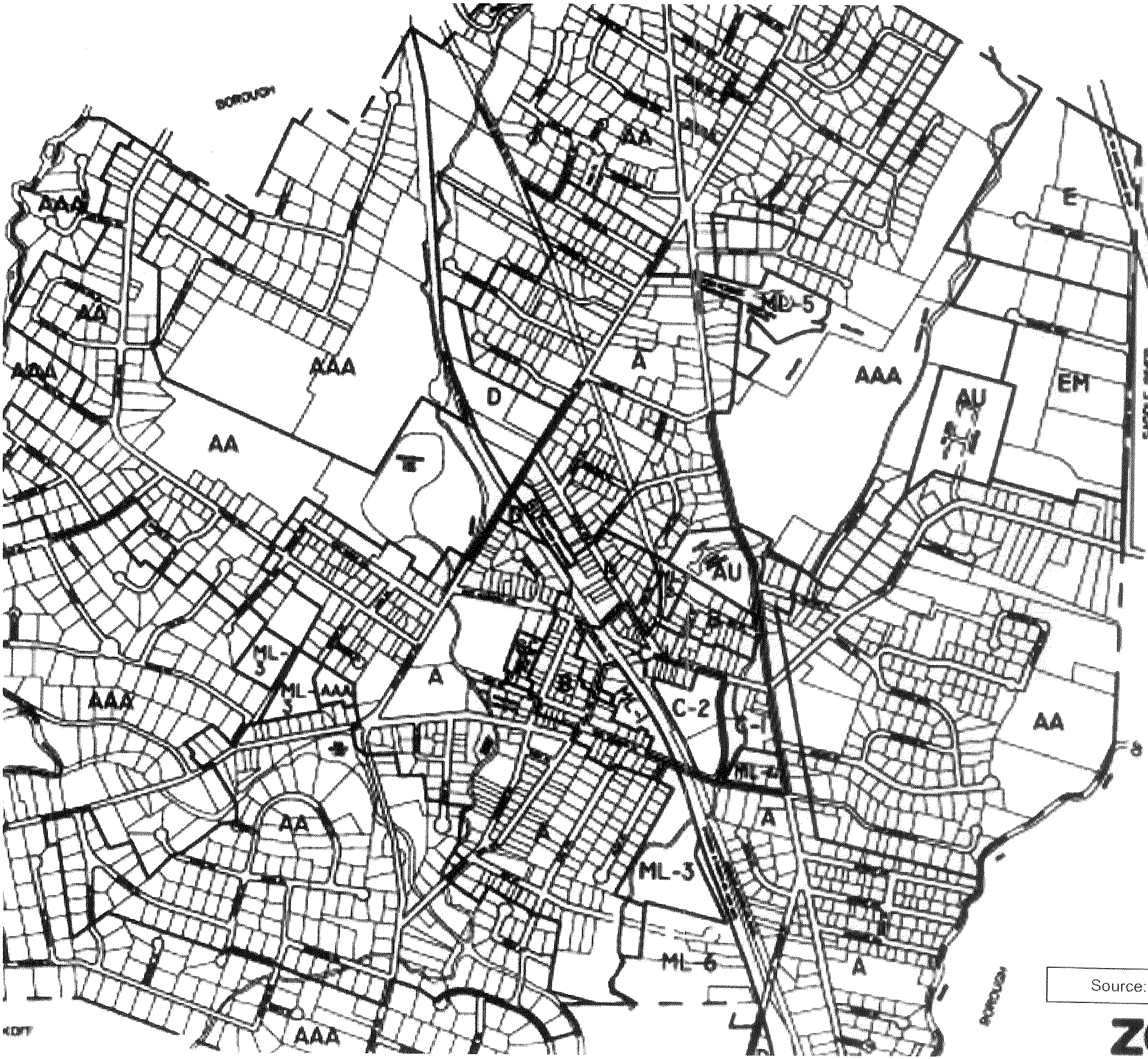
D-1 INDUSTRIAL/
D-2 INDUSTRIAL
E INDUSTRIAL
EM INDUSTRIAL/

PUBLIC, QUASI-PU
RELIGIOUS USE
EDUCATIONAL US
PARKS, RECREATIC

PU PUBLIC USE

Source: Robert Catlin and Associate

LAND USE



AA / A	ONE FAMILY RESI
B	TWO FAMILY RESI
AU	TOWNHOUSE
BU	GARDEN APARTME
C-1	BUSINESS
C-2	SHOPPING CENTE
D	INDUSTRIAL
E	INDUSTRIAL
EM	INDUSTRIAL/MULTI
ML-1	MULTIPLE DWELLIN
ML-2	TOWNHOUSE ZONE
ML-3	TOWNHOUSE ZONE
ML-4	MULTI-FAMILY ZON
ML-5	TOWNHOUSE ZONE
ML-6	TOWNHOUSE/APAR
SC	REDEVELOPMENT / SENIOR CITIZEN HO

Source: Robert Catlin and Associates, Bor

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GLOSSARY

"Aeration"- The state of air being suspended in a liquid such as a lubricant or hydraulic fluid.

"Aquatic Plant"- A plant that grows in standing water, usually submerged, or with floating leaves; or emergent, rooted beneath the water surface, but growing above it.

"Aquatic Species"- All animals and plants, including pathogens or parasites of aquatic animals or plants, that are dependent on aquatic ecosystems for at least a portion of their life cycles.

"Benthic"- Living in or on the bottom of a body of water.

"Category One Waters"- those waters designated in the tables in N.J.A.C. 7:9B 1.15(c) through (h), for the purposes of implementing the antidegradation policies set forth at N.J.A.C. 7:9B-1.5(d), for protection from measurable changes in water quality characteristics because of their clarity, color, scenic setting, other characteristics of aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resource(s). These waters may include, but are not limited to:

1. Waters originating wholly within Federal, interstate, State, County, or Municipal parks, forests, fish and wildlife lands, and other special holdings that have not been designated as FW1 at N.J.A.C. 7:9B-1.15(h) Table 6;
2. Waters classified at N.J.A.C. 7:9B-1.15(c) through (g) as FW2 trout production waters and their tributaries;
3. Surface waters classified in this subchapter as FW2 trout maintenance or FW2 nontrout that are upstream of waters classified in this subchapter as FW2 trout production;
4. Shellfish waters of exceptional resource value; or
5. Other waters and their tributaries that flow through, or border, Federal, State, County or Municipal parks, forests, fish and wildlife lands, and other special holdings.

"Chlorination"- The application of chlorine to water or wastewater, generally for the purpose of disinfection, but frequently for accomplishing other biological or chemical results.

"Coliform"- A group of bacteria commonly found in the environment. They are an indicator of potential contamination of water.

"Erosion"- The wearing away of land or soil by the action of wind, water, or ice.

"Evapotranspiration"- A collective term that includes water discharged to the atmosphere as a result of evaporation from the soil and surface-water bodies and as a result of plant transpiration. The combined process of evaporation and transpiration.

"Fecal"- foul with waste matter; of or relating to feces.

"Filtration"- A treatment process, under the control of qualified operators, for removing solid (particulate) matter from water by means of porous media such as sand or a man-made filter; often used to remove particles containing pathogens.

"Fluctuations"- changes in flow.

"Fresh water(s)"- All nontidal and tidal waters generally having a salinity, due to natural sources, of less than or equal to 3.5 parts per thousand at mean high tide.

"*FW*"- means the general surface water classification applied to fresh waters.

"FW1"- means those fresh waters, as designated in N.J.A.C. 7:9B-1.15(h) Table 6, that are to be maintained in their natural state of quality (set aside for posterity) and not subjected to any man-made wastewater discharges or increases in runoff from anthropogenic activities. These waters are set aside for posterity because of their clarity, color, scenic setting, other characteristic of aesthetic value, unique ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resource(s).

"FW2"- means the general surface water classification applied to those fresh waters that are not designated as FW1 or Pinelands Waters.

"Groundwater Recharge"- Surface water that seeps into the ground for the purpose of replenishing groundwater.

"Hydrocarbons"- Compounds containing various combinations of hydrogen and carbon atoms. They may be emitted into the air by natural sources (e.g., trees) and are as a result of fossil and vegetative fuel combustion, fuel volatilization, and solvent use.

"Hydrologic Cycle"- The cyclic transfer of water vapor from the Earth's surface via evaporation or transpiration into the atmosphere, from the atmosphere via precipitation back to earth, and through runoff into streams, rivers, and lakes, and ultimately into the oceans.

"HUC 11"- The New Jersey Department of Environmental Protection 11 Digit Hydrologic Unit Code delineations for New Jersey. This code represents drainage basins, delineated from 1:24,000-scale (7.5-minute) USGS quadrangles, with a minimum size of 3,000 acres defined by arc and polygon attributes with basin names and ranks of divides. HUC 14, however is more detailed than HUC 11.

"HUC 14"- Same as a "HUC 11", however with more detail through the use of a 14 digit code.

"Infiltrated"- Permeating or penetrating into a substance, cell, or tissue; said of gases, fluids, or matter held in solution.

"Macro-invertebrates"- Animals without backbones which live all or part of their life cycle in or on the bottom of a body of water. Their presence is affected by the quality of water and habitat of the waterway

"Metropolitan"- A large population nucleus, consisting of a city and surrounding suburban areas.

"Pathogens"- A bacterium, virus or parasite that causes or is capable of causing disease. Pathogens may contaminate water and cause waterborne disease.

"Sediment"- Any particulate matter that can be transported by fluid flow and which eventually is deposited as a layer of solid particles on the bed or bottom of a body of water or other liquid.

"Stormwater Management"- the mechanism (structural and/or nonstructural) for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

"Stormwater Runoff"- Precipitation and snowmelt runoff from roadways, parking lots, roof drains that is collected in gutters and drains; a major source of nonpoint source pollution to water bodies.

"Watershed"- A topographic area within a line drawn connecting the highest points uphill of a drinking water intake into which overland flow drains. The specific land area that drains water into a river system or other body of water.

"Watershed Management Area"- The analysis, protection, development, operation or maintenance of the land, vegetation and water resources of a drainage basin for the conservation of all its resources for the benefit of its residents.

"Waterways"- Any bay, branch, brook, canal, creek, lake, pond, river, reservoir, slough, sinkhole, or other natural or man-made watercourse which flows within a defined channel or is contained within a discernible shoreline.

"Wetlands"- Lands where water saturation is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the surrounding environment. Other common names for wetlands are bogs, ponds, estuaries, and marshes.