



# **MASTER PLAN**

## **BOROUGH OF KEYPORT MONMOUTH COUNTY, NEW JERSEY**

**Borough of Keyport Unified Planning Board  
Adopted on March 23, 2017**

**Funding Provided By:**

**Post Sandy Planning Assistance Grant Program,  
New Jersey Department of Community Affairs**

**Prepared By:**

**Peter Van den Kooy, P.P., AICP**  
**New Jersey Professional Planner License No. 05918**  
**Original is Signed and Sealed**



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Peter Van den Kooy, P.P., AICP

Sean Moronski, P.P., AICP

Maciej Maslonka

Vineela Pentyala

Jeremy Johnson

Julia Bordelon

# INTRODUCTION

## 1. INTRODUCTION

In 2016, the Borough of Keyport initiated its Master Plan review and update by conducting a visioning process to identify long-range goals for the Borough's physical, economic, recreational, and community development. This process is part of the Keyport Master Plan and is a guide for the Borough's long-term policy and planning initiatives. The Master Plan is built on this visioning process. The Borough's Vision Statement is incorporated into the 2017 Master Plan as a starting point for its findings and recommendations.

This 2017 Master Plan is being funded by the New Jersey Department of Community Affairs (DCA) with the provision that it addresses Community Resilience to defined hazards (wind, rain, storm surge, sea level rise, etc.). The DCA requirement for Community Resilience is a major new element in the planning process for the Borough of Keyport.

This 2017 Master Plan constitutes a comprehensive update of the Keyport Borough Master Plan. The Master Plan preparation process commenced in May of 2016 when the Keyport Unified Planning Board formally commissioned an update to the Borough's Master Plan. By June 2016 a Master Plan Committee was constituted which was comprised of selected members from the Borough Council, Planning Board, and volunteer members. A complete list of the members of the Master Plan Committee is included in the preceding acknowledgements pages. The Master Plan Committee was responsible for providing input into the development of all aspects of the Master Plan and guiding the Master Plan development and approval process.

Subsequently, a Subcommittee for each Master Plan element was established. These Subcommittees were comprised of selected members from the Borough Council, Planning Board, Borough staff, and volunteer members of the public and were responsible for developing goals, objectives, background information narratives and recommendations to be included in the Master Plan. A complete list of the members of the Subcommittees is included on the preceding Acknowledgements page. The Master Plan Committee, Subcommittees, Borough Administration, Borough staff, and elected officials played an integral role in providing input and shaping the Master Plan.

Upon receipt of the input, Matrix New World Engineering (Matrix) integrated the various, goals, objectives, narratives, and recommendations into the Master Plan and provided the draft Master Plan to the Borough for review and comment. A total of ten (10) public meetings were held during the development and adoption of this Master Plan in addition to multiple Master Plan Subcommittee meetings. These included one initial meeting before the Unified Planning Board, six Master Plan Committee meetings, two widely advertised public input meetings, and one final hearing for before the Keyport Borough Unified Planning Board for the adoption of the Master Plan. This robust public process and the involvement of numerous volunteers from the Borough have helped create a Master Plan that reflects the goals and vision of the Borough's residents and business owners. The Master Plan was adopted by the Unified Planning Board (date to be inserted upon adoption).

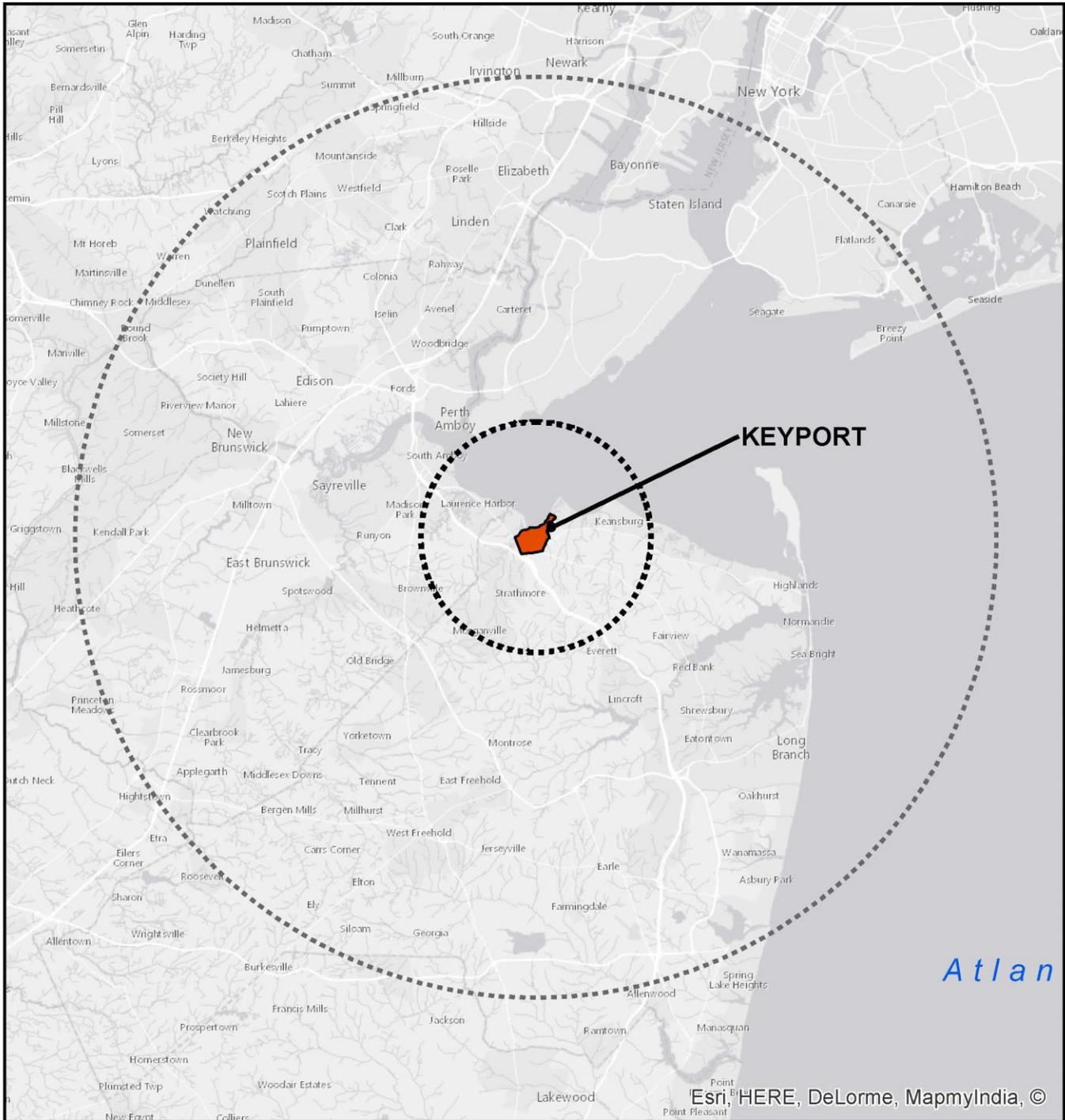
## REGIONAL LOCATION

The Borough is located on the southern shore of the Raritan Bay in Monmouth County. Routes 35, 36, and the Garden State Parkway intersect the southerly boundary of the community. NJ Transit bus service from downtown Keyport to Perth Amboy exists in the Borough. In addition, the Borough maintains access to the Aberdeen-Matawan and Hazlet train stations, which are both located within one mile of Keyport. The combination of regional highways and public transit options provides exceptional regional accessibility to Keyport.

## INTRODUCTION

Keyport Borough has a population of 7,145, according to 2015 US Census estimates, and is approximately 1.4 square miles in size. Therefore, the Borough is of moderate size, both in terms of population and land area, when compared to other municipalities in Monmouth County. However, the Borough has a significant population density at approximately 5,104 persons per square mile. Detailed demographic and employment information for the Borough is included in the Housing Plan Element. A Regional Location Map depicting the Borough is included on the following page.

**Figure 1.1: Regional Location Map**



<p><b>Legend</b></p> <p> 5 Mile Radius</p> <p> 10 Mile Radius</p>	<p style="text-align: center;"><b>MATRIX</b><b>NEWORLD</b></p> <p style="text-align: center;">Engineering Progress</p> <p>442 State Route 35, 2nd Floor      Tel: 973-240-1800              Eatontown, New Jersey 07724      Fax: 973-240-1818              WBE/DBE/SBE      www.matrixnewworld.com</p> <table border="1"> <tr> <td>PROJECT NUMBER: LD15-349</td> <td>DRAWN BY: MM</td> <td>SCALE: 1:362,287</td> <td>DATE: 1/31/2017</td> </tr> </table>	PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:362,287	DATE: 1/31/2017
PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:362,287	DATE: 1/31/2017		
<p style="text-align: center;"><b>Borough of Keyport Monmouth County, N.J.</b></p>	<p>SOURCES: NUDEP GIS Data</p> <p>State Plane Coordinates: NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet</p>				

# VISION STATEMENT

## 2. VISION STATEMENT

In 2016, the Borough of Keyport initiated its Master Plan review and update by conducting a visioning process to identify long-range goals for the Borough's physical, economic, recreational, and community development. As mentioned previously, this process is part of the Keyport Master Plan, a guide for the Borough's long-term policy and planning initiatives. The Borough's Vision Statement is incorporated into the 2016 Master Plan as a starting point for its findings and recommendations.

Looking 10 years forward and beyond, the Borough of Keyport is an even better place to live, work, and visit. Keyport's neighborhoods continue to provide a sense of community and a comfortable small town feel. Whether you enter Keyport from the Garden State Parkway, Route 35, or Route 36, residents and visitors alike get the sense of entering a unique and special place. The single-family neighborhoods provide the foundation of a strong and vibrant community, which has fostered a high level of volunteerism that is so prevalent in Keyport. Keyport continues to use volunteers for the fire department, first aid, emergency management and response team, and has continued to rely on these invaluable volunteers to provide quality recreational opportunities and activities for its younger residents. The Borough continues to prize its rich history by encouraging identification and recognition of its Keyport Century Homes. Its neighborhood gardens provide an asset that is fostered through the efforts of its residents.

While Keyport's assets and history are prized, the residents understand the challenges to be met by the Borough, especially in promoting harmony and balance between multi-family housing and the established, single-family residential neighborhoods. Keyport has continued to recognize a need for balance and encourages input and dialogue with the residents in the creation of the Borough's redevelopment and small neighborhood plans. The Borough moved to meet the needs of a large group of residents in need of rental units by identifying areas for both medium and high density developments with close access to the highway, shopping areas, and restaurants in the Highway Commercial District. Keyport has also supported converting non-conforming uses to those uses that conform to the Borough's vision and Ordinance and stimulated the rehabilitation of conforming residential uses to revitalize the neighborhoods.

Younger residents have rediscovered Keyport to start their own households due to its unique assets and the single-family character of the neighborhoods. An enhanced set of educational opportunities has encouraged these new residents to remain in Keyport, which has only strengthened the character and sense of community found in Keyport. In addition, the Borough has encouraged the integration of sustainable technological innovations into the design of the built environment. This valuable attribute has made Keyport attractive to households of all ages and has made the Borough stand out as a forward thinking community. Further, the Borough maintains robust technology and communications infrastructure that is attractive to businesses and provides an exceptional amenity for residents.

Keyport treasures its natural resources, most prominently the waterfront. A vital community asset throughout its history, the Keyport waterfront is the focal point of the Borough's continued renaissance. From the expanded Waterfront Promenade to the businesses facing the waterfront, the downtown greatly benefits from having such natural assets. Development near the waterfront is encouraged at a scale that reflects the scenic character of the area and maximizes both views of the water and the public's access to this special feature. New development is aware and conscious of the character of the core commercial area, while continuing to provide opportunities for both commercial and residential uses. The Borough maintains its maritime history through access to the waterfront and marinas are utilized both for recreational and commercial purposes.

## VISION STATEMENT

Specific attention to the downtown, waterfront, and the highway-commercial areas results in new residents, greater commerce, and additional productive activity. The Master Plan focuses on enhancing the highway-commercial district and improving the Borough's ratables. It also encourages creating a walkable, vibrant downtown, now a four-season destination. New residents are drawn to the Borough to live, work, shop, and play in this vibrant community.

Since Superstorm Sandy, Keyport has focused on developing its Resilience to potential hazardous events, as well as ensuring development is balanced against concerns about flooding, encroachment into environmentally sensitive areas, and other ongoing issues. Additionally, Keyport has utilized effective Resilience design standards and has implemented best practices for emergency preparedness and Resilience in order to ensure the Borough is as protected from the next disaster as possible.

With the continued revitalization of Keyport comes more active and passive recreation opportunities. The expanded Waterfront Promenade is a draw for residents and visitors alike. Waterfront activities are now more commonplace as there is greater public access to the waterfront, beaches, and creeks. Development at and around the waterfront is done with great consideration of environmental concerns and issues related to Resilience.

As the lure of Keyport increases, the need to improve connectivity increases. There are roads and trails as well as access to regional bus and train service. This provides residents the ability to use multiple modes of transportation and has improved the quality of life within Keyport. Keyport has maximized its superior location along routes serving regional employment centers. Residents utilize dedicated bikeways like the Henry Hudson Trail for recreation, for commuting, and accessing train service. Residents are leaving their cars at home, favoring multimodal access to convenient rail and bus transit to regional destinations such as New York City. New highway signage and promotion by the Keyport Bayshore Business Community attracts visits to Keyport by those transiting through the community on Routes 35 and 36 and the Garden State Parkway.

The Borough's economic development programs have been designed to encourage visitors to spend time and money in Keyport at its vibrant shopping districts, gourmet restaurants, unique boutiques, antique shops, and world class recreational facilities. New highway signage and promotion by the Keyport Bayshore Business Community attracts visits to Keyport; no longer will visitors to the shore region from New York City and other destinations skip over Keyport because of a lack of access.

Keyport's long-term viability has been enhanced by the goals, objectives, and recommendations outlined in its 2017 Master Plan. The Borough has successfully built on its strengths by following the Vision Statement and its influence on the 2017 Master Plan. As the Borough continues to take actions toward improving and enhancing the community, each step is made with the idea of preserving the character and history of Keyport.

# KEYPORT BOROUGH GOALS AND OBJECTIVES

## 3. KEYPORT BOROUGH GOALS AND OBJECTIVES

The Borough of Keyport's goals and objectives constitute the statement of objectives, principles, assumptions, policies, and standards upon which the constituent's proposals for the physical, economic, and social development of the Borough are based in accordance with N.J.S.A. 40:55D-28.b.(1) of the Municipal Land Use Law. Before outlining the Master Plan goals and objectives, a distinction should be made between the two terms. It is not uncommon to conflate the terms. Each one has a different purpose, as follows:

1. Goals address the larger purposes of the Master Plan
2. Objectives address more specific approaches on how to achieve the goals of the Master Plan

The Borough's vision is further delineated in the following general planning goals and objectives. Implementation of these broad-based planning goals will be further refined through specific objectives addressing different elements of the Master Plan. While the Borough is committed to achieving the goals and objectives set forth within this Master Plan, the Borough is open to discussing innovative concepts for revitalization that will help it achieve its vision even though they may not be explicitly mentioned herein.

The goals are considered of equal importance and the sequence in which they are listed holds no significance.

- 1. Preserve and protect the small-town quality, typified by its residential character and existing densities, by restricting incompatible land uses and building heights from established residential neighborhoods, and limiting intensities of use to the levels and locations recommended in this Plan.**

*Policy Statement:* The Borough recognizes its small-town quality is distinctive to its residents and is evident as one enters Keyport through its several gateways. The Land Use Plan recommendations are intended to protect existing residential neighborhoods and discourage incompatible land use arrangements, encourage compatible building design, layout, and heights, and support the intensities of use recommended in the Master Plan.

- 2. Preserve the marine focus of Keyport and residents access to the waters of Raritan Bay by defining/preserving an area exclusively for marinas, boatyards, and other marine/recreational uses.**

*Policy Statement:* Continue a public-private partnership to enhance and expand the Marine and Commercial economic base along Matawan Creek in balance with public access. New development should be designed to provide enhanced public access to waterfront areas.

- 3. Reduce the exposure of human life and public and private property to the threats posed by natural hazards (wind, rain, storm surge, sea-level rise).**

*Policy Statement:* Ensure education of Keyport residents concerning threats posed by natural hazards, storm preparation requirements, evacuation routes and post-recovery resources. Ensure strict adherence to the provisions of the Keyport Flood Damage Prevention Ordinance.

- 4. Ensure that Keyport continues as a Bayfront Community not prone to extensive damage from natural hazards such as wind, rain, storm surge, and sea level rise through 2100.**

*Policy Statement:* Identify wind, rain, storm surge, and sea level rise as hazards to the Borough, to be accounted for in municipal planning, redevelopment, and new development. Limit development intensity in the Special Flood Hazard Areas and implement structural changes to reduce the impact of these natural hazards.

## KEYPORT BOROUGH GOALS AND OBJECTIVES

- 5. Ensure that any development takes into consideration the Borough's environmental features and is designed to preserve these characteristics.**

*Policy Statement:* Development must consider minimizing or avoiding intrusion on the Borough's environmental features, including, but not limited to its waterfront, streams, wetlands, floodplains, marshes, etc. It must balance the needs and aspirations of development with minimizing adverse impacts on environmental features in the Borough. Preserving the Borough's natural resources is essential to preserving the quality of life in Keyport.

- 6. Provide a superior system of community facilities and services to address everyday needs of the Borough and, to deal with service demands of new developments, and which are not susceptible to destruction by natural hazards; wind, rain, storm surge, sea level rise.**

*Policy Statement:* One of the primary themes of this Plan is to ensure that as development and redevelopment occurs, appropriate facilities and services necessary to address the needs of residents and visitors are maintained, even in light of the natural hazards identified for the community.

- 7. Maintain and enhance the scenic and historic Waterfront area, recognizing its value as a community asset and focal point of the Borough.**

*Policy Statement:* Throughout its history, the Keyport waterfront with its environmental features, has been a prime asset of the community, both for commercial and recreational activities. Any projects or activities need to be tailored toward preserving and enhancing the waterfront area.

- 8. Support Downtown development and redevelopment by permitting mixed-use that is functional, attractive, and compatible with the scale of the surrounding area.**

*Policy Statement:* Development and redevelopment should generate new residents to expand the potential customer base for the downtown businesses and support the broadening of available commercial services. The purpose is to integrate this mixed-use development into the current development pattern, more specifically at the general size and scale that exists. The Borough should also encourage new residents to support new community based shopping opportunities and enhance economic viability.

- 9. Encourage new development and redevelopment to consider the aesthetic character of the community, especially in the Downtown and Waterfront areas, to enhance to aesthetic appearance of the Borough.**

*Policy Statement:* Aesthetic concerns are not limited to the Downtown and Waterfront areas. Any development and redevelopment throughout the Borough needs to account for the surrounding neighborhood characteristics. Furthermore, aesthetic improvements should contribute to and enhance the entire neighborhood.

- 10. Maintain and upgrade, where necessary and appropriate, the Borough's circulation network to provide for the safe and efficient movement of traffic, whether vehicular or pedestrian.**

*Policy Statement:* Keyport's road network ranges from State highways providing regional access to its local streets, all with the goal of moving traffic in a safe and efficient manner without negatively impacting residential neighborhoods. In addition to vehicular traffic, the movement of pedestrian and bicycle traffic, in a safe and efficient manner, is part of the overall goal of maintaining and upgrading circulation in the Borough. Parking solutions should be evaluated, including the potential for structured parking.

## KEYPORT BOROUGH GOALS AND OBJECTIVES

**11. Preserve, protect and maintain existing public spaces, including existing parks and recreation facilities, and pursue opportunities to enhance and/or increase the number of parks and recreation facilities in the Borough.**

*Policy Statement:* The Borough is supportive of policies that will protect and preserve the natural assets within the Borough's borders, as detailed within the Natural Resource Inventory. Given that most properties in Keyport are developed, the Borough encourages the enhancement and addition of active and passive park and recreation opportunities.

**12. Protect, preserve, and enhance historic sites, structures, and landscapes that are an integral part of the Borough's character and history.**

*Policy Statement:* The Borough recognizes that preservation of its historic sites, structures, and landscapes enhance the established character of Keyport. Future development and redevelopment that occurs adjacent to historic sites, structures, and landscapes should take into consideration their historic character and protect them through appropriate bulk standards, buffer areas, and other related elements.

**13. Promote and encourage energy conservation and renewable energy resources whenever possible and practical.**

*Policy Statement:* All public and private sector improvements and projects should incorporate design specifications and best practices to promote energy conservation and the use of renewable energy resources.

**14. Promote economic Resilience through the implementation of suitable economic development ordinances, policies, projects and initiatives.**

*Policy Statement:* Borough ordinances, policies, projects and initiatives take into consideration both the potential impact on the local economy and employment opportunities while ensuring alignment with the Community Resilience initiatives and the Land Use Element Criteria. Encourage new residents to shop local and enhance the customer base for the community's retail sector.

**15. Preserve and conserve environmentally sensitive land and open space.**

*Policy Statement:* Identify opportunities to acquire and preserve additional open space. Implement measures to enhance protections to environmentally sensitive areas.

**16. Utilize the principles and best practices of sustainable and "green" design in projects and initiatives as the preferred approach to improvements in the Borough.**

*Policy Statement:* Preferred approaches include, but are not limited to, non-structural design for Resilience such as living shorelines and rain gardens, green building design that conserves energy, multi-modal transportation systems that reduce fossil fuel consumption, environmental stewardship and education programs to promote sustainability and green initiatives, and similar approaches.

Beyond the broad planning goals outlined, we provide goals specifically tailored to each plan element. Accompanying each goal is a series of objectives intended to address the specific plan element goal. In addition, the goals and objectives included within each individual Keyport Borough Master Plan element are incorporated herein by reference.

# KEYPORT BOROUGH GOALS AND OBJECTIVES

## LAND USE PLAN OBJECTIVES

1. Ensure new major developments, as defined in the State of New Jersey Department of Environmental Protection Stormwater Management Rules (N.J.A.C. 7:8), support Keyport's nautical focus, historic buildings, and a waterfront largely accessible by residents and visitors.
2. Provide for public access for the enjoyment of nature and the environment in new major developments, as defined in N.J.A.C. 7:8 in areas north of First Street and Front Streets.
3. Preserve existing stream corridors, wetlands, coastline, and environmentally-sensitive areas. Minimize negative impacts to those areas from new developments.
4. Retain all existing parks and open spaces. Work with the County and other organizations to locate a major park on the landfill portion of the Aeromarine site.
5. Identify and protect the historic locations and facades within Keyport to preserve the heritage of the community.
6. Protect residential neighborhoods through strict enforcement of the zoning codes which does not allow mid-rise and high-rise buildings in low-density residential districts.
7. Develop programs (e.g. tax incentives, volunteers, grants) that support/promote renovation and maintenance of existing homes.
8. Define density and bulk standards for the RC District, reflecting the present multi-family (greater than three-family) developments in this district.
9. Require locating high-density developments close to State Highways to mitigate their impact on existing Borough neighborhoods.
10. Separate the zoning requirements for the General Marine Commercial (GMC) District from the combined General Commercial (GC) and GMC specifications. Define permitted uses in the GMC District as only those related to the marina operations and services, recreation, and similar appropriate uses.
11. Utilize Borough owned properties along American Legion Drive (Post Office building, Keyport Steamboat Dock site, and Borough land abutting American Legion Drive) to stimulate the development of the new waterfront business district.
12. Maintain the permitted uses in the Neighborhood Commercial District as those consistent with the defined intent of low impact services for the surrounding residential neighborhoods.
13. Ensure development of the Aeromarine Site is sensitive to the general welfare and in harmony with the abutting residential RA district.

## COMMUNITY RESILIENCE OBJECTIVES

1. Develop a continuing education program for residents focused on natural hazards (wind, rain, storm surge, sea level rise) and the need for resident's participation in securing their life and property.
2. Expand safe access routes by elevating roads that repeatedly flood.
3. Update the Flood Damage Prevention Ordinance to require the anchoring of all structures.
4. Ensure the functioning of critical public facilities (pump stations, firehouses, first aid, etc.) presently located in Special Flood Hazard Areas.
5. Team with the Army Corps of Engineers to develop cost-effective severe storm protection for Keyport.
6. Enforce the Borough General Ordinance Section 12-5 regarding development and renovation/maintenance of severe storm barriers (bulkheads).
7. Identify both severe storm flooding risk and long-term inundation caused by sea level rise as a hazard to be accounted for in municipal planning.
8. Limit development in the Special Flood Hazard Areas and encourage ground elevation above the base flood elevation plus one foot.
9. Codify by ordinance all Resilience requirements and building design standards.

# KEYPORT BOROUGH GOALS AND OBJECTIVES

## HOUSING OBJECTIVES

1. Preserve and protect established residential neighborhoods such as long-standing single-family neighborhoods.
2. Provide opportunities for a wide range of housing options, including housing opportunities for low- and moderate-income households.
3. Encourage mixed use development to permit housing in the downtown in close walking distance from businesses.
4. Address substandard housing conditions and vacant properties for future utilization and revitalization.

## CIRCULATION OBJECTIVES

1. Improve street signage within the Borough, specifically creating more consistent directional and informational signage.
2. Encourage implementation of traffic calming techniques, improving traffic signals at key intersections, review speed limits, and adjust where appropriate.
3. Review pedestrian circulation throughout the Borough, with a special focus on improving safety and flow of traffic around schools.
4. Consider methods to reduce truck traffic on local streets given the impact of such traffic on Borough roads and transportation infrastructure.
5. Evaluate and provide for a detailed comprehensive analysis and oversight of parking needs.
6. Review and evaluate New Jersey Transit bus service to and from Keyport, with specific attention to addressing service gaps between the Borough and nearby commuter rail stations.
7. Recommend the addition of bike lanes on all streets that are wide enough to accommodate them, with a priority given to streets identified as feeder streets to and from the Henry Hudson Trail and the downtown/waterfront area.
8. Pursue funding opportunities to construct and enhance circulation options in the Borough.
9. Create convenient intermodal linkages between the Borough and nearby NJ Transit rail facilities.
10. Explore the feasibility of cost effective commuter ferry service and related parking facilities to enhance the value of Keyport property and support the continued viability of the Keyport Harbor.

## RECREATION OBJECTIVES

1. Enhance and upgrade existing active and passive recreation areas throughout the Borough.
2. Encourage unencumbered public access to the entire beachfront alongside the water's edge.
3. Incorporate and preserve community gardens as passive parks in the Borough.
4. Encourage the Borough to acquire property that is eligible under the Blue Acres program.
5. Develop and enhance ongoing relationships between the Borough and Board of Education to address use of school district recreation facilities as a public asset to the Borough and its residents.
6. The Borough should consider establishing a separate Parks and Recreation Department to maintain and expand all recreational opportunities in the Borough. The Borough is committed to dedicating sufficient resources to properly maintain, improve and expand all recreational facilities.

## OPEN SPACE AND CONSERVATION OBJECTIVES

1. Preserve environmentally sensitive features through sound planning and land use regulations.
2. Enhance public access to the waterfront, encouraging public waterfront activities and recognizing the Bayshore as the Borough's major environmental asset.
3. Take proactive actions to minimize potential flood damage through enforcement, and where necessary, updating of the Borough's Land Use Regulations. The updates of the Borough's Land Use Regulations should reflect current best practices and applicable State and Federal regulations as the Borough's

# KEYPORT BOROUGH GOALS AND OBJECTIVES

Ordinance, State, and Federal regulations collectively regulate land use and development within Keyport.

## ECONOMIC OBJECTIVES

1. Develop and maintain strong relationships between the Borough government and Keyport's business owners, in order to expand economic development opportunities throughout the commercial districts in the Borough, especially within the downtown and waterfront commercial areas.
2. Explore creative parking solutions to enhance and support the commercial districts.
3. Encourage economic activity that effectively utilizes the waterfront as a hub of commercial development in the Borough.
4. Create opportunities to attract tourism to Keyport through promoting the brand identity as "The Pearl of the Bayshore".
5. Focus on revitalization of vacant and underutilized properties through a mix of code enforcement, improved design standards, and promotion of redevelopment opportunities.
6. Create improved guidelines and regulations in commercial areas to address signage and colors throughout these areas of Keyport to be more consistent with the Borough's historical heritage.
7. Capitalize on the presence of two state highways in Keyport and the economic opportunities presented by encouraging aesthetic and visual improvements, and encouraging a wider range of commercial uses along the highway frontages.

## HISTORIC PRESERVATION OBJECTIVES

1. Support the preservation of historic buildings and landmarks that are relevant to Keyport's history.
2. Review potential incentives to encourage property owners to preserve, restore, and adapt historic structures.
3. Update and potentially add to the inventory of historic sites within the Borough.
4. Publish the updated inventory of Keyport Historical sites and explore the development of walking tours or map publishing of all sites. Create a brochure using the Borough's inventory of historic sites for use in marketing the Borough's rich historic resources to prospective visitors.
5. Encourage the Borough to pursue designation as a Certified Local Government.
6. Reconstitute and maintain an active Historic Preservation Commission.

## RECYCLING OBJECTIVES

1. Promote recycling efforts to reduce the solid waste stream and increase reuse of natural resources.
2. Support the State Recycling Plan goals as set forth in the New Jersey Statewide Mandatory Source Separation and Recycling Act (N.J.S.A. 13:1E-99.11 et seq. [Recycling Act]).

## GREEN BUILDING OBJECTIVES

1. Encourage the use of sustainable site and building methods, including and not limited to, review of building materials, construction techniques, and energy efficient equipment and appliances.
2. Encourage the use of renewable energy systems, i.e. solar, wind, tidal, etc., while minimizing adverse neighborhood impacts, including and not limited to, visual and aesthetic.
3. Prevent or mitigate storm water runoff.
4. Require minimal disturbance to the natural environment during construction.
5. Integrate green building techniques, such as green infrastructure, with Resilience projects and initiatives.

# LAND USE PLAN ELEMENT

## 4. LAND USE PLAN ELEMENT

### INTRODUCTION

The Land Use Plan Element is required to be included within municipal Master Plan in accordance with Municipal Land Use Law section NJSA 40:55D-28.b.(2). The principal purpose of the Land Use Plan is to provide a long-range policy guide for development in the Borough of Keyport. This Land Use Plan Element serves as the foundation to support the Borough's Zoning Ordinance by setting forth explanations and rationale for land use decisions. The framework for the Borough's development and redevelopment is also addressed in the Land Use Plan Element.

This Land Use Plan retains the majority of the existing land use pattern in Keyport. The Land Use Plan introduces new goals, objectives, and recommendations for Resilience, economic development, and revitalization initiatives in certain locations, as appropriate. A key principle underlying the development of this Plan is to ensure that the historic character of the Borough is retained while simultaneously promoting revitalization projects and initiatives in certain areas that will enhance the vitality of the Borough.

The Land Use Plan Element identifies the locations of existing uses, zoning density, and development character of areas throughout the Borough. In addition, appropriate recommendations for land use changes and zoning amendments are provided in certain cases where the changes will enhance the vitality of the Borough, as noted above. Further, this Land Use Plan Element recognizes the Borough's ongoing efforts since Superstorm Sandy to rebuild in a resilient fashion.

### KEY HIGHLIGHTS

The Land Use Plan Element describes the existing and proposed land uses of the Borough. This includes describing the Borough's approved redevelopment plans on 4 significant parcels: Aeromarine Property, Brown's Point, Longview-Boatworks, and the Highway Commercial District. For more information on each redevelopment plan, please see the section *Redevelopment Plans*.

The Land Use Plan Element also describes the general location and character of land uses. The Single-Family Residential land use (RA District) is identified as the predominant and defining land use in Keyport. All stakeholders of the Master Plan process identified preservation of this land use in the Proposed Land Use Plan as vitally important in maintaining the character of Keyport.

The Two-Family Residential land use (RB District) is identified by both the Existing and Proposed Land Use Plan as a crucial buffer to the single-family neighborhoods from the more intense uses of the downtown. The Two-Family Residential land use also provides a denser residential land use to support the downtown. The Proposed Land Use Plan continues to envision this district as a Two-Family Residential land use.

The Multi-Family Residential land uses (RC District) are identified and the Proposed Land Use Plan recommends no new Multi-Family Residential land uses but would continue to see the existing multi-family areas maintain their land use.

## LAND USE PLAN ELEMENT

The Existing Land Use analysis identified 4 commercial land use types: General, Neighborhood, Marine Commercial and Highway Commercial. The General Commercial District is identified as the downtown and waterfront commercial areas of the Borough. This district is characterized by small retail and commercial land uses, and its public spaces along the waterfront. The Marine Commercial land use is generally located within the General Marine Commercial (GMC) district, which provides for a marine-based economy, reflective of Keyport's strong maritime history and ties. The Land Use Plan clarifies that permitted uses in this area provide for marine commercial and similar appropriate uses. It is recommended that an analysis be prepared to evaluate the feasibility of implementing an overlay district that would allow for residential use in the uplands portions of the GMC district that are located outside the Special Flood Hazard Area.

The Neighborhood Commercial areas are to provide for commercial uses that serve residential neighborhoods, create limited traffic, and can instead be accessed by immediate residents without the need of a car. The Borough maintains four such areas and the Proposed Land Use Plan recommends maintaining all.

The Highway Commercial district is those areas that exist along Routes 35 and 36. These are commercial uses that capture the high traffic volumes of the regional highways. The Proposed Land Use Plan recommends maintaining this district and expanding to a block deep for the areas along Route 36 between Atlantic and Main Streets. The Land Use Subcommittee recognizes the optimal location to regional highways and transit locations, and recommends those areas of the Highway Commercial district south of Route 36 as optimal for mixed-use and high-density residential development. These permitted residential uses should have defined use, density, and zoning schedules, and should not exceed the standards of the existing high-rise residence already existing in the Highway Commercial district.

The Industrial areas of the Borough were identified by the Existing Land Use analysis. The Proposed Land Use Plan does not alter this area. Instead it recommends the Borough's Ordinance should be updated to add permitted uses that are less intense than light industrial uses in its industrial zones. It encourages the reuse or redevelopment of older industrial sites as multi-tenant uses. These recommendations allow the Borough's industrial areas to adapt to changing market demands.

All other land uses are identified such as land uses for parks, recreation, cemeteries, and other public and quasi-public uses. The Proposed Land Use Plan acknowledges the importance of these uses to the quality of life of the Borough and the need to continue to provide for these uses.

Additional recommendations to the Land Use Plan can be found in the section *General Land Use and Zoning Recommendations*.

### EXISTING LAND USE AND REDEVELOPMENT PLANS

Keyport is a "mature" community having limited available vacant and developable land. Most opportunities for new development in the Borough will be through redevelopment, rehabilitation and adaptive re-use of existing buildings. Other remaining substantial tracts of land are constrained by wetlands, woodlands, and/or floodplains and are not easily or appropriately developable.

The 2012 Master Plan Reexamination Report included a land use map that documented the land uses existing in the Borough at that time. A comparison of that map to the Existing Land Use map in this Plan indicates that most land uses in the Borough have remained the same and new land uses are only located in certain areas.

## LAND USE PLAN ELEMENT

The Borough consists of a variety of land uses that vary in density, intensity of use and geographic dispersion. As mentioned previously, the Borough has a significant population density at approximately 5,104 persons per square mile. The Existing Land Use map, which is included at the end of this section, shows the location of land uses throughout the Borough. These land uses are comprised of the following:

### **Single-Family Residential (RA District)**

This land use category consists of residential properties containing single-family homes. This use is the predominant land use throughout the Borough and is the traditional development pattern. This use defines the historic character of the community and is embodied by its many century homes. The “Existing Land Use” map shows the distribution of single-family residential land use throughout the Borough.

### **Two-Family Residential (RB District)**

This land use category consists of residential properties containing two-family homes. This use is predominantly located to the east and south of the Borough’s Downtown/Waterfront District. This use helps buffer the more intense commercial uses found in the Borough’s downtown from the established, single-family neighborhoods in the interior of the Borough. The “Existing Land Use” map shows the location of two-family residential land uses in the Borough.

### **Multi-Family Residential (RC District)**

While single-family homes are the defining residential land use throughout Keyport, multi-family residential land uses do exist within the Borough and consist of various residential building types: Low-rise garden apartments, mid-rise apartment buildings up to 4 stories, townhouses, and 2 high-rise structures of 10 and 12 stories, respectively (please note that the Borough does not recommend additional 10-12 story buildings in this Zone. Additional information regarding land use recommendations is included in the Proposed Land Use Plan Section below). As shown on the Existing Land Use map, multi-family residential land uses (RC District) are predominantly located toward the southern portion of the Borough, nearest the schools and highway, with some exceptions.

### **Commercial**

This land use category consists of typical commercial land uses (e.g., retail and wholesale business as well as general and service businesses), offices (medical, professional, and general offices), and mixed-use developments.

Commercial land uses consist of a variety of retail uses, restaurants, personal service establishments, and wholesale businesses. Commercial land uses are located in several locations within the Borough. Highway-oriented retail uses (e.g., supermarkets, fast food restaurants, hotels, houses of worship, and new car dealerships) are located along the Highway 35 and 36 corridors in Keyport. More locally-oriented commercial uses (e.g., smaller-scale retail establishments, restaurants, personal service establishments) can be found at the intersection of County Route 4/Broad Street and Maple Place (Neighborhood Commercial), and in the downtown commercial core and waterfront district (General Commercial District).

### **Industrial**

The industrial land uses consist primarily of light industry and manufacturing uses. Industrial uses are predominantly located in two specific and clearly defined areas within the Borough, just northwest of the intersection of Highways 35 and 36. A large portion of this area is located within two industrial parks located near the crossroad of Routes 35 & 36.

## LAND USE PLAN ELEMENT

A small, light industrial area is also located in the western portion of the Borough, near the intersection of Maple Place and Manchester Avenue.

The Aeromarine Property in the northeast portion of the Borough is the largest single tract of land in Keyport, and is zoned Industrial. An approved Redevelopment Plan exists for the property. However, the Borough reserves the right to update that Redevelopment Plan to reflect its current goals and vision for that property.

### Public and Quasi-Public

Public uses include municipal, libraries and educational facilities, senior citizen centers, public utility sites, and emergency services facilities. These uses are scattered throughout the Borough, with a large number located in the commercial core and waterfront district. Quasi-public uses include churches, cemeteries, private utilities, and community centers and meeting halls. Detailed descriptions of these facilities are included in the Community Facilities Plan Element.

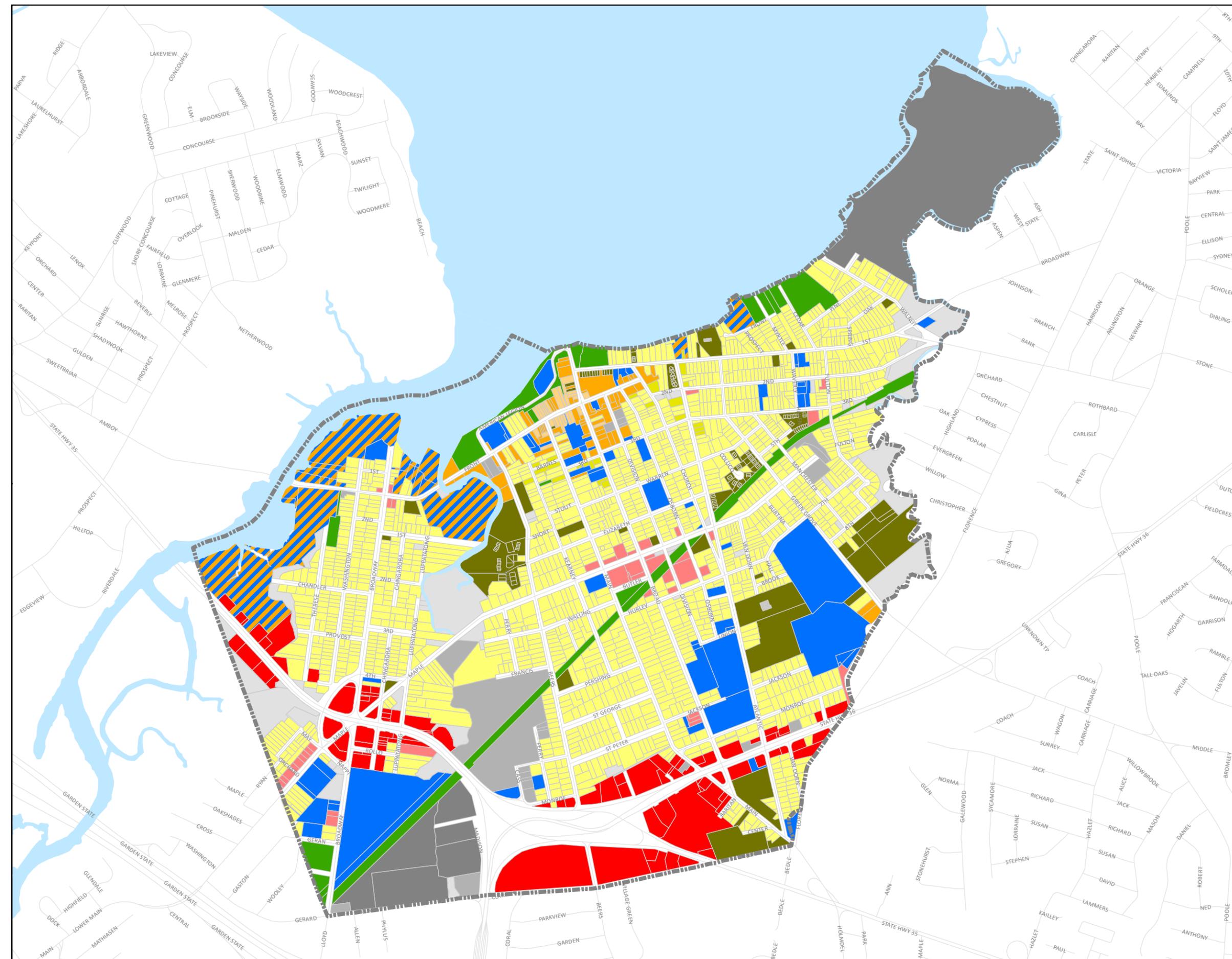
### Parks, Recreation, Open Space and other Exempt Land

These land use categories consist of the parks, athletic facilities, and open space lands that compose the Borough’s park, recreation, and open space inventory. Such lands consist of all parks oriented for active and passive recreation, as well as a segment of the Henry Hudson Trail, a County-wide rail-trail running from the Atlantic Highlands to Freehold. Undeveloped open space and preserved land is also included in these land use categories. Detailed descriptions of these facilities are included in the Recreation Plan and the Open Space & Conservation Plan Elements of this Master Plan.

Figure 4.1 on the following page is a map of the Existing Land Uses of Keyport. Table 4.1 below summarizes the land use prevalence of each land use category in the Borough. As evidenced by the table, residential land use is the most prevalent land use in the Borough by land area.

<b>Table 4.1: Land Use Prevalence by Land Area</b>		
<b>Land Use</b>	<b>Acreage</b>	<b>Percent (%)</b>
Single-Family Residential	292.42	38.52
Two-Family Residential	3.03	0.40
Multi-Family Residential (3 or more family units)	49.52	6.52
Mixed-Use (Ground Floor Retail; Upper-story Residential)	2.97	0.39
General Commercial	13.85	1.82
Neighborhood Commercial	10.14	1.34
Highway Commercial	57.52	7.58
Marine Commercial	55.16	7.27
Light Industrial	28.47	3.75
Industrial	83.37	10.98
Public & Quasi-Public	69.48	9.15
Parks & Open Space	47.63	6.28
Vacant	45.52	6.00

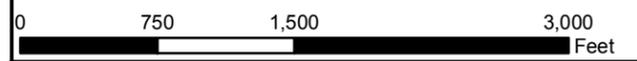
**Figure 4.1: Existing Land Use Map**



**Borough of Keyport  
Monmouth County, N.J.**

**Legend**

-  Keyport
-  Single-Family Residential
-  Two-Family Residential
-  Multi-Family
-  General Commercial (Mixed Use)
-  General Commercial
-  Neighborhood Commercial
-  Highway Commercial
-  Marine Commercial
-  Industrial
-  Light Industrial
-  Public and Quasi-Public
-  Parks & Open Space
-  Vacant



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Fax: 973-240-1818  
www.matrixnewworld.com

PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:12,000	DATE: 3/6/2017
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SOURCES: NJDEP GIS Data, NJGIN GIS Data, Monmouth County GIS Data

State Plane Coordinates:  
NAD\_1983\_StatePlane\_New\_Jersey\_FIPS\_2900\_Feet

# LAND USE PLAN ELEMENT

## Redevelopment Plans

The entire Borough of Keyport was designated as Rehabilitation Area in 2007, pursuant to the Local Redevelopment and Housing Law (LRHL). As defined by the LRHL, rehabilitation is “extensive repair, reconstruction or renovation of existing structures [...] to eliminate substandard structural or housing conditions and arrest the deterioration of that area.” In determining areas in need of rehabilitation, the Borough considered the following conditions:

1. At least half of the housing stock in the Subject Area is at least 50 years old; and
2. At least half of the water and sewer infrastructure in the Borough is at least 50 years old and is in need of repair and maintenance;

Additional considerations in designating an area in need of rehabilitation may include the following:

1. A significant portion of structures therein are in a deteriorated or substandard condition;
2. There is a continuing pattern of vacancy, abandonment or under-utilization of properties in the area, with a persistent arrearage of property tax payments thereon; and
3. A program of rehabilitation may be expected to prevent further deterioration and promote the overall development of the community.

Pursuant to the LRHL, the governing body of a municipality may determine to utilize the authority granted under Article VIII, Section I, paragraph 6 of the New Jersey Constitution. An ordinance may be adopted setting forth the eligibility or ineligibility of dwellings, multiple dwellings, and/or commercial and industrial structures for exemptions and/or abatements from taxation in areas in need of rehabilitation. A rehabilitation designation does not permit granting a long-term tax exemption (beyond five years) as this is reserved for a redevelopment designation. Local Economic Growth Grants may pledge certain taxes or PILOTs in Rehabilitation Area.

Using the rehabilitation as a revitalization tool, the Borough can prepare site specific redevelopment plans and use short term tax abatements to encourage redevelopment in appropriate locations. The Borough has several areas identified for redevelopment. Plans have been proposed with different objectives for redevelopment in different areas. Each Redevelopment Area is shown on Figure 4.2, Redevelopment Plan Map. Descriptions of these Redevelopment Plans are included subsequent to Figure 4.2. The main objective of the Redevelopment Plans is to revitalize the designated areas to encourage the growth, transformation, and economic development of the Borough.

### *Highway-Commercial Redevelopment Plan*

Keyport’s Highway-Commercial Redevelopment Plan includes the areas along Routes 35 & 36. Like the Borough itself, the Highway Commercial District has long been considered the “Gateway to New Jersey Bayshore Region” a stretch of communities along the southern coast of the Raritan Bay. As a visitor, you access the Borough and the Bayshore Region through this key crossroad, and is considered a major commercial area of the Borough in addition to the Waterfront and Downtown Commercial area.

Because of its optimal location on the crossroads of Routes 35 & 36, as well as its proximity to the Garden State Parkway, the Rehabilitation Area experiences heavy daily traffic volumes as motorists travel between the regional destinations, and the Jersey Shore. Because of this, the Highway-Commercial Rehabilitation Area is ideally suited to capture this high volume of traffic, and capitalize on the commercial activity generated by visitors.

In 2007, the area, along with all of Keyport, was designated as a Rehabilitation Area, pursuant to the Local Redevelopment and Housing Law (LRHL). In August 2009, the Borough, continuing to recognize the statutory

## LAND USE PLAN ELEMENT

rehabilitation process as being the most appropriate approach, adopted Resolution 176-09 and authorized the preparation of a redevelopment plan, which was completed and adopted in June 2010.

The Redevelopment Plan identified several Goals and Objectives to guide the redevelopment which included:

- Provide opportunities for retail spaces larger than those prevailing in the highway commercial district in order to assist in attracting new business.
- Improve new business opportunities through the promotion of new economic activities.
- Improve connections with the Borough's central business district.
- Create positive tax benefits for the Borough.
- Address existing and future parking needs of businesses, residents, shoppers, etc.
- Capitalize on the presence of two state highways in Keyport and the economic opportunities that this presents.
- Improve the visual streetscape within the Redevelopment Area through design standards for buildings, properties, and signs.
- Improve the public elements of the streetscape.
- Control the location, size, scale, and aesthetic character of parking lots and structures.
- Encourage parking location and design that provides shared or joint use facilities and integrates parking in an unobtrusive manner.
- Encourage Public-Private Partnerships, especially between the Borough and NJ Department of Transportation (NJDOT).
- Permit high-density mixed use in this redevelopment area with design standards matching Bethany Manor in terms of density, lot size, building height, and other bulk dimensions.

### *Aeromarine Redevelopment Area*

The property known as the Aeromarine Redevelopment Area is located at the northeastern tip of Keyport. It is bounded by Walnut Street to the west, the Raritan Bay to the north, and Chingarora Creek to the south and east. The Redevelopment Area is located on Tax Lots 14 & 15 within Block 141. The tract has a total area of approximately 62 acres.

The site of a former landfill and aircraft manufacturer, the Aeromarine Redevelopment Area has been the subject of several attempts and plans at redevelopment. The Mayor and Council of the Borough of Keyport directed the Keyport Unified Planning Board (KUPB) to study the area in order to determine whether it was in need of redevelopment in accordance with the criteria specified in state's Local Redevelopment and Housing Law (LRHL) at N.J.S.A. 40A:12A-5. The Borough's consulting planners at the time, Phillips Preiss Shapiro Associates, Inc., then conducted a redevelopment area investigation which was completed in February 2005. A public hearing on the investigation was then held by the KUPB which subsequently determined, based on the results of the investigation, that the study area qualified as an area in need of redevelopment. The Mayor and Council then directed Phillips Preiss Shapiro Associates to prepare a redevelopment plan for the area in question. The plan was completed in June of 2005, revised in September 2005, and adopted by Ordinance 14-05. The Goals and Objectives of this plan include:

- Facilitate the environmental cleanup of the redevelopment area in an expeditious manner.
- Stimulate an appropriate level of development that provides public benefits to the Borough and does not overwhelm the Borough's infrastructure.
- Reduce the negative impacts of existing dilapidated buildings and unproductive lands on the adjacent residential neighborhood.
- Reduce the negative impacts of existing industrial uses on the adjacent residential neighborhood.

## LAND USE PLAN ELEMENT

- Provide for continuous public access to the waterfront and to utilize design techniques that guard against the privatization of the waterfront.
- Provide for the development of active recreation facilities within the redevelopment area to serve the future residents of the redevelopment area and the Borough.
- Protect the creeks and wetlands on the property from the negative impacts of improper development.
- Foster appropriate relationships between buildings, streets, parking areas, walkways, and landscaped areas, both within the development and in the context of the surrounding area.
- Provide for an increase in the economic base of the redevelopment area and the entire Borough by redeveloping underutilized and non-productive properties.
- Encourage the revitalization of the redevelopment area in a manner that is compatible with the character of adjacent properties and land uses.
- Expand opportunities for the development of age-restricted housing within the Borough.

In March 2010 an Amendment to the approved redevelopment plan from 2005 was commissioned to study the potential for an alternate redevelopment approach for the Aeromarine property. The amendment to the redevelopment plan, prepared by CME Associates, explored the potential for the landfill portion of the site to be used for a ground-based solar panel field. The Solar Overlay Amendment proposed the redevelopment site to be split into two areas. Approximately 15-25.3 acres of the landfill was proposed for the solar field and the remaining area for open space, recreation, residential, or commercial purposes, as described in the 2005 Redevelopment Plan.

### ***Brown's Point Marina Redevelopment Plan***

In December 2014 the Council of the Borough of Keyport adopted Resolution #358-14 requesting the Unified Planning Board and the Borough professional consultants, T&M Associates, to investigate the Brown's Point Marina area to determine whether the area qualifies as a non-condemnation redevelopment area pursuant to the LRHL. The Brown's Point Marina Study Area is approximately a 12.48 acre tract of land located in the north-western portion of the Borough, along Matawan Creek and the municipal border with Aberdeen Township. The Study Area included Lots 1, 2, 3, 5, 6, 6.01, 7, and 9, on Block 20. The property is currently occupied by a private business, the Brown's Point Marina, as well as several private residences.

Several environmental constraints are located within the Study Area, including wetlands, historic fill of non-indigenous materials, as well as known contaminated sites. The Study Area is also almost entirely within the flood hazard area, including the lots closest to the water being located in the "VE" zone, an area with a one percent chance at coastal flooding with a velocity-wave action hazard. Any areas of the Study Area not located in the 100-year flood hazard are within the 0.2% chance flood hazard area. The effects of the Study Area being located within the flood hazard area was most evident during Superstorm Sandy, when the site was heavily impacted by both the flooding and heavy wave action experienced during the storm. All the marina's docks were uplifted, scattered, and destroyed by the waves. Electrical equipment and connections were destroyed. Forklifts and trucks were underwater or carried to nearby wetlands and left stranded as well as additional damage to the residences.

The study found that Lots 6, 6.01, and 9 in the Study Area meet the criteria of an area in need of redevelopment, found in Section 5 of the LRHL. Damages and debris deposited on these lots are significantly impacting the operation of the marina and leaving these lots in their current dilapidated condition would provide no benefit or improvement to the community. The Study also finds that Lots 5 and 7 are needed for effective redevelopment in the area as these lots would provide access to Broadway and additional parking space for the redevelopment. The remaining Lots 1, 2, and 3 do not meet the criteria for designation as an area in need of redevelopment. The

## LAND USE PLAN ELEMENT

Study does acknowledge these lots may be included in the future, should a proposed redevelopment project require additional space.

Presently, a redevelopment plan is pending approval by the Keyport Unified Planning Board/Council. The pending plan proposes 120 dwelling units of midrise rental housing.

### ***Longview-Boatworks Redevelopment Plan***

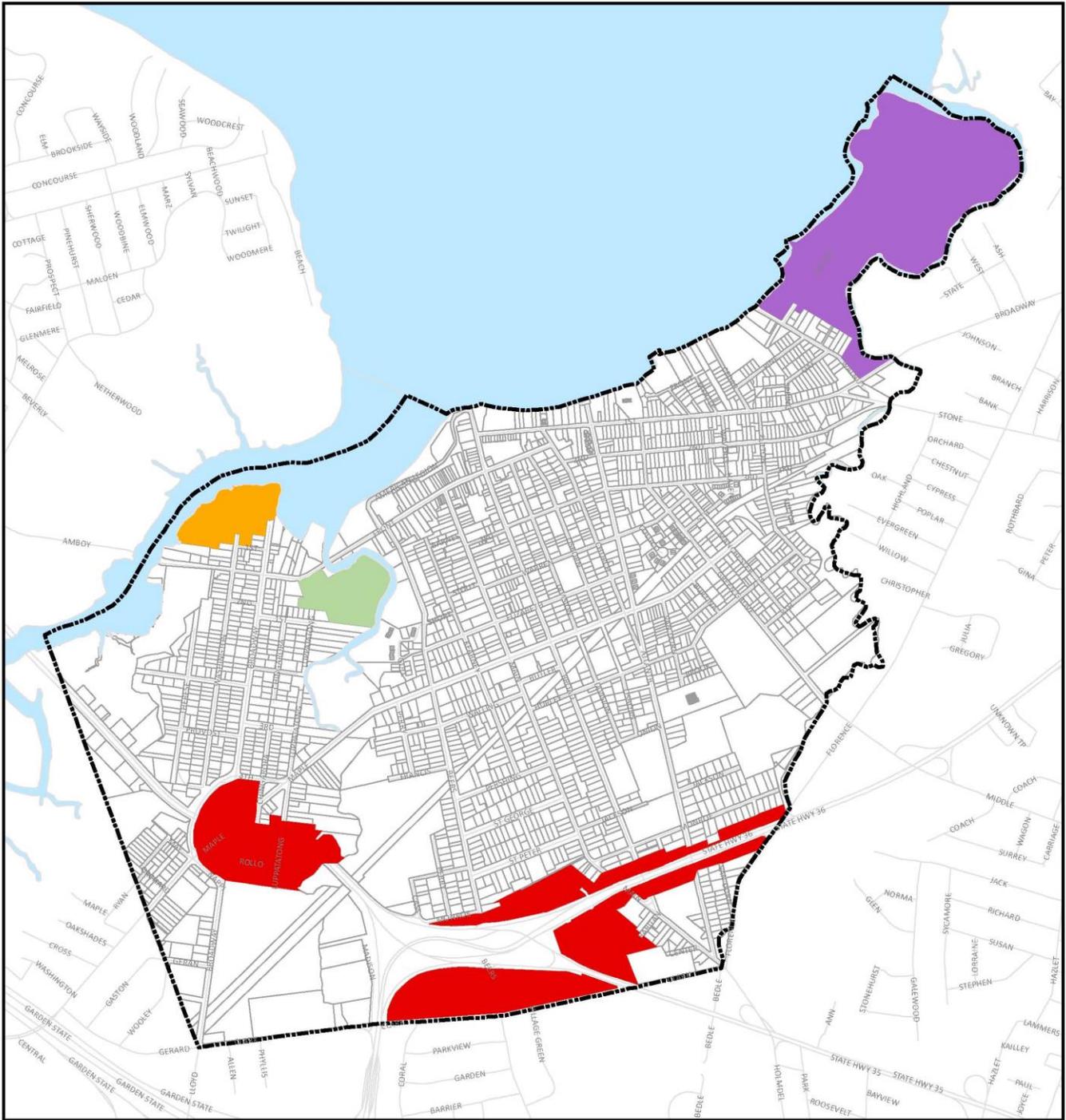
In March 2016 the Borough Council adopted Resolution 108-16 stating its intent to prepare a redevelopment plan for the property known as Longview-Boatworks, located on Block 22, Lots 12.01, 19, and 20 and authorized the firm CME Associates to prepare the plan.

The property is approximately 8.5 acres and located along Front Street near the confluence of Luppataong Creek and Keyport Harbor. The property is bounded by the Luppataong Creek and associated wetlands and riparian areas to the east, and developed lands to the west and south, namely single-family residential. The site contains two existing structures on the property and is listed by the NJDEP as a Brownfield Development Area (BDA).

The Redevelopment Plan intends to transform the parcel from "...vacant and undeveloped to economically and socially productive uses that will contribute to the general welfare of the Borough via increased tax rates, increased foot traffic in the downtown area, and improvements to aesthetics and the Borough's sense of place."

The Keyport Unified Planning Board has approved the redevelopment plan for this site and the developer has received site plan approval for this project consisting of 26 townhouses. The developer has also applied for Coastal Areas Facilities Act (CAFRA) approval for the project. The site is being elevated above the base flood elevation and all mechanical equipment will be above the base flood elevation plus 1 foot. As part of the site elevation a retaining wall will be constructed in the area in parallel with the creek with a setback between 50 and 150 feet from the creek.

**Figure 4.2: Redevelopment Plan Map**



**Legend**

- Aeromarine Redevelopment Plan
  - Highway-Commercial Redevelopment Plan
  - Longview-Boatworks Redevelopment Plan
  - Brown's Point Marina Redevelopment Plan
- Keyport

**Borough of Keyport  
Monmouth County, N.J.**

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PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:15,000	DATE: 2/7/2017
SOURCES: NJDEP GIS Data, NJGIS GIS Data, Monmouth County GIS Data			
State Plane Coordinates: NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet			

# LAND USE PLAN ELEMENT

## Neighborhood Plans

As part of NJDCA's PSPAG Program consultants are preparing neighborhood plans that evaluate and quantify the risks and associated impacts from flooding and rising sea levels in four of the most severely impacted neighborhoods in Keyport:

- ***Beers Street Basin***

The Beers Street Basin neighborhood consists of the lands adjacent to the easterly bank of Luppataong Creek on the south side of Front Street, across Beers Street east to the centerline of Kearney Street and south to the centerline of Elizabeth Street. This neighborhood exhibits a somewhat unique topography of floodplain and highland within a very small geographic area.

The primary use in the neighborhood is single and two-family residential, with a very small percentage of structures used as multi-family residential (three or more family dwellings). The neighborhood also has some commercial uses, as well as 6 vacant tax lots.

The Neighborhood Plan has a series of recommendations, goals, and objectives, that while more specific and detailed to the neighborhood's study area, are in line with those of the Borough's overall Master Plan. These goals include:

- Promoting Stormwater Management
- Ensure the Safety of Buildings and Structures
- Protect Natural Resources and Promote Effective Shoreline Management
- Disaster Preparedness
- Facilitate Faster Recovery from Future Storm Events

The Beers Street Neighborhood Plan also recommends the acquisition and preservation of a flood-prone property on Front Street and along the Luppataong Creek. This is in line with the Master Plan's Resilience Goals, as well as expanding and promoting recreational and open space opportunities, especially along the Luppataong Creek. The Neighborhood Plan also recommends Design Standards to be implemented, many of which focus on stormwater management and resiliency.

- ***First Street (Waterfront)***

The 49.8 acre First Street Neighborhood is situated along the majority of Keyport's Bayshore frontage, extending all the way from Cedar Street, adjacent to Cedar Street Park to Broadway near Hans Pederson's Marina, and includes Terry Park. The First Street Neighborhood therefore encompasses Keyport's Downtown Commercial district along the north side of Front Street facing the Bay which is a defining element of this Bayshore community's character. Additionally, the First Street Neighborhood encompasses other defining attributes of the Borough such as the Waterfront Promenade, long standing marinas, the Borough Municipal Boat Launch, the Fishing Pier, and several Borough Parks.

The boundaries of the Neighborhood are situated between the Raritan Bay, Front Street, and 1st Street. The western boundary begins at Broadway and it continues to the east along Front Street to become the southern boundary all the way to Church Street. At this juncture the Boundary makes a small "S" turn that transitions the southern boundary into 1st Street whereby it continues to Cedar Street which is the official eastern boundary. All properties between the Bay and these three boundary lines are included in the First Street Neighborhood. Broadway, Front, Church, and 1st streets form the First Street Neighborhood, which is shaped in an elongated polygon like pattern.

## LAND USE PLAN ELEMENT

The First Street Neighborhood Plan has a series of recommendations, goals, and objectives to promote resilience, which are consistent with those of the Master Plan. The Neighborhood Plan references the Strategic Recovery Planning Report (SRPR) and Getting to Resilience Report, and recommends implementing those recommendations that are applicable to the Neighborhood Plan's study area.

Other recommendations of the Neighborhood Plan that are consistent with the Master Plan include:

- Implement stormwater management strategies such as Green Streets, reduced impervious surfaces, streetscape improvements
- Develop a Hybrid Strategy to Mitigate Sea Level Rise and Storm Surge
- Elevating Pump Stations, Addressing Critical Facility Vulnerabilities, Raising Occupied Structures, and Purchasing At-Risk Properties
- Review and revise where necessary Zoning Ordinances, and include Sustainability Practices and LEED concepts in the revised Ordinances.
- Monitor Ongoing Army Corps of Engineer projects in surrounding municipalities.

- ***Division Street Basin***

The 9.4 acre Division Street study area is located at the eastern edge of Keyport's Downtown Commercial district that defines this Bayshore community's character. It is situated two blocks south from the Raritan Bay and the Borough's Beach Park. The Neighborhood is formed in a grid street like pattern. East Front Street and 3rd Street run east to west as the northern and southern boundaries, respectively; and Broad Street, Division Street, Osborn Street, and Church Street run north to south with Broad Street and Church Street acting as the Neighborhood's western and eastern boundaries respectively.

The Division Street Neighborhood Plan references the SRPR and Getting to Resilience Report, and recommends implementing those recommendations, goals, and objectives that are applicable to the Neighborhood Plan's study area. As the Community Resilience Element also recommends utilizing the SRPR and Getting to Resilience Report, this recommendation is consistent with this Master Plan.

Other recommendations from the Neighborhood Plan that are consistent with the Master Plan include:

- Implement Stormwater Management strategies such as Green Streets, Reducing Impervious Surfaces, and Streetscape Improvements
- Raising Occupied Structures and Purchasing At-Risk Properties
- Implement Sustainability Practices and LEED concepts in the revised Zoning Ordinances.

- ***Walnut-Oak Street Basin***

The Walnut-Oak Street Basin Neighborhood Plan Study Area extends from Keyport Harbor/Raritan Bay in the north; along the northwesterly side of the Chingarora Creek north of the Borough of Union Beach and Township of Hazlet; north of the Henry Hudson Trail; and east of and including Cedar Street and Fulton Street.

The plans will include with the preparation of the neighborhood plan a statement of goals and objectives, existing conditions of the neighborhood, a description of the flooding risks, a future land use plan, and a list of recommendations that include:

1. Design standards to promote resilience.
2. Recommended zoning.
3. Open space and areas proposed for preservation.

## LAND USE PLAN ELEMENT

4. Circulation plan and pedestrian linkages.
5. Identification of sites or areas recommended for future redevelopment or rehabilitation plans, if applicable.
6. Relationship of the plan to the Borough's master plan and the Borough's other Resilience planning efforts.
7. Strategic Action Plan including amendments to the Borough's development regulation and zoning ordinance to promote Resilience as well as capital investments that may be needed.

In addition, the neighborhood plans will include:

- Proposed development regulations and site design standards that will incorporate standards for the design of buildings and sites that are more resilient and less vulnerable to storm impacts, including green infrastructure and building techniques.
- Strategies that are designed to mitigate, reduce, or prevent impacts to the uses in the neighborhood from natural disasters and increase resilience. Such strategies can include creative approaches to sustainable design, green building techniques, green infrastructure, engineering controls, and the enhancement or restoration of natural systems.

The Walnut-Oak Street Basin Neighborhood Plan identifies references many reports and studies that recommend resilience measures to be implemented for both the Walnut-Oak Street Basin and Borough-wide. These reports include the:

- SRPR
- Keyport Waterfront and Downtown Improvement Plan
- Keyport Waterfront Committee Report (2004)
- Monmouth County Multi-Jurisdictional Natural Hazard Mitigation Plan

The Neighborhood Plan also identifies strategies for improved resilience, such as:

- Flood Mitigation and Management, which includes Shoreline Treatments and Drainage Improvements
- Land Use, Development, and Zoning including acquisition/relocation, improving flood insurance rates, improved bulk standards, parking, and addressing vacant, abandoned, and redevelopment properties such as Aeromarine.
- Design standards that not only improve resilience, but also maintain the character of the neighborhood.
- Future Storm Preparedness, including the development of safe and reliable evacuation routes.

The Neighborhood Plan also includes recommendations to improve mobility and connectivity within the Borough, that complements or expands on the Master Plan's recommendations, which can be found in the Circulation Element.

The Neighborhood Plan also recommends that the Walnut-Oak Street Basin neighborhood participate in LEED for Homes and LEED for Neighborhood Development.

### **Brownfields Development Area**

Under the Brownfields Development Area (BDA) approach, NJDEP works with applicable municipalities affected by multiple brownfields to design and implement remediation and reuse plans for these properties. In the process, they invite the various stakeholders including owners of contaminated properties, potentially

## LAND USE PLAN ELEMENT

responsible parties, developers, community groups, technical experts for the local government and residents, and residents themselves, to participate in this cleanup and revitalization approach. This approach enables remediation and reuse to occur in a coordinated fashion.

Several parcels of land along the Keyport waterfront have been identified as Brownfields Development Areas including the Brown's Point Marina, Longview-Boatworks, and the Aeromarine Property all fall within this area. The Borough could work together with public and private sector while leveraging available federal and state grants to obtain grant funding and expedite the remediation of these sites.

### Zoning of Adjacent Municipalities

Keyport is bordered by three municipalities – Union Beach to the east, Hazlet Township to the south, and Aberdeen Township to the west.

Along Union Beach's border the Aeromarine Redevelopment Area in Keyport exists and is located across from an M-2 zone in Union beach. The Chingarora Creek and associated wetlands and floodplains acts as buffer between the proposed uses anticipated in the Aeromarine Redevelopment Plan and the industrial zone in Union beach. The other portion of area bordering Union Beach is a single family residential zone which also borders an existing single-family zone in Union Beach and is therefore consistent.

Except for the areas along Route 35 corridor all zones in Hazlet bordering Keyport are single-family in nature except for one small Highway Commercial zone near the Parkway and across from Clark Street that is adjacent to single-family zone. However, these are pre-existing and fully-developed.

The areas bordering Aberdeen is zoned single-family residential. The areas of Aberdeen along the Matawan Creek are zoned Conservation/Recreation, and are adjacent to Marine Commercial uses in Keyport.

## PROPOSED LAND USE PLAN

### Residential

The Land Use Plan recommends preserving and protecting the historic character of the existing single-family residential neighborhoods throughout the Borough. This Land Use Plan encourages residential development that is compatible in density with the surrounding neighborhood.

The Land Use Plan recommends the protection and preservation of both the existing built environment and character of the residential neighborhoods. This plan prohibits future obtrusive nonconforming uses in residential neighborhoods.

The residential land use categories recommended by the Land Use Plan range from single family residential (6.8 dwelling units per acre), two-family residential (7.8 dwelling units per acre), and multi-family (19 dwelling units per acre), all of which currently exist within the Borough.

Vacant lots scattered within the existing residential blocks are generally recommended to be used for residential infill developments, consistent with permitted zoning uses and densities for specific site locations as portrayed in the Proposed Land Use Plan map. It is recommended that the Borough continue to monitor the vacant properties, as well as foreclosures, and commission a GIS database and map to depict the properties. The properties can then be subsequently marketed to interested developers to purchase and rehabilitate the properties in question, or redevelop the properties, where appropriate.

## LAND USE PLAN ELEMENT

Vacant non-residential buildings located in residential neighborhoods should be converted into residential units or, if residential conversion is impractical, replaced by compatible residential development, consistent with permitted zoning uses and densities.

In order to prevent deterioration and promote revitalization in the existing residential neighborhoods it is recommended that the Borough continue to implement Zoning requirements that support the existing single-family residential land uses, and implement the economic development initiatives identified in the Economic Development Plan Element. This combination of land use regulation and economic development is envisioned to strengthen the community overall and provide an environment where economic and development pressures will not adversely impact the historic single-family neighborhoods in Keyport.

The following sections describe the various recommended residential land use categories, discuss changes to and/or departures from existing land use controls currently in effect within the Borough, and include general guidelines for residential land use regulations.

### ***Single Family Residential Area (RA District)***

*“For many years, the predominant housing type in Keyport has been the one-family house. The Land Use Plan recognizes this characteristic of the Borough and seeks to preserve those existing single family residences at a low to moderate density”*  
*-1979 Keyport Borough Land Use Plan*

The above statement was taken from the 1979 Keyport Land Use Plan regarding the single-family neighborhoods found in the RA and RA (PRD) Single-Family Residential Districts. By placing areas within this land use category on the Proposed Land Use Plan map, the Land Use Plan reiterates this statement as an objective of this Land Use Plan with respect to Low Density Single Family Residential areas.

The 1979 Land Use Plan recommended a density range between 6-8 dwelling units per acre, and according to the current Borough of Keyport Code Section 25:1-16 Zoning Schedule, the minimum lot width is 75 feet, with a minimum lot size of 7,500 square feet. The 1965 and 1989 Master Plans each defined single-family lots as having a minimum width of 50 feet. In fact, previous versions of the Borough’s Ordinance indicate that as of July 1990 the minimum lot width was 50 feet. Subsequently, by April 28, 2005, the Borough’s Ordinance was amended to increase the minimum required lot width to 75 feet. All existing lots with a 50-foot width were grandfathered and are considered conforming. It is recommended that the 50-foot front yard width and a 5,000-square foot minimum lot size for the RA district be reinstated as the standard and not a grandfathered condition. This would permit a maximum density of up to 6.8 dwelling units per acre.

The Low-Density Single Family Residential land use category is already the predominant land use throughout the Borough; this Master Plan recommends this land use continue as the preferred residential land use.

### ***Two-Family Residential Areas (RB District)***

The Two-family Residential land use category on the Proposed Land Use Plan map corresponds to those areas of the Borough recommended for placement within the RB Residential District. The intent and purpose of the RB Residential District is to provide a balance of housing stock within the Borough of Keyport and provide a transitional buffer from the more intense uses found in higher density residential uses, as well as commercial uses of the Downtown/Waterfront area. By placing areas within this land use category on the Proposed Land Use Plan map, the Land Use Plan reiterates this intent as an objective of the Land Use Plan with respect to Moderate Density Residential areas.

## LAND USE PLAN ELEMENT

It is recommended that the areas of the Borough currently located within the RB zoning districts retain their current zoning designation. As RB Residential Areas are located adjacent to the southern and eastern portions of the Downtown/Waterfront Core, the Land Use Plan recommends continuing to permit two-family dwellings. The Borough should explore strategies of identifying absentee landlords from the RB and other Districts and holding them accountable in the maintenance of properties to both habitable and aesthetic standards.

### *Multi-Family Residential (RC District)*

The Multi-Family Residential land use category on the Proposed Land Use Plan map corresponds to those areas of the Borough recommended for multi-family residential development. It is recommended that the RC Zone, located in several portions of the Borough but predominantly in the southeastern portion, be provided with a defined density and updated building standards to better reflect the existing multi-family developments found in this district. Currently the Borough Zoning Ordinance has no building standard for multi-family development (three dwellings or more) despite all existing uses of the RC District being multi-family in nature. This Land Use Plan recommends the development of design standards in the RC District to reflect the existing multi-family land use.

### **Commercial**

The Land Use Plan recommends maintaining and enhancing existing business and commercial districts within the Borough and to strengthen the Borough's economy. The Land Use Plan recognizes that it is vital for some of the commercial districts to permit a mixed-use of residential development with commercial activity, e.g. apartments over stores or offices, and low-rise apartment buildings. In other instances, residential uses should be restricted from commercial districts, as discussed below with respect to the commercial land use categories outlined below.

The following sections describe the various recommended commercial land use categories and the intent and purpose of each district. Also discussed are changes to and/or departures from existing land use controls currently in effect within the Borough, and include general guidelines for commercial land use.

### *General Commercial*

The General Commercial land use is the predominant land use found in the Borough's Downtown/Waterfront District and is the historic commercial core of the Borough. The zone is located predominantly along Front Street between Beers Street and Church Street and along Broad Street between 3<sup>rd</sup> Street and 1<sup>st</sup> Street/Waterfront Promenade. This district is the heart of the Borough's commercial, retail, and entertainment venues. As such, the need for adequate parking to support customers is critical. The district is also home to the Borough Hall, Police Station, Keyport Library, and other administrative and municipal services.

Examples of general commercial uses permitted in the General Commercial District (GCD) include: banks and financial institutions, variety shops, clothing stores, furniture stores, bicycle shops, fish and meat markets, supermarkets, bakeries, restaurants, and taverns. For a complete list of permitted uses please review the Borough Code Chapter 25:1-9.1.

The GCD is currently located along minor arterials or collectors. In many instances, off-street parking and loading is limited because commercial land development patterns in the GCD occurred prior to the adoption of modern design standards which require off-street parking and loading for new commercial development. As a result, much of the parking and deliveries occur within public streets and patrons can utilize on-street parking or free municipal lots located in the interior of the block south of West Front Street, between Broad and Main Streets (Block 61, Lot 4), and various lots along American Legion Drive (Block 21, Lot 20; and Block 21.01, Lots 24 and 49).

## LAND USE PLAN ELEMENT

Commercial and mixed-use commercial/residential development (at appropriate densities) is encouraged in the GCD. To the degree possible, new development should provide on-site parking. The creation of on-site parking provides benefits to the Borough in the form of additional parking capacity which helps reduce traffic congestion, and other benefits.

The Borough has defined specific goals and objectives for mixed-use development in the GCD. See Goal 6 and associated objectives. A key parameter was that the height of any new building should not exceed the elevation of the highest building in the Borough. Mixed-use densities which adhere to this boundary condition are acceptable.

The intent and purpose of the GCD, as stated above, is recognized as the commercial and business hub of the Borough and its commercial uses should continue to offer a variety of specialty shops, business establishments, restaurants, small offices, banks, and other retail uses. The Land Use subcommittee has reinforced the desire to see the current permitted uses continue in the Downtown Core.

The subcommittee also recommends the uses located on the north side of Front Street utilize the asset of the waterfront more effectively. Improving the rear facades and building additional business opportunities will improve the economic value of these properties. The Borough also recognizes the need to include a permitted mixed-use in the GCD, with clearly defined mixed-use standards as seen in the Borough 2004 Smart Growth Study. For a vibrant and sustainable downtown, the GCD should permit additional residential density that is in character with the surrounding land uses and the historic character of the Borough by limiting the maximum building roof elevation north of Front Street not to exceed the highest building along the northern street frontage. The building roof elevation for structures located along the southern frontage shall not exceed the northern elevation by more than ten feet, to preserve views of the Raritan Bay. With an increase to residents and visitors alike, the GCD will need to explore creative parking solutions to address the anticipated increase and demand for parking.

### *Neighborhood Commercial*

The Neighborhood Commercial land use category on the Proposed Land Use Plan map corresponds to those areas of the Borough recommended for placement within the NC Neighborhood Commercial District. The NC Neighborhood Commercial District will continue to provide low intensity “neighborhood shopping areas providing convenience goods and services for the immediate neighborhood.” By placing areas within this land use category on the Proposed Land Use Plan map, the Land Use Plan reiterates that statement as an objective of the Land Use Plan with respect to such areas.

The Neighborhood Commercial land use is primarily located in four locations throughout the Borough. These locations are surrounded by residential districts and primarily rely on pedestrian walk-in trade from surrounding neighborhoods. Permitted commercial uses include banks, barber shops/beauty parlors, book stores, drug stores, dry cleaning, restaurants or taverns, florists, food stores, laundromats, liquor stores, or other similar uses (for a complete list please reference Borough of Keyport Code 25:1-8.1, Permitted Principal uses). However, existing uses include but are not limited to restaurants, banks, and convenient stores.

Parking and loading for these commercial establishments occur primarily off-street and require minimum parking spaces and loading berths on site. Commercial uses that generate high volumes of automobile trips and require substantial amounts of parking should be discouraged in areas designated Neighborhood Commercial. The Land Use Plan recommends that areas designated Neighborhood Commercial continue providing or be developed with commercial uses that offer convenience goods and personal services to surrounding neighborhoods. The focus of the Neighborhood Commercial market should concentrate on the pedestrian trade

## LAND USE PLAN ELEMENT

and servicing the surrounding neighborhood. The Neighborhood Commercial zones should discourage land uses that provide no commercial service to the local neighborhood.

### *Highway Commercial*

The Highway Commercial land use category on the Proposed Land Use Plan map corresponds to those areas of the Borough recommended for placement within the HC Highway Commercial zoning districts. The Highway Commercial land use category is recommended for areas located along principal arterial roads (Routes 35 and 36) where there is a preponderance of highway-oriented commercial uses.

The intent and purpose of the HC Highway Commercial District is to provide for the development of regional uses which are appropriate along state highways. Further, in order to provide for the safe and efficient flow of traffic within and through this district, specific bulk requirements and design standards should also be established.

The HC Highway Commercial District is located on those properties that border the state highways running through the Borough, Routes 35 and 36. Presently, the HC district has an approved redevelopment plan. The Land Use subcommittee reaffirms the goals and objectives of this redevelopment plan to drive commercial development in the district. It is recommended that the boundaries of the HC district be redefined along Route 36 to be a full block deep between Atlantic and Main Street. This will incorporate more developable land along the highway corridors and provide a better utilization of the properties for commercial development. The subcommittee also feels, due to the prime location along major regional highways, the area has the potential for residential mixed-use. The permitted mixed-use should have delineated design standards. It was also recommended that the areas located south of Route 36 are appropriate for high-density, mid- and high-rise residential uses. The mid- and high-rise residential uses should have clearly defined use, density, and zoning schedule. The high-rise uses should not exceed the standards of the existing high-rise residence at Bethany Manor, located at 500 Broad Street. The permitted mixed-use should also have defined design standards.

### *General Marine Commercial*

The General Marine Commercial land use category on the Proposed Land Use Plan map corresponds to those areas of the Borough recommended for placement within the General Marine Commercial (GMC) zoning districts. The General Marine Commercial land use category is recommended for areas located along Matawan Creek, north of Route 35 up to the Luppatawong Creek, including the properties known as the Brown's Point Marina, Seaboard Marina, Pederson's Marina, and Keyport Marine Basin.

The intent and purpose of the General Marine Commercial District (GMC) is to provide for the development of a marine-based economy, reflective of Keyport's strong maritime history and ties. It is recommended that the permitted uses of this district be restricted to those related to marina operations and services, water-based recreation, and similar appropriate uses. The General Marine Commercial District (GMC) should permit conditional uses that encourage marine-oriented retail, bars and restaurants with entertainment.

The Land Use Plan subcommittee recommends the expansion of the GMC General Marine Commercial district to include all waterfront lands from its current western terminus at Route 35, up to Pedersen's Marina, the existing eastern terminus of the district. It is recommended that an analysis be prepared to evaluate the feasibility of implementing an overlay district that would allow for residential use in the portions of the GMC district that are located outside of the Special Flood Hazard Area (SFHA).

It is important to note the existing marine-commercial use, Olsen Boat Works, located on East Front Street, is a non-conforming use within the RA zoning district. While it is a goal of this Master Plan to preserve existing

## LAND USE PLAN ELEMENT

marine commercial uses, the Land Use Subcommittee felt the presence of this property within the RA District would not support the Land Use Goal of preserving existing residential neighborhoods. The Subcommittee acknowledges the historic and grandfathered use of the property, but recommends the property remain in the RA District. Should the property be redeveloped, it should be done so according to its intended residential land use.

### **Industrial**

The Land Use Plan recommends maintaining and enhancing existing industrial districts and encouraging the redevelopment of vacant and underutilized industrial lands. The Land Use Plan recommends the continuation of clean manufacturing, warehousing, and distribution operations in the industrial areas of the Borough.

The Industrial (ID) land use category corresponds to those areas of the Borough recommended for placement within the Industrial (ID) district. The Industrial District is ideally placed to provide for more intense industrial uses, due to their proximity to arterial roadways that can handle a heavier traffic flow, and their relative orientation away from residential areas, which helps mitigate potential adverse off-site impacts. Developers are encouraged to assemble smaller vacant and underutilized industrial sites for development into one site on which a larger industrial facility with one or multiple users is located.

The Proposed Land Use Plan map designates two large areas in the far southwesterly portion of the Borough within the Industrial (ID) district, located west of Beers Street and south of Francis Street. This area contains various industrial uses with a preponderance of warehousing and distribution facilities and is currently located within the Industry (ID) District. Light Industrial uses along Perry Street help shield the intense uses found in this district from the residential areas found on Beers Street. The Henry Hudson Trail and Saint Joseph Cemetery protect the residential areas found north of the Industrial district.

One of the objectives of the Land Use Plan is to strengthen the Borough's economic base by encouraging additional industrial uses to be developed within Keyport. With this industrial expansion, Borough residents will have an improved opportunity for local employment.

Effort should be made to encourage the adaptive reuse or redevelopment of older commercial and/or industrial sites as multi-tenant commercial uses or light industrial uses (e.g., research and development, computer software, electronics and other high tech industrial uses that require relatively small amounts of floor space), where appropriate.

The Borough's Ordinance should be updated to add additional permitted uses that are of a lesser intensity than light industrial uses in its industrial zones. The ordinance update should be designed to ensure that any new principal uses permitted would be compatible with surrounding land uses.

### ***Light Industrial***

The Light Industrial land use category on the Proposed Land Use Plan map corresponds to those areas of the Borough recommended for placement within the Light Industrial (LID) zoning district. The intent of the LID district is similar to the Industrial (ID) district to provide for a less intense industrial space that does not encourage heavy traffic, excessive noise, or pollution. By placing areas within this land use category, the Land Use Plan reiterates that statement as an objective of the Land Use Plan with respect to Light Industrial areas.

Due to the proximity of the LID uses to residential areas, these lands should ideally be developed with adequate buffering, landscaping, and professional architectural design so as not to detract from the residential areas.

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Likewise, industrial uses with moderate traffic generation should be encouraged in this area and high-traffic generating uses should be prohibited from these areas.

The LID areas are located nearest the general Industrial land use district and help buffer the local residential areas from the more intense uses found on the Industrial district.

### **Other Land Use Categories**

#### ***Park/Recreation/Open Space Conservation***

The Land Use Plan proposes to retain all existing open spaces, park, and recreational areas of the Borough. The Park/Recreation/Open Space Conservation land use category on the Proposed Land Use Plan map encompasses the Borough's parks, recreation facilities, and open space conservation lands. The largest such area is the Keyport Waterfront Park located north of the businesses in the GC District. Other significant areas include Cedar Street Park, Beach Park, Terry Park and the Municipal Boat Ramp, and the County owned Rails-to-Trails Park, the Henry Hudson Trail. The Borough also has active recreation facilities administered by the Keyport Public School system.

#### ***Private Open Space/Cemetery***

This land use category corresponds to those areas within the Borough occupied by cemeteries. The Borough has two cemeteries; Saint Joseph's Cemetery in the southwest portion of the Borough and Green Grove Cemetery in the western portion of the Borough.

#### ***Public/Quasi-Public Land Uses***

The Land Use Plan acknowledges that public and quasi-public land uses (e.g., public parking, schools, governmental offices, cemeteries, places of worship, etc.) are important community assets and recommends that such facilities continue to serve the Keyport community.

The Land Use Plan recommends that any expansion of existing public and quasi-public uses and the construction of any new public and quasi-public uses be compatible with surrounding neighborhoods in terms of intensity of use, scale, proportion, and the provision of adequate off-street parking. Public and quasi-public uses should blend in with the neighborhoods they serve and not become dominant features that alter the character of the neighborhoods. Sensitivity to the needs for transitioning and buffering adjacent to neighboring land use should enhance compatibility of otherwise conflicting land uses.

It must be acknowledged, however, that public and quasi-public uses, while necessary and important for a successful community, should be carefully analyzed to determine their overall fiscal impacts on taxes.

Figure 4.3: Proposed Land Use Map

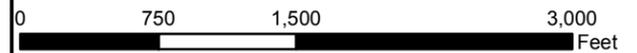
**Borough of Keyport  
Monmouth County, N.J.**

**Legend**

-  Keyport's Redevelopment Plans
-  Keyport
-  Single-Family Residential
-  Two-Family Residential
-  Multi-Family Residential
-  Highway Commercial-Mixed Use
-  Planned Unit Residential
-  General Waterfront Commercial\*
-  General Commercial\*
-  Highway Commercial\*
-  Neighborhood Commercial
-  General Marine Commercial
-  Industrial
-  Light Industrial
-  Parks & Open Space
-  Cemetery
-  Public
-  Quasi Public
-  Vacant

1. Brown's Point Redevelopment Plan
2. Longview-Boatworks Redevelopment Plan
3. Aeromarine Redevelopment Plan
4. Highway-Commercial Redevelopment Plan

\*Permitted Mixed-Use



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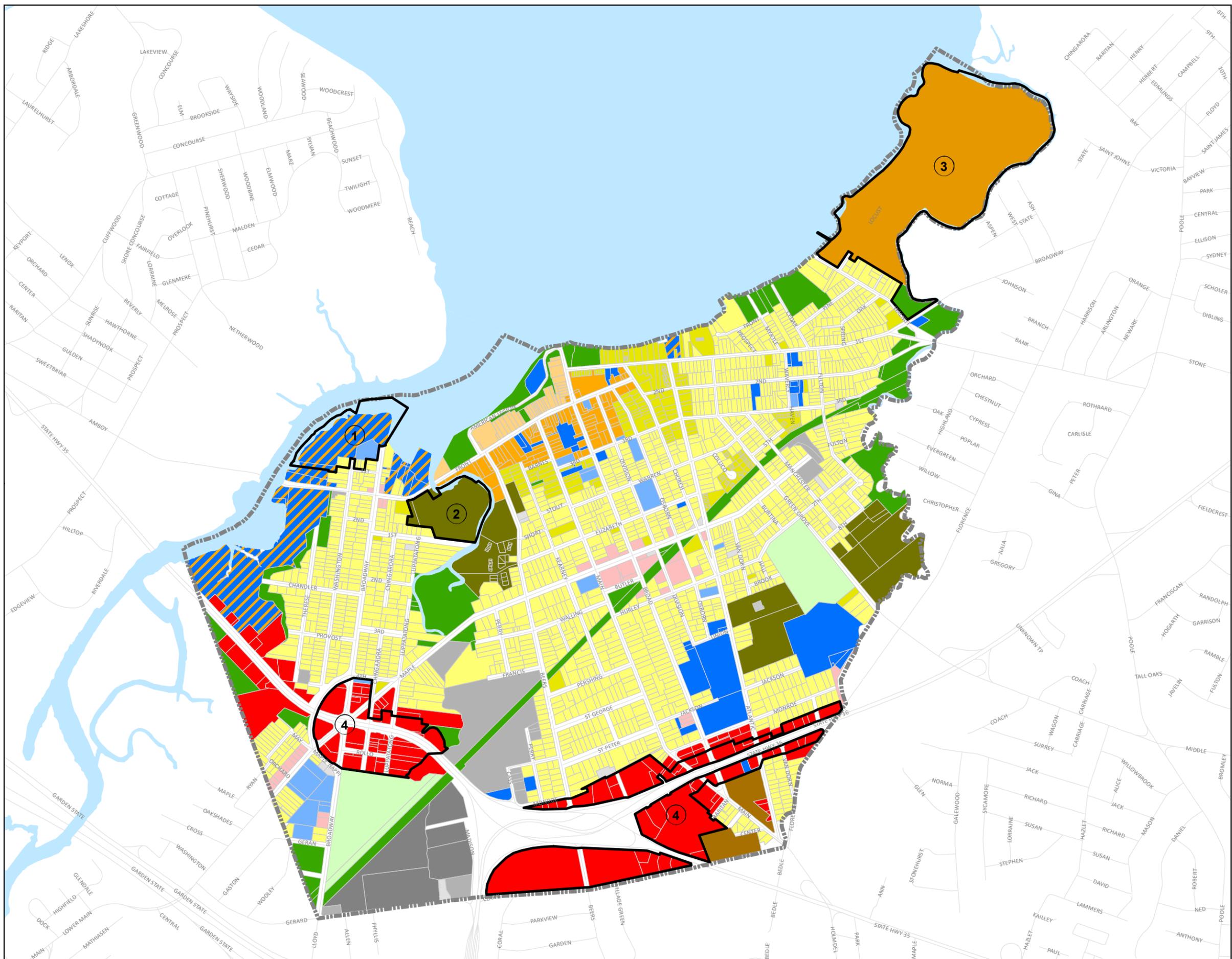
442 State Route 35, 2nd Floor  
Eatontown, New Jersey 07724  
WBE/DBE/SBE

Tel: 973-240-1800  
Fax: 973-240-1818  
www.matrixneworld.com

PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:11,924	DATE: 2/28/2017
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SOURCES: NJDEP GIS Data, NJGIN GIS Data, Monmouth County GIS Data

State Plane Coordinates:  
NAD\_1983\_StatePlane\_New\_Jersey\_FIPS\_2900\_Feet



# LAND USE PLAN ELEMENT

## RELATIONSHIP OF THE LAND USE PLAN TO OTHER MASTER PLAN ELEMENTS

The Land Use Plan has been prepared in accordance with the Goals and Objectives of the Borough of Keyport Master Plan. The recommendations presented in the preceding sections of this Plan, and those presented below, are designed to promote the Vision, Goals, and Objectives of this Master Plan. In addition, this Land Use Plan is consistent with all of the other elements of this Master Plan.

The Land Use Plan has also taken into account the natural conditions of the Borough utilizing the 2007 Natural Resource Inventory (NRI) prepared for the Borough in 2007, by CME Associates, and adopted by Keyport Mayor and Council as part of the previous Master Plan on February 19, 2008. The Land Use Plan has taken into account the Borough's topography, soil conditions, water supply, drainage, flood plain areas, marshes, and woodlands and other natural resources and conditions that influence development and land use. The 2007 NRI remains an important component of this Master Plan and is hereby incorporated into this Master Plan by reference.

## GENERAL LAND USE AND ZONING RECOMMENDATIONS

The land uses specified in the Proposed Land Use Plan map are intended to guide development and redevelopment in Keyport in accordance with the overall Vision and Goals of the Master Plan. In fact, the Land Use Plan is the link between the Borough of Keyport's planning vision and goals and the transformation of that vision into reality. The following list of Land Use Goals and Objectives provides a measurable metric for the Borough to utilize:

- 1. The Borough's Zoning Map and Zoning Ordinance should be revised to reflect the recommendations set forth within this Land Use Plan Element. This includes reflecting the Borough's Redevelopment Areas and incorporating the recommendations of the Proposed Land Use Plan Map section discussed above.**
- 2. Preserve and protect the hometown feel and ambience of Keyport, a Bayfront community with an attractive nautical focus, historic buildings, and a waterfront largely accessible by residents and visitors. The strategy for achieving this goal is to accomplish the following objectives:**
  - a. Ensure new major developments (as defined in N.J.A.C. 7:8) support Keyport's nautical focus, historic buildings, and a waterfront largely accessible by residents and visitors.
  - b. Provide for public access for the enjoyment of nature and the environment in new major developments (as defined in N.J.A.C. 7:8) in areas north of First Street and Front Streets.
  - c. Preserve existing stream corridors, wetlands, coastline, and environmentally sensitive areas and minimize negative impacts to those areas from new developments.
  - d. Retain all existing parks and open spaces and work with the County to locate a major park on the landfill portion of the Aeromarine site.
  - e. Identify and protect the historic locations and facades within the Borough to preserve the heritage of the community.
- 3. Preserve and protect existing and established residential neighborhoods (1989 Master Plan). Retain, protect, and enhance residential amenities of existing residential neighborhoods and provide for renovation/maintenance of healthy neighborhoods (2012 Re-examination Report). The strategy for achieving this goal is to accomplish the following objectives:**
  - a. Protect residential neighborhoods by strict enforcement of the zoning codes which don't allow mid-rise and high-rise buildings in low-density residential districts and developing programs (e.g. tax incentives, volunteers, grants) that support/promote renovation and maintenance of existing homes.

## LAND USE PLAN ELEMENT

- b. Reinstitute 50-foot front yard widths and 5,000 square foot lot sizes for the RA District as a standard rather than a grandfathered criterion.
  - c. Define density and building standards for the RC District reflecting the present multi-family (greater than three-family) developments in this district. See 1972 Zoning Chapter 25 RC District multifamily specifications (on pages 1813 to 1815) for criteria to be defined.
  - d. Require high-density developments (greater than RC District densities on buildable land) to mitigate their impact on existing Borough utilities and to locate them in close proximity to the State Highways, where possible.
  - e. Rezone for only residential use permitted on First Street between Broad and Atlantic, part of a historic district, to reflect the 12 new townhouse development and the many historic homes in the area.
- 4. Continue a public-private partnership to enhance and expand the marine and commercial waterfront economic base in balance with public access (1989 Master Plan). To preserve the maritime focus of the Borough and define a marine district exclusively for marinas, boat yards, and other marine-related uses and to expand public access for recreational enjoyment of the bay. The strategy for achieving this goal is to accomplish the following objectives:**
- a. Separate the zoning requirements for the General Marine Commercial (GMC) District from the combined General Commercial (GC) and GMC specifications. Define permitted uses in the GMC District as only those related to the marina operations and services, recreation, and similar appropriate uses.
  - b. Develop a committee/define a KBBC goal to identify and recruit potential marina and waterfront activity business operators/owners.
  - c. In alignment with the expansion of the Brown's Point Marina dock area to the end of Broadway on Block 20 Lot 6.01, extend the boundary of the western GMC district to join/abut the GMC District where the Pedersen Marina is located. Evaluate the feasibility of implementing a residential overlay for uplands portions of the GMC district not encumbered by environmentally sensitive areas or the SFHA.
- 5. Secure the future of Keyport against economic setbacks by taking aggressive steps to ensure community resilience in the face of severe storm flood risk and sea level rise projections through 2050. The strategy for achieving this goal is to accomplish the following objectives:**
- a. Limit residential densities in areas with ground elevation below the BFE +1 foot to low density (less than 7 units/acre of buildable land) or employ appropriate engineering controls.
  - b. Require review by the Borough engineer and certification by a professional engineer of the design of bulkheads and retaining walls to withstand wave action when they are located in or define the boundary of a SFHA.
  - c. Update the Flood Damage Prevention Ordinance to require an elevation of BFE plus 3 feet for mechanical equipment and the lowest floor joist of a new building or required rebuild (based on the 55% damage due to flooding criteria) that is located in SFHA VE and AE zones to deal with sea-level rise over the life of the building.
  - d. Expediently implement the recommendations set forth within the [5. COMMUNITY RESILIENCE PLAN ELEMENT](#) of this Master Plan.
- 6. Increase the economic value of the General Commercial (GC) District by orienting buildings and Uses to take advantage of the water view and waterfront, one of the districts greatest assets. The strategy for achieving this goal is to accomplish the following objectives:**

## LAND USE PLAN ELEMENT

- a. Add mixed-use to the permitted uses in the GC district with clearly defined mixed-use design standards that promote a walkable downtown (see 2004 Smart Growth proposed mixed-use development standards).
  - b. Create a special General Commercial Waterfront District (GCWD) for the area north of West Front Street between Broad and Luppataong Creek. For this area focus on uses, design standards, and orientation of buildings that take advantage of the waterfront while limiting the maximum building roof elevation to that presently existing in the GC District.
  - c. Utilize Borough owned properties along American Legion Drive (Post Office building, Keyport Steamboat Dock site, and Borough land abutting American Legion Drive) to stimulate the development of the new GCWD.
- 7. Increase the economic value of the Highway Commercial (HC) District by building on its many assets: easy access to the State Highways, regional bus and train service, and convenient shopping and restaurants services. The strategy for achieving this goal is to accomplish the following objectives:**
- a. Add mixed-use to permitted uses in the HC District with delineated design standards for this mixed-use.
  - b. Permit high-density high-rise buildings on property located on the south side of Route 36 with defined use, density, and zoning schedule standards for the area that match the high-rise buildings already present in the area between Routes 35 and 36.
  - c. Redefine the boundaries of the Highway Commercial (HC) District along Route 36 to be a full block deep between Atlantic and Main Street to incorporate more developable acreage along the highway corridors for better utilization of these properties for commercial development.
- 8. Maintain the Neighborhood Commercial (NC) Districts, which are in four locations completely surrounded by residential districts, as low intensity “neighborhood shopping areas providing convenience goods and services for the immediate neighborhood” (1989 MP). The strategy for achieving this goal is to accomplish the following objectives:**
- a. Maintain the permitted uses in this district as those consistent with the defined intent of low impact services for the surrounding residential neighborhood.
  - b. Relocate the Post Office service from its valuable waterfront location in the GC District to a more centralized location where it would conveniently serve the whole Borough.
- 9. Promote development of the Aeromarine site. The strategy for achieving this goal is to accomplish the following objectives:**
- a. Rezone Aeromarine as a Waterfront Planned Residential District (WPRD) with the permitted density of this non-highway SFHA site restricted to RC district density, as calculated for buildable land outside the landfill and environmentally sensitive areas. Limited retail and restaurant uses are also proposed to be located on the Aeromarine site as a mixed-use component of the WPRD.
  - b. Require traffic circulation/access independent of Walnut Street via a direct roadway link to First Street.
  - c. Define zoning standards (height, setbacks, and density) that are sensitive to the general welfare and in harmony with the abutting residential RA district homes on Walnut Street.
  - d. Cluster residential units to maximize the amount of open space at the site.
  - e. Include open space, park land, and beach front access for use by all Borough residents and visitors in the development of the Aeromarine site.

## LAND USE PLAN ELEMENT

### Additional Recommendations

1. Encourage the remediation of brownfield properties to promote good water and air quality, and to put those properties that have been abandoned back into productive reuse.
2. Encourage the establishment of outdoor dining areas in in the GC and GMC Districts.
3. Establish shared parking standards for certain land use combinations in zone districts that permit a variety of land uses.
4. Establish limits on maximum height of accessory buildings (16' to roof ridge), as recommended in the 2012 Master Plan Re-examination Report.
5. Improve streetscapes in the Borough, beginning with the streetscapes in the business districts and near the waterfront.
6. Explore the construction of a parking structure, or other solutions, to serve the commercial district.
7. Encourage the growth of residential units in accordance with this Land Use Plan to support all commercial districts in the Borough.
8. Use rehabilitation and redevelopment to encourage and incentivize returning vacant and abandoned properties to productive use.
9. The design standards being prepared under the PSPAG scope of work should include the establishment of standards that:
  - a. Promote Resilience.
  - b. Maintain the historic character of the Borough.

# COMMUNITY RESILIENCE PLAN ELEMENT

## 5. COMMUNITY RESILIENCE PLAN ELEMENT

### INTRODUCTION

Community Resilience focuses on the ability of a municipality or county to deal with extreme hazards such as hurricanes, flooding, tornados, etc. The term “Resilience” refers to the ability to adapt to changing conditions and withstand and recover from disasters. A Resilient Community is prepared to prevent or minimize the loss or damage of life and property during a disaster and to swiftly restore essential services needed for recovery.

Changes in federal regulations, such as Base Flood Elevation (BFE) as well as an evolving national discussion on how to match Resilience with urban design, will almost certainly impact the look and feel of new development in Keyport. Raising habitable space in buildings, the potential for bulkheads, and even changes to the grade of the land all need to be addressed in a way that will ensure that residents and business owners of the Borough are safe and buildings and infrastructure are resistant to natural storm threats and sea level rise but at the same time retain the pedestrian scale, active street life, waterfront accessibility, and scenic views.

This Community Resilience Element provides guidance on obtaining protection against these documented hazards for the Borough and recommends appropriate measures such as new design standards for structures (homes, sheds, etc.), special zoning requirements such as guidelines for ground elevation, densities, etc., and processes for dealing with the impact of these hazards to minimize property damage and loss of life.

### KEY HIGHLIGHTS

The Community Resilience Element identifies four Risks and Vulnerabilities facing Keyport. The Borough will need to address Resilience to Flood, Precipitation, Extreme Wind, and Climate Change.

Keyport is susceptible to coastal flooding as identified by the Monmouth County Hazard Mitigation Plan. Nor’easters, Hurricanes, and Tropical Storms regularly impact Keyport; Nor’easters can occur several times a year and a named storm can impact once every 4 to 5.5 years. These storms bring with them intense winds, heavy precipitation, storm surges, and intense wave action. Several recommendations are made in the Community Resilience Plan Element to address flooding Resilience and can be reviewed in the Goals & Objectives section of the Element. Some notable recommendations include limiting the development potential of areas prone to flood hazard. establishing building and design standards for any structure built in the special flood hazard area (SFHA), and providing flood-protecting infrastructure and elevating those areas susceptible to flooding.

Hazards such as nor’easters and hurricanes do not only pose a flooding threat, but also heavy precipitation which may cause localized flooding in areas that may not be in a SFHA. The Community Resilience Plan references the need for the Borough to address stormwater management issues. Other strategies can be found in the *Precipitation Resilience* section, as well as the Green Building and Sustainability Element.

Nor’easters and Winter Storms also pose a snow and ice accumulation threat. Some notable recommendations include examining the Borough’s ability to respond and recover from winter storms as soon as possible. Building codes and standards should be examined and updated to ensure structures in Keyport can adequately handle snow and ice loads.

Keyport is also susceptible to extreme winds. These extreme winds can come from weather events, such as those described above, from straight line winds, or from tornados. It is recommended the Borough pursue

## COMMUNITY RESILIENCE PLAN ELEMENT

building standards and code that ensures structures can resist extreme wind. Encouraging wood-framed construction is also recommended as this construction method is most resilient to extreme winds.

Resilience to Climate Change is also discussed. Being a coastal community, Keyport is especially vulnerable to sea level rise and coastal erosion. Keyport will experience at least 0.7 foot rise in sea level by 2050, and 2 feet by 2100. This is the lowest case scenario in sea level rise, and Keyport may experience an even greater rise. Freeboard requirements on structures are recommended. This requirement allows new structures to already be designed for the higher sea levels, and gains the added benefit of additional protection from flood events that exceed the base flood elevations. For those shorelines not protected by marshes or hard surfaces such as bulkheads, they are vulnerable to coastal erosion. To protect this shoreline, the Community Resilience Element recommends the Borough pursue opportunities for additional shoreline protection projects. Such projects should favor soft, “natural” designs over harder, “man-made” designs. Soft-design solutions can include Living Breakwaters and Shorelines, where appropriate.

The Utility and Community Facilities Elements were included in this Element. The Water Distribution Plan, Wastewater Management Plan, and Stormwater Management Plan were analyzed to ensure the existing infrastructure and supply of utilities are adequate to support the anticipated growth of the Borough. Resilience recommendations are also provided to make sure the systems can withstand the anticipated hazards, as described in the *Risks and Vulnerabilities* section.

Important Community Facilities were inventoried, including schools, first-responders, municipal administration, houses of worship, and other facilities that help create and sustain a sense of community in the Borough. Of this inventory, certain facilities, which includes utility infrastructure, were selected as critical to maintain both before and after disasters. These facilities, identified in the *Critical Facilities*, were analyzed to determine their vulnerability to flooding and climate change. For impacted facilities, please see the *Critical Facilities* section.

Existing Emergency Shelters and Routes were identified in Keyport, as confirmed by Keyport’s Office of Emergency Management. For the location of shelters and routes, as well as an analysis of vulnerability to various inundation scenario’s, please see the section *Emergency Routes and Shelters* section. It is recommended that the Borough use this analysis and figures in identifying the best possible evacuation routes, for various storm scenarios.

The Community Resilience Element recommends implementing the goals and objectives from previously prepared studies and reports, the *2009 Monmouth County Hazard Mitigation Plan*, *2014 Strategic Recovery Planning Report* and the *Getting to Resilience Report*. In addition, the Community Resilience Report Element. The Community Resilience Plan Element’s Subcommittee also identified five additional goals:

- Goal 1 - Reduce the exposure of human life and public and private property to the threat posed by severe storms.
- Goal 2 - Secure the future of Keyport against economic setbacks by taking aggressive steps to ensure community resilience.
- Goal 3 -Take steps to ensure that Keyport continues as a Bayfront community not prone to extensive damage due to severe storms now and in the future.
- Goal 4 - Improve emergency preparedness Borough-wide.
- Goal 5: Create a socially resilient community.

Please see the Goals & Objectives section for more detailed descriptions and additional recommendations.

# COMMUNITY RESILIENCE PLAN ELEMENT

## SUPERSTORM SANDY

On October 29, 2012, Superstorm Sandy made landfall in Atlantic County as a post-tropical storm in Brigantine City. Sandy was the costliest natural disaster ever in New Jersey. Record breaking high tides and wave action combined with sustained winds up to 60 to 70 mph with gusts as high as 80 to 90 mph battered Keyport.

Neighboring communities on Raritan Bay, Union Beach, and Sea Bright, were among the hardest hit locations. The New Jersey Transit North Jersey Coast line had to be rebuilt because it was severely damaged.

In Keyport Superstorm Sandy resulted in over 26 percent of the Borough's land area being inundated by flooding. Despite most of the downtown commercial district and residences being located on higher ground, several landmarks and historic structures were adversely impacted. For example, Keyport Steamboat Dock Museum and Ye Cottage Inn restaurant, which opened in 1906, were both among the commercial buildings damaged beyond repair. In addition, 38 businesses and numerous residences reported significant impacts. The financial impacts of Sandy were severe, with over \$10.5 million in obligated disaster funding and almost \$6 million in lost tax ratables. Detailed information about the impacts the Borough suffered from Sandy are set forth within the 2014 Strategic Recovery Planning Report (SRPR) prepared by Maser Consulting, P.A.

In response to Superstorm Sandy the State established the Post-Sandy Planning Assistance Grant to support planning for community redevelopment in the municipalities and counties sustaining damage. A requirement for receiving a grant under this program is to include a Community Resilience Element in the update to the Master Plan. Its purpose is to analyze salient community Resilience issues and provide strategies, recommendations, and policies to improve Resilience to future storm events.

It is important to note that a Community Vulnerability Assessment and Hazard Mitigation Plan is being prepared under separate cover. These supplementary documents contain more detailed information regarding hazard mitigation projects and vulnerability.

## A. RISKS AND VULNERABILITIES

The Monmouth County Hazard Mitigation Plan (MCHMP) provides a list of high and medium hazards that have the potential to impact Keyport. Ratings were assigned based on several factors, including vulnerable populations, building exposure, and calculated annualized losses when available. Each unique hazard identified by the MCHMP provides a common set of risks posed to Keyport whose resilience can be addressed in four categories:

- Flooding
- Wind
- Precipitation
- Climate Change

An outline of the various risks and vulnerabilities, which this Master Plan aims to address, is provided below, emphasizing the relationship between natural hazard issues on a large scale and the vulnerability of coastal municipalities and populations. The hazards and their descriptions are as follows:

## FLOOD RESILIENCE

The following hazards were identified by the MCHMP as posing a flood risk on Keyport, with a need to address the Borough's flood Resilience.

## COMMUNITY RESILIENCE PLAN ELEMENT

### ***Nor'easter***

Nor'easters, like tropical storms, threaten the entire Atlantic Coast, including Keyport. These storms can be large and their duration can last for days and through multiple tidal cycles, compounding their impact.

Impacts from Nor'easters are primarily characterized by high winds, severe beach erosion and flood hazards (riverine and coastal flooding, storm surge). These storms are often quite similar to winter storms with significant snow accumulations, with the potential to damage structures, create hazardous driving conditions, closures, etc. For a complete description, please see the Winter Storm section below. Nor'easters tend to have the greatest impact on coastal communities like Keyport.

One of the worst Nor'easters to hit Keyport in recent history is the December 1992 storm. The storm caused extreme coastal flooding and beach erosion. Tide heights ranged from nine to 10 feet above mean low water, which was measured as 7 to 8 feet above normal. The storm resulted in destruction of public property including debris covered roadways, beach erosion, collapsed public facilities, boardwalks, and damage to storm drainage facilities. Private properties were also pummeled by the storm; some of these properties were rendered uninhabitable. Since then, based upon information provided by the Borough's Community Resilience Master Plan Subcommittee, less than six nor'easters have impacted Keyport.

In some storms there has been a need for evacuation and shelters in Keyport, as well as emergency response for those who shelter in place or sustain injury during the storm. Roads, bridges, schools, hospitals, and other types of critical facilities are susceptible to extreme wind conditions and potential water damage. Secondary impact would include flying debris. These impacts would be exacerbated when coinciding with high tides, or during prolonged types of events that extend across several tidal cycles. Localized flooding may occur during extreme rainfall events, which can impact properties that are located outside of tidally influenced flood zones.

### *Probability of Occurrence*

Approximately 10 to 20 Nor'easters impact New Jersey per year and approximately 5 to 10 of those storms will have a significant impact on the State. Damaging Nor'easters will have a high probability of occurrence for Keyport. Coastal storms and severe weather events are expected to increase in the future due to climate change, including drastic changes in storm character, intensity, frequency, and storm tracking.

### ***Hurricane & Tropical Storm***

Keyport is located in a region of the country that is susceptible to all of the hazards wrought by hurricanes and tropical storms. Keyport is also susceptible to the additional forces of storm surge, wind/driven waves and tidal flooding, which can be more destructive than winds associated with hurricanes and tropical storms. Table 5.1 on the following page defines storm category and wind speed on the Saffir-Simpson Scale.

## COMMUNITY RESILIENCE PLAN ELEMENT

Table 5.1: Saffir-Simpson Scale		
Category of Storm	Wind Speed (mph)	Hurricane Rate of Return <sup>1</sup>
Tropical Depression	38 mph or less	4 - 5.5 years <sup>2</sup>
Tropical Storm	39-73 mph	
One	74-95 mph	18 - 19 years
Two	96-110 mph	
Three	111-129 mph	74 - 76 years
Four	130-156 mph	
Five	157 mph or greater	

Keyport has an active history of hurricanes and tropical storms. Between 1861 and 2015, NOAA reports 50 tropical storms (including hurricanes, tropical storms, and tropical depressions) tracked within 50 nautical miles of Keyport. The count of hurricanes and tropical storms includes the following:

- Two Category 1 hurricanes (Gloria -1985 and Unnamed -1893)
- 16 Tropical storms

The figure shown below, as excerpted from the Monmouth County Hazard Mitigation Plan, shows the track of each recorded historical storm in relation to Monmouth County. As is noted in the figure, almost all hurricane and tropical storm tracks traverse northward through the area. For each event, Table 5.2 provides the date of occurrence, storm name (if applicable), using the closest (as defined by the center of the storm) NOAA records of wind speeds and category of the storm based on the Saffir/Simpson Scale.

### *Probability of Occurrence*

Per NOAA statistical data, Monmouth County is in an area with an annual probability of a named storm between 18 and 24 percent. Monmouth County also has a 13.2 percent annual probability of having a tropical storm make landfall in the County, according to a recent study by Colorado State University's Dr. William Gray.



Image 1. Example of the impacts of a Tropical and Hurricane Storm.

<sup>1</sup> Based on the 1987 National Hurricane Center's Risk Analysis Program (HURISK), using data through 2010. Estimated return period are for major hurricanes passing within 50 nautical miles of various locations on the U.S. Coast.

<sup>2</sup> Based on NOAA's annual probability of a named storm impacting Monmouth County.

# COMMUNITY RESILIENCE PLAN ELEMENT

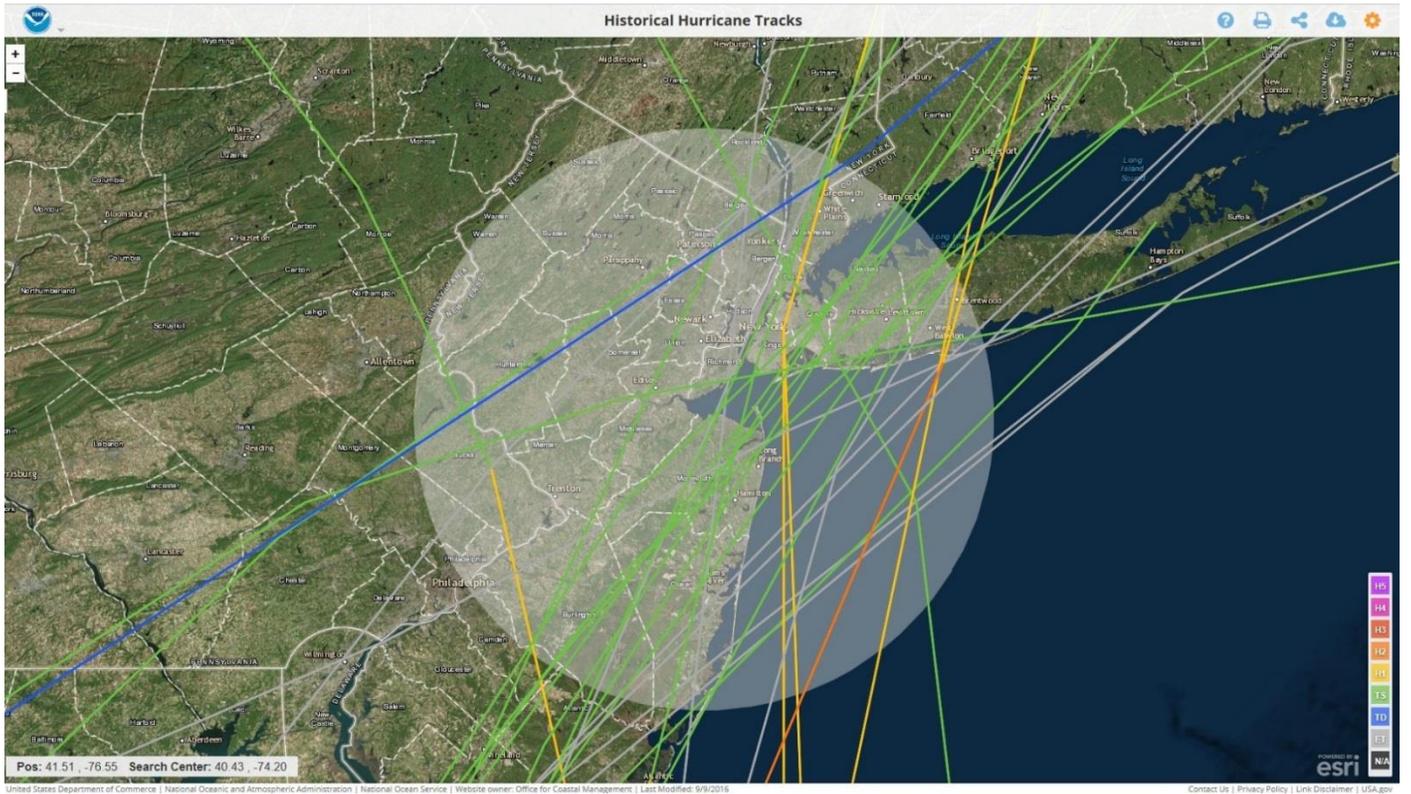


Figure 5.1. Historical Storm Tracks within 50 Nautical Miles of Keyport.

## COMMUNITY RESILIENCE PLAN ELEMENT

**Table 5.2: Historical Storm Tracks within 50 miles of Keyport (Since 1850)**

Date of Occurrence <sup>1</sup>	Storm Name	Recorded Wind Speed When Storms Center was Nearest Keyport (mph)	Storm Category
9/28/1861	Unnamed	69 (Delaware Bay)	Tropical Storm
9/19/1863	Unnamed	46 (Dutchess County, NY)	Tropical Storm
10/30/1866	Unnamed	58 (Rockland County, NY)	Extratropical Storm
10/26/1872	Unnamed	46 (Queens, NY)	Tropical Storm
09/30/1874	Unnamed	69 (Nassau Count, NY)	Tropical Storm
10/5/1877 <sup>2</sup>	Unnamed	69 (Off the southern coast of Suffolk County, NY)	Extratropical Storm
9/24/1882	Unnamed	46 (Off the southern coast of Suffolk County, NY)	Tropical Storm
9/12/1888	Unnamed	40 (Off the southern coast of Suffolk County, NY)	Extratropical Storm
8/24/1893 <sup>3</sup>	Unnamed	86 (Queens, NY)	Category 1 Hurricane
10/14/1900	Unnamed	40 (Off the coast of Monmouth County)	Extratropical Storm
9/16/1903	Unnamed	63 (Bucks County, PA)	Tropical Storm
8/4/1915	Unnamed	58 (Essex County)	Extratropical Storm
10/1/1924	Unnamed	63 (Berkshire County, MA)	Extratropical Storm
6/19/1934	Unnamed	46 (Off the coast of Monmouth County)	Extratropical Storm
9/19/1945	Unnamed	35 (Bucks County, PA)	Extratropical Storm
8/19/1955	Diane	46 (Somerset County)	Tropical Storm
7/30/1960	Brenda	52 (Atlantic County)	Tropical Storm
9/15/1961	Unnamed	40 (Nassau County, NY)	Tropical Storm
8/28/1971	Doria	52 (Westchester County, NY)	Tropical Storm
6/22/1972	Agnes	63 (Off the coast of Monmouth County)	Tropical Storm
8/10/1976	Belle	69 (Long Island Sound)	Tropical Storm
9/27/1985	Gloria	86 (Off the southern coast of Suffolk County, NY)	Category 1 Hurricane
8/30/1988	Chris	23 (Westchester County, NY)	Tropical Depression
7/13/1996	Bertha	69 (Southwestern Monmouth County)	Tropical Storm
9/17/1999	Floyd	58 (Nassau County, NY)	Tropical Storm
9/20/2000	Gordon	29 (Off the coast of Ocean County)	Extratropical Storm
9/6/2008	Hanna	52 (Ocean County)	Tropical Storm
8/28/2011	Irene	63 (Tinton Falls, Monmouth County)	Tropical Storm
10/29/2012	Sandy	70 (Atlantic County) <sup>4</sup>	Post/Tropical Storm

1. Date of Occurrence established using GMT.

2. On October 5, 1877, two storms that had followed separate tracks converged off the southern coast of Suffolk County, Long Island, NY, which is also the point nearest Keyport where wind speeds were taken. For this reason, they are noted in the table as one single storm.

3. The August 8, 1893 record in the table presents the same situation as described in note 2. Two storms converged and wind speed was taken at a point in Queens, NY, and are noted in the table as one storm.

4. Superstorm Sandy was not within 50 miles of Keyport.

# COMMUNITY RESILIENCE PLAN ELEMENT

## **Storm Surge**

Keyport is at risk from potential storm surge inundation as modeled and mapped by the U.S. Army Corps of Engineers (USACE). Storm surge arrives prior to a hurricane’s landfall. The greater the hurricane’s intensity, the sooner the surge arrives. Even areas not directly on the coast may experience flooding caused by storm surge inundation, as the inundation, in addition to extremely high tides, can affect the drainage of areas further inland. In addition, sea level rise will increase this impact over time.

As storm intensity increases, the areas that are impacted by storm surge also increases. The latest Sea, Lake, and Overland Surges from Hurricanes (SLOSH) models represent the worst case scenario for a given storm category (i.e., high tide initial water level is used). Table 5.3 shows the estimated number of parcels (by general land use) that would be inundated by storm surge, as a result of different category storms. Please review Figure 5.6 of the Critical Facilities section (Section D in this Element) which depicts potential storm surge inundation areas and potential storm surge impact in Keyport for Category 1 through 4 storms.

<b>TABLE 5.3: ANTICIPATED IMPACTS</b>				
	<b>Category 1</b>	<b>Category 2</b>	<b>Category 3</b>	<b>Category 4</b>
<b>Residential</b>	152	621	1,245	1,733
<b>Apartment</b>	7	14	20	24
<b>Commercial</b>	64	114	160	178
<b>Industrial</b>	4	4	5	6
<b>Public School</b>	1	4	8	10
<b>Public</b>	19	24	31	35
<b>Church and Charitable</b>	1	6	11	16
<b>Cemeteries and Graveyards</b>	2	3	3	3
<b>Other Exempt</b>	12	22	32	41
<b>Vacant Land</b>	28	46	66	75
<b>Total</b>	290	858	1,581	2,121

### *Probability of Occurrence*

Keyport faces a relatively low probability of major storm surge from named storms. As explained in the next section, the annual probability of a named storm making landfall in Monmouth County is 13 percent.

## **Wave Action**

Due to its proximity to Raritan Bay, Keyport is susceptible to wave action. The figures included in Appendix A within the August 8, 2016 letter from FEMA illustrate the wave action hazard zones for portions of Keyport based on FEMA 2015 Revised Preliminary FIRMs, mapped as Zone VE. Zone VE refers to coastal areas with a one percent or greater chance of flooding and an additional hazard associated with storm driven velocity waves of three feet or more. It is important to note, that the Zone VE areas refer to those areas experiencing intense wave action within the 100-year flood. Higher category storms would typically have more destructive waves, and may impact these areas that can support storm-driven waves of three feet or more even greater than anticipated.

### *Probability of Occurrence*

Wave action will continue to be a risk for Keyport properties and their impact will be reflective of the storm event and its strength and intensity.

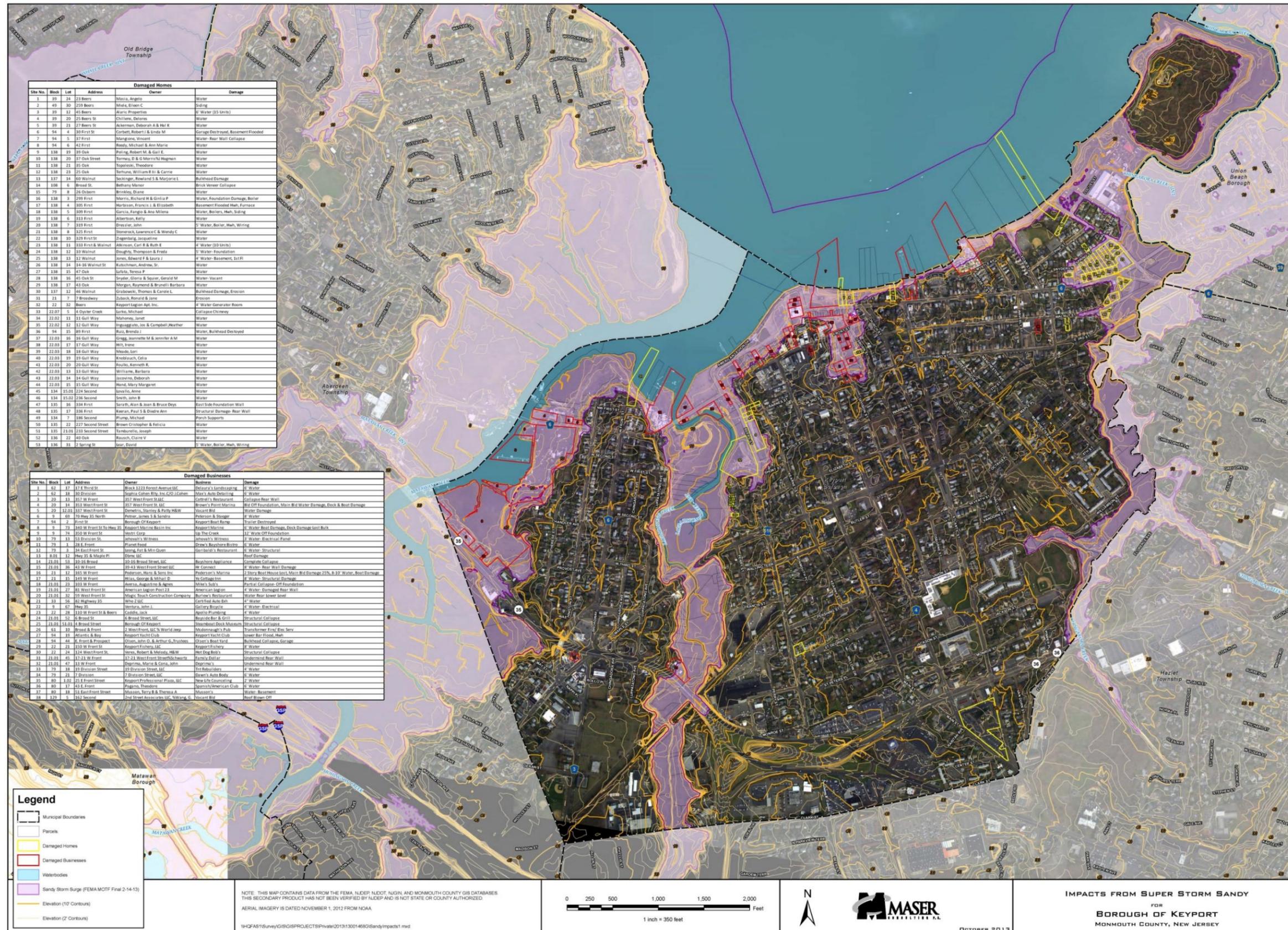


Figure 5.2 Storm Surge Impacts from Superstorm Sandy, as mapped by Maser Consulting, P.A.

# COMMUNITY RESILIENCE PLAN ELEMENT

## Recommendations for Flood Resilience

As demonstrated by the above sections, Keyport is subject to both riverine and coastal flooding by Nor'easter, Tropical, and Hurricane Storm events. Flood hazard area mapping and associated flood hazard risk designations are produced by FEMA. The common designations and their definitions are listed in Appendix B.

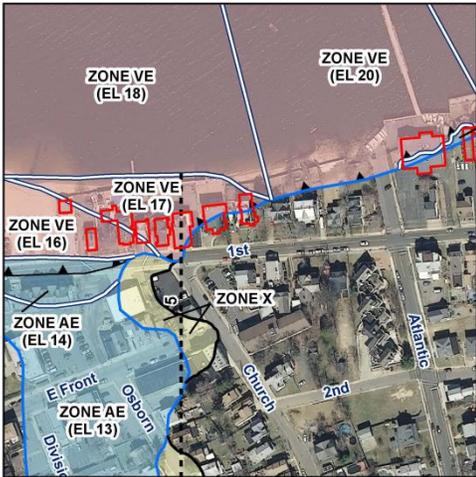


Image 2. Example of pre-appeal Zone VE designation

Over 26 percent of Keyport's land area is within the 100-year floodplain, also known as the Special Flood Hazard Area (SFHA). Figure 5.3 illustrates the location and extent of currently mapped special flood hazard areas for Keyport based on FEMA's 2015 Preliminary Digital Flood Insurance Rate Maps (DFIRMs). This includes Zones A/AE (100-year floodplain; 1% annual flood chance), Zone VE (100-year coastal flood zones, associated with wave action), and Zone X500 (500-year floodplain; 0.2% annual chance). Approximately 37% of the population, or 2,794 persons, were deemed vulnerable to flooding, while 7,059 persons were deemed vulnerable to storm surge (93 percent) with varying probability based on the intensity of the storm.

In 2016 New York City won an appeal of FEMA's proposed flood mapping that is likely to affect the flood mapping for the region, including Keyport Borough. One of the key aspects of the appeal was to contest data issued that resulted in higher required flood elevations. The

updated mapping being prepared by FEMA that will correct this data issue is anticipated to require lower flood elevations. The updated flood risk calculations and mapping being prepared by FEMA is anticipated to be implemented by 2021.

In addition, Keyport Borough appealed the FEMA flood maps for a portion of the Raritan Bay shoreline from Broad Street to Cedar Street in order to remove V-Zone designations from portions of the Borough. The appeal was successful and, in a letter dated August 8, 2016 FEMA confirmed that the V-Zone in this area has been changed to an AE Zone (See Appendix A). This change more accurately reflects the flood risk in these areas and will save property owners money via lower flood insurance premiums than would otherwise be required. Please note that the Figure 5.3 is the most recent FEMA PFIRM GIS data (published 01/30/2015), and does not reflect these flood zone changes, as the Maps shown on this page and in Appendix A depict these changes.

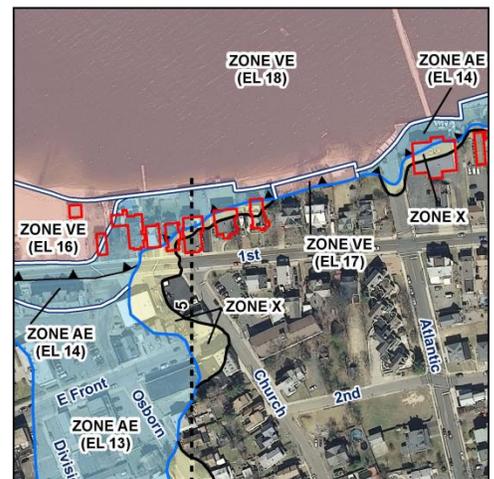


Image 3. Example of approved appeal, designating waterfront properties to Zone AE designation.

It is recommended that design standards for flood Resilience be prepared. The design standards should address items that include, but are not limited to, structural, freeboard, and site elevation requirements (where appropriate), building design, anchoring requirements, and shoreline protection methods.

The most effective way to ensure flood Resilience is to ensure new development is built above the base flood elevation (BFE), as defined by the most up-to-date FEMA FIRM maps. Adding an additional freeboard requirement, the distance between the BFE and lowest floor of a building, can create an additional buffer for flood levels that exceed the BFE. Additionally, flood insurance premiums tend to drop significantly as

## COMMUNITY RESILIENCE PLAN ELEMENT

freeboard increases. Freeboard requirements on new construction can also be used to mitigate against sea level rise.

Utilities of individual structures should also be elevated above the BFE, including electrical, heating, ventilation, plumbing, and air-conditioning equipment (including ductwork). For structures raised in Zones AE, foundations should provide flood openings; raised structures in Zone V should have open foundations.

Keyport already benefits from some existing flood protection structures along its shorelines. A complete list of existing and proposed flood protection measures and structures is anticipated to be included within the Keyport Hazard Mitigation Plan, which is being prepared under separate cover. The Borough should seek opportunities to incorporate natural protection methods, such as living shorelines and breakwaters in Raritan Bay. Please see the *Coastal Erosion* section for more information.

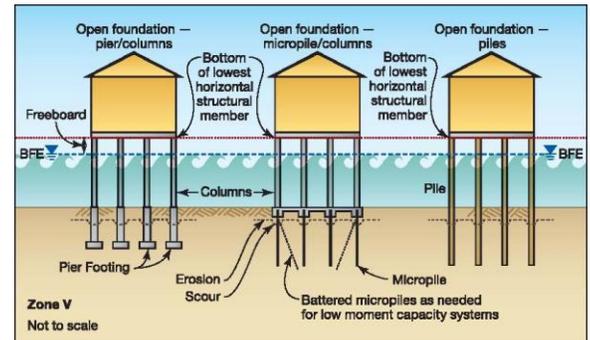


Image 4. Examples of NFIP-compliant foundations in Zone V.

The Borough should also consider as part of its permitting process a Flood Resistant Construction Checklist. The checklist would list all flood Resilience requirements that must be addressed prior to any permit approval.

### ***Flood Damage Prevention Ordinance***

Keyport Borough adopted a Flood Damage Prevention Ordinance (Ordinance #5-13) on May 21, 2013. This Ordinance includes a Statement of purpose that is excerpted below, as the purposes of the Flood Damage Prevention Ordinance are in accordance with the key purposes of this Community Resilience Plan Element.

#### ***Statement of Purpose***

It is the purpose of this ordinance to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

1. Protect human life and health.
2. Minimize expenditure of public money for costly flood control projects.
3. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public.
4. Minimize prolonged business interruptions.
5. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, bridges located in areas of special flood hazard.
6. Help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas.

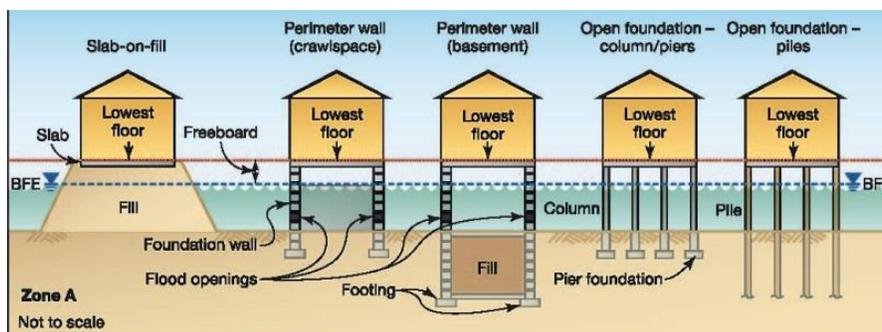


Image 5. Examples of NFIP-compliant structures in Zone AE.

## COMMUNITY RESILIENCE PLAN ELEMENT

7. Ensure that potential buyers are notified that property is in an Area of Special Flood Hazard.
8. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

It is recommended that the Flood Damage Prevention Ordinance be updated, as appropriate, as new FIRMs and new standards are adopted by FEMA. The Ordinance should also be updated to require an elevation of BFE plus 3 feet for all mechanical equipment and the lowest floor joist of all new buildings or required rebuilds (as defined by the 55% damage due to flooding criteria).

### ***National Flood Insurance Program***

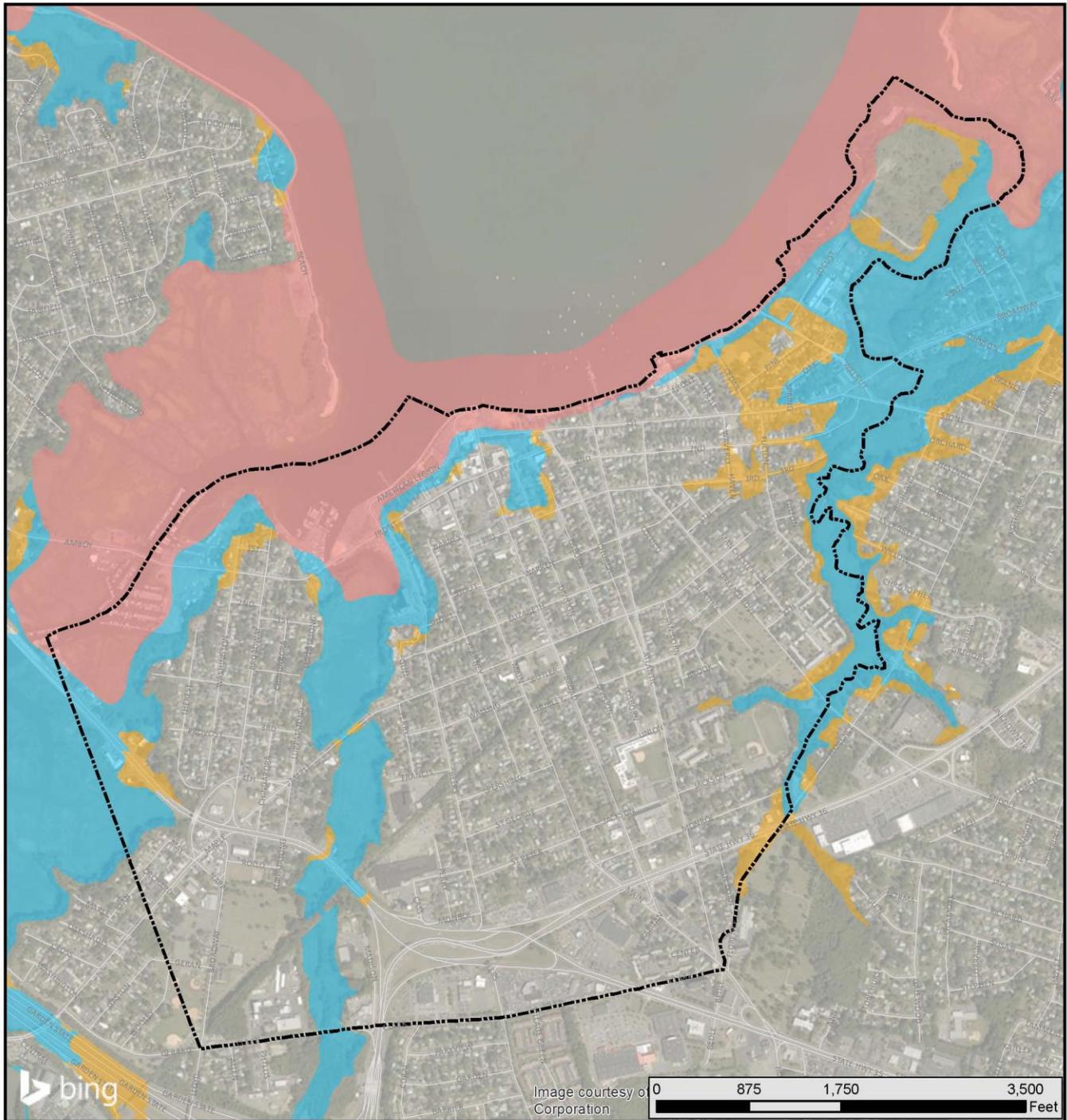
The Borough of Keyport has participated in the National Flood Insurance Program (NFIP) since July 2, 1979. As noted in the Monmouth County Hazard Mitigation Plan 2014 update, the Borough of Keyport had, as of August 31, 2014, 143 policies in effect; 134 total number of losses claimed for \$6,221,309, or \$46,427.68 per claim.

However, many of these claims come from repetitive loss properties, or properties that have experienced two or more claims of over \$1,000 within a rolling 10-year period since 1978. The Monmouth County Hazard Mitigation Plan estimates that, as of February 14, 2014, 58 claims of losses were filed for 10 non-mitigated repetitive loss properties, totaling \$3,694,415, or about \$369,441 per property. One property has been identified as having experienced 21 losses.

Depending on individual circumstances, properties on the repetitive loss list may be appropriate for mitigation measures. Among those measures include elevating buildings above the level of the base flood, demolishing buildings, and removing buildings from the Special Flood Hazard Area (SFHA) as part of a flood control project. Mitigation may take the form of a local drainage-improvement projects that meet NFIP standards and can remove a property or properties from repetitive loss status. It is recommended the Borough examines its repetitive loss properties to determine the best solution that balances the Borough's fiscal abilities while promoting the goals and objectives of this Master Plan.

This Master Plan also recommends Keyport become a Community Rating System (CRS) eligible community. Property owners in CRS communities which implement floodplain management actions that go beyond the minimum requirements of the National Flood Insurance Program (NFIP) are eligible for discounts of between five and 45 percent on flood insurance premiums for properties within that community. For information on the benefits of the CRS program, please see Appendix C.

**Figure 5.3: FEMA Floodplain Map**



**Legend**

-  Keyport
-  Zone VE
-  Zone AE
-  Zone X500

**Borough of Keyport  
Monmouth County, N.J.**



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442 State Route 35, 2nd Floor  
Eatontown, New Jersey 07724  
WBE/DBE/SBE

Tel: 973-240-1800  
Fax: 973-240-1818  
www.matrixnewworld.com

PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:15,000	DATE: 2/7/2017
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SOURCES:  
NJDEP GIS Data, FEMA, Region II (Revised PFIRM issued 1/30/2015, and does not reflect the appeal amendments.)  
State Plane Coordinates:  
NAD\_1983\_StatePlane\_New\_Jersey\_FIPS\_2900\_Feet

## COMMUNITY RESILIENCE PLAN ELEMENT

### PRECIPITATION RESILIENCE

Hazards such as nor'easters and hurricanes do not only pose flooding risks. While a quarter of Keyport lies in the 100-year floodplain, the annual risk of such a flood event is only 1%. However, the annual probability of such storms is much higher. Such events also carry with them the risk of high volume of precipitation that strains the local stormwater management infrastructure, and can lead to more localized flooding.

#### *Stormwater Resilience*

The best strategy for limiting the impact of rain on stormwater infrastructure is to utilize sustainable stormwater practices. Stormwater management systems should be designed to recharge 100% of stormwater that falls on site, as opposed to a detention basin that doesn't allow for infiltration.

The Borough should also pursue policies that encourage residents and businesses to utilize rain gardens (small bioretention basins), dry wells, porous pavers, rain barrels, and disconnecting downspouts that are tied in directly to the storm sewers. For a more detailed list of recommendations on best stormwater management practices, please see the Green Building and Sustainability Element of the Master Plan.



Image 6. Localized flooding looking south down Division Street.

A recommendation for the Borough to pursue immediately is repairing the infrastructure, such as the outfall at Beach Park, to improve capacity, flow, and backwater flooding from the Raritan Bay. The Borough should also encourage composting, and proper disposal of yard and landscaping waste to ensure the stormwater lines remain free of debris.

## COMMUNITY RESILIENCE PLAN ELEMENT

It is recommended that the Borough's Stormwater Management Ordinance be updated to reflect the latest Resilience design standards and best practices for stormwater management. It is recommended that these updates focus on green infrastructure, especially approaches and design that do not require hard design elements. Rather, natural measures such as bio-swales and rain gardens are preferred.

### **Winter Storm**

Winter storms can result in significant snow accumulations with tremendous impact on local transportation via road, rail and air. Impacts exacerbate when storms have an ice component as snow levels increase and driving conditions substantially worsen. Significant snow loads on building roofs have the potential to compromise the structural integrity with possible collapses. On vegetation, snow and ice loads can result in downed trees and limbs, particularly during periods of high winds. The effects of downed trees and limbs can result in outages when limbs fall on power lines and communication lines.

Secondary impact from power outages can include frozen pipes, business losses, and negative impacts on people associated with trying to heat their homes using portable heat sources (i.e., kerosene) or stoves, including carbon monoxide poisoning and fire risks. Secondary impacts from downed communication lines can hamper the response and recovery efforts due to lack of communication. The human impact of winter storms tends to be exacerbated in areas of social vulnerability, including lower income residents and a higher proportion of the very young and/or very old.

The orientation and design of buildings, roofs, drainage systems and the impacts from accumulated and falling snow and ice can also be hazardous. Snow or ice accumulating can add additional weight and stress to roofs, especially new storms occurring before enough previous snow and ice has had a chance to melt. Drainage systems can become dammed and ineffective from ice that has frozen. Snow and ice, falling from roofs, can be hazardous to property and especially pedestrians. The Borough should consider this when approving and permitting new development, especially in areas of Keyport with heavy pedestrian traffic.

According to the American Society of Civil Engineers, Keyport<sup>3</sup> resides in a region that should accommodate a snow load of 25 pounds per square foot.

### *Probability of Occurrence*

Winter storm events will continue to have a high probability of occurrence in Keyport. However, the impact of snow and ice storms to cause major disruptions to transportation, commerce, and electrical power is not expected. Nor is there expected to be any significant increase in overtime work for government employees, large scale property damages and/or threats to human life and safety.

### *Winter Storm Resilience*

It is recommended the Borough examines its abilities to respond to winter storm events that include heavy snow and ice accumulation. Where necessary, the Borough should consider upgrading its infrastructure, operations, and equipment to maximize its ability to maintain public and emergency services through the event; and to restore the ability for residents and businesses to continue their day-to-day routines within one day or as soon as possible after a storm's passing.

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<sup>3</sup> The Aeromarine Property resides in a different region that should accommodate a snow load of 20 pounds per square foot. It is recommended that the Aeromarine Property should maintain the higher standard.

## COMMUNITY RESILIENCE PLAN ELEMENT

Additionally, the Borough should review and update, where necessary, its building codes and standards, to ensure adequate building design. The Borough should ensure any existing standards adhere to the latest design standards by the 2015 New Jersey International Building Code.

The preparation of additional design standards for winter storm Resilience is recommended. Such design standards should address the orientation and design of buildings, roofs, drainage systems and the impacts from accumulated falling snow and ice. Roofs should be oriented in a way that maximizes sun exposure. Buildings located in the General Commercial and Waterfront Districts should have roofs that slope away from pedestrian walkways to the extent feasible. Should site requirements prevent this, sun shades or other awnings should be used to shield pedestrians from falling ice and snow. Gutter heaters should be considered for flat or low-sloped roofs which are especially susceptible to drainage systems freezing, and therefore additional accumulation. Roof rafter reinforcement could also be utilized. The Borough should also educate the public on how to identify dangerous levels of snow accumulation on roofs and how to safely remove the snow.

### EXTREME WIND RESILIENCE

The hazards described in the previous sections generate extreme winds that pose another threat to Keyport. The risk of an extreme wind event includes damage or destruction to large portions of property in the affected area, a complete shutdown of critical facilities for an extended period, and possible injury and death depending on the type of wind event and the nature of the event.

Some extreme wind events can be forecasted; others are completely unpredictable such as during straight-line wind events. Emergency responders are called upon for evacuations, road closures and attending to the injured. Flying debris in extreme wind events can cause secondary impacts. Trees can be downed and buildings can be damaged. High winds can directly damage private property as well as roads and bridges, schools, hospitals and other types of critical facilities and utilities and communications facilities. In addition, impaired access to these facilities during extreme wind events can cause secondary, indirect damages.

#### *Probability of Occurrence*

Extreme wind events have a less than 10% chance of occurring. Both the Borough and Monmouth County are susceptible to recurring events that cause extreme wind conditions; the County can expect approximately 5 to 10 extreme wind events per year, some of which will impact Keyport and neighboring municipalities.

#### **Tornado**

Keyport is located in an area that is susceptible to tornados. While their occurrence is not nearly as frequent or intense as in other regions of the country, about five tornados impact New Jersey each year. Most of these tornados tend to be of low magnitude and typically impact only relatively small areas. Tornados are essentially random and it is not currently possible to predict specific tornado hazard areas. Not one location in Monmouth County is more susceptible than another, as tornados can occur anywhere. All of Monmouth County in general and Keyport specifically, is uniformly exposed and considered at medium risk for tornado hazards by the County Hazard Mitigation Plan.

## COMMUNITY RESILIENCE PLAN ELEMENT

### *Probability of Occurrence*

Since 1952, nine tornados have touched down in Monmouth County, most recently in 2011 in the Township of Millstone. Only one tornado in 2001 that was rated an F2 on the Fujita scale<sup>4</sup> touched down in Northern Manalapan/Southwest Marlboro and was considered significant, causing an estimated \$1,000,000 in damages. None have touched down in Keyport, but as stated above, the unpredictability of tornados makes them a constant threat.

### **Recommendations for Resilience to Extreme Wind**

Keyport, like all of New Jersey, is located in Zone II/Hurricane susceptible area of the wind zones established by the American Society of Civil Engineers. This zone requires a design wind speed for shelters up to 160 miles per hour for three-second gusts. It is recommended the Borough pursues building standards and code that ensures structures can resist extreme wind events of this strength. Design standards should include those recommended under the flood and winter storm Resilience that pertain to resilience to wind, snow weight and other structural loads.

In addition, design standards should address issues such as the strapping of older residences and reducing the risk of flying debris. Ordinance amendments should include requirements to secure loose items that may become high velocity missiles in extreme wind events. Policies that educate and inform the public as it pertains to these and other preparedness and Resilience matters, should also be developed and implemented. These measures will not only limit the damage caused by the debris but also post-disaster cleanup. The Borough should consider utilizing American Society for Testing and Materials (ASTM)-compliant impact-resistant covering or glass for the windows of its Critical Facilities, especially those that are used as shelters during extreme weather events.

Wood-frame construction was found by FEMA to be most effective to combat extreme wind events. The ability for wood to handle greater loads for shorter time periods, combined with repetitive framing with numerous fasteners and load paths, makes wood-construction ideal to resist wind forces. The Borough should consider wood-frame construction as the preferred building method.

Most structural damage to wind-framed buildings occur due to differences in air pressure acting on and within the building, especially when winds are allowed to enter structures through openings (i.e. broken windows or blown open doors). Limiting the potential for damage to the shell of a building can strengthen its Resilience. It is recommended that the Borough consider functional shutters to shield windows from debris. Such shutters can be coordinated with the recommended design standards of the Historic Preservation Element.

### **CLIMATE CHANGE RESILIENCE**

Due to climate change, the frequency and intensity of the hazard events are expected to increase in the future. Keyport is expected to experience changes in coastal storm character, intensity, frequency and storm tracking. Tropical storms and hurricanes are likely to become more intense with rising sea water temperatures. Coastal erosion rates are likely to increase with rising sea levels. Storm effects will be more intense in the future. The impact of climate change and sea level rise can affect all parts of Keyport, including infrastructure related to transportation, public facilities and utilities. Climate change and sea level rise could lead to a potential loss of assets that support tourism (i.e. restaurants, marinas, fishing habitats, ecotourism, etc.) and threaten other

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<sup>4</sup> The Fujita scale is a tornado scale that rates tornados on a sliding scale, F0 to F5. An F2 Tornado has wind speeds of 113-157 mph, and can cause significant damage including roofs torn off framed homes, trees snapped or uprooted, and damage from high-velocity smaller debris.

## COMMUNITY RESILIENCE PLAN ELEMENT

aspects of economic viability within the community. The following can be anticipated in Keyport due to climate change and sea level rise:

- Inundation of low/lying areas.
- Increased frequency and extent of storm/related flooding.
- Wetland loss and saltwater intrusion into estuaries and freshwater aquifers.
- Land loss through submergence.
- Erosion of lands in coastal areas.
- Migration of coastal landforms and habitats.
- Increased salinity in estuaries and coastal fresh.
- Property losses, more frequent flood damage or more frequent flooding risk to the general population.
- More buildings and infrastructure exposed.
- Currently exposed buildings and infrastructure.
- Could be subject to potentially greater losses as water levels increase.
- Impacts on gravity flow stormwater systems.

### Sea Level Rise

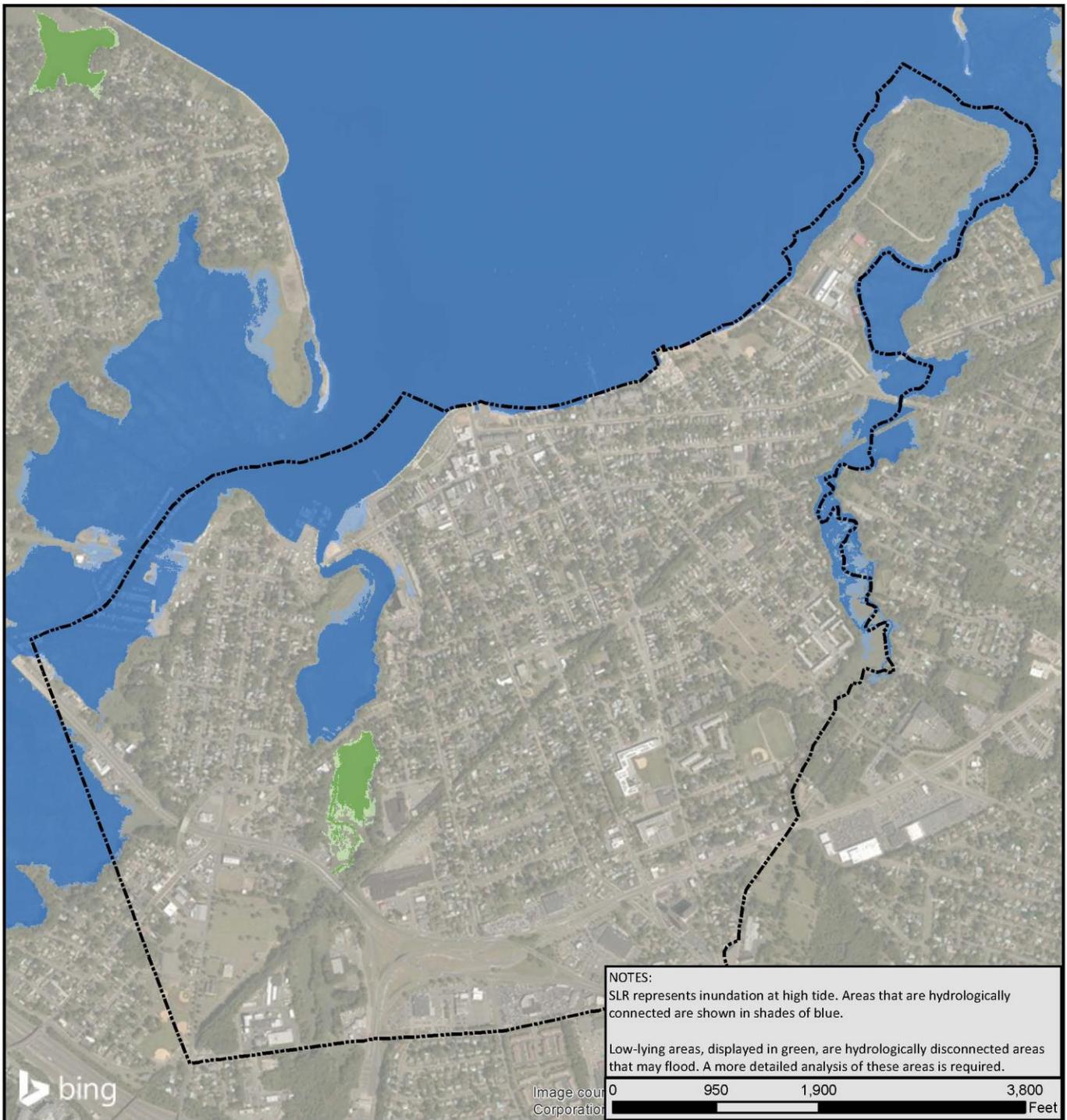
Global sea level rise (SLR) has been a persistent trend for many years. Per New Jersey's Geological Survey, the sea level along New Jersey's Shore is rising approximately 3.8 millimeters per year, and almost twice the global average rate of one to two millimeters per year. A wide range of estimates for future global mean SLR are scattered throughout the scientific literature and other high profile assessments. Presently, NOAA confidently predicts the following scenarios, ranked from lowest to highest predicted SLR.

Scenario	2050	2100
Lowest	0.3 feet	0.7 feet
Intermediate-Low	0.7 feet	1.6 feet
Intermediate-High	1.3 feet	3.9 feet
Highest	2.0 feet	6.6 feet

It should also be noted that anticipated sea level rise and subsidence will increase the risk of damages due to future coastal flooding events. Rising sea level over time will increase the frequency of significant flood events. For example, sea level rise of one foot over a typical project analysis period (50 years) may cause a flood event currently of annual probability two percent (50-year flood) to become an event of 10 percent annual probability (10-year flood). Similarly, a rise in sea levels means larger floodplains. Areas that were once outside the SFHA, will be at risk with future SLR. Figures 5.4 and 5.6 depict the extent of the lowest and highest scenarios of SLR for Year 2050 and 2100.

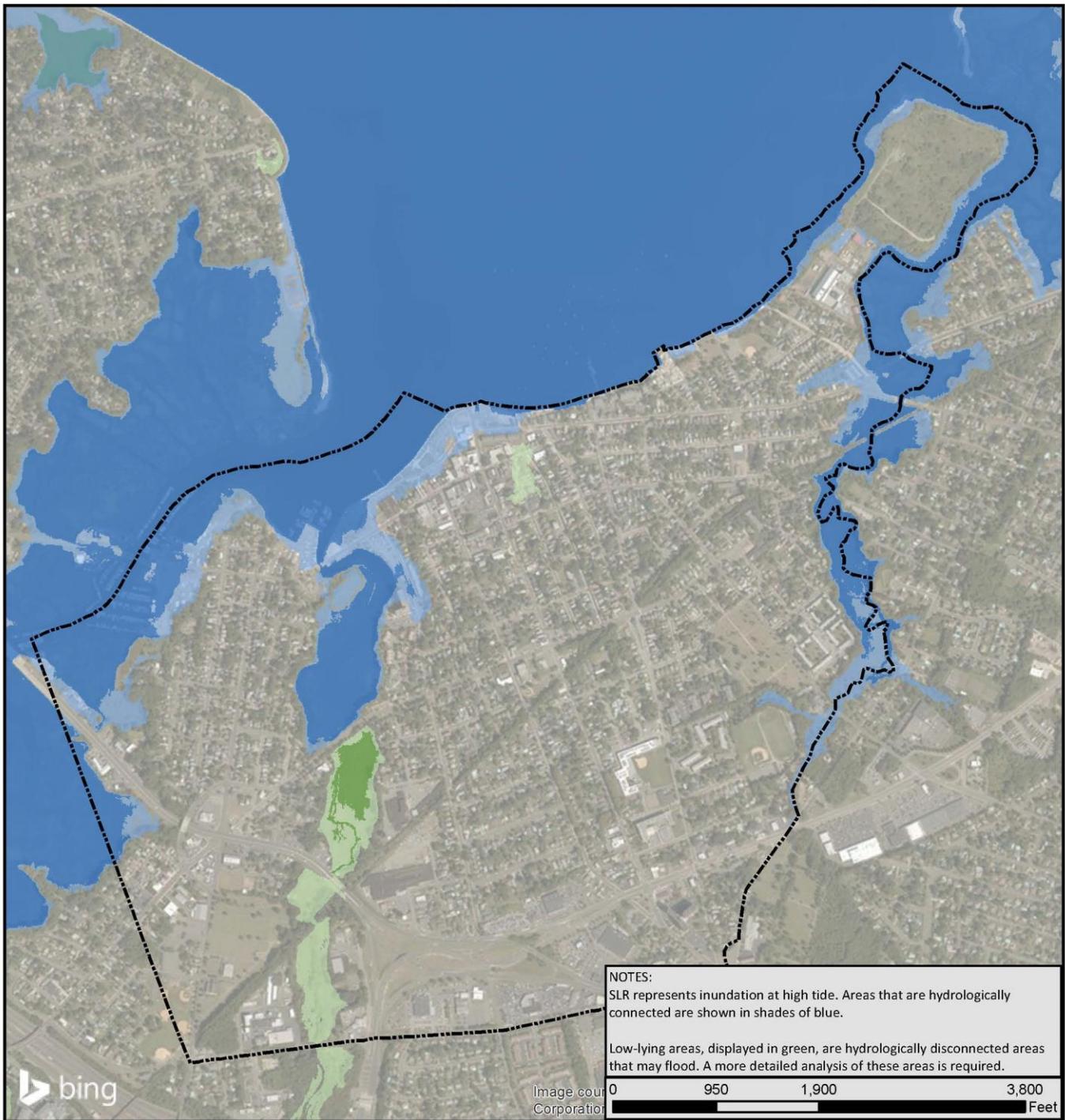
<sup>5</sup> *Global Sea Level Rise Scenarios for the United States National Climate Assessment*. NOAA Technical Report OAR CPO-1. December 6, 2012.

**Figure 5.4: Lowest vs Highest Scenario Sea Level Rise by 2050**



<b>Legend</b>			<b>MATRIXNEWORLD</b>	
 Keyport  SLR - Lowest Scenario (1 ft.)  SLR - Highest Scenario (2 ft.)	 Low-lying Area - Lowest Scenario (1 ft.)  Low-lying area - Highest Scenario (2 ft.)		Engineering Progress	
<b>Borough of Keyport Monmouth County, N.J.</b>		442 State Route 35, 2nd Floor Eatontown, New Jersey 07724 WBE/DBE/SBE		Tel: 973-240-1800 Fax: 973-240-1818 www.matrixnewworld.com
		PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:14,576
SOURCES:		NJDEP GIS Data, NOAA GIS Data State Plane Coordinates: NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet		

**Figure 5.5: Lowest vs Highest Scenario Sea Level Rise by 2100**



<b>Legend</b>			<b>MATRIXNEWORLD</b> Engineering Progress 442 State Route 35, 2nd Floor Eatontown, New Jersey 07724 WBE/DBE/SBE Tel: 973-240-1800 Fax: 973-240-1818 www.matrixneworld.com				
SLR - Lowest Scenario (2 ft.)	Low-lying area - Lowest Scenario (2 ft.)				Keyport		
SLR - Highest Scenario (6 ft.)	Low-lying area - Highest Scenario (6 ft.)		<table border="1"> <tr> <td>PROJECT NUMBER: LD15-349</td> <td>DRAWN BY: MM</td> <td>SCALE: 1:14,576</td> <td>DATE: 2/7/2017</td> </tr> </table>	PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:14,576	DATE: 2/7/2017
PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:14,576	DATE: 2/7/2017				
<b>Borough of Keyport                  Monmouth County, N.J.</b>			SOURCES: NJDEP GIS Data, NOAA GIS Data State Plane Coordinates: NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet				

## COMMUNITY RESILIENCE PLAN ELEMENT

### *Probability of Occurrence*

NOAA predicts, with over 90% confidence, that the global sea level will rise between the ranges shown in Table 5.4. These estimates are based on the impacts of different variables such as thermal expansion of the ocean and rapid ice sheet melting. The “Lowest” and “Intermediate-low” scenarios are modeled only on thermal expansion, and little to no major contributions from melting ice sheets. These scenarios are appropriate for development that have a high tolerance for risk (e.g. short project lifespan or areas with flexibility to adapt in the short term). The “Intermediate-High” and “Highest” scenarios are modeled on both thermal expansion and major contributions from melting ice sheets. These scenarios should be considered for development with a low tolerance for risk (e.g. projects with longer lifespans or where the flexibility to adapt in the near or long term is not possible).

Additionally, the long-term rise in sea level can be expected to impact the occurrence of significant storm surges and hence future damage from coastal flooding in Monmouth County. Storm surge is expected to increase the SFHA of Keyport, impacting a greater area. Figure 5.5 shows the increased inundation levels based on the above mentioned scenarios, and can be found in the Critical Facilities section of this Element.

As New Jersey’s observed SLR is twice as fast as the global average, the Borough should not utilize the lowest scenario. It is recommended the Borough utilize the “Intermediate-Low” Scenario as its minimum, anticipated SLR. Ultimately, the Borough will need to balance preparing for anticipated SLR without detracting from future redevelopment and rehabilitation.

### **Coastal Erosion**

NJDEP classifies shoreline types by the following:

1. Beach, which includes waterfront areas comprised of 100 percent sand
2. Bulkhead, which includes manmade structures at the water's edge, after the rip/rap, which were designed to hold back water and protect the adjacent areas from erosion
3. Marsh, which is classified as areas of natural marsh edge
4. Earthen dike, classified as structures which serve as natural barriers between the land and the water
5. Erodible, which includes any soft shoreline other than beach, rock, marsh or earthen dike, which are vulnerable at the water's edge

A significant portion of Keyport’s shoreline is protected from erosion by marsh, bulkhead, or beach. However, portions of Keyport’s shoreline are susceptible to the coastal erosion hazard. These portions include, but are not limited to, the shoreline along the Aeromarine Property and portions of waterfront along Matawan Creek.

There are also many shoreline protection features located along Keyport’s shoreline that are designed to reduce coastal storm and erosion hazards. A detailed description of the location and condition of Keyport’s existing shoreline infrastructure is included within Keyport’s Hazard Mitigation Plan which is being prepared under separate cover.

### *Probability of Occurrence*

Coastal erosion remains a natural, dynamic and continuous process for all shorelines, including Keyport. The damaging impact of coastal erosion is lessened through continuous beach nourishment and structural shoreline protection measures. However, it is likely that the impacts of coastal erosion will increase in severity due to future storm events as well as the anticipated effects of climate change and sea level rise.

## COMMUNITY RESILIENCE PLAN ELEMENT

### ***Recommendations for Resilience to Climate Change***

All of the previous recommendations pertaining to flood, precipitation and wind hazards promote Resilience to climate change, as climate change is anticipated to exacerbate all of the other hazards. In addition, it is recommended that the Borough pursue opportunities for additional shoreline protection projects to combat coastal erosion. Where appropriate, shoreline protection infrastructure should favor soft, “natural” designs over harder, “man-made” designs. Living shorelines allow the protection of vegetated shorelines, beaches and habitat from erosion, and are the favored method of shoreline-stabilization over structural methods. The shoreline along Matawan Creek and the Aeromarine Property should utilize where viable living shoreline strategies.

Living breakwaters, like living shorelines, are a natural design solution that not only provides the benefits of wave attenuation, but also habitat for marine life. The Borough should explore the possibility of installing a living breakwater near the confluences of the Luppataong and Matawan Creeks with Raritan Bay. This portion of the shoreline, lying in Flood Zone V, is at risk for coastal erosion and whose structures are at risk from intense wave action.

As stated in the Flood Resilience Section, freeboard requirements are a great way to anticipate and plan for higher sea levels. By requiring additional freeboard, a structure is already designed for the higher sea levels and gains the added benefit of additional protection from flood events that exceed the BFE.

Additionally, the MCHMP recommends extending the existing bulkhead from Fireman’s Park along West Front Street to the Monmouth County Bridge over Luppataong Creek to an elevation of 8.1 feet.

### **B. UTILITY PLAN ELEMENT**

Adequate utility infrastructure is essential to the support of land use and development. Land use planning must take into consideration and be consistent with existing and proposed utility facilities. The two utility systems most frequently generating concern in developing a realistic land use plan are water supply and sewage disposal systems. To place the land use proposals of the Master Plan in proper perspective, Water Distribution and Wastewater Management Planning maps have been considered during the development of the Land Use Plan. Additionally, comments regarding Stormwater Management have also been included so that future development incorporates adequate stormwater runoff control measures.

The Master Plan committee recommends including the Utility Plan Element within the Community Resilience Element, as the potential vulnerability and desired resilience of the Borough’s utility infrastructure are key issues of concern in ensuring community Resilience.

### **WATER DISTRIBUTION PLAN**

The New Jersey American Water Company has become a back-up supplier of potable water to Keyport following the switch to the Borough well system for a majority of its water supply. Water lines run extensively along most of the road right-of-ways in the Borough. The Borough is depending on its rehabilitation of its water well system to meet any additional demand generated by new development. The Aeromarine property represents one of the more substantial water demand increases on the Borough’s infrastructure.

Based upon the information provided above, the Water Distribution Plan is essentially a reflection of the existing distribution system. In addition, the existing water distribution system generally meets the needs of existing development and the amount of growth anticipated in the Borough, including the Aeromarine property. However, to be conservative, it is recommended that a build-out analysis of anticipated future development be prepared to confirm capacity and infrastructure requirements.

## COMMUNITY RESILIENCE PLAN ELEMENT

The Cedar Street and Maple Street Pump Station (See Table 5.6 in the Critical Facilities Section) are each located within the Flood Zone AE. Per N.J.A.C. 7:10-11.9(b), the facility should be mitigated to have a flood elevation of at least 1 foot above the highest recorded flood elevation.

### WASTEWATER MANAGEMENT PLAN

In 2011, Monmouth County adopted a Wastewater Management Plan (WMP), while the Borough also prepared a plan for Sanitary Sewer System Upgrades. The purpose of this WMP is to review present and future wastewater collection and treatment needs of the Borough of Keyport. Keyport, reflective of its built-out nature, and its status as an Urban Growth Center in the County Master Plan, is almost entirely within an approved sewer service area. The only excluded portions are environmentally sensitive areas that limit development. Based on the WMP review, it uses the findings to propose facilities which meet these needs and which are consistent with the 16.0 million gallons per day (MGD) limitation imposed upon the six member municipalities of the Bayshore Regional Sewerage Authority, of which the Borough is a part. This facility information is noted in the Monmouth County Water Quality Management Plan (2012 Plan). The WMP has been prepared as required by the New Jersey Department of Environmental Protection (NJDEP) in accordance with NJAC 7:15-3.4 for approval as an amendment to the 2012 Plan.

Embodied in the Wastewater Management Plan are the existing sewage collector systems, including all pertinent facilities, such as existing wastewater treatment plants, the existing sewer service area and areas included in the proposed expansion of the service area. As a moderate amount of additional development is anticipated to occur in the Borough, the wastewater management system is anticipated to meet the needs of existing development and generally meet the needs of future development. However, as mentioned previously, to be conservative it is recommended that a build-out analysis of anticipated future development be prepared to confirm capacity and infrastructure requirements.

Wastewater Pumping Stations is identified by New Jersey Pollutant Discharge Eliminations System (NJPDES) rules as necessary to provide Resilience through elevation and flood-proofing requirements for new construction and reconstruction of certain elements of a wastewater system. It is recommended that the Sanitary Sewerage Pump Station, located at 338 Clark Street, should seek a flood elevation of at least 1 foot above highest recorded flood elevation.

The Borough should consider requiring the installation of backwater valves in buildings located in the SFHA. During floods, sewage can backflow into buildings if the sewer system is overwhelmed with floodwaters. Valves on building sewage lines can prevent sewage from entering the building.

### STORMWATER MANAGEMENT PLAN

The Borough's 2009 Stormwater Management Plan is hereby incorporated into this Master Plan by reference. The purpose of the Stormwater Management Plan Element is to coordinate land use proposals with the ability of the municipality, working with developers, to effectively control stormwater runoff in terms of both quantity and quality. In the Borough of Keyport, stormwater management is directly related to the WMP and the Raritan Watershed.

In furtherance of these objectives, the Borough's 2001 Master Plan Reexamination Report recommended the preparation of a sewer and stormwater system analysis to address infrastructure conditions. In accordance with 2003 NJDEP regulations requiring the creation of stormwater plans, a Municipal Stormwater Management Plan was adopted in 2005 and amended in 2009. The overall policy, outlined in Chapter XXIV of the Borough of

## COMMUNITY RESILIENCE PLAN ELEMENT

Keyport Code, “Stormwater Management and Control,” addresses stormwater management strategies, encouraging the use of nonstructural techniques before structural ones. New development is required to develop a plan that considers wildlife impacts, assures no net increase in runoff and pollutant loads, and no net decrease in groundwater reserves, and follows design standards set by municipal, state and federal agencies.

Recommendations for improved Stormwater Resilience can be found in an earlier section, *Stormwater Resilience*. Other suggested best practices and strategies can be found in the Green Building and Sustainability Element.

### OTHER UTILITIES

The other utilities in the Borough include electric service provided by Jersey Central Power and Light, natural gas provided by New Jersey Natural Gas and communications services (fiber optic cable, cellular service, etc.) provided by various entities. It is recommended the Borough consider in its future Capital Improvement Plans the potential to bury its electrical power lines underground, especially in coordination with other buried infrastructure, so as to minimize the costs of burying. Not only would this provide an aesthetic benefit, but would also ensure Resilience of the electric power lines against adverse impacts from severe weather, especially extreme winds. Additional wet floodproofing will be needed for those lines that will be located in the SFHA. Burying power lines should be discouraged from those areas of Keyport susceptible to impacts from SLR.

It is recommended that the Borough promote robust energy and communications services in order to maintain access to reliable energy and communications services. In addition, investment in robust communications and data infrastructure will help attract and retain business in the Borough. Encouraging investment in technologies such as fiber optics, micro cell development, smart utilities and new technologies that become available is recommended. The development of this new communications and data infrastructure should be mindful of the flood prone areas of Keyport, and should avoid when possible those areas within the SFHA and areas vulnerable to SLR. Should this infrastructure be located in flood-prone areas, wet floodproofing methods will be used to locate new components above the BFE.

The Borough should explore the ability to provide emergency power systems for its Critical Facilities, which are identified in the *Critical Facilities* section below, so as to ensure these facilities maintain the ability to provide service during and after disasters.

It is also recommended the Borough regularly checks with State Agencies, who are working on updating flood-Resilience standards for utility infrastructure.

### C. COMMUNITIES FACILITIES ELEMENT

The Communities Facilities Element Plan is intended to provide an inventory of existing facilities within Keyport and address any additional needs of the community. These facilities include schools, firehouses, police stations, senior centers and any other facilities that enhance the livability of Keyport.

The Master Plan committee recommends including this element under the Community Resilience Element, as many of these facilities are important in preparing, responding and recovering from disasters. Addressing any potential vulnerability and enhancing Resilience of these facilities from potential future hazard events will go a long way in preparing Keyport’s response to the next disaster.

# COMMUNITY RESILIENCE PLAN ELEMENT

## INVENTORY OF COMMUNITY FACILITIES

### *Educational Facilities*

The following is a list of education facilities within the Borough and include public, private and parochial institutions.

School	Type	Grade Level	Location
Keyport Central School	Public	Pre-Kindergarten to 8 <sup>th</sup> Grade	335 Broad Street
Keyport High School	Public	9 <sup>th</sup> to 12 <sup>th</sup> Grade	351 Broad Street
Miles of Smiles	Private	Daycare & Pre-Kindergarten	14 Luppataong Avenue
Abundant Life Child Development Center	Private	Daycare & Pre-Kindergarten	17 3 <sup>rd</sup> Street
Good News Christian Pre-school	Private	Pre-school for 3 & 4 year old children	60 Maple Place
Brite Futures Learning Center	Private	Daycare and After-school Program	17 3 <sup>rd</sup> Street

The Master Plan recognizes the importance of having an excellent school system and its impact on the character and livability of a municipality. There is no question many people choose where to live based upon the quality of education or expense of the school system. While the Master Plan has no authority or control over the Board of Education's Master Plan, it is recommended that regular coordination between the Borough and school system take place. The Borough, Board of Education and school system administration should continue to support and promote the school system in order to maintain and enhance the quality of education, and therefore maintain and enhance the quality of life in Keyport.

### *Municipal Administration*

Keyport Municipal Administration provides administrative services comparable to nearby communities having a similar population. The Municipal Building is located at 70 West Front Street.

### *Police Department*

As noted on the Borough website, the Keyport Police Department has officially existed since December 13, 1926. Organized law enforcement has existed in Keyport since 1850, when the Borough had a marshal/constable who were assigned to patrol the business district and wharf areas. The Police Department currently consists of 16 police officers, four full time civilian communications operators and two civilian administrative support staff. There are some part time Class II special police officers and communications operators who serve as needed, and their complement of school crossing guards. The Police Department operates out of the Municipal Building located at 70 West Front Street.

### *Fire Department*

The Keyport Fire Department was founded in 1877 after the Great Keyport Fire. In keeping with the strong sense of volunteerism found in the community, the fire department is volunteer based with 146 members, distributed over 6 firehouses. The firehouses are located at:

- Lincoln Hose Co.- 142 2<sup>nd</sup> Street
- Raritan Hose Co.- 1893 Maple Place
- Liberty Hose Co.- 1893 Route 36
- Fire Patrol- 26 Waverly Street
- Engine Co./Hook and Ladder- 45 1<sup>st</sup> Street
- Eagle Hose Co.- 95 Broadway

## COMMUNITY RESILIENCE PLAN ELEMENT

### **First Aid**

The Keyport First Aid Squad was founded in 1927, making it the second oldest first aid squad in the State. Keyport First Aid is entirely volunteer based with 10 members and a cadet squad program that trains the future generation of first aid responders. The Keyport First Aid Squad headquarters is located at 1927 Atlantic Street.

### **Office of Emergency Management**

The Keyport Office of Emergency Management (OEM) was established in 1985. OEM plans and prepares for emergencies, educates the public about preparedness, coordinates response and recovery and collects and disseminates emergency information as needed. The Borough's website offers residents the option to be notified by the local emergency response team in the event of emergency situations or critical community alerts. Examples of such events include, and are not necessarily limited to, evacuation notices, bio-terrorism alerts, boil water notices and missing child reports. The OEM operates out of the Municipal Building located at 70 West Front Street.

The [Borough website](#) also provides an opportunity to register to receive emergency updates, pre-, during- and post-hurricane checklists, additional storm preparedness information, links to news and weather resources and related information.

### **Library**

The Keyport Public Library is located at 109 Broad Street at the corner of Broad Street and 3<sup>rd</sup> Street.

### **Health Care, Social and Senior Services**

Keyport contains the following healthcare, senior and social service facilities:

- *Endeavor House* – 6 Broadway (Offers rehabilitation and recovery services for substance abusers, including detox programs and counseling)
- *Bethany Manor* – 500 Broad Street (Senior apartments)
- *Keyport Leisure Bay Apartments* – 50 Beers Street (Senior apartments)
- *Visiting Nurses Association* – 35 Broad Street (Clinic)

### **Places of Worship**

Keyport contains several places of worship, such as:

- *St. Mary's Episcopal Church* – 10 East Front Street
- *Calvary United Methodist* – 53 Osborn Street
- *Kingdom Hall of Jehovah's Witness* – 53 Division Street
- *First Baptist Church of Keyport* – 45 Main Street
- *Jesus the Lord R.C.* – 123 Broad Street
- *Community Church of Keyport* – 125 Division Street
- *Second Baptist Church* – 205 Atlantic Street
- *Gethsemane Lutheran Church* – 60 Maple Place
- *St. Joseph Parish R.C.* – 376 Maple Place

## **D. CRITICAL FACILITIES AND INFRASTRUCTURE VULNERABILITIES**

As identified in the Utilities and Community Facilities Elements above, these facilities and infrastructure serve an important role in Resilience. For the purpose of this report, critical facilities and infrastructure includes first responders (fire department, first aid and police), schools, shelters, senior care facilities, pump stations, and municipal buildings as well as water, sewer, communications, electric, natural gas and similar infrastructure.

## COMMUNITY RESILIENCE PLAN ELEMENT

This Master Plan has identified 22 critical facilities and infrastructure that are crucial for responding and recovering from natural disasters. Table 5.6 below identifies these facilities and provides general locations, as well as a label system, corresponding to subsequent maps. 23% of facilities fall within the Special Flood Hazard Area (SFHA) and 27% of which would experience storm surge inundation from a Category 1 Hurricane.

It is important to note that a Community Vulnerability Assessment and Hazard Mitigation Plan is being prepared under separate cover. These supplementary documents contain more detailed information regarding hazard mitigation projects and vulnerability.

**Table 5.6: CRITICAL FACILITIES**

Facility Type	Facility Name	Location	Map Label
First Responders & Municipal Administration	First Aid	1927 Atlantic Street	1
	Police Dept./Borough Municipal Building	70 West Front Street	2
	Fire Dept.–Lincoln Hose Co.	142 2 <sup>nd</sup> Street	3
	Fire Dept.–Raritan Hose Co.	1893 Maple Place	4
	Fire Dept.–Liberty Hose Co.	1893 Route 36	5
	Fire Dept.–Fire Patrol	26 Waverly Street	6
	Fire Dept.–Engine Co. /Hook and Ladder	45 1 <sup>st</sup> Street	7
	Fire Dept.–Eagle Hose Co.	95 Broadway	8
School	Keyport Central	335 Broad Street	9
	Keyport High School	351 Broad Street	10
Senior Care Facility	Leisure Bay Apartments	50 Beers Street	11
	Bethany Manor	500 Broad Street	12
Utility Infrastructure	Maple Place Pump Station	Maple Place ROW (Approx. 500 ft. NW of Maple Place & Luppataatong Avenue)	13
	Cedar Street Pump Station	Cedar Street ROW (Northerly Terminus)	14
	Sanitary Sewerage Pump Station	338 Clark Street, Hazlet, NJ	15
	Cass Street Water Tower – (1 MG)	6 Cass Street	16
	Water Treatment Plant	100 Perry Street	17
	Production Well #7	100 Perry Street	18
	Production Well #8	41 Perry Street	19
	Union Beach Interconnection	1 <sup>st</sup> Street ROW (Union Beach Border)	20
	Shorelands Interconnections	Route 36 ROW (Hazlet Border)	21
	Aberdeen Interconnection	Front Street ROW (Aberdeen Border)	22

## COMMUNITY RESILIENCE PLAN ELEMENT

**TABLE 5.7: FLOOD RISK PERTAINING FOR EACH HAZARD**

Map Label	Facility Name	FEMA Flood Zone			Storm Surge (SLOSH Model Hurricane Categories 1 to 4) inundation above ground level			
		VE	AE	X500	Cat. 1	Cat. 2	Cat. 3	Cat. 4
1	First Aid	No	No	No	--	--	0-3 ft.	< 3 ft.
2	Police Dept./Borough Municipal Building	No	No	No	--	--	0-3 ft.	< 6 ft.
3	Fire Dept.–Lincoln Hose Co.	No	No	Yes	--	0-3 ft.	< 6 ft.	< 9 ft.
4	Fire Dept.–Raritan Hose Co.	No	No	No	--	--	--	0- 3 ft.
5	Fire Dept.–Liberty Hose Co.	No	No	No	--	--	0-3 ft.	< 6 ft.
6	Fire Dept.–Fire Patrol	No	No	No	--	0-3 ft.	< 6 ft.	< 9 ft.
7	Fire Dept.–Engine Co. /Hook and Ladder	No	Yes	--	0-3 ft.	< 6 ft.	< 9 ft.	< 9 ft.
8	Fire Dept.–Eagle Hose Co.	No	No	No	--	--	--	0-3 ft.
9	Keyport Central Elementary School	No	No	No	--	--	0-3 ft.	< 6 ft.
10	Keyport High School	No	No	No	--	--	--	< 3 ft.
11	Leisure Bay Apartments	No	Yes	--	< 6 ft.	< 9 ft.	< 9 ft.	< 9 ft.
12	Bethany Manor	No	No	No	--	--	0-3 ft.	< 6 ft.
13	Maple Place Pump Station	No	Yes	--	3-6 ft.	>9 ft.	>9 ft.	>9 ft.
14	Cedar Street Pump Station	No	Yes	--	0-3 ft.	< 6 ft.	< 9 ft.	< 9 ft.
15	Sanitary Sewer Pump Station	No	No	No	--	0-3 ft.	< 6 ft.	< 9 ft.
16	Cass Street Water Tower – (1 MG)	No	No	No	--	--	--	--
17	Water Treatment Plant	No	No	No	--	--	--	--
18	Production Well #7	No	No	No	--	--	--	--
19	Production Well #8	No	No	No	--	--	--	--
20	Union Beach Interconnection	No	Yes	--	< 6 ft.	< 9 ft.	< 9 ft.	< 9 ft.
21	Shorelands Interconnections	No	No	Yes	--	0-3 ft.	< 6 ft.	< 9 ft.
22	Aberdeen Interconnection	Yes	--	--	< 6 ft.	< 9 ft.	< 9 ft.	< 9 ft.

Table 5.7 above summarizes the risk of flood hazard for each facility and the modeled storm surge inundation depth. The latest FEMA PFIRM data was published on January 30, 2015. The Potential Storm Surge Flooding Map is based on the National Weather Service’s Sea, Lake, and Overland Surges from Hurricanes (SLOSH)

## COMMUNITY RESILIENCE PLAN ELEMENT

model and takes into account forecast uncertainty in the tropical cyclone track, intensity and wind field. The SLOSH model does not account for the impact of wave action, normal river flow or rain flooding. Future advancements in the SLOSH model will potentially account for some of these unaccounted for variables. The Borough should periodically check for the latest data regarding the SLOSH Model in its decision and policy making. Please note, at the time of this Master Plan update, Category 5 Hurricane SLOSH Model has not yet been completed for the Borough's region. Figure 5.6 depicts critical facilities in relation to delineated flood hazard areas.

Per the present FIRM flood maps, no above ground Critical Facilities are located in Zone VE of the SFHA. Water and sewer infrastructure, including the Aberdeen interconnection and underground pipelines, are located in Zone VE. This infrastructure is located underground for the most part, where there may be a limited risk due to the inherent wave action hazard of this zone, where wave action and subsequent erosion can expose the infrastructure under certain conditions.

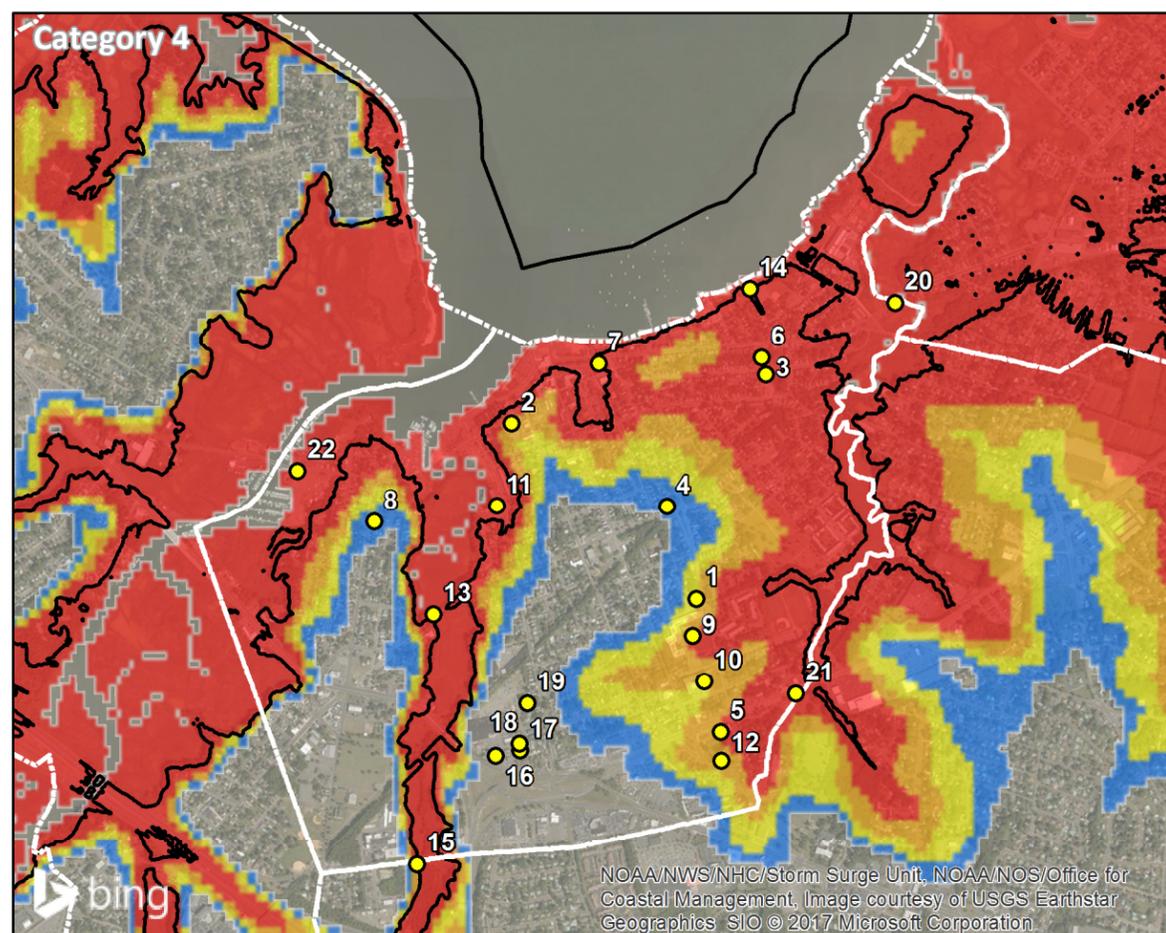
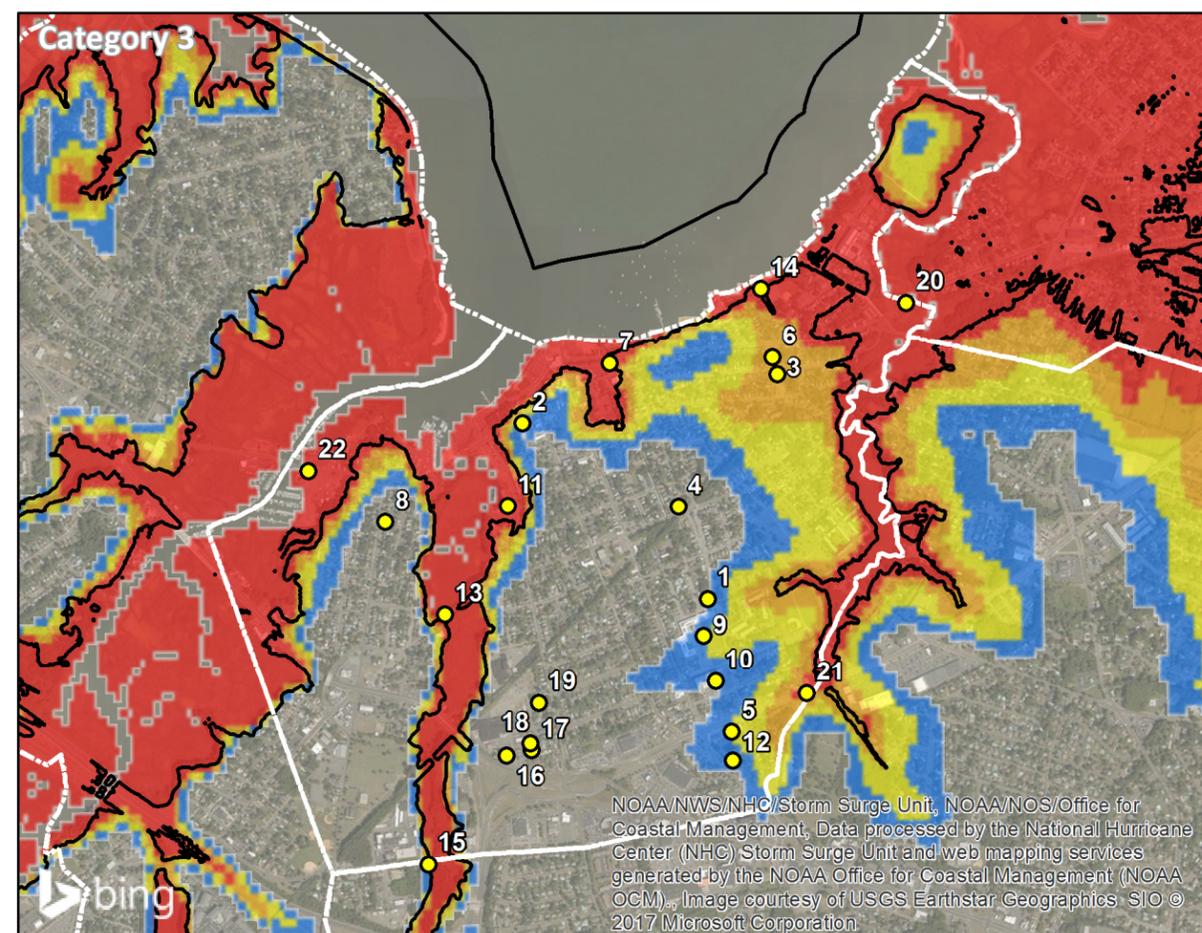
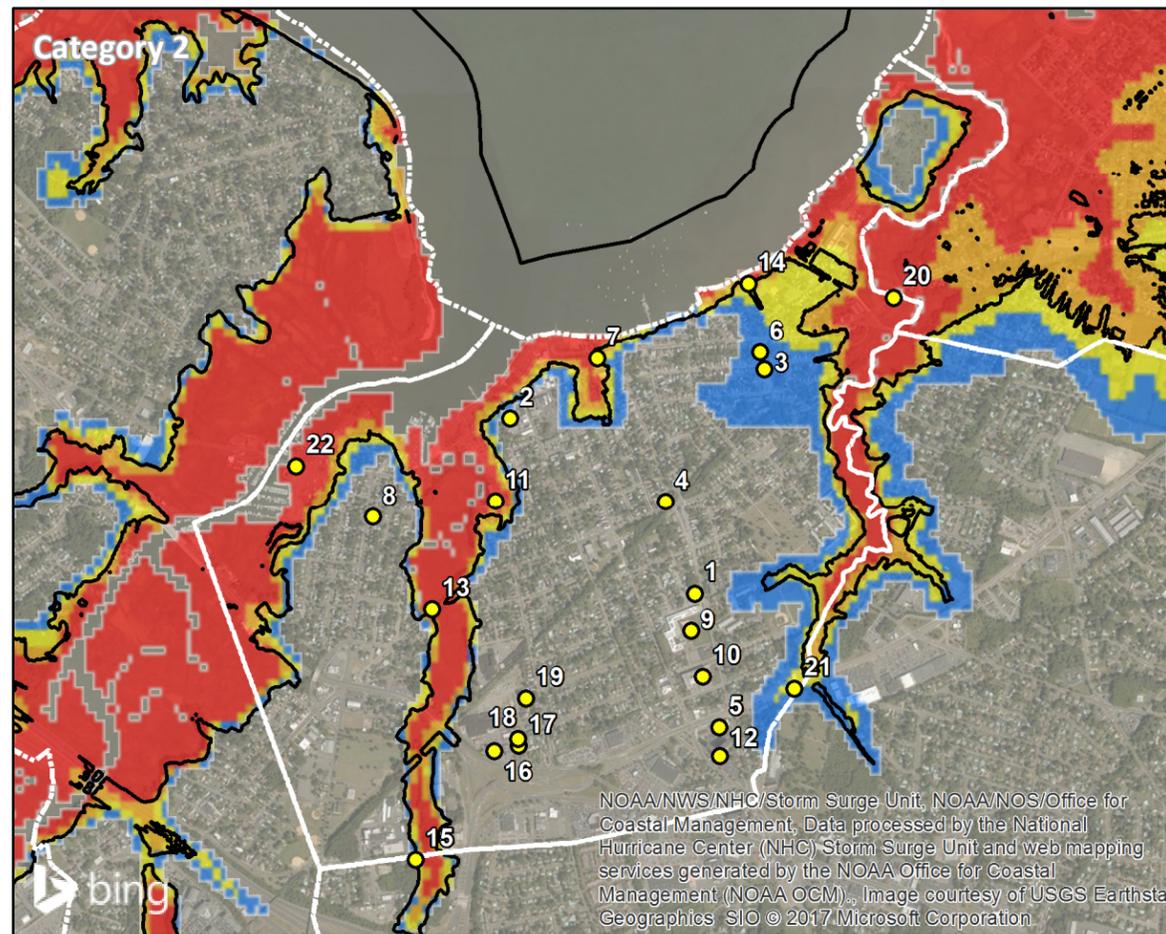
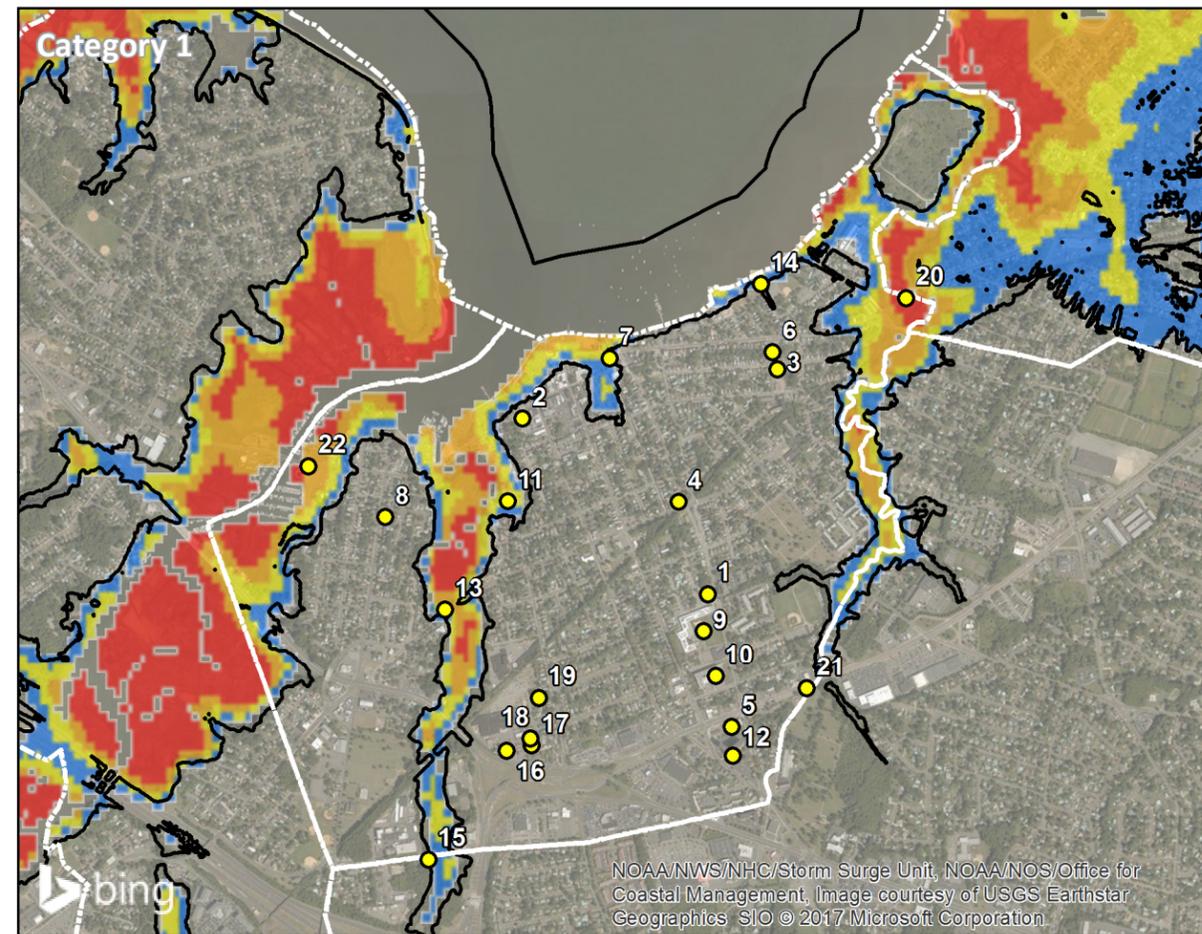
However, Table 5.7 shows varying risk of inundation for multiple critical facilities depending on hurricane intensity (Category 1-4). This exposure can also subject the infrastructure to wave action, wave driven debris, etc. In addition, the sea level rise data projects inundation of many of the Borough's critical facilities.

As explained in the *Hurricane & Tropical Storm* section previously, based on recorded data, Keyport has never experienced a storm worse than Category 2. Based on NOAA projections, it may only be a matter of time before Keyport experiences a Category 3 storm. Should Keyport experience a Category 3 storm, all first responder facilities, except for Eagle Hose and Raritan Hose Company firehouses, would experience inundation at some level during such a storm event, as shown in Table 5.7. Keyport Central School and Bethany Manor would also experience inundation; Leisure Bay Apartments would have flooding past the first floor. Many key utility infrastructures like pump stations and interconnections would be inundated in over six feet of water and would then be susceptible to collisions with debris.



For a Category 3 storm, the only non-inundated, direct southerly route away from Keyport's coast is Broadway; from the downtown to the intersection with Hurley Street, the northern portion of Broad Street is above inundation, but then traffic would need to divert to Beers Street. From Beers Street, the only evacuation option would be north on Route 35 toward another potentially inundated portion of the highway. This analysis indicates that the Borough would need to identify appropriate hazard mitigation projects, preparedness approaches and evacuation strategies for Category 1, 2 and 3 storm events in order to mitigate potential damage and potential loss of life as it pertains to its critical facilities and populated areas in general. As a Category 4 storm event is much less likely to occur, preparedness for Category 1, 2 and 3 storms are recommended as the standard for preparation.

Figure 5.6: Storm Surge Inundation for Hurricane Categories 1-4



**Borough of Keyport  
Monmouth County, N.J.**

**Legend**

- Critical Facilities
- Maximum Extent of Sandy Storm Surge
- Up to 3 feet above ground
- Greater than 3 feet above ground
- Greater than 6 feet above ground
- Greater than 9 feet above ground

N  
↑

0 1,650 3,300 6,600 Feet

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SOURCES: NJDEP GIS Data, NOAA Hurricane Inundation Layer Packages

State Plane Coordinates:  
NAD\_1983\_StatePlane\_New\_Jersey\_FIPS\_2900\_Feet

## COMMUNITY RESILIENCE PLAN ELEMENT

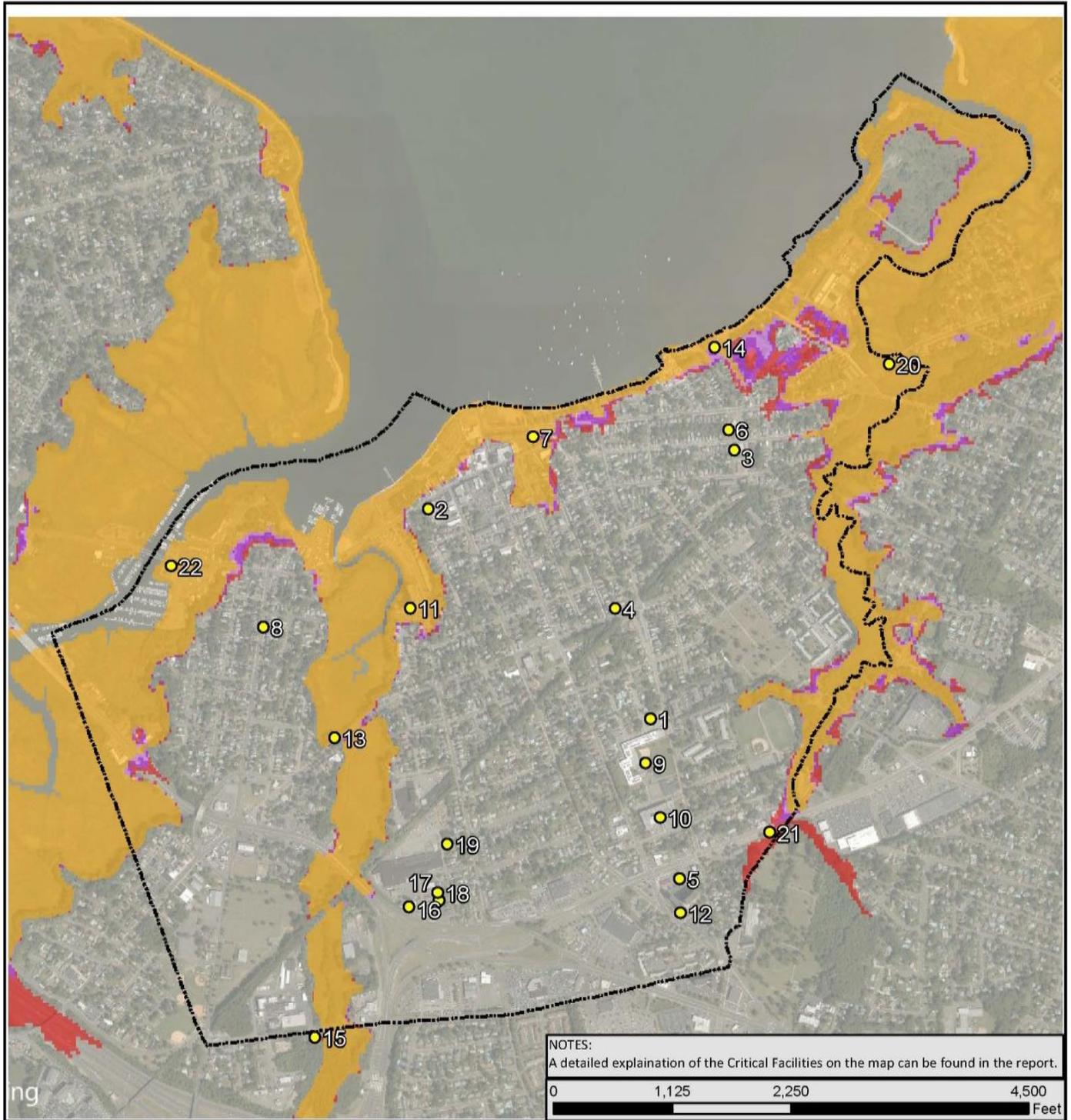
As explained in the previous section on the hazard Sea Level Rise, sea levels are expected to increase between 0.3 to 2 feet by 2050 and 0.7 to 6.6 feet by 2100. Based on the estimated elevation of the critical facilities, no facilities are in danger of SLR by 2050.

However, an increase in the sea levels also means an increase in the SFHA. The maps on subsequent pages show the increase in Keyport's SFHA for the various SLR scenarios, described in the *Sea Level Rise* section.

As sea levels rise, existing critical facilities not currently within the SFHA, will be in a new flood hazard area. By 2050, the Sanitary Sewer Pump Station on Clark Street (#15 in Figures 5.7 and 5.8) will be within the SFHA and will need to be relocated or elevated to BFE plus 1 foot. The Shorelands Interconnection with Hazlet (#21 on Figures 5.7 and 5.8) may also be within the SFHA, according to the "Highest" Scenario outcome. By 2100, Lincoln Hose Company Firehouse and the Fire Patrol Building (#3 and #6, respectively, in Figures 5.7 and 5.8) will be within the SFHA of the "Intermediate-High" Scenario outcome.

It is also important to note that as SLR increases, so will storm intensity and frequency. The modeled increases to the SFHA are based on the added SLR (for each scenario) to the current SFHA, which reflects inundation from similar to a Category 1 storm. Higher SLR and more intense storms may have an SFHA that reflects stronger storm surge inundation, which may further increase the future SFHA.

**Figure 5.7: Potential SFHA Under Different SLR Scenarios-2050**

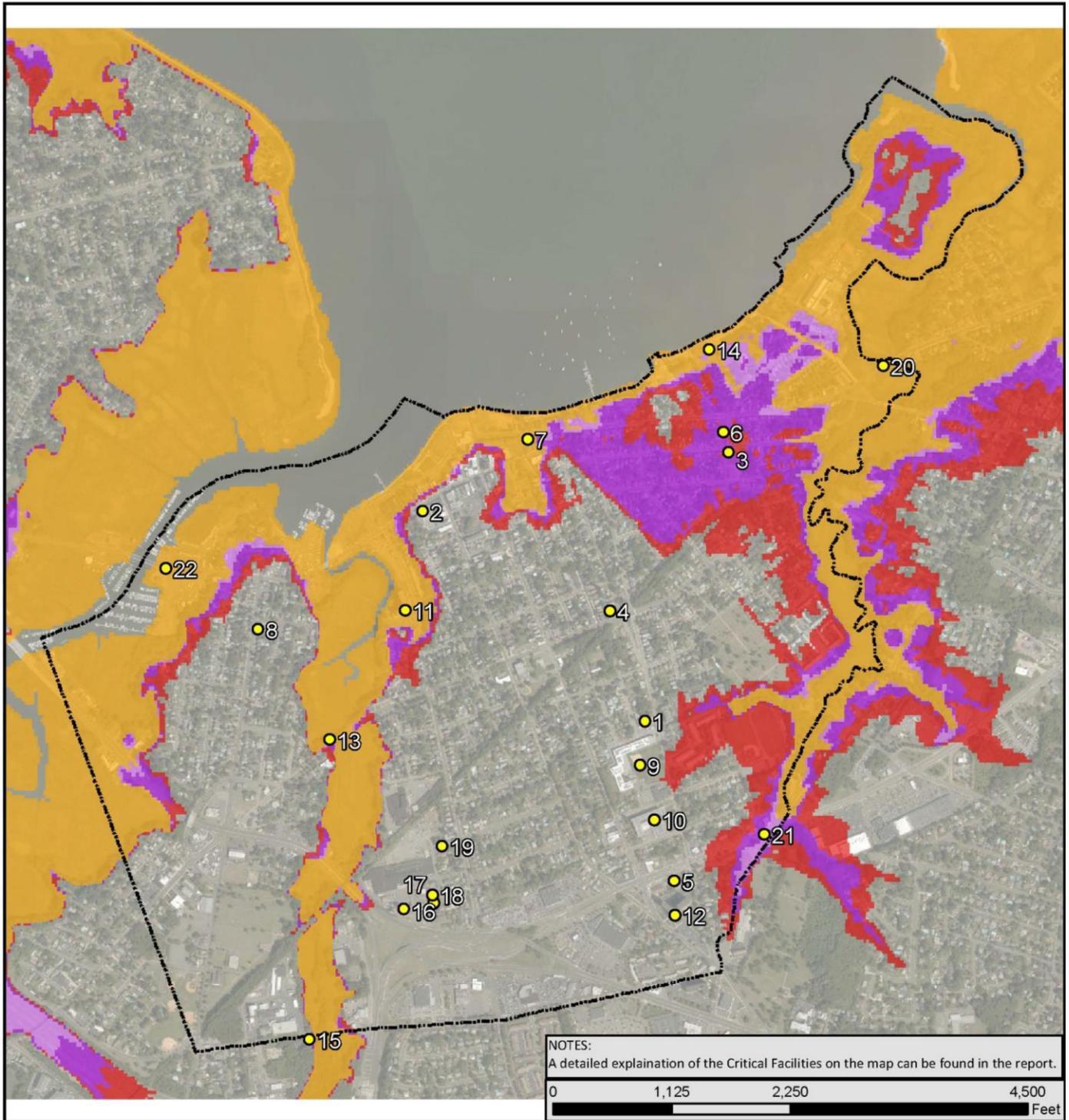


NOTES:  
 A detailed explanation of the Critical Facilities on the map can be found in the report.

0 1,125 2,250 4,500  
 Feet

<b>Legend</b>			<b>MATRIXNEWORLD</b> Enabling Progress 442 State Route 35, 2nd Floor Eatontown, New Jersey 07724 WBE/DBE/SBE Tel: 973-240-1800 Fax: 973-240-1818 www.matrixneworld.com	
Orange square: Lowest (Most Recent SFHA + 0.3 ft) Light purple square: Intermediate-Low (Most Recent SFHA + 0.7 ft) Dark purple square: Intermediate-High (Most Recent SFHA + 1.3 ft) Red square: Highest (Most Recent SFHA + 2.0 ft)	Dashed black line: Keyport Yellow circle: Critical Facilities			
<b>Borough of Keyport                  Monmouth County, N.J.</b>			PROJECT NUMBER: LD15-349 DRAWN BY: MM SCALE: 1:15,000 DATE: 1/17/2017	SOURCES: NJDEP GIS Data, NOAA GIS Data State Plane Coordinates: NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet

**Figure 5.8: Potential SFHA Under Different SLR Scenarios-2100**



<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: orange; border: 1px solid black; margin-right: 5px;"></span> Lowest (Most Recent SFHA + 0.7 ft)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: purple; border: 1px solid black; margin-right: 5px;"></span> Intermediate-Low (Most Recent SFHA + 1.6 ft)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: darkpurple; border: 1px solid black; margin-right: 5px;"></span> Intermediate-High (Most Recent SFHA + 3.9 ft)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: red; border: 1px solid black; margin-right: 5px;"></span> Highest (Most Recent SFHA + 6.6 ft)</li> </ul>		<ul style="list-style-type: none"> <li><span style="display: inline-block; border-bottom: 1px dashed black; width: 20px; margin-right: 5px;"></span> Keyport</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: yellow; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> Critical Facilities</li> </ul>	<p><b>MATRIX</b><b>NEWORLD</b></p> <p>Enabling Progress</p> <p>442 State Route 35, 2nd Floor Eatontown, New Jersey 07724 WBE/DBE/SBE</p> <p>Tel: 973-240-1800 Fax: 973-240-1818 www.matrixnewworld.com</p>							
<p><b>Borough of Keyport</b> <b>Monmouth County, N.J.</b></p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: small;">PROJECT NUMBER:</td> <td style="font-size: small;">DRAWN BY:</td> <td style="font-size: small;">SCALE:</td> <td style="font-size: small;">DATE:</td> </tr> <tr> <td style="font-size: x-small;">LD15-349</td> <td style="font-size: x-small;">MM</td> <td style="font-size: x-small;">1:15,000</td> <td style="font-size: x-small;">1/17/2017</td> </tr> </table> <p style="font-size: x-small;">SOURCES: NIDEP GIS Data, NOAA GIS Data State Plane Coordinates: NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet</p>		PROJECT NUMBER:	DRAWN BY:	SCALE:	DATE:	LD15-349	MM	1:15,000
PROJECT NUMBER:	DRAWN BY:	SCALE:	DATE:							
LD15-349	MM	1:15,000	1/17/2017							

# COMMUNITY RESILIENCE PLAN ELEMENT

## *Emergency Shelters and Evacuation Routes*

Keyport’s emergency shelters as identified by Keyport Office of Emergency Management (OEM) are the First Aid Station, Keyport Central School and Keyport High School. The First Aid Station can handle a maximum occupancy of 50 people and is used as an immediate shelter during minor hazard events (i.e. power outage during a winter storm). Should demand for shelter exceed the capacity of the First Aid Station, the two Keyport schools are used. These shelters are outside of the SFHA, and would provide safe shelter during flood events for a Category 1 or 2 hurricane, per Table 5.7. The Borough residents should seek alternative shelter locations in the event of a Category 3 or higher storm.

Evacuation routes must be viewed at both a local and regional level in order to ensure that comprehensive strategies for evacuation can be developed. The Map below depicts the regional evacuation routes established in Monmouth County. The State of New Jersey has identified Routes 35 and 36 as regional evacuation routes, as well as the nearby Garden State Parkway.

The following streets are the existing local evacuation routes as identified by Keyport OEM. The Routes include:

- Atlantic Street
- Broad Street
- Broadway
- Clark Street (between Garden State Parkway & Lloyd Road)
- Green Grove Avenue
- Main Street
- Maple Place
- West Front Street

Figure 5.10, at the end of this section, identifies the impact of various storm categories on Keyport’s road network. This figure should be used as a resource in identifying the best roadways for evacuation during various storm intensities.

Located at a crossroad of 3 regional evacuation routes, the Borough should work with NJ Department of Transportation in elevating Route 35 north of the intersection with Route 36. This portion of the highway is susceptible to inundation from a Category 1 storm and should provide a more reliable and safer option to those escaping a regularly occurring storm. Similarly, the Borough should also pursue elevating the portion of Route 36 on the Hazlet Border. This segment of the highway is susceptible to inundation from a Category 2 storm.

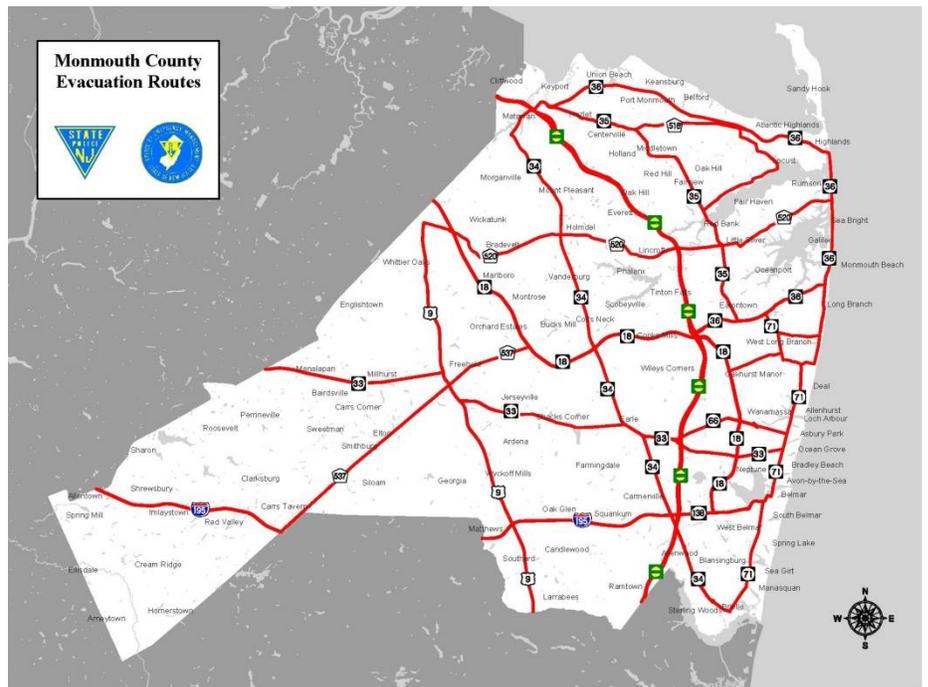


Figure 5.9. Regional evacuation routes. Keyport is located near 3 intersecting routes.

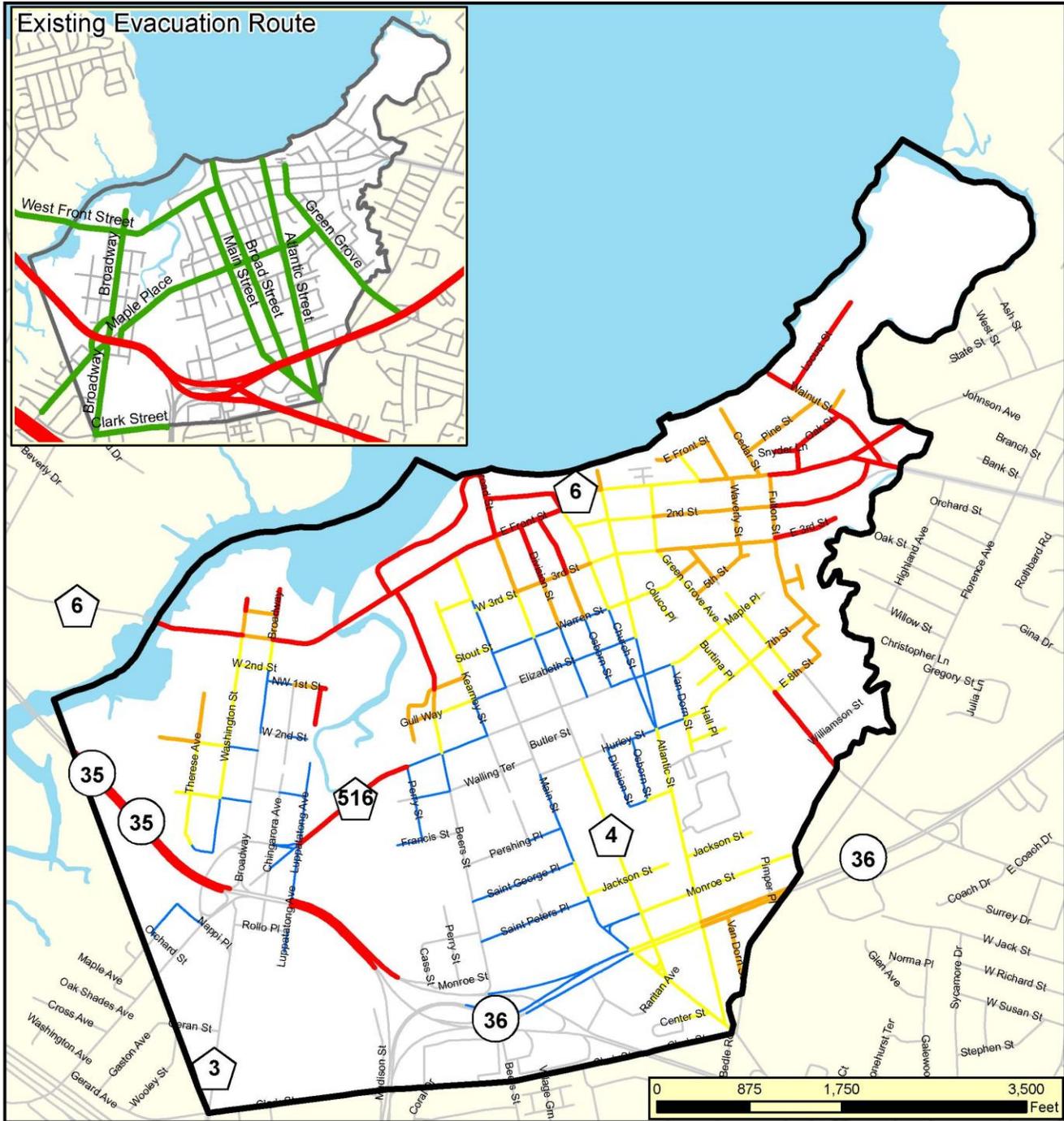
## COMMUNITY RESILIENCE PLAN ELEMENT

These flood issues have been reported during past storm events. Local residents of Keyport have experienced these roads flood during multiple storm events in the past. For example, during multiple nor'easters and Superstorm Sandy, Route 35 was flooded just west of Broadway and was not passable by passenger vehicle. Route 36 floods just east of Florence Avenue and is not a viable evacuation route from Keyport. Further, the Garden State Parkway floods in the marsh area at Morgan Creek and is not passable to the north during significant storm events.

Until the flooding along these highways is mitigated, the most prudent course of action would be to evacuate 24 or more hours before the storm, and the Borough should focus its evacuation inland toward Hazlet. Due to the direction of the creeks flowing through the Borough, it should not be surprising that many streets would be susceptible to storm surge, especially those routes moving east and west. Fortunately, many of Keyport north and south moving routes are not affected by a Category 2 storm or weaker (storms recurring every 19 years or less). This ensures Keyport residents can evacuate, if needed, away from coastal flooding and into Hazlet. Keyport will need to coordinate these efforts with the adjacent municipality so as to ensure an efficient evacuation when needed

# COMMUNITY RESILIENCE PLAN ELEMENT

**Figure 5.10: Keyport Road Inundations Under Different Storm Categories**



<b>Legend</b>			<b>MATRIXNEWORLD</b> Engineering Progress 442 State Route 35, 2nd Floor Eatontown, New Jersey 07724 WBE/DBE/SBE Tel: 973-240-1800 Fax: 973-240-1818 www.matrixneworld.com			
[Black outline] Keyport [Red line] Category 1 Inundation [Orange line] Category 2 Inundation	[Yellow line] Category 3 Inundation [Blue line] Category 4 Inundation [Grey line] Street Segments				<table border="1"> <tr> <td>PROJECT NUMBER: LD15-349</td> <td>DRAWN BY: MM</td> <td>SCALE: 1:15,000</td> <td>DATE: 2/9/2017</td> </tr> </table>	PROJECT NUMBER: LD15-349
PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:15,000	DATE: 2/9/2017			
<b>Borough of Keyport                  Monmouth County, N.J.</b>			SOURCES: NJDEP GIS Data, NOAA ArcGIS Online Layer Package State Plane Coordinates: NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet			

# COMMUNITY RESILIENCE PLAN ELEMENT

## **Social and Economic Vulnerability**

For many residents, business owners and employees in Keyport, the losses experienced during Sandy were not just the loss of property; it was the loss of a home, a business and a way of life. This Master Plan has considered the impacts natural disasters have on the social and economic composition of a community, and not just on the built environment. The social and economic fabric of Keyport was considered in this Community Resilience Element and in the other elements that comprise this Master Plan. Goals, objectives and recommendations that support social and economic Resilience are included in the subsequent section of this Plan. In addition, detailed goals, objectives and recommendations for economic development and resilience are included within the Economic Development Plan Element.

A more complete and detailed Community Vulnerability Assessment and Hazard Mitigation Plan is being prepared. These supplementary documents contain more detailed information regarding hazard mitigation projects and vulnerability.

## **E. RECOMMENDATIONS FROM PAST STUDIES AND REPORTS**

Key recommendations from previously prepared studies and reports are included below and are hereby made a part of this Community Resilience Element and Master Plan. Consideration of these key recommendations should be part of the planning process for all projects which could impact implementation of the recommendations.

### **2009 MONMOUTH COUNTY ALL HAZARD MITIGATION PLAN (MCAHMP), UPDATE IN 2014**

#### ***Project Recommendations***

1. Maple Place Pump Station Improvements – elevate electrical panels above Advisory Base Flood Elevations (ABFE), emergency backup generator, etc.
2. Cedar Street Pump Station Improvements – elevate electrical above ABFE, water tightness, emergency backup generator, etc.
3. Division Street Stormwater Improvements – improve stormwater drainage system between Front and Third Streets - improve capacity and control backwater from Raritan Bay.

#### ***Stakeholder Recommendations***

1. Maple Place Culvert –Members of the Harbor Commission identified the Luppataong culvert at Maple Place as a potential project for mitigation.
2. Homeowners are fearful of flood insurance rate increases imposed by mortgage holders that require higher flood insurance for any property that is even partially in a flood high hazard zone. Removal of V-Zone designation, where feasible, and participation in CRS program is recommended in order to help address this concern (portions of the V-Zone have been removed; see Appendix A).
3. Address the repetitive flooding in the Division Street neighborhood.
4. Repair the outfall at Beach Park and make other improvements to existing stormwater management facilities to improve capacity and prevent backwater flooding from Raritan Bay.
5. Harbor Commission recommended dredging of the silted channels of the Luppataong Creek, advancing of the Army Corps recommendations for a levee and/or wave break and replacing damaged bulkheads at the end of Walnut Street. Acquisition of the Ye Cottage Inn with Blue Acres funding for expansion of the recreational waterfront was also recommended, potentially with enhanced transient boater facilities and water taxis covered by a Boaters Infrastructure Grant (BIG).

# COMMUNITY RESILIENCE PLAN ELEMENT

## 2014 STRATEGIC RECOVERY PLANNING REPORT (SRPR)

The SRPR recommends including goals, objectives or polices that would support municipal planning needed related to future storm mitigation, Resilience and/or post-storm recovery be included in Chapter XXV, Land Use Regulations and Chapter 291, Land Subdivision and Site Plan Ordinance.

The SRPR and the 2009 MCAHMP recommend implementation of the following two projects for Keyport:

1. Fireman's Park Bulkhead – Extension of the bulkhead (elevation of 8.1 feet) from Fireman's Park to Monmouth County Bridge on Luppataong Creek and the elevation of the parking lot to the level of the bulkhead.
2. Raising of Green Grove Avenue – Raise Green Grove Avenue at Chingarora Creek culvert crossing to alleviate storm flooding.

The SRPR has recommended additional projects, organized into the following three categories:

### ***Stormwater Management (SRPR)***

1. Elevate Green Grove Avenue – key connector between downtown Keyport and Route 36; potential evacuation route -scheduled for construction in 2014).
2. Division Street Stormwater Management Improvements by replacing damaged outfall pipe at Beach Park and expanding capacity of stormwater system along Division Street between Third Street and Front Street.
3. Beers Street Stormwater Management Improvements by elevating low lying section of Beers Street near Front Street and rehabilitating stormwater management system to prevent backflow from Luppataong Creek during moon high tide and heavy rainfall events.
4. Elevate Maple Place over Luppataong Creek to increase capacity of culvert or convert culvert to a bridge (Environmental Impact Statement likely to be required).
5. Elevate First Street over Chingarora Creek to improve stormwater drainage and prevent blockage during storm events.

### ***Hazard Mitigation (SRPR)***

1. Raise bulkheads along First Street and raise abutting land and elevated land behind bulkheads must be filled and bulkheads capped in accordance with NJDEP requirements.
2. Elevate occupied structures in special flood hazard areas where bulkheading is not an option or is not practical to achieve Resilience.
3. Ensure erosion eliminating structures meet the NJDEP design standards for the SFHA they are located in.
4. Extend bulkhead at Fireman's Park.
5. Elevate Firemen's Park bulkheading and flood prone parking lot and construct a levee along the banks of Luppataong Creek with an elevation of 12.5 feet, terminating behind the American Legion apartments as described in the Army Corps of Engineers Study Recommendations: Alternative #7.
6. Create wave attenuator in Keyport Harbor.

### ***Preparedness (SRPR)***

1. Ordinance requiring securing of floating docks, gangways, etc.
  - a. Supplement Flood Prevention Ordinance or add regulations to Borough Code requiring removal and/or securing of boats, floating docks, gangways, etc. from Keyport Harbor within a specified period from the issuance of an order from Emergency Management personnel. Establish penalties for owners of floating objects removed by the Borough due to compliance issues in order to prevent property damage during storm events.

## COMMUNITY RESILIENCE PLAN ELEMENT

- b. Amend Flood Prevention Ordinance or add regulations to Borough Code prohibiting the construction of occupied structures seaward of the mean high water line or on piers or platforms except for essential structures for “functionally dependent uses” such as marinas or boatyards.
2. Post Disaster Recovery Capital Improvement Plan
  - a. A Post Disaster Recovery Capital Improvement Plan is being prepared under the PSPAG grant that has funded the preparation of this Community Resilience Plan.
  - b. It is recommended that the five year plan for capital projects directly link to and promote the Borough’s goals, objectives and recommendations for Resilience, recovery, mitigation and preparedness.
3. Borough-Specific Hazard Mitigation Plan
  - a. A Borough-Specific Hazard Mitigation Plan is being prepared under the PSPAG grant that has funded the preparation of this Community Resilience Plan.
  - b. It is recommended that the Borough-Specific Hazard Mitigation Plan build on the County HMP and directly link to and promote the Borough’s goals, objectives and recommendations for Resilience, recovery, mitigation and preparedness.
4. Neighborhood Plans
  - a. Neighborhood Plans that include specific strategies for neighborhoods most severely impacted by Sandy to improve Resilience are being prepared under the PSPAG grant that has funded the preparation of this Community Resilience Plan.
  - b. The plans are being prepared for the portion of Beers Street basin, Division Street basin, First Street waterfront and Walnut-Oak Street basin that are most vulnerable to storm events.
  - c. It is recommended that these Neighborhood Plans directly link to and promote the Borough’s goals, objectives and recommendations for Resilience, recovery, mitigation and preparedness.
5. Permit Process-Quality Improvement
  - a. Improving the permitting process can help speed recovery and save residents and business owners substantial amounts of money during recovery.
  - b. It is recommended that the Borough review existing permitting procedures to determine improvements for fast-tracking/streamlining for expediting projects directly related to recovery or mitigation and that are consistent with adopted Design Standards (Project 13).
  - c. This initiative is being completed under the PSPAG grant that has funded the preparation of this Community Resilience Plan.
6. Design Standards (integrating elevated structures into community design character) are being prepared under the PSPAG grant that has funded the preparation of this Community Resilience Plan. It is recommended that these design standards address the visual impact of mitigation measures such as elevating bulkheads, elevating buildings on foundations or pilings, etc. Such design standards might include requirements for skirting exposed pilings, parking under the lowest habitable floor, using exterior decking to stagger stairways to elevated first floor levels, etc. (see example of home designs in flood zones below).

### “GETTING TO RESILIENCE” REPORT

The March 2016 Borough of Keyport “Getting to Resilience” Report attached in Appendix C, prepared by Jacques Cousteau National Estuarine Research Reserve (JCNER), contains several recommendations that are pertinent to this Community Resilience Plan. Table 5.8 also documents the implementation status of these recommendations. Details of these recommendations are provided in the Jacques Cousteau “Getting to Resilience” Report in Appendix C.

## COMMUNITY RESILIENCE PLAN ELEMENT

<b>Table 5.8: Recommended Project or Initiative and Implementation Status</b>	<b>Status</b>
<b><i>Outreach</i></b>	
Make sure all outreach programs are quantified and catalogued according to CRS standards.	Pending
Develop a pre-flood plan for public information projects that would be implement during and after a flood.	Pending
Make the public talks that took place post-Sandy about flood zones, flooding risk, building recommendations, etc. into annual meetings.	Pending
Create and maintain a Flood Information section of the Borough website through the Program for Public Information (PPI).	Completed
Create a coastal hazard disclosure policy.	Pending
<b><i>Mitigation</i></b>	
Create a detailed mitigation plan for areas that experience repetitive loss.	Pending
Use sea level rise and storm surge mapping to identify possible roadways at risk to sea level rise.	Completed Herein
Consider returning any properties acquired through Blue Acres or other buyout or acquisition programs to natural flood plain functions.	Pending
Keyport should continue to identify, map and keep data on areas of coastal erosion and consider creating erosion protection programs or instituting higher regulations for building in areas subject to coastal erosion.	Pending
Explore partnering with organizations on living shorelines projects.	Completed
<b><i>Preparedness</i></b>	
Establish an emergency operations center.	Completed
Back up all municipal planning documents and other critical materials.	Partially Completed
Establish a flood warning system.	Pending
Create a special needs database.	Pending
Work to become designated as a StormReady Community by the National Weather Service.	Pending
Hold regular meetings of Borough staff to discuss resilience issues and share information.	Completed
Attend the Monmouth County CRS User Group Quarterly Meetings.	Completed
Adopt an ordinance to join the Monmouth County Emergency Intracounty Mutual Aid and Assistance Agreement between participating units.	Pending
Transfer personal knowledge, documents and other records of coastal storm and flooding event damages to digital format and place on a shared Borough computer drive to all for access by multiple municipal departments.	Pending
Have Borough municipal officials and staff participate in FEMA training courses.	Completed
Utilize the Community Vulnerability Assessment Tool, Risk and Vulnerability Assessment Tool, Hazard Assessment Tool, and HAZUS-MH to identify potential hazards, risks and vulnerabilities and keep mapping information on file.	Pending
<b><i>FEMA Mapping</i></b>	
Adopt the latest version of FEMA's flood maps as they are released, consider strengthening elevation requirements in the Flood Hazard Areas Ordinance as based upon the most stringent version of FEMA's flood maps and consider increase freeboard requirements.	Completed
Ensure the public is aware of any changes to FEMA's flood maps as they are updated and adopted as well as if those updates result in changes to the Borough's building requirements.	Completed
Make sure all flood maps are available on the Borough website, at Borough Hall and at the local libraries.	Completed
<b><i>Planning</i></b>	
Create an Emergency Operations Plan.	Pending
Create an Evacuation Plan.	Pending
Consider creating a Borough Continuity of Operations Plan.	Pending
Consider creating a shoreline management plan or special area management plan.	Pending
Create an action plan for precipitation flooding events.	Pending
Keyport should identify long-term inundation caused by sea level rise as a hazard in municipal plans and consider disclosing hazard risks.	Completed Herein
Examine municipal plans, strategies and ordinances and consider rewriting sections to include the previous recommendations or reflect the risk, hazards and vulnerabilities explored in the Getting to Resilience process.	Pending

## COMMUNITY RESILIENCE PLAN ELEMENT

### *Additional Recommendations:*

1. Encourage energy Resilience projects and initiatives, including microgrids, distributed generation (where electricity is generated from multiple small energy sources such as fuel cells or solar panels), smart grid technology and energy storage.
2. Recommend the Borough update its Standard Operating Procedure (SOP). This updated SOP should consider, but is not limited, to the following recommendations:
  - a. Identify and leverage grants, funding and incentive opportunities to facilitate the implementation of the projects and initiatives identified in this Master Plan. Appendix D provides a partial list of representative grants, programs and strategies the Borough can leverage in implementing the goals, objectives, and recommendations of this Element.
  - b. It is recommended that in-kind volunteer services be sought for each project and initiative to the extent feasible in order to further reduce costs.
  - c. Develop a Post Hurricane/Severe Storm Checklist.
  - d. Initiate curbside pickup of storm debris.
  - e. Inspect homes in flooded areas to assess damage to electrical, gas and water services to prevent fires.
  - f. Create policy/guidelines on how to contact the KFD and/or businesses for assistance in pumping out flooded basements.
  - g. Identify a coordinator for the recovery effort who is familiar with the FEMA process and policies.
  - h. Survey impacted areas for damage estimates.
  - i. Identify issues requiring special support from the Borough (permit fees, plan reviews, joint initiatives, bulk metal disposal, etc.).
2. A comprehensive update to the Borough's Ordinances as they pertain to Resilience is recommended and should include the specific amendments recommended herein. Changes in federal regulations, such as Base Flood Elevation (BFE), as well as an evolving national discussion on how to match Resilience with urban design will almost certainly impact the look and feel of new development in Keyport. Raising habitable space in buildings, the potential for bulkheads, and even changes to the grade of the land all need to be addressed in a way that will ensure that residents and business owners of the Borough are safe and buildings and infrastructure are resistant to natural storm threats and sea level rise; but at the same time retain the pedestrian scale, active street life, waterfront accessibility and scenic views.

## F. GOALS & OBJECTIVES

The following Goals and Objectives are established to guide the decision making of the Borough and to set the course for future development and Resilience measures that will be considered and implemented. The recommendations included in the SRPR and the recommendations from the "Getting to Resilience Report" that are set forth above are incorporated herein by reference as additional objectives.

***Goal 1 - Reduce the exposure of human life and public and private property to the threat posed by severe storms. The strategy for achieving this goal is to accomplish the following objectives:***

- Develop a continuing education program for residents focused on areas prone to flooding during severe storms and the need for residents' participation in securing their life and property.
- Add a link to Keyport specific storm preparation information on the front page of the Borough website. Establish the capability for communications of storm preparation information through robo-calls, social media, Borough website and postings on the Borough's digital message boards (Route 35 and BOE).
- Build on the Monmouth County flood evacuation zone material, define evacuation routes for all Keyport neighborhoods and post signage at key intersections.
- Expand safe access routes by elevating roads that repeatedly flood and incorporate these road elevation projects into the Borough Capital Improvement Plan.

## COMMUNITY RESILIENCE PLAN ELEMENT

- Elevating Green Grove Avenue (SRPR Item #1).
- Division Street Stormwater Management Improvements (SRPR Item #2).
- Beers Street Stormwater Management Improvements (SRPR Item #3).
- Elevating Maple Place over Luppataong Creek (SRPR Item #4).
- Elevate First Street or create a bridge over the Chingarora Creek (SRPR Item #5).
- Extend the bulkhead at Fireman’s Park and elevate parking lot (SRPR Item #8).
- Develop a pre-flood plan for public information projects that would be implemented during and after a flood. This would include creating and maintaining a flood information section of the Borough website through the PPI (“Getting to Resilience” Outreach Items #2 and #4).
- Establish an emergency operations center and a flood warning system, ready to implement before the arrival of flooding. The Borough should also create and maintain a special needs database to identify residents that would need assistance during an evacuation (“Getting to Resilience” Preparedness Items #11, 13, and #14).
- Develop a robust Community Rating System (CRS) program for Keyport.
- Update the Flood Damage Prevention Ordinance to require the anchoring of all structures in the SFHA and verify anchoring as part of the severe storm preparation process.
- Enforce the Zoning Ordinance banning trailers in all districts and verify removal as part of the storm preparation process.
- Initiate implementation of the above objectives will commence by September 2017.

***Goal 2 - Secure the future of Keyport against economic setbacks by taking aggressive steps to ensure community resilience. The strategy for achieving this goal is to accomplish the following objectives:***

- Ensure the functioning of critical Public Facilities (Pump Stations, Firehouses and County Bridges) presently located in Special Flood Hazard Areas with a ground elevation below the BFE by elevating them above the BFE and/or fortifying them in place and providing back up power.
- Create a Borough-Specific Continuity of Operation Plan and Post Disaster Recovery Plan to guide storm preparation, post storm clean-up and resumption of government functions (Keyport “Getting to Resilience Item # 26).
- Identify and initialize web-based applications that can support rapid assistance to residents incurring substantial storm damage (e.g. <https://recovers.org>).
- Team with the Army Corp of Engineers to develop cost-effective severe storm protection projects for Keyport (SRPR Item #10).
- Ensure that any coastal flood protection or Resilience project maintains public access to the waterfront.
- Enforce the Borough’s General Ordinance Section 12-5 regarding development and renovation/maintenance of severe storm barriers (e.g. bulkheads, beach elevations).
- Generate a Borough Hazard Mitigation Plan that is in alignment with the sections of the County and State Hazard Mitigation Plans addressing Flooding and Hurricanes (SRPR Item #13).
- Ensure that Keyport maintains robust and resilient communications and data infrastructure for use by the public and private sector.
- Implement projects to protect vulnerable areas from coastal and pluvial flooding.
- Identify points of necessary infrastructure coordination with the neighboring communities.
- Maximize CRS program points to reduce the economic losses and business unemployment due to hazard generated interruptions and to reduce insurance expenses for all businesses and homeowners within the Borough.
- Coordinate between the proposed flood protection infrastructure and landscape projects and the ongoing and foreseen development projects in the Borough.
- Initiate implementation of the above objectives by May 31, 2018.

## COMMUNITY RESILIENCE PLAN ELEMENT

***Goal 3 - Take steps to ensure that Keyport continues as a Bayfront community not prone to extensive damage due to severe storms now and in the future. The strategy for achieving this goal is to accomplish the following objectives:***

- Identify both severe storm flooding risk and long-term inundation caused by sea-level rise through 2050 as a hazard to the Borough to be accounted for in municipal planning by the Keyport Unified Planning Board (KUPB).
- Update Borough Use and Zoning regulations to take into account both severe storm flood risk and sea-level rise projections through 2050.
- Limit development intensity in the SFHA to the existing densities that are currently permitted in the Borough Zoning Ordinance.
- Update the Flood Damage Prevention Ordinance to require an elevation of BFE plus 3 feet for mechanical equipment and the lowest floor joist of a new building or required rebuild (based on the 55% damage due to flooding criteria) that is located in SFHA VE and AE zones to deal with sea-level rise over the life of the building.
- Implement green infrastructure projects that promote Resilience and enhance the aesthetic, ecological and recreational aspects of the waterfront. For example, oyster beds and living shorelines projects may be implemented in appropriate location.
- It is envisioned that implementation of the above objectives will commence by May 31, 2017.

***Goal 4 - Improve emergency preparedness Borough-wide. The strategy for achieving this goal is to accomplish the following objectives:***

- Identify “resilience centers” accessible to and capable of serving residents Borough-wide.
- Facilitate mobility and connectivity for ease of emergency evacuation by maximizing CRS points associated with these items.
- Remove unanchored structures and items such as pods, dumpsters, docks, trash cans, etc., prior to a forecasted hazard condition.
- Map flood prone areas as a function of surge levels and rain forecasts and utilize these data in real-time storm preparedness.
- Utilize SOPs for storm preparation and recovery to ensure data requirements and process steps for any Borough FEMA claims are known.
- Inspection of SFHA to ensure structures (dumpsters, hot tubs, sheds, vessels, PODS, etc.) are anchored or removed from the SFHA.
- Inspection of floating docks to ensure all vessels are removed and docks are secured.
- Removal and/or anchoring of Beach Park structures (gazebo, boat ramp, attendant's house, floating docks).
- Cleaning of storm drains and Beach Park outfall pipe.
- Order dumpsters in advance of a major storm and pre-position in a safe location.
- Communications to residents regarding these objectives.

***Goal 5: Create a socially resilient community. The strategy for achieving this goal is to accomplish the following objective:***

- Leverage proposed flood protection infrastructure and landscape projects to benefit all citizens of Keyport with an emphasis on the most vulnerable neighborhoods.

# HOUSING PLAN ELEMENT

## 6. HOUSING PLAN ELEMENT

### INTRODUCTION

The majority of the Borough of Keyport's housing stock is single-family residential, with over half of the Borough's housing stock comprised of single-family homes. The single-family residential neighborhoods are characterized by their century-homes and historic charm with approximately 40% of housing units being built before 1939.

While the Borough maintains a predominately single-family character, Keyport also provides a range of housing choices including two-family duplex homes, townhouses, low-rise, garden apartments, and mid-rise and high-rise, age restricted apartments. While approximately 56.4% of the Borough's housing stock is comprised of single-family homes, a total of 12.7% of the Borough's housing stock is comprised of 2-, 3-, or 4-family homes. The remaining 30.9% of the Borough's housing stock is comprised of larger, multi-family units (i.e., units in structures containing 5 or more units) available in numerous multi-family developments located throughout the Borough.

The local market also seems to be split evenly between owner-occupied and renter-occupied units, with 51.6% of all units being owner-occupied units, slightly outnumbering the renter-occupied units. The vacancy rate for homeowners is very low (approximately 0% with a margin of error from the US Census stated as 2.4%) but as many as 90 homes are estimated to be vacant in the Borough. However, opportunities exist for households wishing to rent within the Borough with a 4.1% vacancy rate for rental units.

Reflecting the Borough's history as a regional maritime center of trade, the Borough's housing is generally older than housing in the surrounding towns that largely developed in the post-World War II era. The Borough's housing stock is also less expensive than the surrounding towns. Keyport's median home value is \$270,300, compared to the median home value of \$386,900 for Monmouth County.

A total of 75.8% of Borough households pay less than 35% of their household income toward their monthly housing costs. This indicates that the Borough is more affordable than the Monmouth County average, where 70.1% of households pay less than 35% of their income towards housing. The median monthly housing costs in the Borough are approximately \$1,191, over \$600 less than the median monthly housing cost of the County (\$1,796).

Keyport Borough has stated that it must continue to address the housing needs of its residents and must continue to address housing-related issues that affect its overall planning goals. The primary housing-related issues within the Borough include the following:

- *Need to maintain and increase the Borough's inherently affordable housing stock.* There is still a continuing need to provide safe, code compliant, inherently affordable housing within the Borough. Therefore, in addition to working towards providing additional affordable housing, there is an ongoing need to reduce the number of substandard and overcrowded housing units through enforcement of housing regulations as well as more pro-active approaches.
- *Need to continue to provide a variety of housing options attractive to households of varying compositions and income levels.* The Borough has a variety of housing options including a limited number of multi-family units. The Borough intends to continue to offer a variety of housing types while maintaining its historic, single-family character. The Borough plans to devote considerable effort to revitalizing its downtown and

## HOUSING PLAN ELEMENT

waterfront neighborhoods which may include mixed-use residences above first-floor commercial/retail. This mixed-use approach would increase the critical mass of residents needed to promote additional economic development.

- *Need to retain owner-occupancy in the Borough.* Just under half of the Borough's occupied housing stock consists of rental units. Master Plan committee members and residents at open houses expressed a concern for a rise in the number of rental housing in the Borough, which can contribute to neighborhood destabilization due to property neglect and high tenant-turnover. Alternatively, members and residents were interested in continuing to encourage and promote the small-town character, sense of civic responsibility and volunteerism that Keyport is known for, which stable neighborhoods help achieve.

### KEY HIGHLIGHTS

The Housing Element begins by describing the community profile of Keyport. This includes demographic data, as well as data pertaining to the Housing Profile of Keyport. All data is taken from the 2000 Census, 2010 Census, and 2014 5-year American Community Survey.

Some key findings of this community profile are:

- Keyport's population, currently 7,145, has been declining since its peak in 2000 (7,568 persons)
- While the population has been declining, the median age of Keyport has been rising slightly, indicating a loss of younger populations.
- Keyport is becoming more diverse.
- Employment distribution in Keyport are similar to those seen on the County and State-levels. However, a fewer portion of Keyport's population is employed in the Management, Business, Science, & Arts sector, and instead are employed at a greater percent in Natural Resources, Construction & Maintenance, and Production, Transportation, & Material Moving sector. Average earnings are also lower for Keyport than the Monmouth County and New Jersey averages.
- Median Household size is decreasing in Keyport. A greater percentage of households in Keyport are 1-or 2-person households.
- Homes are more affordable in Keyport. The median home value in Keyport is \$270,300, significantly lower than the County median, \$386,900.

The Borough is active in maintaining adequate affordable housing stock. The Borough obtained Substantive Certification from the Council on Affordable Housing (COAH) for the 1990-1996 time periods. The Borough maintains 2 affordable senior housing facilities and is active in rehabilitating existing housing stock under Monmouth County's rehabilitation program.

The Borough anticipates most of its new housing will occur through redevelopment, of which the Borough has 4 active Redevelopment Plans. Keyport also expects new housing to be provided in its General Commercial and Highway Commercial districts, which will now have a permitted residential/commercial mixed-use component.

The Borough is cognizant of the impacts this new development can have on its established, single-family neighborhoods. Per the Land Use Plan, no existing single-family residential areas (RA District) will be changed, and non-conforming uses in the RA District will be required to return to conforming use upon a change in use.

This Housing Element discourages the conversion of single-family homes in the RA District to multi-family dwellings. The Land Use Plan further emphasizes the importance of the RB District in providing a buffer to the

# HOUSING PLAN ELEMENT

RA District from the General Commercial and Marine Commercial areas, where two-family dwellings are permitted.

## COMMUNITY PROFILE

This section presents general demographic, housing and other information for the Borough of Keyport. It is important to understand this information and trends to comprehensively plan for the Borough’s housing needs. This section explores and analyzes information from 2000 Census, 2010 Census, 2014 5-year American Community Survey and other available information related to housing in Keyport.

### Overview

Keyport is a nearly fully built out municipality, with a population of approximately 7,145 persons. The Borough is located in central New Jersey along the Raritan Bay, less than an hour south of New York City, with access to three regional roadways: the N.J. Garden State Parkway; State Route 35 and State Route 36. The Borough is also served by New Jersey Transit’s 817 regional bus line, and is within proximity to two New Jersey Transit train stations, Hazlet and Matawan, served by the North Jersey Shore Line. The Borough’s position within the larger metropolitan area, as well as its ongoing revitalization and community development initiatives, leave the Borough poised for continued success in the future.

### Population

After decades of slow but steady growth, Keyport hit its peak population in 2000 at 7,568, as seen in the table below. Keyport saw a dramatic decrease between the 2000 and 2010 Census, losing an estimated 328 persons during this time frame, or about -4.3%. In 2012, the Borough’s estimated population declined past its pre-1970 Census estimate of 7,205 and continued to decrease to its present estimate of 7,145.

This pattern of declining population estimates is reflected in the pattern seen at the county level. Also shown in Table 6.1, Monmouth County as a whole experienced greater population growth since 1970, peaking in 2010, and is currently experiencing a decline. Two major factors to the declining population seen on the local and regional level can be attributed to the Great Recession in 2008 and Superstorm Sandy in 2012. The proximity of the Borough to financial hub New York has affected it during the Great Recession of 2008. This can be supported by the age demographics in the following section where working population, usually between ages 25-50 have decreased in numbers between 2000 and 2010. This followed by Superstorm Sandy has added to the population migrating out of the Borough. This can be observed clearly in the decline of population between 2000 and 2010 census followed by a decline in 2015.

**Table 6.1. Population Estimates for the Borough of Keyport, 1970-2015**

Area	1970	1980	1990	2000	2010	2011	2012	2013	2014	2015
Keyport Borough	7,205	7,413	7,555	7,568	7,240	7,221	7,202	7,196	7,176	7,145
Monmouth County	461,849	503,173	553,192	615,253	630,380	629,815	629,075	629,304	629,018	628,715
State of New Jersey	7,171,112	7,365,011	7,747,750	8,414,350	8,791,894	8,842,934	8,874,893	8,907,384	8,907,844	8,958,013

Source: US Bureau of Census

### Age Characteristics

There were no major changes in the Borough’s age profile between 2000 and 2014. That is, the percentage of persons within different age groups (i.e., the percentage of Borough population between 20 to 24, 25 to 34, etc.) was similar in 2014 to what it was in 2000. Slight increases in percentage did occur in the age ranges between 45-74 years old; this is reflected in the slight increase to the median age of the Borough, from 38.1 to 40.6 years old.

## HOUSING PLAN ELEMENT

Due to the overall decrease in the Borough population during the 2000s, the number of people within most of the age groups decreased. However, a major decrease in the working age group population is significantly visible between 2000 and 2010, which may be attributed to the Great Recession of 2008. This decrease in the number of persons in the 30 to 45 age groups is likely to have attributed to the decrease in the number of school-aged children.

The number of children in the age group 5-9 years dropped by nearly one-fifth between 2000 and 2010 and then saw a period of recovery and growth during the next 4 years, surpassing the 2000 estimate. While the number of children in the age group 10-14 had declined similarly between 2000 and 2010, they continued to decrease into 2014 unlike the 5-9 years age group. The population belonging to the age group 15-19 years old has reduced by nearly a third between 2010 and 2014, suggesting the movement of college-age people out of the Borough.

**Table 6.2. Age Characteristics for the Borough of Keyport, 2000-2014<sup>1</sup>**

Age	2000		2010		2014	
	Number	Percent (%)	Number	Percent (%)	Number	Percent (%)
Under 5 years	443	5.9	441	6.1	455	6.3
5-9 years	451	6.0	374	5.2	464	6.4
10-14 years	491	6.5	378	5.2	358	5.0
15-19 years	428	5.7	398	5.5	271	3.8
20-24 years	385	5.1	458	6.3	369	5.1
25-29 years	1,151	15.2	488	6.7	444	6.2
30-34 years			512	7.1	685	9.5
35-39 years	1,364	18.0	516	7.1	484	6.7
40-44 years			573	7.9	437	6.1
45-49 years	1,056	14.0	545	7.5	445	6.2
50-54 years			560	7.7	565	7.8
55-59 years	327	4.3	491	6.8	543	7.5
60-64 years	253	3.3	363	5.0	421	5.8
65-69 years	521	6.9	305	4.2	339	4.7
70-74 years			273	3.8	377	5.2
75-79 years	499	6.6	210	2.9	142	2.0
80-84 years			175	2.4	181	2.5
85 years and over	199	2.6	180	2.5	233	3.2
<b>Median age (years)</b>	--	<b>38.1</b>	--	<b>40.5</b>	--	<b>40.6</b>

### Diversity

The table on the next page demonstrates that the Borough of Keyport continues to be a primarily white community, but has diversified over the years. In 2000, the majority (85%) of Borough residents were White followed by the African American population (7%). Those of Hispanic or Latino origin (of any race) represented approximately 19% of the Borough population. While the share of African American population in the Borough seems to decrease over years, there is an increase in diversity due to ‘other races’ moving into the Borough. Together, non- white population in Keyport is almost a quarter of the Borough’s population and it continues to increase.

## HOUSING PLAN ELEMENT

Table 6.3. Population by Race – Keyport (2000-2014)						
Race	2000		2010		2014	
	Number	Percent (%)	Number	Percent (%)	Number	Percent (%)
White	6,477	85.2	5,792	80.0	5,588	77.5
Black/African American	531	7.0	521	7.2	412	5.7
American Indian/Alaska Native	4	0.1	20	0.3	0	0.0
Asian or Pacific Islander	171	2.2	174	2.4	227	3.1
Other Race	224	3.0	552	7.6	771	10.7
Two or More Races	186	2.5	181	2.5	215	3.0
Hispanic or Latino (of any race)	839	11.1	1,322	18.3	1,353	18.8

As shown in Table 6.4, as of 2000, a total of 818 persons (11%) in the Borough were born in foreign countries. By 2010, these numbers increased to 1,034 despite the decrease in the Borough’s population. This represents a 25% increase in foreign-born residents. This trend seems to continue into 2014 with over a 50% increase in foreign born residents in the Borough from 2000.

Table 6.4. Nativity and Place of Birth – Keyport (2000-2014)			
	2000	2010	2014
Native	6,750	6,278	5,948
Born in New Jersey	6,595	4,227	4,369
Born in a different state	4,912	1,866	1,489
Born outside of United States	1,683	185	90
Foreign Born	818	1,034	1,265

Census 2000 data indicates that 360 (44%) foreign-born Borough residents were naturalized citizens, while 458 (55) of the Borough’s foreign-born residents were not yet U.S. citizens. There is a decrease in the foreign-born residents with U.S Citizenship to 38%, which follows a national trend.

### Education

The table below shows the school enrollment and educational attainment of Borough residents between 2000 and 2014. The first part of the table shows the increase in the number of children attending pre-primary school between 2000 and 2014, despite the stable population of children under 5 years old over the years, as shown in Table 6.2. The significant decrease in the number of elementary-high school enrollment within the Borough over the last decade is consistent with the pattern of decreasing populations that constitute families as reflected in Table 6.2 above. The number of students enrolled in college and graduate school has reduced as well.

Table 6.5. School Enrollment (for Population over 3 Years Old)			
	2000	2010	2014
Pre-primary School	127	92	170
Elementary-High School	1,362	1,190	1,045
College or Grad School	430	447	322

The second table on the next page illustrates the educational attainment of the Borough residents over 25 years of age. According to 2000 Census, 83% of City residents over the age of 25 graduated from high school and/or received a higher level of education. This number increased slightly in 2010 to 84.5% and to an estimated 87% by 2014.

## HOUSING PLAN ELEMENT

	2000		2010		2014	
	Number	Percent (%)	Number	Percent (%)	Number	Percent (%)
Less than 9 <sup>th</sup> grade	317	5.9	345	6.5	212	4
9 <sup>th</sup> -12 <sup>th</sup> grade (no diploma)	597	11.2	441	8.3	487	9.1
High School graduate	1,914	35.9	2,155	40.6	1,864	35.2
Some College, no degree	1,332	24.9	987	18.6	938	17.7
Associate Degree	335	6.2	303	5.7	296	5.6
Bachelor's Degree	499	9.4	706	13.3	932	17.6
Graduate or Professional Degree	351	6.5	372	7	567	10.7
Total	5,345	--	5,308	--	5,296	--

### Employment Characteristics

According to the New Jersey Department of Labor & Workforce Development, the Borough had a labor force of 4,048 persons and an unemployment rate of 6.6% in 2014; 3,781 persons were employed and 267 were unemployed. The table below shows the occupation types and median earnings of the Borough's residents and provides a comparison to the County and State as a whole. Please note that the data regarding employment and unemployment that was obtained from NJ Department of Labor and Workforce Development differs from the American Community Survey data which lists 3,661 persons as employed.

In comparison to the County and State, a lower percentage of Borough residents have occupations in management, business, science and art, while a higher percentage of Borough residents have natural resources, construction and maintenance occupations. Residents of Keyport have lower median annual earnings than the County and State in similar occupation types, and have 24% and 12% lower median annual earnings than the rest of the County and State, respectively.

	Keyport Borough			Monmouth County			State of New Jersey		
	Estimate	Per.	Earnings	Estimate	Per.	Earnings	Estimate	Per.	Earnings
Management, Business, Science and Arts	1,169	31.9	\$62,625	132,889	43.4	\$74,563	1,722,379	40.7	\$69,352
Service Occupations	554	15.1	\$17,760	47,780	15.6	\$20,983	710,670	16.8	\$21,248
Sales and Office	1,052	28.7	\$30,500	78,721	25.7	\$37,993	1,056,127	24.9	\$34,917
Natural Resources, Construction and Maintenance	472	12.9	\$45,781	23,337	7.6	\$52,169	306,736	7.2	\$43,791
Production, Transportation and Material Moving	414	11.3	\$29,907	23,185	7.6	\$35,235	439,177	10.4	\$30,173
Total	3,661**	--	\$38,160	305,912	--	\$50,104	4,235,089	--	\$43,019

\*Median Earnings are in 2014 Inflation-Adjusted Dollars

\*\*Data regarding employment and unemployment was obtained from NJ Department of Labor and Workforce Development, and may not report the same figures as the American Community Survey.

### Household Characteristics

A household is defined as one or more persons, whether related or not, living together in a dwelling unit. As indicated in the table below, between 2000 and 2014, the distribution of household sizes has remained similar, although a trend toward smaller households exists, and is reflected in the decreased median household size. This is most clearly evident in the number of 6 or more person households, which peaked in 2010 at 109 households, to 49 households in 2014. The number of 3- and 4-person households has also decreased since 2000.

## HOUSING PLAN ELEMENT

Table 6.8. Size of Households						
	2000		2010		2014	
	Number	Percent	Number	Percent	Number	Percent
1 person	1,253	38.4	1,143	37.3	1,284	40.8
2 persons	861	26.4	854	27.8	891	28.4
3 persons	487	14.9	418	13.6	359	11.4
4 persons	383	11.7	371	12.1	351	11.2
5 persons	185	5.6	172	5.6	208	6.6
6 or more persons	95	2.9	109	3.5	49	1.5
Total	3,264	--	3,067	--	3,142	--
Median Household Size	2.31	--	2.35	--	2.28	--

As indicated above, the Borough’s population decreased between 2000 and 2014 by 5.5 % and the number of households decreased by 3.7%. Thus, with the decrease of dwelling units, at a slower rate compared to that of the population, the median household size decreased from 2.31 persons per household in 2000 to 2.28 persons per household in 2014. This trend is notable in that it is contrary to the increase in average household size experienced between 2000 and 2010, but is consistent, albeit not as drastic, with the situation experienced throughout the state as a whole (which has seen a decrease from 2.68 to 2.58 persons per household on average) and similar on the national level (which was nearly the same from 2.59 to 2.58 persons per household on average). Interestingly, Monmouth County has seen an opposite trend to the Borough, state, and nation; an increase in the household size, from 2.46 households in 2000 to 2.66 in 2010.

The table below illustrates household composition within the Borough between 2000 and 2014. It demonstrates that, in general, household composition remained relatively consistent between 2000 and 2014. As shown in the table, the number of households in the Borough in 2014 was 3,142 (which represented a 2.5% decrease from 2000). The majority (52.5%) of the Borough’s households consist of families (the U.S. Census Bureau defines “family” as a “group of two or more people who reside together and who are related by birth, marriage, or adoption”). This figure has remained consistent since 2000 (i.e., families made up 55% of the Borough’s households in both 2000 and 2010). The number of families headed by married-couples remained relatively stable as well (a 3% drop in this household type was experienced), while the number of male-headed family households (no wife present) decreased by nearly 2% and the number of female-headed family households (no husband present) remained consistent.

Table 6.9. Household Composition						
Household Type	2000		2010		2014	
	Number	Percent	Number	Percent	Number	Percent
Total Households	3,264	-	3,067	-	3,142	-
Family Households	1,797	55.1	1,694	55.2	1,650	52.5
Married – Couple families	1,286	39.4	1,217	39.7	1,210	38.5
Male Householder, no wife present	155	4.8	139	4.5	85	2.7
Female Householder, no husband present	356	10.9	338	11.0	355	11.3
Non-family households	1,467	44.9	1,373	44.7	1,492	47.5
Householder living alone	1,253	38.4	1,143	37.3	1,285	40.9
Householder not living alone	214	6.5	230	7.4	584	18.6

### Housing Tenancy

The table below shows the percent of renter- versus owner-occupied housing units existing in 2000, 2010 and 2014. The table shows that the Borough has consistently showed a nearly equal share of owner and renter

## HOUSING PLAN ELEMENT

occupied units. While the number of owner occupied houses has shown a decline between 2000 and 2014, the number of renter occupied housing units has seen a greater decline, and the Borough is now experiencing a greater proportion of owner occupied housing units.

<b>Table 6.10. Housing Tenancy</b>						
	<b>2000</b>		<b>2010</b>		<b>2014</b>	
	<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>
Owner Occupied	1648	50.4	1601	52.2	1608	51.2
Renter Occupied	1616	49.6	1466	47.8	1534	48.8

Keyport Borough’s housing stock is characteristic of older suburban areas of the State that developed in the early twentieth centuries. The Borough’s housing is generally older than housing in the surrounding towns that largely developed in the post-World War II era. The Borough’s housing stock is also less expensive than the surrounding towns, with a median home value of \$270,300, compared to the median home value of \$386,900 for Monmouth County. The cost of owning a home in Keyport is also low, with around 66.3% of homeowners devoting less than 30% of their household income toward their monthly costs and an additional 9.5% pay less than 35% of their household income. This is higher than the Monmouth County average, which is approximately where 70.1% of households spend less than 35% of their income towards housing.

One-third (31.6%) of the Borough’s housing stock was comprised of units in structures containing five or more units. As might be expected, a large proportion (59.8%) of the Borough’s renter housing is contained in multi-family structures containing five or more units while another significant proportion of the Borough’s renter housing is contained in structures containing between two units (together 16.3%).

As shown in the table below, the Borough has a varied housing stock. However, the vast majority of homes in the Borough are comprised of single-family dwellings (56.4%). Amongst owner-occupied units, an overwhelming majority (91.4%) are comprised by single-family dwellings.

While a primary goal of this Housing Plan is to protect and preserve the character of Keyport by encouraging the Borough to remain comprised of majority owner-occupied, single-family homes, it is important to recognize that development pressure currently leans in favor of multi-family development. In addition, the current trend is toward multi-family rental units. In light of the current market trend and pressure, the Borough should identify appropriate locations for a limited amount of multi-family units while strengthening development restrictions to preclude multi-family development in areas that the Borough wishes to remain as single-family in character. In addition to the extent that the Borough identifies areas that are appropriate for multi-family units, the Borough strongly encourages that those limited number of multi-family units be owner-occupied multi-family units, such as townhouses and condominiums. The Borough should explore strategies and mechanisms that encourages purchasing and owning a multi-family unit, rather than leasing.

<b>Table 6.11. Housing Type by Tenancy</b>						
	<b>Renter Occupied Housing Units</b>		<b>Owner Occupied Housing Units</b>		<b>Total</b>	
	<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>
1 unit, detached	226	14.7	1,391	86.5	1,617	51.5
1 unit, attached	87	5.6	70	4.9	157	4.9
2 units	250	16.3	28	1.7	278	8.8
3 or 4 units	53	3.4	42	2.6	95	3.0
5 or more units	918	59.8	77	4.7	995	31.6
Total	1,534	--	1,608	--	3,142	--

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The housing stock within the Borough is older than that found in Monmouth County as a whole. Over forty percent of the housing units within the Borough are in structures constructed prior to 1939. On average, more than half (57.7%) of owner-occupied units were built in 1939 or before; contrast that with the rental housing, which is more varied in age.

Year Built	Renter-Occupied	Owner-Occupied	Total
2014 or later*	0	0	0
2010-2013*	0	0	0
2000-2009	9	62	71
1990-1999	71	62	133
1980-1989	144	154	298
1970-1979	394	67	461
1960-1969	228	63	291
1950-1959	108	167	275
1940-1949	144	81	225
1939 or before	312	896	1208

\* Master Plan Committee input indicates that 2 homes new homes were constructed during these time period.

### Housing Costs

Housing values for owner-occupied housing units for the Borough of Keyport in 2014 are shown in the table below. Over thirty percent of the units were valued over \$300,000; and over half are valued between \$200,000 and \$299,000. Less than three percent of the homes in Keyport were valued over \$500,000. The median housing value in 2014 was \$270,300, compared to the median housing value in the County of \$386,900.

Value of Homes	Keyport Borough		Monmouth County	
	Number	Percent	Number	Percent
Less than \$50,000	88	5.5	4,280	2.4
\$50,000 to \$99,999	0	0.0	2,398	1.4
\$100,000 to \$149,999	43	2.7	4,179	2.4
\$150,000 to \$199,999	129	8.0	7,543	4.3
\$200,000 to \$299,999	850	52.9	33,694	19.3
\$300,000 to \$499,999	454	28.2	68,783	39.4
\$500,000 to \$999,999	25	1.6	45,809	26.2
\$1,000,000 or more	19	1.2	8,041	4.6
<b>Median Dollars</b>	<b>\$270,300</b>	<b>--</b>	<b>\$386,900</b>	<b>--</b>

### Affordable Housing

Keyport Borough obtained Substantive Certification from the Council on Affordable Housing (COAH) for the 1990-1996 time periods. Subsequently, the Borough has maintained a robust stock of housing that is inherently affordable. The Borough also maintains Leisure Bay Apartments and Bethany Manor, which are high-rise affordable senior housing facilities. In addition, 76 housing units have been rehabilitated in the Borough through the County's rehabilitation program, and an additional 29 housing units requiring emergency repairs were also funded under the program. The rehabilitation of these homes has improved the quality of the Borough's housing stock.

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Further, the Reformed Church of Highland Park – Affordable Housing Corporation (RCHP-AHC) has applied for funding from the Monmouth County HOME Housing Production program to purchase 3 existing vacant homes from Keyport’s vacant property registry in order to renovate the homes and provide affordable rental units. The RCHP-AHC will partner with Churches Accomplishing Long-Term Recovery (CALTR), a non-profit program that is responsible for rehabilitating over 120 hurricane-damaged homes.

As Keyport maintains a Prior Round affordable housing obligation of one (1) unit, the above referenced housing units satisfy this obligation and provide a substantial number of surplus units. In addition, the most recently published rehabilitation (Present Need) obligation for the Borough is 30 housing units. The Borough intends to work with Monmouth County to continue to rehabilitate substandard units to address the entire 30-unit obligation. The Borough is committed to continuing to maintain affordable housing as part of its housing stock and to continue to provide opportunities for the development of affordable housing for the benefit of low- and moderate-income residents.

As the Borough’s third round affordable housing obligation is currently undefined, Keyport intends to apply any surplus credits toward the pending third round obligation. In addition, the Borough reserves the right to prepare a Vacant Land Adjustment (VLA) and address its Realistic Development Potential (RDP) in accordance with applicable law.

### **Estimated Future Housing Construction**

According to the NJ Department of Labor/Data Center, over the past five years, 8 building permits have been issued per year on average for single-family units; no building permits have been issued for structures containing two- or more units.

From January 2016 until October 2016, 26 residential building permits, 2 of which were single family units, were granted in Keyport. Twenty-four building permits were granted for multi-family structures of five or more units. Prior to 2016, the last building permit granted for a structure containing more than one family unit was in 2008.

As discussed in the Land Use Element, the planned redevelopment projects in Keyport are anticipated to generate additional residential units. Thus, while the number of building permits for multi-family units will continue to fluctuate year-to-year, as these and other multi-family developments are completed from time to time (i.e., some years may see large numbers of multi-family units enter into the Borough’s housing stock as projects are completed, while other years may see very few as projects are under construction), it is anticipated that the number of building permits issued for multi-family unit structures will increase as these projects are approved. For example, any residential units realized on the Brown’s Point, Longview-Boatworks, and Aeromarine properties, as well as any new residential component of mixed-use development within the Downtown and the Highway Commercial districts will contribute to the number of residential units in the Borough. Cumulatively, the number of units anticipated from these properties and districts may be substantial. However, as potential amendments to the Aeromarine Redevelopment Plan are pending and changes in zoning are proposed for the Downtown and Highway Commercial Zones, it is difficult to estimate the potential residential unit yield with any meaningful accuracy. Therefore, it is recommended that a build-out analysis be prepared in order to calculate the anticipated number of residential units. This build out analysis should be done once the Aeromarine Redevelopment Plan has been amended and the Ordinance amendments have been put in place for the referenced Zone Districts. With regard to the number of building permits granted for single-family

## HOUSING PLAN ELEMENT

structures, this component is likely to continue at or near current rates as vacant homes and any remaining Sandy-impacted homes are rehabilitated.

North Jersey Transportation Planning Authority projects that a total of fifty housing units are anticipated to be developed in the Borough by 2040. This estimated annualized projection is an increase in 0.1% of the housing units in the Borough. This is a similar projection to neighboring Matawan Borough (90 new housing units, 0.1% increase) and Union Beach Borough (30 new housing units, 0.04% increase); and a slightly lower projection than the County (18,500 new housing units, 0.3% increase) as a whole. It is anticipated that the build-out analysis recommended above will provide a more accurate estimate of future housing in the Borough, as the North Jersey Transportation Planning Authority has not accounted for the redevelopment and rezoning envisioned in this Master Plan.

### RECOMMENDATIONS

- 1. Any new multi-family housing development application must provide a twenty (20) percent set-aside of affordable housing in a manner that is compliant with applicable sections of the Uniform Housing Affordability Controls (N.J.A.C. 5:80-26.1 et seq.).**

For the Borough of Keyport to attract a wide variety of residents, a full spectrum of housing options is necessary. The Borough continues to encourage a balanced housing supply where housing opportunities are provided for households at both the low and high ends of the income scale, and as well as for those households in between.

- 2. In the downtown, it is recommended that the General Commercial Zone include mixed-use commercial/residential development as a permitted use in order to allow for housing above businesses.**

Allowing the integration of residential and commercial uses as mixed-use will promote a compact, walkable downtown that includes additional residents to help support local businesses.

- 3. Permit multi-family housing within the General Commercial District where appropriate, close to the downtown and within walking distance of the businesses, while maintaining and protecting the single-family character of the adjacent RA and RB zones.**

Locating multi-family housing nearest the downtown, and within walking distance, would allow the concentration of a critical mass of people necessary for a vibrant and diverse downtown. Locating multi-family housing near the downtown area should be designed to buffer the RA and RB residential neighborhoods from the more intense uses of the downtown, General Commercial District. This will create a transition of uses from higher to lower intensity in accordance with sound planning principles. No multi-family development is recommended within the RA or RB Zones.

- 4. Discourage the conversion of existing single family homes into multi-family homes.**

A goal of the Master Plan is protecting and preserving the character of existing neighborhoods and communities. Converting single-family structures into multi-family structures adversely impacts that character. In particular, all single-family homes existing in the RA zone are envisioned to be maintained as such and it is strongly discouraged that any of these homes be converted to multi-family.

- 5. Reduce the minimum lot size of a single-family parcel to 50 by 100 feet.**

This is reflective of the current trends in real estate. This would provide smaller yards and less maintenance many current, prospective home buyers desire, along with making it more cost effective for them to be built.

## HOUSING PLAN ELEMENT

- 6. The Borough intends to apply pressure on the owners of vacant and abandoned properties, so that those properties could be better utilized, and provide a benefit to the community and Borough.**

The Borough intends to pursue incentives and regulatory measures that will compel the owners of these properties to put them back into productive use and occupancy. It is also envisioned that a GIS database of vacant, abandoned and foreclosure properties be maintained in order to more accurately collect and track these properties, resultant vacancy rates, property locations, compliance status and related information.

- 7. The following properties would be the most appropriate for future housing. The redevelopment of these sites should include housing where feasible and appropriate:**

- The Brown's Point Redevelopment Area
- The Aeromarine Redevelopment Area
- The Property at the Intersection of Route 35 and Broadway
- Abandoned Flood Damaged Apartments at the Intersection of First and Walnut Streets
- The Saint Joseph School Site

Of the above mentioned properties, mid-rise housing construction would only be appropriate, as permitted by individual site context, limitations, and to be approved by review of the Borough's planning board, in the following properties:

- The Brown's Point Redevelopment Area
- The Aeromarine Redevelopment Area
- The Property at the Intersection of Route 35 and Broadway

- 8. High density, high-rise housing is encouraged to be located in the HC Highway Commercial Zone, south of Routes 35 and 36. These can be stand-alone developments or as part of a mixed-use development, which will also be permitted in the HC Highway Commercial Zone, where appropriate.**

It is recommended that the boundaries of the HC district be redefined along Route 36 to be a full block deep between Atlantic and Main Street to incorporate more developable land along the highway corridors. This will provide better utilization of the properties for commercial development.

- 9. Continue to provide housing opportunities for low- and moderate-income households through maintaining the Borough's inherently affordable housing stock and promoting the development of a variety of housing for all socio-economic strata present in the Borough.**

- 10. Provide tax incentives to facilitate the rehabilitation of housing.**

- 11. Require that new housing and rehabilitated housing comply with the Borough Code and policies as it pertains to Resilience to flooding and other natural hazards.**

- 12. Facilitate shuttle service to and from nearby train stations to facilitate access to the Borough business districts and waterfront areas.**

# CIRCULATION PLAN ELEMENT

## 7. CIRCULATION PLAN ELEMENT

### INTRODUCTION

Given the close relationship between circulation and land use, the roadway network and associated transportation infrastructure is an important asset in the community. The main purpose of the Circulation Element of the Master Plan is to establish a framework of how the Borough of Keyport intends to address its future transportation needs. It establishes the policies, strategies, and priorities for short-term and long-term decisions in order to meet the objectives described within the element. In addition to addressing future needs, its purpose is also to point out the deficiencies in the existing roadway network so that they may be rectified.

The Borough of Keyport is served by seven main arterials that connect the Borough to surrounding municipalities and provide local access to residential and commercial areas. These roadways are the Garden State Parkway (north/south), NJ State Highway Route 35 (north/south), NJ State Highway Route 36 (west/north) and County Routes 3, 4, 6 and 516. Proximity to the Garden State Parkway via Interchange 117 in neighboring Hazlet connects the Borough to destinations along New Jersey's eastern coast. Additionally, the junction between NJSH Routes 35 and 36 in the southern portion of Keyport and the several County Routes that serve the Borough augment access to other parts of the state and county, respectively. Despite access along numerous arterial roads, traffic is exacerbated in the spring and summer months, as the area is a destination for seasonal residents and vacationers. Keyport's ability to expand its roadway network to provide alternate north/south or east/west routes is largely limited by the built-out nature of the Borough and environmental constraints.

Seasonal, recreation changes play a role in the changing circulation needs and future transportation planning. Seasonal traffic patterns introduce high traffic volumes, especially along the state highways, during peak times. This results in longer trips, and should be accommodated in future planning.

The Borough of Keyport has experienced a slight decline in year-round population over the past 10 years. The slight decrease eases the strain put on its road network to a small degree. However, as Keyport continues to recover from both the Great Recession of 2008 and Sandy in 2012, both of which put a strain on the regional year-round population, an increase in the population is expected. This will directly relate to an increase in traffic flows on both major and minor roadways. As a result, the existing transportation system will require certain improvements and maintenance in order to provide an optimal level of service.

### KEY HIGHLIGHTS

The Circulation Element begins by identifying the problems and needs of Keyport's circulation network. The Circulation Subcommittee identified issues such as traffic calming needs, congestion, road designs and parking as problems related to vehicular travel in Keyport. The Subcommittee also identified pedestrian needs and issues such as a lack of quality sidewalks, multi-modal options, and safe, pedestrian routes surrounding vulnerable land uses, such as schools.

The Element describes the existing modes of travel available in Keyport, which includes identifying roads and their classification, based on the Borough's Land Development Site Plan Subdivision Ordinances. Notable alternative transit options, including bicycle routes, bus transit and the ability for residents to access train stations in neighboring municipalities, were discussed and plans to improve circulation and capitalize on Keyport's regional location.

## CIRCULATION PLAN ELEMENT

The Element describes the Current Planned projects to improve circulation in or near Keyport and the project's managing entities. Some projects revolve on improving the region's road infrastructure, such as Garden State Parkway and Route 35 while other projects focus on improving Keyport's own local roads.

The Element then suggests traffic calming techniques and improvements to both vehicular and pedestrian safety. For a complete list and description of recommended improvements, please see the section *Additional Recommendations for Roadway Improvements*.

Parking, its problems and potential solutions, are also explored in this Element. The establishment of a Parking Commission is discussed, as well as the potential construction of a parking garage to solve long-term parking issues. More immediate solutions, as well as a better marketing campaign were discussed to solve short-term parking issues.

Additional Goals, Objectives and Recommendations are made by the Borough to improve circulation. These include the exploration of improvements to roadway designs, traffic signage and signaling to improve the safety of both pedestrians and vehicles. Other recommendations focus on expanding and improving the walkability and other alternate forms of transportation within the Borough. For additional recommendation, please see the Goals, Objectives and Recommendations section of this Element.

### EXISTING CIRCULATION CONDITIONS

#### Identified Problems and Needs

Circulation needs and problems are present in every municipality due to development, population changes, increases in traffic flow and changes in traffic patterns. Despite a negative growth rate over the past 10 years, traffic volumes remain high throughout the roadway network that connects the Borough to other parts of the county and state. Further, the Circulation Subcommittee stated a desire to attract more carless residents, which requires addressing issues pertaining to public transportation service, as well as pedestrian and bicycle routes throughout Keyport.

In response to the transportation needs of the Borough residents, the various modes of transportation available were evaluated and the results of the evaluation are summarized below:

#### *Vehicular Issues*

1. Implement traffic calming techniques based on the results and recommendations of a Borough-wide traffic analysis throughout the Borough. Traffic calming techniques may include speed humps, tables, roundabouts, traffic circles and center island narrowing. For a complete description of each technique, please see the section below, *Traffic Calming Measures*.
2. Truck and excursion bus traffic have strained infrastructure and increased congestion along some minor arterials and major collectors.
3. Traffic congestion and recurring accidents at intersections and along roadways servicing the waterfront must be addressed. A Borough-wide traffic analysis is recommended to target and address specific problem areas.
4. Sharp angles of select street corners hinder the movement of public transportation buses throughout the Borough.
5. Traffic regulations require stronger enforcement.
6. Parking availability is increasingly limited in the downtown commercial district.

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## *Pedestrian Issues*

1. There is a lack of public transportation that serves the Borough and connects it to nearby train stations.
2. Public transportation stops in Keyport are not clearly and consistently identified or user friendly.
3. Traffic and pedestrian areas surrounding Keyport's schools require more separation to improve public safety.
4. The Borough needs more pedestrian and bicycle routes, particularly ones that would serve area train stations.
5. Crosswalks are not always clearly demarcated for motorists and thus present risks to pedestrians attempting to cross.
6. In some areas, sidewalk dimensions and/or conditions limit walkability.

## **Functional Classification of Streets and Highways**

The functional classifications utilized herein correspond with the classifications of existing highways utilized by the County of Monmouth, State of New Jersey and federal transportation agencies. These functional classifications correspond with the classification utilized in the Borough of Keyport Land Development Site Plan Subdivision Ordinances. The roadway classifications are described below:

### *Freeways or Expressways*

Freeways or expressways are high speed, high capacity, limited access highways dedicated exclusively to the mobility of motor vehicles and provide no direct access to abutting properties. They generally cross large areas, often an entire state, and connect with the freeways of adjoining states. Design features include the separation of opposing traffic lanes by continuous center barrier or median strip, and full access control and grade separation at intersections or interchanges, which are generally widely spaced. Expressways usually have right-of-way width greater than 150 feet, carry multiple lanes of traffic in each direction and are generally designed for a capacity of between 1,000 to 5,000 vehicles per hour.

### *Principal Arterial Highways*

Principal arterial highways serve as major feeder roads to and from the highway and Parkway systems and carry major movements of traffic between the principal traffic generators in the region. In areas such as Monmouth County, the extensive system of arterial highways also acts as carriers for major regional traffic flows. Principal arterial highways usually have four or more traffic lanes and provide direct access to abutting properties. They are usually intersected at grade and utilize timed traffic signals, jug-handle intersections, center barriers and lane markings to facilitate traffic flow. Principal arterial highways should have a design speed of 60 miles per hour and should be designed to carry traffic exceeding 10,000 vehicles per day.

### *Minor Arterial Highways*

Minor arterial highways are streets that gather traffic from more than one local, minor or major collector street and direct it into other minor arterial highways or principal arterial highways. This type of roadway places more emphasis on land access and less on traffic mobility than major principal arterials. The desirable right-of-way width for a minor arterial highway is 100 feet. Minor arterials should have a design speed, for alignment and sight distance purposes, of 60 miles per hour and should generally be designed to carry traffic volume approaching 10,000 vehicles per day.

### *Major Collector Streets (Primary Collector)*

Major collector streets gather traffic from local, minor or major collector streets and direct it into minor arterial highways or major arterial highways. The desirable minimum right-of-way width is 80 feet. However, existing streets with a right-of-way of less than 80 feet are classified as major collector streets if their traffic volume

## CIRCULATION PLAN ELEMENT

exceeds 7,500 vehicles per day. The design speed of major collector streets, for alignment and sight distance purposes, should be 50 miles per hour.

### ***Minor Collector Streets (Neighborhood Collector)***

Local collector streets serve the principal function of collecting traffic from residential neighborhoods and directing it to roads of higher classifications. They also provide access to adjoining properties. The desirable minimum right-of-way width for local collector streets is 60 feet. Local or minor collector streets should generally be expected to carry traffic ranging from 1,500-3,500 vehicles per day. The design speed of local or minor collectors, for alignment and sight distance purposes, should be 40 miles per hour.

### ***Local Roads (Residential)***

Local Roads have the primary function of providing access to residential properties. They also serve as easements for various public utilities and provide light and air to adjacent buildings. Local roads should have a minimum right-of-way width of 50 feet. A road which serves traffic having origins and destinations other than within the lots, which abut the street, shall not be considered a local road. Future roads provided within a subdivision or other private development, which could be expected to carry volumes of less than 500 vehicles per day, would be classified as local roads.

The construction of new residential roads must comply with standards adopted by the State in the Residential Site Improvement Standards issued by the N.J. Department of Community Affairs (DCA) Title 5 Chapter 21.

Table 7.1 below contains a list of the roads within Keyport, including their functional classification and jurisdiction. Table 7.1 corresponds with Figure 7.1 on the next page, which depicts the functional classification of roadways located within the Borough. Table 7.2 details information on actual versus recommended right-of-way and speed limits for these roads.

<b>Table 7.1: Functional Classifications of Road</b>		
<b>Type of Roadway</b>	<b>Jurisdiction</b>	<b>Name</b>
<b>Freeways</b>	NJ Turnpike Authority	<ul style="list-style-type: none"> <li>• Garden State Parkway</li> </ul>
<b>Principal Arterials</b>	NJ Department of Transportation	<ul style="list-style-type: none"> <li>• New Jersey State Highway Route 35</li> <li>• New Jersey State Highway Route 36</li> </ul>
<b>Minor Arterials</b>	Monmouth County	<ul style="list-style-type: none"> <li>• Broadway (C.R. 3) between Gerard Avenue and State Route 35</li> <li>• Broad Street/Main Street (C.R. 4 (2))</li> <li>• W Front Street (C.R. 6 (1)) between Broad Street and Broadway (C.R. 6 (2)) between Maple Place and W Front Street</li> <li>• Green Grove Avenue/Maple Place/4th Street/Main Street (C.R. 516)</li> </ul>
<b>Major Collectors (Primary Collector)</b>	Monmouth County	<ul style="list-style-type: none"> <li>• W Front Street (C.R. 6 (1)) between Broadway and Amboy Road</li> <li>• Stone Road (C.R. 6 (3))</li> <li>• 1st Street (C.R. 6 (4))</li> </ul>
<b>Minor Collectors (Neighborhood Collector)</b>	Borough of Keyport	<ul style="list-style-type: none"> <li>• Atlantic Street</li> <li>• Beers Street</li> <li>• Clark Street</li> <li>• Fulton Street</li> </ul>

## CIRCULATION PLAN ELEMENT

**Table 7.2: Right-of-Way and Speed Limit Recommendations**

Road	Actual ROW (ft.)	Recommended ROW (ft.)	Posted Speed Limit (mph)	Recommended Speed Limit (mph)
Garden State Parkway	250 ft	250 ft	65	65
New Jersey State Highway Route 35	80 ft	80 ft	50	50
New Jersey State Highway Route 36	170 ft (at widest point)	170 ft.	50	50
Broadway (C.R. 3) between Gerard Avenue and State Route 35	60 ft	60 ft	40	40
Broad Street/Main Street (C.R. 4 (2))	50 ft	50 ft	30-35	30-35
W Front Street (C.R. 6 (1)) between Broad Street and Broadway (C.R. 6 (2)) between Maple Place and W Front Street	45 ft	45 ft	25-30	25-30
Green Grove Avenue/Maple Place/4th Street/Main Street (C.R. 516)	45 ft	45 ft	35	35
W Front Street (C.R. 6 (1)) between Broadway and Amboy Road	45 ft	45 ft	30	30
Stone Road (C.R. 6 (3))	30 ft	30 ft	35	35
1st Street (C.R. 6 (4))	45 ft	45 ft	25	25
Atlantic Street	45 ft	45 ft	25	25
Beers Street	45 ft	45 ft	25	25
Clark Street	35 ft	35 ft	30	30
Fulton Street	30 ft	30 ft	25	25

# CIRCULATION PLAN ELEMENT

## Figure 7.1: Keyport Road Network



<b>Legend</b> Keyport Street Segments		<b>MATRIXNEWORLD</b> Engineering Progress 442 State Route 35, 2nd Floor Eatontown, New Jersey 07724 WBE/DBE/SBE Tel: 973-240-1800 Fax: 973-240-1818 www.matrixnewworld.com	
		<b>PROJECT NUMBER:</b> LD15-349	<b>DRAWN BY:</b> MM
<b>Borough of Keyport Monmouth County, N.J.</b>		SOURCES: NJDEP GIS Data State Plane Coordinates: NAD 1983 StatePlane, New Jersey, FIPS 2900 Feet	

# CIRCULATION PLAN ELEMENT

## **Bicycle and Pedestrian Routes**

A segment of the Henry Hudson Trail, part of the National Rails-to-Trails Network, bisects the Borough of Keyport as it moves from its northern terminus at Popamora Point in the Highlands to the southern terminus along the Garden State Parkway in Aberdeen. A former railroad right-of-way, the 12-mile North Section, as well as the 12-mile South section still under construction, provides a path for bicyclists, pedestrians and equestrians through wooded and wetland areas in Monmouth County. The approximately 1 mile segment runs diagonally through the Borough from the northeastern edge to the southwestern border, connecting bicyclists in Keyport to recreational areas throughout northern Monmouth County.

Beyond the Henry Hudson Trail, the Borough would like to enable safe, widespread bicycle travel throughout the Borough. Bicycle lanes will be considered on all streets wide enough to accommodate them as appropriate, as well as on streets with direct access to the Henry Hudson Trail and the Downtown/Waterfront District. In order to accommodate and encourage bicycle usage, storage racks should be placed in areas frequented by riders in the Borough, in particular along the Waterfront Path and Downtown District.

As new applications are made before the Unified Planning and Zoning Board, the Borough should require applicants to, where appropriate, dedicate bike paths consistent with Keyport's Master Plan. Providing for public access to the waterfront should remain a priority in future development.

Additionally, bicycle and pedestrian lanes connecting the Borough and the nearby Aberdeen-Matawan Train Station must be developed given the unsafe state of sidewalks along this route. A footbridge separating vehicle traffic from pedestrians should be explored, particularly if the overpass over Route 35 is going to be removed or replaced.

Safety for pedestrians can also be enhanced by restriping crosswalks throughout Keyport and adding pedestrian right-of-way signage to increase visibility for motorists. Improving the conditions of existing sidewalks through resurfacing; widening to accommodate two-way pedestrian traffic where appropriate and connecting sidewalks across intersections would improve the pedestrian experience and make for a more walkable community. For additional improvements, see the section entitled Traffic Calming Measures below. Extending the waterfront promenade to the new Amboy Avenue and West Front Street bridge can be the first step in a long-term plan to extend the promenade from Aberdeen to Walnut Street, would also support walkability in Keyport.

The above plans and recommendations supplement considerations for a future "Transit Village" in Keyport, catering to people eschewing cars in favor of mass transportation, pedestrian and bicycle-centered communities. The Circulation Subcommittee recommends seeking out grants to construct bicycle and pedestrian paths to advance these goals.

## **Bus Transportation**

New Jersey Transit has had a positive effect on improvement of existing commuter bus service within Monmouth County. The County of Monmouth, in conjunction with New Jersey Transit, is continually working to modify and improve services to better meet the needs of Monmouth County residents.

Currently, Keyport has limited New Jersey Transit service, with only one bus line running through the Borough. The 817 line, with six stops in the Borough, provides service from Belford to Perth Amboy. As noted in "Pedestrian Issues", bus stops in Keyport should be made more visible and accessible to pedestrians through signage and sidewalk access. Bus shelters, benches, lighting and other amenities can improve user experience and promote ridership.

## CIRCULATION PLAN ELEMENT

The need for additional lines that provide access to a larger service area, including destinations such as northern and southern New Jersey and New York City, should be investigated. Direct bus service from the area to the Port Authority Bus Terminal in New York City is only available with Academy, a private bus service, with a stop in neighboring Hazlet across from Airport Plaza on Route 36. Additionally, no bus service links the Borough to the two nearest train stations in Hazlet and Aberdeen, which would provide an important connection to the regions that are not served by the 817 line. The Borough should consider improving access to all regional transit hubs, including the NJ Transit Stations and Academy's facility near Airport Plaza, especially by pedestrians and bicyclists. This would include expanding sidewalks within Keyport along these routes and encouraging Hazlet Township to install amenities such as bike racks at Academy's facility for the benefit of bicyclists as part of this regional transportation initiative.

The Monmouth County Special Citizen Area Transportation (SCAT) bus service caters to senior and disabled residents, residents living in county areas classified as rural and former welfare recipients seeking new or first-time employment. Through five different shared ride programs operated by both contractors and Monmouth County Department of Transportation drivers, qualifying residents can reserve seats for travel within the county, as well as to selected locations outside the county, with emphasis placed on medical appointments and grocery shopping trips. Schedules and routes depend on the demand indicated in reservations. Additionally, the county maintains contracts with private van and taxi operators through the Shared Ride Taxi program to provide transport to any destination upon request. Although Monmouth County provides these services, better information should be made available on mass transit services using print and electronic media to make the public aware that they exist.

Keyport Borough does not currently offer a municipal bus service. However, the Circulation Subcommittee is considering a commuter van service to connect the Borough to transportation hubs (train, bus, and ferry terminals) in the northern Monmouth County area, which would facilitate more convenient commutes for Borough residents.

### **Rail Transportation**

The Borough is not directly served by rail facilities, but neighboring Aberdeen and Hazlet are both served by NJ Transit's North Jersey Coast Rail Line that connects eastern points from Bay Head to Hoboken/New York Penn Station. Keyport's most northeastern extent is just 3 miles from the Aberdeen-Matawan Station, and the Hazlet station is within 2.5 miles of any point in the Borough of Keyport, making the stations reasonably accessible by car and, provided the intended improvement to local bicycle paths, by bicycle as well. Further, NJ Transit's 817 bus line provides a link to Perth Amboy's rail station, also located along the North Jersey Coast Line. NJ Transit is planning improvements to the Perth Amboy Train station in the form of upper platforms and modifications to the station building and pedestrian overpass, enhancing the utility of the station. These rail connections serve as critical links for commuters in Keyport, in particular those traveling to northern New Jersey and New York.

The introduction of an additional rail passenger service, MOM – Monmouth Ocean Middlesex, to northern Monmouth County would not directly benefit the Borough, as the North Jersey coast region is sufficiently served by passenger rail service. However, the MOM line would benefit the more underserved regions of northern Ocean County and western Monmouth County by linking them to major job markets in other parts of New Jersey, as well as New York City and Philadelphia. This would shift some auto and bus commuters from southern and western regions of the service market area away from congested highways near the Borough, potentially reducing overall travel times and have the additional benefit of improving air quality from reduced emissions.

# CIRCULATION PLAN ELEMENT

## **Water Transportation**

No water transportation services are currently available in the Borough other than by privately owned and operated vessels. Due to Keyport's ideal location fronting the Raritan Bay, there is an opportunity to utilize the waterfront for transportation purposes. If the Borough does not incorporate a van service linking commuters to nearby ferry terminals, as discussed in Section G, "Bus Transportation," the possibility may exist for a water taxi service. This service could provide water transportation to ferry terminals in Belford, Atlantic Highlands, the Highlands and other various destinations. Providing this service would remove travelers from the roadways and relocate them to the waterways, therefore easing the congestion on the inland roadway network.

## **Airport Facilities**

The Central New Jersey region is served by a variety of airport facilities. These facilities may be summarized as follows:

1. Newark Liberty International Airport, located 25 miles north of the Borough, provides complete scheduled airline service to domestic and foreign destinations.
2. The Trenton-Mercer Airport, located 40 miles west of the Borough and the Atlantic City International Airport, located 85 miles south of the Borough, provide domestic and international air connections to major airports.

# CIRCULATION PLAN ELEMENT

## Figure 7.2: Alternate Transit Map



<b>Legend</b>			<b>MATRIX</b> <b>NEWORLD</b> Engineering Progress 442 State Route 35, 2nd Floor Eatontown, New Jersey 07724 WBE/DBE/SBE Tel: 973-240-1800 Fax: 973-240-1818 www.matrixnewworld.com					
Marinas NJ Transit Station Bus Stop Bus Route	Railroad Keyport				Major Roadway Local Road			
<b>Borough of Keyport</b> <b>Monmouth County, N.J.</b>			<table border="1"> <tr> <td>PROJECT NUMBER: LD15-349</td> <td>DRAWN BY: MM</td> <td>SCALE: 1:30,000</td> <td>DATE: 2/9/2017</td> </tr> </table> SOURCES: NJDEP GIS Data State Plane Coordinates: NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet		PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:30,000	DATE: 2/9/2017
PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:30,000	DATE: 2/9/2017					

# CIRCULATION PLAN ELEMENT

## CURRENT PLANNED PROJECTS

There are several projects being planned or designed at this time that will have a significant effect on Keyport's future transportation network. Below is a brief description of current planning and design efforts:

### State Projects

#### *Garden State Parkway, Interchange 125*

Waterfront development in municipalities bordering the Raritan Bay has created congestion along this segment of the Garden State Parkway (GSP), particularly during the summer months. This project will provide new and modified movements to the Garden State Parkway, Interchange 125 at Chevalier Avenue in Sayreville. The existing partial interchange offers access via a southbound entrance ramp and a northbound exit ramp at Chevalier Avenue, compounding traffic along local roads. The improvements at Interchange 125 include the construction of new southbound exit and northbound entrance ramps, as well as the relocation of the current southbound entrance ramp. Both Chevalier Avenue and Main Street will be widened to accommodate increases in traffic due to greater GSP access. The existing structure over the Garden State Parkway at Interchange 125 will be replaced for both northbound and southbound traffic. The new southbound exit ramp is expected to be opened in the spring of 2017 and construction completed in July of 2019. These changes will alleviate congestion and ease access to Keyport from the GSP.

#### *Route 35, Main Street Interchange*

This project seeks to improve traffic flow and safety at the Main Street Interchange with Route 35 in South Amboy. Currently, there is no acceleration lane from the northbound side of Route 35 onto the northbound Route 35 ramp. Coupled with truck traffic and the tight radius of the ramp, this deficiency has led to traffic buildup along Route 35. The substandard quality of the Route 35 southbound ramp at the Main Street Interchange has also contributed to lengthy traffic queues. Construction plans will be developed following a complete study of both ramps by the New Jersey Department of Transportation. The intended improvements will better accommodate traffic along Route 35, a highway connecting Keyport with regional employment centers and access to public transit.

#### *Route 36/Broad Street Traffic Signal*

The traffic light at the intersection between Route 36 and Broad Street in Keyport has a left-turn arrow for vehicles on the southbound side of Broad Street but lacks a left-turn arrow for northbound vehicles. The addition of this second left arrow could prevent cars from getting stranded at the intersection as well as reduce accidents.

### County and Local Projects

#### *Amboy Avenue and W Front Street Bridge*

The bridge linking W Front Street in Keyport and Amboy Avenue in South Amboy along C.R. 6 was closed in May of 2016 for replacement with an expected reopening date in November of 2017. The new 350-foot steel girder bridge will have two 12-foot travel lanes and ADA accessible, six-foot wide sidewalks in both directions. Vertical clearance over the mean high water elevation of Matawan Creek will be raised to twelve feet from eight feet. The approach roadways will be elevated and widened slightly to avoid the impacts of flooding in the area. This project will improve traffic flow and safety.

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### *Stout, Cass, Perry, Monroe and Jackson Street Improvements*

The awarding of 2016 Community Development Block Grant Program funds to Keyport will allow the Borough to address the deteriorating condition of the roads in this rectangular area in southern Keyport, just north of Route 35.

### *Aeromarine Property Redevelopment Plan*

This plan, approved by the Borough in 2005, seeks to redevelop a fifty-acre area in the northeastern edge of the Borough with small businesses, open recreation spaces, and residential units. For a complete description of the redevelopment plan and its goals, please see the Land Use Plan Element.

Though consideration is still being given to the design of the circulation system, there should be an emphasis on pedestrian and bicycle access and safety. New roadways may need to be constructed with an access point to the development from Walnut Street or First Street, pending the results of a traffic study. A modern roundabout, among other traffic calming measures, may be considered for the access point. Improvements to the intersections of Walnut Street, First Street and Stone Road may also be necessary to accommodate anticipated increases in traffic.

### *Waterfront Circulation*

The streets leading to and from the Keyport Waterfront Path are congested and have seen increasing problems associated with traffic accidents. The possibility of designating two one-way streets (i.e. Beers Street in a northbound direction and Main Street in a southbound direction) should be investigated to determine if this would be a viable option to improve traffic flow and enhance public safety.

### *Maple Place Bridge*

Truck traffic has increased in the Borough, affecting flow along Maple Street, Broad Street, W Front Street, and 1<sup>st</sup> Street in particular. The prevalence of heavy trucks and vehicles such as tractor trailers has caused damage to the roads, as well as the utility poles along the streets, parking spaces and overall quality of life (e.g., air and noise pollution). In the past, a bridge over the wetlands along Maple Place (then Mott Avenue) enabled the imposition of weight restrictions on other roads to minimize damage from truck traffic. The reestablishment of this bridge could redirect truck traffic through this area, reducing damage to other roadways, and could also minimize flooding in other parts of Keyport by preserving a larger wetland area beneath the bridge.

### *Infrastructure Improvements*

Some traffic problems in Keyport are caused by inadequate and/or inconsistent signage regarding speed regulations, as well as limited visibility of traffic lights. The lack of a speed limit sign along the western entrance to the waterfront and the position of the traffic light on Broadway at the bridge over Route 35 are examples of these problems. Improved traffic signage and better consideration to the placement of traffic lights would serve a dual purpose of alleviating traffic congestion and enhancing public safety. Additionally, street corners along bus routes should be modified to better accommodate the movement of buses and reduce sidewalk damage.

## **ADDITIONAL RECOMMENDED ROADWAY IMPROVEMENTS**

The Circulation Subcommittee, based on personal experiences, has identified the following improvements necessary to improve circulation throughout the Borough. A Borough-wide traffic analysis and study should be prepared to study the extent of these issues and provide the best solutions to address of these issues.

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## **Traffic Calming Measures**

It is recommended that residential areas that have high vehicular traffic and other areas containing significant pedestrian traffic employ traffic calming measures. The Institute of Transportation Engineers define traffic calming as measures that involves changes in street alignment, installation of barriers and other physical measures to reduce traffic speeds and/or cut-through volumes, in the interest of street safety, livability, and other public purposes. Therefore, the goal of traffic calming measures is to reduce vehicle speeds and improve safety thereby enhancing the quality of life. The following section illustrates a few examples of implemented traffic calming devices.

### ***Speed Humps***

Speed humps are rounded raised areas placed across the roadway and are generally 10 to 14 feet long (in the direction of travel). The profile of a speed hump can be circular, parabolic or sinusoidal. They are often tapered as they reach the curb on each end to allow unimpeded drainage.

### ***Speed Tables***

Speed tables are flat-topped speed humps often constructed with brick or other textured materials on the flat section. Speed tables are typically long enough for the entire wheelbase of a passenger car to rest on the flat section. Their long flat fields give speed tables higher design speeds than speed humps. The brick or other textured materials improve the appearance of speed tables, draw attention to them and may enhance safety and speed-reduction.

### ***Traffic Circles***

Traffic circles are raised islands, placed in intersections, around which traffic circulates. They are good for calming intersections, especially within neighborhoods, where large vehicle traffic is not a major concern but speeds, volumes and safety are problems.

### ***Center Island Narrowing***

A center island narrowing is a raised island located along the centerline of a street that narrows the travel lanes at that location. Typically these islands are landscaped and are located at the entrance to a neighborhood along with textured pavement. These islands are fitted with a gap to allow pedestrians to walk through at a crosswalk; they are often called "pedestrian refuges." Center island narrowing works well for entrances to residential areas and wide streets where pedestrians need to cross.

### ***Roundabouts***

Roundabouts require traffic to circulate counterclockwise around a center island. Unlike traffic circles, roundabouts are used on higher volume streets to allocate right-of-way between competing movements.

## **Traffic, Pedestrian and School Safety**

The Borough should explore techniques and strategies that maximizes pedestrian safety. Such techniques should include:

- Pedestrian Scrambles/Barnes Dance – a pedestrian crossing system that stops all vehicles and allows all pedestrians to cross intersections in every direction, including diagonally, at the same time.
- Protected Left Turns – providing a left-turn arrow and sequence to allow permitted turns rather than simultaneous attempts during regular green turns.
- Pedestrian Head Starts
- Raised Crossing and Intersections

## CIRCULATION PLAN ELEMENT

- Neckdowns – extended curbs out into the intersection, minimizing crossing distances, and maximizes a vehicles ability to see pedestrians.

The lack of a drive-through drop-off lane servicing Keyport Central Elementary School and Keyport High School presents safety risks to pedestrians. The development of designated drop-off lanes along the schools' front lawns on Broad Street and Atlantic Street, respectively, could better separate through traffic from school-related vehicles and reduce potential dangers to students.

### **Excursion Bus Stop**

Excursion buses, like heavy trucks, have strained the Borough's infrastructure. Establishing one bus stop designed for long distance travel (e.g., to destinations such as Atlantic City) on the outskirts of the Borough could alleviate the problems associated with this type of traffic within the Borough. An appropriate location with convenient access to the Garden State Parkway should be investigated.

### **Parking**

The establishment of a Parking Commission is recommended for consideration to address the issue of limited parking availability in the Borough through an analysis of current resources and a summary of future needs. One long term solution to increase parking space availability is the construction of a parking garage. Although a suitable location must be investigated, potential sites include the existing parking lot between Broad Street and Main Street in a height-restricted development, or, provided the possibility of land acquisition, in an elevated construction on Division Street as long as the design mitigates flood risks.

More immediate solutions to parking availability in the Borough include the consolidation of dumpsters used by the businesses that surround the Broad Street and Main Street parking lot. This would open access to other parking spaces. Paid and/or time-restricted parking in some areas, particularly around Keyport's Borough Hall and throughout the downtown business district, could also ensure greater availability of parking throughout the day. Lastly, the Parking Commission should work towards better communication with the public to increase awareness of underutilized parking lots (such as the lot off Main Street, just south of W 3<sup>rd</sup> Street) and to notify the community prior to street sweeping so that Keyport residents will be aware of changes in parking availability as they arise.

## **GOALS, OBJECTIVES AND RECOMMENDATIONS**

### **Parking:**

- 1. Establish a Parking Commission to be responsible for a detailed comprehensive analysis and oversight of parking needs. The Parking Commission would also examine possibilities for a parking garage and related improvements.**
- 2. Consolidation of dumpsters to be shared amongst the businesses in the lot between Main & Broad in order to improve visibility and increase the supply of parking spaces.**
- 3. Add 15-minute parking stalls in front of Borough Hall and throughout the business district in order to improve parking space turnover and increase the availability of parking for customers.**
- 4. Implement single-side parking on Broad Street to alleviate traffic congestion.**

## CIRCULATION PLAN ELEMENT

5. Establish a concerted program to educate business owners to encourage employees to park in remote/satellite lots, especially the under-utilized lot on Main Street just south of 3<sup>rd</sup> Street.
6. Develop and post a schedule for the street sweeper to allow residents to move their cars in advance of sweeping.

### **Traffic Flow, Safety and Infrastructure Preservation and Maintenance:**

1. Improve the safety and flow of traffic around schools. Construct a drive-through drop-off in front of school on underutilized front lawn on Broad Street and examine a similar effort on Atlantic Street.
2. Consider a Borough-wide traffic study, examining the possibility of establishing a one-way north/south circulation system from/to the waterfront utilizing Beers Street going north & Main Street going south, and other strategies to improve traffic flow and reduce accidents. This recommendation also allows for the possibility of angled parking.
3. Consider adding a left-turn arrow to the light at the intersection of Broad Street and Route 36. There is currently a turn arrow for cars traveling south on Broad Street, but not for cars traveling north. Such an arrow would reduce the potential for cars turning west from the north side of Route 36 to either get stuck in the intersection or be involved in accidents.
4. Investigate the effects of a four-way stop at the intersection between Broad Street and West Front Street. This will improve safety for pedestrians utilizing the intersection's cross walks when drivers are making turns.
5. Work with the NJDOT to construct an access lane onto Route 35 in the southbound direction from Main Street, in the right-of-way abutting Suburban Discount Tire. This will reduce accidents at this intersection and improve safety and traffic flow.
6. Investigate methods to reduce truck traffic, particularly on Maple, Broad, W Front and 1<sup>st</sup> Street. Heavy trucks and long tractor-trailers take a toll on our roads, curbs, utility poles, parking areas and quality of life.
  - One method of accomplishing this may be to put a bridge over the wetlands on Maple Place as was in existence earlier in the Borough's history (when Maple Place was known as Mott Avenue). In addition to enabling the Borough to put a weight restriction in place, this would also connect the wetlands on both sides of Maple Place to reduce the risk of flooding in other area of Keyport by giving high tides and storm surges additional land on which to percolate.
7. Implement traffic calming techniques, as determined by a traffic study. Analyze speed limits and recommend reductions where needed (e.g., Maple Place-25mph).
8. Improve enforcement of speed limits and install better signage (such as a speed limit sign on the western entrance to the waterfront). Add more consistent directional and informational signage.
9. Limit excursion buses (e.g. buses to Atlantic City) to a location on the outskirts of the Borough. These buses, like trucks put a strain on our infrastructure and increase traffic congestion.

## CIRCULATION PLAN ELEMENT

10. Improve visibility and location of traffic control lights and signs. For example, the light at the foot of the bridge over Route 35 on the St. Joseph's side needs to be relocated or adjusted since cars stop beyond a point where they can see the light.

11. Conduct a traffic study every 5 years focusing on historical data and future needs.

### **Pedestrian Issues:**

1. Organize a team to survey all of the Borough's sidewalks to identify areas where pedestrian safety could be enhanced.
2. Restripe and improve visibility of all crosswalks. Add pedestrian right-of-way signage on dangerous intersections.
3. Make sidewalks wider whenever there is an opportunity to do so, such as new construction.
4. Improve walkability of all sidewalks. Reconnect and add sidewalks as necessary (example Broad Street between Maple Place and Hurley Street).
5. On the waterfront, enhance the Promenade by extending the walkway out to W. Front, all the way to the new bridge. Long term: Extend from Aberdeen to Walnut St. and extend through Aeromarine redevelopment.
6. Explore appropriate pedestrian crossing safety measures and techniques throughout Keyport.

### **Commutation Issues:**

1. Keyport is on the NJ Transit subsidized 817 Route from Belford to Perth Amboy. Although we don't have ridership numbers, it is felt that this bus route is underutilized and provides a critical mass transit connection by connecting to the Perth Amboy Train Station where riders can connect to Newark and New York amongst other important destinations. It also brings people into Keyport to work and shop in our local businesses. This important bus service should be maintained. To this end, bus stops along the route in Keyport should be made more user friendly and be better identified. In addition, the corners where the bus must execute turns should be evaluated for improvements that would allow easier turns for the buses.
2. As there is currently no bus service from Keyport to either of the 2 closest train stations, Matawan or Hazlet; the possibility of commuter vans, shuttles or jitneys to the regional transportation hubs (train, bus, and ferry stations) should be explored, particularly as a condition for permitting the construction of new developments.
3. Consider future "Transit Village" plans for Keyport as we increase the number of people without cars looking to move into pedestrian/cycling/mass transit friendly communities.
4. There is a need for direct, convenient and safe pedestrian and bicycle routes from Keyport to Matawan Train station. The sidewalks are currently too narrow to safely accommodate pedestrians and bicyclists. If the overpass is removed or replaced, these shortcomings need to be remedied. A separate footbridge for bikes and pedestrians should be considered as well.

## CIRCULATION PLAN ELEMENT

5. The Borough should consider partnering with private transit services such as Academy to expand access to other regional employment centers. The Borough should improve access, by both pedestrians and bicyclists, to such private services, such as the Academy Bus station across from Airport Plaza. Improvements should include improved expanded infrastructure such as sidewalks and bike lanes, as well as amenities that improve user experiences.

### **Make Keyport a Bike-Friendly Town:**

1. We recommend the addition of bike lanes on all streets that are wide enough to accommodate them. Most importantly the addition of bike lanes on streets identified as feeder streets to and from the Henry Hudson Trail and the downtown/waterfront area. We also recommend adding additional bike racks at the waterfront and in the business districts.
2. Where possible, we should seek grants to construct energy-producing bike paths, bike stations, and pedestrian areas or at least encourage the utilization of solar energy to light these pathways and areas.

### **Additional Recommendations:**

1. A Parking Study for the downtown business district is recommended in order to identify potential solutions for existing parking issues.
2. As the waterfront area has developed, traffic has become more congested. Consideration should be given to modifying circulation along the streets accessing the waterfront to improve traffic flow as the area continues to grow.
3. In addition to pedestrian and bicycle lanes linking the Borough to public transportation stops, these paths should be enhanced throughout the Borough to improve walkability and safety.
4. Vehicular traffic near Keyport's schools presents safety risks, and designated drop-off lanes should be constructed to reduce the danger to students.
5. Alternative heavy truck and excursion bus routes should be investigated to reduce damage to roadways and roadway infrastructure throughout the Borough.
6. Identify transportation improvements needed in order to become a more resilient community as part of the hazard mitigation plan. Include appropriate projects in the Borough's Capital Improvement Plan.
7. Assess the adequacy, condition and operation of area roadways as part of a transportation study.
8. Identify locations suitable for bicycle racks and install bicycle racks accordingly
9. Identify locations where sidewalks are needed and implement sidewalks accordingly.
10. Apply for grants and funding under programs, such as the Safe Routes to Schools Program, for the projects and initiatives identified above.

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- 11. Explore the feasibility of cost effective commuter ferry service and related parking facilities to enhance the value of Keyport property and support the continued viability of the Keyport Harbor.**

# RECREATION PLAN ELEMENT

## 8. RECREATION PLAN ELEMENT

### INTRODUCTION

The Municipal Land Use Law provides that a municipal Master Plan may include a Recreation Plan Element showing a comprehensive system of areas and public sites for recreation. This Recreation Plan Element identifies the Borough's open space and recreation facilities and their general condition, and offers recommendations for improvements. Based on this analysis, an assessment of the adequacy of these facilities, in terms of location, size and scope is developed.

The quality and quantity of open space and recreation facilities is one of the most visible aspects of municipal government. The presence (and absence) of high quality recreation facilities directly relates to peoples' choices for residence, shopping and employment. This Recreation Plan Element provides a framework for understanding the open space and recreation facilities and services offered in Keyport, and how these facilities and services may be used and upgraded as a resource to preserve and enhance Keyport.

### KEY HIGHLIGHTS

The Element begins by describing the existing recreation land uses in the Borough. The present amount of open space in Keyport is 181 acres, which includes the beach, all public parks and playgrounds, publicly-accessible waterfront, wetlands and other land types. The current recreation and open space inventory is organized into open spaces that offer active recreational opportunities and those that offer passive recreation. The Recreation Subcommittee recognizes additional open spaces that should be included in the official Keyport Recreation and Open Space Inventory (ROSI) list, which increases the amount of open space in Keyport to approximately 41 acres of accessible recreation area, and approximately 205 acres of open space if wetlands and other land areas are included. A complete Stakeholder ROSI list is provided in the next section of this Element.

This inventory was used to prepare a resource assessment to determine if the facilities in Keyport offer sufficient recreational opportunities for its residents, based on the National Recreation & Park Association. Based on the most recent population estimates, and its existing ROSI, the Borough provides sufficient facilities, based on the assessment. To address what the Borough is lacking, this Element recommends the Borough explore entering into Intra-local Government Cooperation Agreements with neighboring municipalities for shared services.

The Element further describes recreation opportunities provided by the Monmouth County Recreation Department, most notably the Henry Hudson Trail, of which over 1.5 miles travels through Keyport. A recently drafted Municipal Public Access Plan (MPAP) describing the existing and proposed measures the Borough will take to expand access and recreational opportunities to tidal waters in Keyport was considered for this Element. This Plan is currently being reviewed by NJDEP and awaiting adoption.

The Recreation Element's list of goals, objectives and recommendations include first and foremost is the creation of an official Park and Open Space Department. This department will be held responsible for the maintenance needs, funding, scheduling, etc. of our parks and recreational facilities.

The Recreation Element proposes the Borough expand and acquire new parks when and where available and feasible, while protecting current parks and their locations. All existing and new Borough parks would be expected to be refurbished within 5 to 10 years, and provide an inclusive environment for all members of the public to enjoy, including differently-abled children.

## RECREATION PLAN ELEMENT

Lastly, the Borough should explore opportunities to expand recreation its most valuable feature, the waterfront. This Element recommends the Borough utilize the draft MPAP to expand access to tidal waters, creeks, marshes, etc. Please see the section Goals, Objectives, and Recommendations for additional recommendations and descriptions.

### INVENTORY AND DESCRIPTION OF EXISTING FACILITIES

#### Recreation & Open Space Inventory

NJDEP, through its Green Acres Program, provides funding to municipalities and counties for the acquisition and improvement of lands held for conservation and recreation purposes. As a condition of applying for and receiving Green Acres funding, each municipality or county is required to prepare and maintain a Recreation and Open Space Inventory, listing all Green Acres-funded properties in the municipality or county as well as all other lands held for conservation and/or recreation purposes. Lands listed on a ROSI include those owned, leased or otherwise controlled by the municipality (or county) and may include land owned in fee, land leased by the municipality or county for recreation purposes, land owned by a private entity upon which the municipality or county holds a conservation easement, or any land in which the municipality or county holds a specific recreation and/or conservation interest.

Properties included on a ROSI are to be held for conservation and recreation purposes in perpetuity, and may not be transferred from municipal or county ownership without first making an application to the State House Commission for what is termed a “disposal” of such lands. Similarly, properties included on a ROSI may not be used for purposes other than conservation or recreation without first making application to the State House Commission for what is termed a “Diversion” of such lands.

Several public access locations are on the Borough’s official Recreation and Open Space Inventory (ROSI) including Keyport Waterfront Park, the Promenade, Fishing Pier, Beach Park, Fireman’s Park and Cedar Street Park. Together these areas provide the bulk of Keyport’s municipal public access and are preserved in perpetuity through the Green Acres program. It is recommended that the revised ROSI shown as the table below be adopted as part of this Comprehensive Master Plan update and, upon such adoption, be filed with NJDEP. On the following page, the recommended ROSI list is provided and includes:

## RECREATION PLAN ELEMENT

Table 8.1: Stakeholder Recognized ROSI List					
Block	Lot	Facility Name	Approx. Area	Recognized by NJDEP	Type of Park
127	13	Benjamin Terry Park	0.6 acres	Y	Passive
137	6	Cedar Street Park	3.8 acres	Y	Active
21.01	29.r	Fishing Pier	0.2 acres	Y	Active
21.01	35	Mini Park	0.2 acres	Y	Passive
21.01	49	Waterfront Park	3.5 acres	Y	Passive
21	20	Fireman's Park	2.5 acres	Y	Passive
56	1	Main Street	0.7 acres	Y	Active
9	12.01	Therese Avenue	0.9 acres	Y	Passive
94	1	Boat Ramp	2.1 acres	Y	Active
94	2	Beach Park	1.4 acres	Y	Passive
94	45	Veterans Park	1.4 acres	Y	Passive
39	32	Kearney Street	0.5 acres	N	Passive
40	7	Jack Conway Park	0.1 acres	N	Active
83	7	Elizabeth Street Community Gardens	0.1 acres	N	Passive
63	1	Public Library Gardens	0.3 acres	N	Passive
21.01	51.01	Steamboat Dock Museum Property**	0.1 acres	N	Passive
72	1	Keyport Central School playgrounds, baseball, and field hockey fields.	3.2 acres	N	Active
68	1	Keyport High School football field	5.7 acres	N	Active

\* Please note that the Henry Hudson Rail-to-Trail Park is a 14.1-acre County-owned passive recreational open space.

\*\*The Steamboat Dock Museum Property is not on the Borough's official ROSI and is not intended to be added to the Borough's official ROSI.

An Open Space & Recreation Site Map, depicting the location of each of the Borough's inventoried open space and recreation sites, is included at the end of this section.

The foregoing represents approximately 205 acres of land (Approximately 23% of the Borough's incorporated land mass). However, it is important to note that much of this land is not usable for recreational purposes as it is comprised of wetlands and other inaccessible areas. A total of only approximately 41 acres of parks, recreation areas, marinas and/or boat ramps is useable for recreation (Approximately 4.6% of the Borough's land mass). The remaining area of approximately 164 acres is comprised of undeveloped beaches, dunes, uplands and wetlands.

### Municipal Parks and Open Spaces

The Borough's Parks Commission and Public Works Department is charged with maintaining all of Keyport's public parks and playgrounds as well as the gardens and grounds surrounding municipal buildings. These open spaces enhance the quality of life by providing the beauty of nature and recreational opportunities in and around the Borough's built environment.

A *passive recreation* area is generally an undeveloped space or environmentally sensitive area that requires minimal upkeep. Such parks may address the passive recreational needs for the health and well-being of the public and the preservation of wildlife and the environment. The quality of the environment and "naturalness" of an area is the focus of the recreational experience in a passive recreation area. Passive recreation may be defined as a non-motorized activity that: "Offers constructive, restorative, and pleasurable human benefits and

## RECREATION PLAN ELEMENT

fosters appreciation and understanding of open space and its purpose.” Passive parks exist for low intensity recreation emphasizing the open space aspect of the park and allowing for the preservation of natural habitats. It is an unencumbered and informal park for residents to kick a ball, fly a kite, non-competitive organized sports, pick-up ball games, non-motorized sports, reading, bird watching, mediation, etc.

The passive parks currently operating in the Borough of Keyport include those on Therese Avenue, Kearney Street, the Benjamin Terry Park, Veterans Park, Beach Park, Mini Park, Henry Hudson Trail (linear park/recreation), the Borough’s Waterfront (American Legion Drive), Elizabeth Community Gardens, Public Library Gardens, Fireman’s Park, Mosaic Benches by the boat ramp, Steamboat Dock Museum footprint and the Keyport Central School Playground. In addition to this all the waterways and marshes in the Borough’s jurisdiction are passively used as parks.

An *active recreation* area is generally any recreational activity that requires significant infrastructure for the purposes of competitive sports or organized events. It is about engaging in adventure sports or outdoor games. An active park refers to structured recreational activities which require specialized parkland development and management which may restrict general use of the parkland or facility. Active recreation, such as team sports, typically involves intensive management, maintenance, and therefore higher costs, due to the need to provide substantial space to congregate and upkeep for compliance.

Active park status includes parks that need administration, scheduling, registrations or collect fees for use. The active recreation areas operating in Keyport include the parks on Cedar Street and Main Street, Munn Park, the Keyport High School football field and Keyport Central School baseball/hockey field.

The following is a description of each recreational facility and the amenities each possess:

### ***Benjamin Terry Park***

This approximately half acre, beachfront, passive park is located between Myrtle Avenue and Cedar Street. The park is adjacent to Cedar Street Park and Veterans Park. It remains open for picnicking, pick-up games, leisure activities and other such uses. Parking is on-street along Cedar Street.

### ***Cedar Street Park***

This is located adjacent to Benjamin Terry Park and is an active park and bayfront. The park has 2 public tennis courts, a baseball field and a playground. Parking is available on-street along Cedar Street and a parking lot is also located on Pine Street, adjacent to the baseball field.

### ***Veteran’s Park***

This is also a beach front passive park with benches, gazebo, and ornamental grasses. Formalized access and parking is recommended, increasing it where available without disrupting the natural integrity of the park. ADA compliance and updated signage are also recommended, as necessary.

### ***Fishing Pier***

The Keyport Fishing Pier is located along the Keyport Waterfront Path, in downtown. As the name suggests, the pier offers opportunities for saltwater fishing and is one of two locations that offer this activity in Monmouth County.

## RECREATION PLAN ELEMENT

### ***Mini Park***

This passive park is located adjacent in Keyport's downtown, just east of the intersection of West Front Street and Main Street. The park offers picnicking opportunities, as well as convenient connection from the downtown to the waterfront. The park is also used as a venue for several events the Borough hosts, like summer concerts.

### ***Waterfront Park and Promenade***

Keyport's Waterfront Park and Promenade is a four acre park that consists of a pavilion, pedestrian plaza, lawn area and a free public parking lot. The park was part of an extensive revitalization project, first conceived in the late 1980's as an economic development venture to attract visitors, businesses and new residents. The project consisted of not just the park and promenade but also the replacement of 1,450 feet of bulkhead from Fireman's Park up to the Municipal Boat Launch. The project also included the redirection and reconstruction of American Legion Drive so as to provide maximum waterfront recreational opportunities.

### ***Fireman's Park***

This passive park is located along West Front Street and the municipal parking lot. The park plays host to the Borough's Farmer's Market as well.

### ***Main St. Park***

The park is located along the northern edge of the Henry Hudson Trail, between Main Street and Broad Street. The subcommittee recommends this small, oddly shaped parcel to be dedicated to and developed into a Tourist/Visitor Hue with a stone parking lot for residents and guests to park briefly, access street maps of the Borough, recreational facilities maps, upcoming events and to connect to a Wi-Fi hub of information. This area will require minimal improvements but attention paid to details such as erosion limiting plants, shrubbery and gardens.

### ***Therese Avenue***

This is a 0.86 acre park with a public basketball court, playground, and is located on the dead end of Therese Avenue.

### ***Jack Conway Senior Park***

Located on Kearney Street, between Stout Street and Barnes Street, the Jack Conway Senior Park is a small park, with picnicking opportunities, as well as a playground and swing set.

### ***Henry Hudson Rail-to-Trail***

Built along the right-of-way of a former rail line, the Henry Hudson Trail is a 24-mile, 10-foot wide trail owned and maintained by the Monmouth County Recreation Department. The northern portion begins on the Atlantic Highlands and Middletown border and travels 12 miles through Keyport, before terminating at the Borough's border with Aberdeen.

### ***Elizabeth Street Community Gardens***

Elizabeth Street Community Gardens is located at the intersection of Elizabeth and Church Streets and is maintained by the Keyport Garden Club. This lot is used for growing organic food in a community setting from April to December. 4 by 8 foot plots are leased for \$25 per year and are first-come, first-serve. For more information, please see the Keyport Garden Club's website.

### ***Public Library Gardens***

This is a community garden located outside the public library at the intersection of 3rd and Broad Streets.

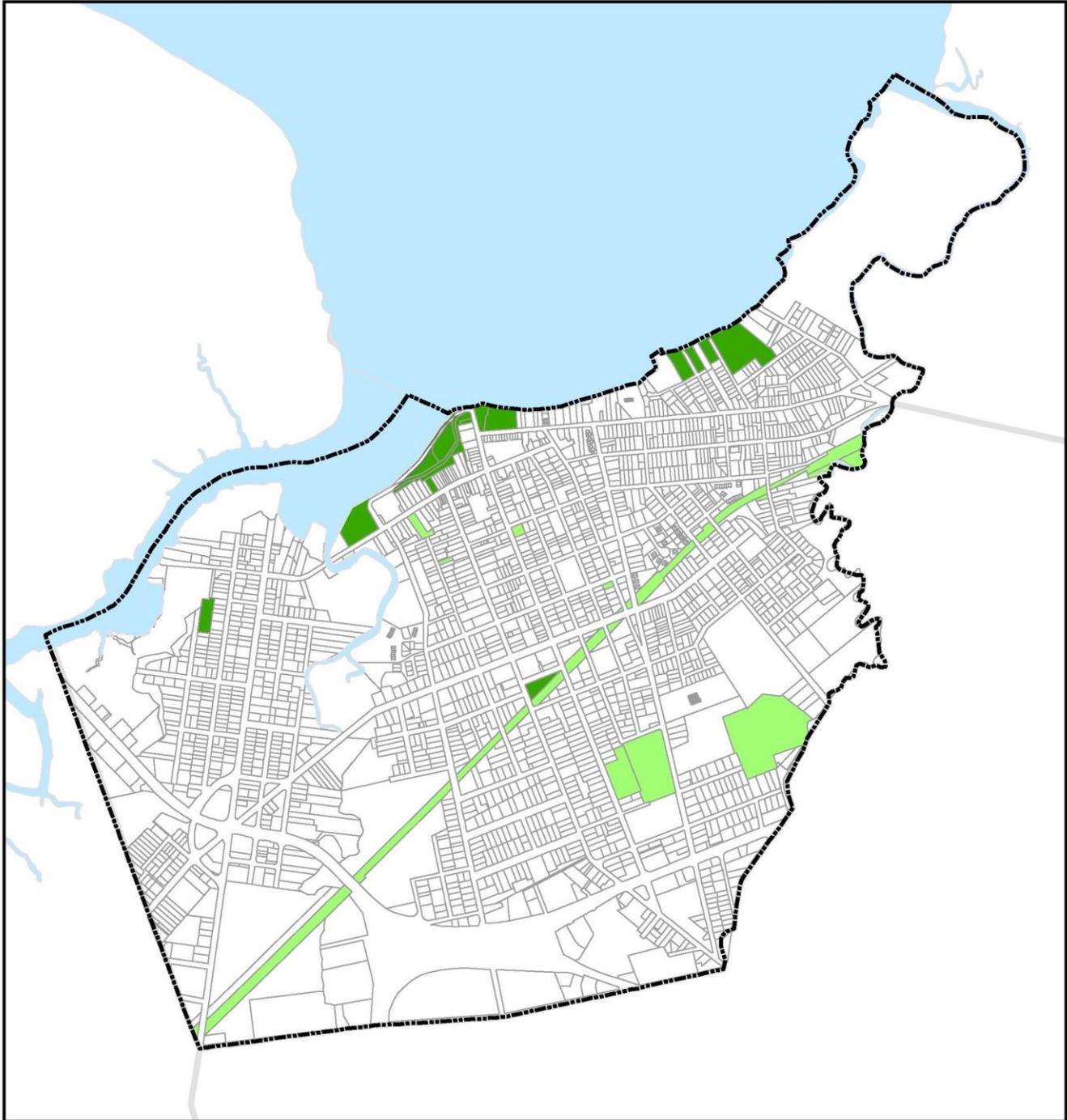
## RECREATION PLAN ELEMENT

### *Steamboat Dock Museum*

The museum was destroyed as a result of Superstorm Sandy. Please note that the property is not on the Borough's ROSI. The property is located on Broad Street next to the waterfront park. The museum opened in 1976 and was originally owned by the Keansburg Steamboat Company.

# RECREATION PLAN ELEMENT

Figure 8.1: Recreation and Open Space Inventory



<b>Legend</b> Keyport Recreation and Open Space Inventory Space Recommended for ROSI		<b>MATRIXNEWORLD</b> Engineering Progress 442 State Route 35, 2nd Floor Tel: 973-240-1800 Eatontown, New Jersey 07724 Fax: 973-240-1818 WBE/DBE/SBE www.matrixnewworld.com			
		PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:15,000	DATE: 3/3/2017
<b>Borough of Keyport                  Monmouth County, N.J.</b>		SOURCES: NJDEP GIS Data  State Plane Coordinates: NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet			

# RECREATION PLAN ELEMENT

## RESOURCE ASSESSMENT

As a built-out community, public open spaces in Keyport are at a premium. Such spaces should be properly maintained and preserved to the utmost. Suggested improvements should relate to the needs identified for each facility, based upon local priorities.

One method of evaluating a community's recreation need is to apply the standards published by the National Recreation & Park Association (NRPA) for recommended recreational amenities. These standards provide guidelines for minimum number of facilities based on community population.

As the 2010 Census counted 7,240 residents, and 2015 estimates by the American Community Survey place the Borough at approximately 7,145, Keyport has an adequate number of dedicated active recreation facilities under NRPA standards. By NRPA standards, the Borough's lack of a public volleyball court and an additional tennis court are noted. However, recognizing the limited land area in the Borough for such active recreation uses, the Borough may wish to consider entering instead into an Intra-local Government Cooperation Agreements with neighboring municipalities which could provide residents with access to recreation programs not provided by Keyport. The Recreation Subcommittee identified neighboring Township of Hazlet as having excellent recreational facilities.

RECREATIONAL AMENITY	NRPA STANDARD
Softball Fields	One (1) per 5,000 residents
Baseball Fields	One (1) per 5,000 residents
Soccer Fields	One (1) per 10,000 residents
Field Hockey Fields	One (1) per 20,000 residents
Multi-purpose Fields	No standards published
Basketball Courts	One (1) per 5,000 residents
Volleyball Courts	One (1) per 5,000 residents
Football Fields	One (1) per 20,000 residents
Tennis Courts	One (1) per 2,000 residents
Trails	One system per region
Swimming Pools	One (1) per 20,000 residents
Running Track	One (1) per 20,000 residents
Community Centers	One (1) per 25,000 residents

## County Initiatives

The Monmouth County Park System, under the guidance of the Monmouth County Board of Recreation Commissioners, serves as the County's open space, park and recreation agency. Regional parks are the backbone of the County Park System. They combine the functions of recreation and conservation areas, providing a mix of recreational opportunities while preserving a major portion of the park in a natural, undeveloped state. Typically, each regional park has some unique features or facilities that distinguish it from other regional parks and attract visitors from throughout the county. All county residents should be within 10 miles of at least one Regional Park. The combined total acreage in the regional park and recreation area categories should equal or exceed a standard of 10 acres per 1,000 county residents. Based on an estimated county population of 645,349, the target is 6,450 acres of regional parks and recreation areas. The Borough of Keyport does not currently host any regional parks other than a segment of the Henry Hudson Rail-to-Trail.

## RECREATION PLAN ELEMENT

Recreation areas are intended primarily to provide outdoor active recreation facilities, although they may include indoor facilities for athletics and specialized programming. Recreation areas generally do not contain a large environmentally sensitive area. All county residents should be within 8 miles of a recreation area. As stated above, the combined total acreage of recreation area and regional park categories should equal or exceed a standard of 10 acres per 1,000 county residents.

Special use areas serve a special purpose or meet a specific need. Often, they are devoted to single-purpose recreational, horticultural, historic or cultural activities such as gardens, marinas, and historical sites. Because their acquisition is typically undertaken to preserve or take advantage of a specific existing or potential resource of county significance rather than as a response to a calculated or projected recreation need, there is no standard for their quantity or distribution.

Conservation areas are created to permanently protect a natural resource of county significance and are actively managed for that purpose. Examples include water-related natural resources, mature woodland, noteworthy plant or wildlife habitats, geological features and scenic landscapes. Because of their resource-driven function, there is no quantitative standard for the number or distribution of conservation areas.

Golf courses are special purpose, daily fee recreation facilities. Nationally accepted standards suggest there should be one daily fee 18-hole golf course for every 25,000 to 30,000 county residents. This need can be satisfied by privately owned daily fee courses that are open to the public. Variation in course length and difficulty is necessary to satisfy golfers of all skill levels. Portions of the property not developed for golf may be used for other recreational activities or managed for conservation purposes.

Greenways are elongated and usually continuous strips of land or water under public control through ownership, easement or other agreement. Greenways may serve both conservation and recreation needs and, wherever possible, should be planned to connect other park sites and centers of activity. Existing natural corridors such as streams or man-made corridors such as railroad and utility rights-of-way often guide the location of greenways. The Henry Hudson trail which passes through the Borough of Keyport is a designated greenway and is a part of larger trail passing through several other municipalities in the County.

Open lands are intended primarily to advance regional objectives for watershed protection and growth development patterns and to enhance regional quality of life by preserving certain lands of county significance in an essentially unimproved condition. Park land classified as open lands is not intended for formal recreation use or park facilities, but may be made available for agriculture or land dependent outdoor recreation uses such as hiking and horseback riding. Open lands generally receive only minimal maintenance and patrolling.

### **Municipal Public Access Plan Draft**

A Municipal Public Access Plan (MPAP) lays out the Borough's vision for providing public access to tidal waters and shorelines within the municipal boundary. Public rights of access to and use of the tidal shorelines and waters, including the ocean, bays and tidal rivers in New Jersey are founded in the Public Trust Doctrine. The development of a MPAP by the Borough of Keyport enables the municipality to better plan, implement, maintain and improve public access for its residents and visitors. A draft of the Borough of Keyport MPAP, prepared by CME Associates, was submitted to NJDEP for review and for public comment in September 2015 and is currently still listed as a draft plan by NJDEP. This status is due to a court decision that impacted the MPAP program and public access regulations. While this document has not been adopted by the NJDEP, it contains valuable information as it pertains to public access to the waterfront.

## RECREATION PLAN ELEMENT

Several themes have emerged from the public involvement process with regards to public access in Keyport. The following list identifies, but is not necessary limited to, the findings of the draft MPAP:

- The need for permanent bathrooms and removal of seasonal porta potties;
- A need for increased pedestrian safety through LED crosswalks, raised crosswalks or other traffic calming measures to provide a more balanced environment for pedestrians and vehicles;
- Lack of small boat access, storage or rental;
- The need for increased clean-up of fish guts and litter;
- The need for increased enforcement of rules related to littering;
- The need for a visitor center or other centralized area to disseminate information;
- The need to increase the number of public access points including beach and creek access points;
- A need for public and transient boat slips for visitors to Keyport;
- No storefront access along American Legion Drive or facing the waterfront;
- Continual dredging issues for the municipal boat launch;
- Need to develop public access for the Aeromarine Site;
- Connect the Henry Hudson Trail to existing waterfront access areas;
- An opportunity to construct recreational improvements along Luppataong Creek, based on an approved condition for development in 2004. This condition included an easement for public access, child-proof safety railings, lighting and a sign indicating the location of the public walkway along the creek. The noted improvements were never constructed but future opportunities to construct the improvements should be continually sought out; and
- Opportunities to construct a small boat launch along the Luppataong Creek should continue to be pursued.

## RECOMMENDATIONS

### Park and Open Space Department

The single most important addition needed for the recreational future of Keyport is the creation of a Park and Open Space Department. This is recommended to be an official Borough department. It is envisioned to maintain staff that act as the watchdog of the Master Plan at Unified Board and Council Meetings, ensuring the plans set forth for Keyport's parks, Green Acres, Blue Acres and community gardens are protected. They will be held responsible for the maintenance needs, funding, scheduling, etc. of the Borough's parks and recreational facilities. Department staff will also perform duties similar to that of a public works employee, however, these duties will pertain specifically to parks and open space. The duties would include but not be limited to attending to maintenance needs keeping our parks and facilities functioning and accessible, landscaping, repairs, litter pick up, enforcement, etc.

With this management structure in place, it is recommended that the Keyport Recreation Commission be dissolved as a commission and restructured into an Event Planning Advisory Committee reporting to the Director of the Park and Open Space Department. The Event Planning Advisory Committee will continue to plan public events such as movie nights, the annual egg hunt, the Halloween Parade and the Holiday Tree Lighting. It will work closely with the Senior Center and other volunteer groups to provide recreational opportunities for to the Borough that reflect the different interests, cultures, ages and needs of our community.

The Parks and Open Space Department Manager will be responsible for branding, marketing and signage for the Borough's parks. It will also create and oversee programs such as a memorial bench program and adopt-a-park program.

## RECREATION PLAN ELEMENT

The promotion of the Henry Hudson Trail as a Keyport recreational attraction is recommended. The Borough should seek the county's permission to utilize the unused linear areas along the trail for small recreational stops. These stops may serve as a rest area with benches, a bird watch stop, an exercise stop featuring a piece of exercise equipment, a small skateboard spot including an element such as a rail, a meditation garden, etc.

The Borough should focus on expanding parks when and where available in the near future while protecting current parks and their locations. It is envisioned that the parks would be interconnected to the maximum extent practicable in order to form a comprehensive parks and open space network. Where existing land uses intervene, delineated on-street routes to reconnect to the parks and open space network should be provided along with appropriate wayfinding signage. Over the course of five to ten years, all pre-existing parks should be refurbished with at least two parks providing inclusive elements for differently-abled children.

The Borough should provide a boat ramp extension for non-motorized water sports and recreation such as kayaking, fishing, paddle boards and a rental facility to rent such equipment. It should also simultaneously preserve and create access to all bodies of water including creeks, marshes, etc. The Master Plan acknowledges the importance visitors to Keyport have on the local economy, especially the central business district. Keyport's parks and recreation facilities are envisioned to be designed and utilized primarily for the benefit of the residents of Keyport and not to be marketed as a regional recreational destination.

### **Recommendations from the Municipal Public Access Draft**

#### ***Maintain existing public access.***

The Borough is committed to maintain all existing public access to the Raritan Bayfront. The majority of identified public access locations within the MPAP were well-utilized by the public. This well-utilization results in a significant increase in the amount of litter and maintenance required along the waterfront, especially for the fishing pier and Promenade areas.

The MPAP stated the Borough Public Works and Recreation Commission will continue to maintain all access points owned or controlled by the Borough. Efforts to maintain and clean public access areas should include consistent cleaning of beaches and all public access areas throughout the year. Beaches at Beach Park and Cedar Street Park were recommended to be cleaned once a month from May to September each year to increase the appeal, and consequently visitors, to Keyport's beaches. These beach clean-ups can be conducted by the Borough or through scheduled volunteer cleanups.

Additionally, maintenance and clean-up frequency of the Promenade and all other public access areas should be increased in response to the high amount of use in the warmer months. This can include installation of more trash and/or recycling receptacles and increased trash pick-up times to help manage the increase in solid waste volume. Another option to consider is to increase volunteer participation for cleanups by offering incentives to participate such as local discounts or other similar incentives.

#### **Recommendations for maintenance activities should include the following:**

- Install more trash and/or recycle receptacles along the Promenade and all public access areas;
- Increase trash pick-up for all public access areas to at least twice a week;
- Promote more community and volunteer clean-up events;
- Purchase a beach sweeper in conjunction with adjacent municipalities for monthly beach clean-ups by the Borough and/or volunteers between May and September each year;

## RECREATION PLAN ELEMENT

- Increase enforcement of littering, especially as it relates to fishing-related waste, and other Borough ordinances through bike or foot patrols by appropriate Borough agencies;
- Manage and replace vegetation as needed at each location;
- Consider adopting an ordinance to fine park patrons who leave fish, fishing-related waste or litter in prohibited areas as an enforcement measure; and
- If fines are adopted, consider creating a Municipal Public Access Fund where all proceeds for fines could be deposited and used to upgrade and maintain public access facilities in Keyport.

### *Planned Enhancement to Public Access Locations and/or Facilities*

The community needs assessment identified several public access locations or facilities that can be enhanced. Recommendations for Promenade including Beach Park and Municipal Boat Launch:

- Find an alternative to porta potty bathroom facilities. As the flood zone designation in this area has been appealed and changed, it is recommended that the viability of constructing permanent bathroom facilities at this location be explored. If this is not feasible, using portable restroom trailers that have running water may be a suitable alternative.
- Install a portable visitor center and/or kiosk to provide visitors with maps, events, information on local businesses, and rules of the waterfront, and to answer any questions visitors may have. Possible locations include the vacant lot where the Steamboat Museum was located, the open space near the clock, or another similar appropriate location.
- Improve the municipal boat launch through dredging and extending the concrete slab. Any material from dredging may be used to assist in capping the Aeromarine Site.
- Install moveable chairs and tables near the Gazebo to allow patrons to comfortably eat near the waterfront.
- Improve pedestrian access to Beach Park and Promenade by installing traffic calming devices such as raised crosswalks or LED pedestrian signs.
- Identify opportunities for a ferry service along the Promenade.
- Identify opportunities to install transient boat slips with a pump-outstation to increase daily visitors to Keyport. A Boating Infrastructure Grant may assist in acquiring funds for installation.
- Provide storefront access along American Legion Drive through ordinance or other means.
- Identify opportunities for a kayak rental and storage area.

### Recommendations for Cedar Street Park:

- Increase pedestrian safety to Cedar Street Park through traffic calming measures.
- Install a small boat access area to the bay for kayaks or canoes.
- Identify an opportunity for kayak rental and storage area.
- Identify an opportunity for eco-tours via small boat.
- Parking needs will need to be addressed if a small boat access is created due to the increase of vehicles to the park.
- Install a bike lane from the Henry Hudson Trail to Cedar Street Park via Fulton Street and install way-finding signage from the trail to Keyport's waterfront access areas.
- Increase frequency of beach clean-up at Cedar Street Park and improve beach access and amenities.

### Recommendations for Walnut Street:

Keyport's Strategic Recovery Planning Report identifies Walnut Street's beach access restoration as a key goal. Superstorm Sandy damaged the beach access and it is recommended to restore beach access. This may be done in conjunction with any development of the Aeromarine Site.

## RECREATION PLAN ELEMENT

### *Increase Volume and Frequency of Visitors*

The Borough of Keyport is committed to the economic development of the downtown business district and the Borough as a whole. To that end, the Borough will continue to look for opportunities to increase the number of public access locations along the Bayfront and enhance the connections between existing public access areas and the downtown area. Increased public access may increase the number of visitors to Keyport Borough, thereby generating an increase in the use of services provided by Keyport's businesses. Recommendations include:

- Install transient boat slips and a pump-outstation where viable;
- Increased food options such as allowing food trucks in designated areas;
- Increased murals and public art;
- Additional public access areas;
- Identify the potential for Eco-tours;
- Increased activities for beaches;
- Continuous and improved beach access; and
- Scenic viewing platforms for the bay and for wildlife along the creeks.

### *Preservation of Public Access Recommendations*

The draft MPAP recognizes the Borough's commitment to preserving much of its waterfront in perpetuity, and has most of the waterfront access locations listed on the NJDEP ROSI. However, additional measures can be taken to preserve the public's access, including conservation easements and additional Resilience measures.

Currently, there are no conservation easements for public access areas in Keyport. However, the Aeromarine Site is planned to have a significant portion of the site dedicated to public access. It is recommended that the Borough place a conservation easement on the public access portion of the Aeromarine Site to ensure the public can enjoy the Bayfront. Additionally, a conservation easement is envisioned for the Luppataong Creek to provide public access to the creek.

Superstorm Sandy resulted in significant damage to Keyport's public access areas. The Borough's SRPR, the Community Resilience Plan Element and the pending Keyport Borough Hazard Mitigation Plan identify all of the damages and provides recommendations such as wave breaks, bulkheads and cooperation with the U.S. Army Corp of Engineers to improve the Resilience of public access facilities. The Borough will continue its efforts and explore opportunities to make the Borough's public access facilities more resilient.

### *Proposed Access Improvements and Facilities*

#### Aeromarine Redevelopment

The Aeromarine Redevelopment plan includes the goal of providing "continuous public access to the waterfront and to utilize design techniques that guard against the privatization of the waterfront". This public access would include the length of the Raritan Bay and Chingarora Creek waterfronts located within the redevelopment area. Additionally, the plan calls for the development of active recreation facilities to go along with the public access. The Plan stipulates that at least 31 acres of open space be accessible to the public, of which at least 20 acres be free of environmental constraints. The Borough is committed to providing public access to the Aeromarine Site area once all remediation efforts are completed. Additionally, all trail designs should consult the 1993 Bayshore Trail System Design Manual or other suitable trail design manuals.

## RECREATION PLAN ELEMENT

### Luppataong Creek Access

As noted earlier, two developments that were approved but never built included proposed public access along Luppataong Creek. The Borough will continue to look for opportunities to provide a public access facility in this area which may include an area for small boats, including kayaks and canoes, to launch from.

### **Additional Recommendations**

1. Using a pre-existing structure such as the school or civic center, create a Recreation Center that offers classes, activities, collects payment for events, etc.
2. Establish a welcome center at an appropriate location. For example, Main Street Park could be expanded to encompass the street and building. The size of the facility could be enlarged and the building could be used as a Welcome Center.
3. Require the Redevelopment Plan for the Aeromarine property include a recreational component for public use.
4. Designating Cedar Street Park as the premier athletics park with a “tot-lot” play area for children from 5 to 12. This is where the Borough should offer baseball, basketball and tennis facilities. Cedar Street Park will also house bathroom facilities, running water for water fountains and an area or ramp for public access to launch non-motorized water crafts.
5. Building a soccer field for “pick up” games when space becomes available.
6. Preserving the Steam Boat Dock Museum’s Green Acres status and designate this area for passive recreational use only.
7. No permanent structures shall exist on Benjamin Terry Park.
8. Encouraging the Harbor Commission to include rentals of kayaks and such at the Boat House located at the boat ramp.
9. Serious consideration should be given to include a dog park in the Borough.
10. Create or identify a “Teen Canteen”, a recreational hangout for teens and tweens similar to a Boys/Girls Club or other civic league.
11. Add beach and water access at the end of Walnut Street with permanent fencing for safety.
12. The Recreation Advisory Committee will utilize the recreational offerings of neighboring towns when available to eliminate duplication of efforts (for example, the Union Beach soccer league).
13. The Recreation Advisory Committee will work closely with the Historic Society to create a Keyport Historic Trail, a walking tour of historic spots in the Borough.
14. Identify opportunities for “pocket parks” at appropriate locations, such as within or near the business districts and waterfront areas. These small parks should feature benches, public art, landscaping and similar functional and aesthetic amenities.

## RECREATION PLAN ELEMENT

15. Establish one or more measured mile walking/running routes and provide wayfinding signage, as appropriate.
16. Provide new amenities in order to modernize parks and recreation areas as new amenities and technologies become available. Examples include but are not limited to water bottle filling stations, phone charging stations, wi-fi access, etc.
17. Explore ways to incorporate public art in parks and recreational areas, in business districts and along the waterfront in a Creative Placemaking Element. The art may be in the form of visual art or performing art, as appropriate, or both.
18. Improve accessibility to Therese Street Park specifically making use of passage way from West Front Street to Therese Street Park as recorded on the tax map. This would create two entrances and exits to the park and increases the “walkability” of Keyport as a community.
19. With the recommendations of the Keyport Garden Club, the Borough shall identify sustainable plants throughout our parks system.
20. Explore the viability of establishing additional parks, open space and waterfront public access via the Blue Acres Program.
21. The Master Plan Recreation Subcommittee views the recreational facilities located at the elementary and high schools as public assets to the Borough as a whole and areas that can provide great exercise opportunities to the Borough’s residents. On-going relationships between the Borough and Board of Education should be fostered to facilitate the use of these important resources by Borough residents at appropriate times.
22. The Borough is committed to dedicating sufficient resources to properly maintain, improve and expand all recreational facilities.

# OPEN SPACE AND CONSERVATION PLAN ELEMENT

## 9. OPEN SPACE AND CONSERVATION PLAN ELEMENT

### INTRODUCTION

The Municipal Land Use Law provides that a municipal Master Plan may include a Conservation Plan Element, which may also be entitled “Open Space and Conservation Plan,” as follows:

*“...providing for the preservation, conservation, and utilization of natural resources, including, to the extent appropriate, energy, open space, water supply, forests, soil, marshes, wetlands, harbors, rivers and other waters, fisheries, endangered or threatened species wildlife and other resources, and which systemically analyzes the impact of each other component and element of the master plan on the present and future preservation, conservation and utilization of those resources.”*

This Open Space and Conservation Plan (“OS&C Plan”) has been prepared in accordance with Municipal Land Use Law Section N.J.S.A. 40:55D-28.b.(8).

Keyport contains a multitude of natural resources which together help define the essential character, economy, and Resilience of the Borough. The creeks and coastal wetlands that flow through the built environment, and the Raritan Bay that borders this coastal community, lends to a sense of place that should be protected; its vanishing would have a profound effect on the future character, economy and Resilience of the Borough. Toward this end, the Borough has considered a series of initiatives and projects to improve the waterfront and landward opportunities presented to Keyport. This OS&C Plan proposes Keyport increase its land stewardship efforts and outlines the Borough’s strategies to meet the statutory purpose to preserve, conserve and utilize natural resources. Land stewardship involves the actions of both landowners and government agencies.

The Borough’s approach to stewardship should be two-fold, including public education and implementation of ordinances for conservation easements and public waterfront access; stormwater management, and protection of stream corridors, steep slopes, soil erosion, and forests. Public education on the importance of stewardship in protecting these valuable natural resources is available through existing educational programs offered by the County and State, and private non-profit organizations including the New Jersey Conservation Foundation, NJ Baykeeper, and the Bayshore Regional Watershed Council. The Borough should seek to partner with these organizations to advance these efforts, and should explore the creation of new programs through Borough schools and Borough agencies such as the Recreation and the Environmental Commissions and developing an official Parks and Recreation Department, as recommended by the Recreation Element. Sustainable Jersey, a statewide program to register and certify “green” municipalities, has outlined an agenda of environmentally friendly initiatives that municipal leaders can select from, when pursuing Sustainable Jersey certification. Sustainable Jersey is further described in the Green Building and Environmental Sustainability Plan.

While the OS&C Plan is designed to function in concert with the other plan elements, the most important linkage will be with the Land Use Plan. Together, these plan elements propose the location, scale and intensity of new development and the resource management strategies needed to protect the environment. By providing for development at densities that the land can support, the Land Use Plan effectively carries out some of the objectives of the OS&C Plan and vice versa. This Master Plan reiterates the concerns of residents and policymakers of the vulnerabilities Keyport faces as a coastal community. It has become increasingly obvious that the development of Keyport must take a greater consideration of the natural conditions of the environment. Developing in the flood hazard areas, especially those in high velocity wave zones, has impacted residents and

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commercial properties for years, and was most evident during Sandy. Restoring the health of Keyport's water bodies, especially its greatest resource, the Raritan Bay, is of utmost importance to maintaining those characteristics that drives most people to Keyport.

This OS&C Plan seeks to minimize further degradation of these resources for the 21st century and beyond. This plan recognizes the inherent limitations of our ability to disassemble the natural world and put it back together again. It argues in favor of a lighter touch on the land, one that is more respectful of natural systems, and that limits the resource commitments and impacts of human intervention. This calls for a systems approach to natural resource conservation, where interconnected natural systems are viewed as a collective resource, not a series of separate features. The variety of biological species is an indicator of the health of an ecosystem. Maintaining biological diversity requires protection of critical habitat areas. While habitats of endangered or threatened plant or animal species are of special importance, threatened or endangered status may be transient. For instance, the osprey and snowy egret may be removed from the protected list in the future, yet their critical habitats will remain essential to their continued survival. Additionally, the extirpation of rare species removes elements from the food chain that help maintain ecological balance. Protecting biodiversity requires the protection of terrestrial and aquatic habitats that are highly susceptible to degradation.

Pristine waters cannot be maintained without protection of their watershed areas. Freshwater wetlands play an important role in filtering contaminants from the surface water and groundwater regime and, while protected by state statutes, are not immune from impacts that occur beyond the regulated areas. Similarly, the beautiful views of Raritan Bay and its waterfront access are unparalleled; yet such views are frequently lost to development. Land development should be arranged to maximize the conservation of substantial assets of critical habitat areas, by limiting the aerial extent of development and promoting conservation techniques targeted to these resources. Aldo Leopold wrote in *A Sand County Almanac*:

*"A land ethic, then, reflects the existence of an ecological conscience, and this in turn reflects a conviction of individual responsibility for the health of the land. Health is the capacity of the land or self-renewal. Conservation is our effort to understand and preserve this capacity..."*

In 2007, Keyport's Mayor and Council authorized the preparation of a Natural Resource Inventory (NRI) for the Borough. The NRI compiled an inventory of environmental resources within Keyport, and was intended to be utilized by the Borough's Environmental Commission, Unified Planning Board and Borough Council to aid in the evaluation of environmental issues in land use planning.

This OS&C Plan Element discusses the natural resources in the Borough and provides recommendations for the conservation, preservation and appropriate use of these resources.

### KEY HIGHLIGHTS

The Open Space and Conservation Element sets forth the policy, goals and objectives for the natural resources of Keyport. This includes Keyport's physiography, stratigraphy, soils, aquifers, wellhead protection areas, streams, floodplains, wetlands, forests, habitat for threatened and endangered species and other natural heritage sites. The inventory also considers Keyport's rich maritime history and culture a resource worth conserving. In addition, this Element acknowledges Keyport's vulnerability to climate change and its need to protect its coastal areas. Please note that updated wetlands mapping is included on Figure 9.1: Critical Habitat in Keyport.

The Open Space and Conservation Element then considers the impact each other element within the Master Plan will have on these natural resources. Due to the built out nature of Keyport, it is anticipated that most new

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development will occur through redevelopment or rehabilitation. A list of goals, objectives and recommendations is provided in this Element. Some notable recommendations include:

- Periodic updates to the Borough's 2007 Natural Resource Inventory in order to reflect the most recent scientific findings and data regarding natural resources in the Borough.
- Develop a strategy to acquire, preserve and protect the natural resources, and other public open spaces of Keyport. This should include investigating grant opportunities to acquire and preserve integral areas to the character, economy, Resilience and identity of Keyport.
- Propose new development regulations that provide for open spaces and maintain the natural habitat of Keyport in its landscaping.
- Keyport will strive to promote non-structural green infrastructure projects. These would include projects such as living shorelines, promoting oyster cultures or other solutions that seek soft, natural solutions to hard, man-made ones.
- Notify Keyport residents for any new development impacting a recognized open space or resource of the Borough.
- Encourage responsible development practices, remediation of contaminated sites, and to utilize green techniques and strategies in their design. More importantly, to mandate the Borough's officials, committees, and leaders in keeping the community's best interest at heart.

Please see the Recommendations section for additional information.

### CLIMATE

The Borough of Keyport has a continental climate, with the prevailing winds from the south during summer months. The buffering effects from the Atlantic Ocean on temperature are substantial. In an average year, the growing season extends from early April until mid to late October and lasts approximately 240 days. The Borough can experience approximately thirty to forty days above ninety degrees per year. Rainfall averages approximately 46 inches per year, and is more or less evenly distributed month to month. It experiences an average of 179 freeze free days, and can experience snow fall from about mid-November to mid-April. Total annual snowfall accumulations average 25".

### ENVIRONMENTAL PLANNING ISSUES

Borough policymakers recognize that, as a Bayshore municipality, the Borough needs to balance its desire to promote development with its need to preserve the environmental resources which are tied to the character, economy and Resilience of the Borough. This Policy and specific objectives related thereto, is recognized and supported throughout this Master Plan Update.

Regulations that govern land development and environmental conservation are extensive within the State of New Jersey and the Borough of Keyport. The regulations range from applicable sections of the local Borough Code to the New Jersey Department of Environmental Protection's (NJDEP) Coastal Zone Management (CZM) Rules as well as many other applicable State and federal laws. However, while these regulations are extensive in scope, they do not provide comprehensive protection of environmentally sensitive resources. Therefore, local environmental planning, advocacy and legislative efforts are necessary in order to strive to bridge the gaps in existing regulations to provide more comprehensive protection of environmentally sensitive resources in the community to the extent reasonable and feasible.

# OPEN SPACE AND CONSERVATION PLAN ELEMENT

## PHYSICAL & NATURAL RESOURCE INVENTORY

Below is a summary of the physical and natural resources of Keyport. For a complete description of each feature, please review the 2007 Natural Resource Inventory.

### Physiography

The Borough of Keyport is located entirely within the Atlantic Coastal Plain physiographic province. The Coastal Plain is characterized by low lying terrain with open stream valleys and broad, gently sloping divides. Topography in the Coastal Plain is a result of the differential erosion of the strata, composed of gravel, sand, silt and clay. For a description of the strata of the Atlantic Coastal Plain, see the section below, Stratigraphy.

Higher elevations are formed by those areas that typically erode less rapidly. The highest point in the Borough of Keyport is on Route 35 near its intersection with Clark Street at an elevation of 47 feet above mean sea level; with the lowest areas existing along the northern boundary of the Borough at sea level. Steep slopes exist along the Luppataong Creek near the southern border of the Borough and near the confluence of the Matawan Creek and Raritan Bay near the north end of Broadway. Coastal bluffs, also considered to be steep slopes, are located in various locations along the Raritan Bay at the northern border of the Borough.

The sensitive portions of the Borough's physiography, such as steep slopes, has generally been protected through adherence to existing environmental regulations such as the CZM rules pertaining to steep slopes and coastal bluffs. For example, steep slopes along the Luppataong Creek, in conjunction with its associated wetlands and floodplain, has already limited development along this waterway. As the proposed Land Use Plan does not call for changes that would significantly alter the Borough's physiography, it is anticipated that only minor changes to physiography may occur in the future through the implementation of green infrastructure projects and related Resilience measures.

### Stratigraphy

The Atlantic Coastal Plain is mainly composed of strata of clay, silt, sand, and gravel deposited during the Cretaceous and Tertiary geologic time periods. These layers of unconsolidated sediment lie over a basement of much older Precambrian and early Paleozoic crystalline rock. Each sedimentary formation of the Coastal Plain consists of a succession of strata of similar or variable characteristics that were deposited over a particular interval of geologic time. For a complete description of each formation, please see the 2007 Natural Resource Inventory.

No significant adverse impacts are anticipated to occur to the Borough's stratigraphy based on the goals, objectives and recommendations of this Master Plan and its constituent Elements.

### Soils

Details of the soils series that have been mapped in the Borough of Keyport are presented in the Natural Resource Inventory, as obtained from the Soil Conservation Service of the United States Department of Agriculture soil survey for Monmouth County (Jablonski & Baumley, 1989). These soils include:

- Humaquepts –frequently flooded (HV)
- Keyport Series (KeA and KeD)
- Pemberton Series (PeA)
- Psamment - waste substratum (PW)
- Sulfaquents and Sulfihemists (SS)
- Tinton Series (TUB)
- Udorthents (UA, UD)
- Urban Land (UL)

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Development should be restricted to a reasonable degree in all these soils except the Urban Land which is suitable for development and contains more than 85% impervious cover. The other soil types should be conserved from development to an appropriate degree and be landscaped for flood control.

### **Aquifers**

Aquifers are saturated geologic formations capable of yielding significant quantities of water under conventional pumping pressures. An unconfined aquifer is a near surface aquifer that has the water table as its upper boundary (also called a water table aquifer). A confined aquifer is a fully saturated unit bounded above and below by relatively impermeable formations called confining units. Aquifers underlying the Borough of Keyport include the Merchantville-Woodbury aquifer system and a portion of the Potomac-Raritan Magothy aquifer system. Measures should be taken to conserve the aquifers through groundwater recharge and preventing any pollution from damaging the water table.

Keyport only draws from its aquifers for six months of the year, and for the remaining part of the year uses water provided by NJ American Water Company. To ensure appropriate groundwater recharge, the Borough should continue to limit the percent of impervious surface of each parcel. The Land Use Ordinance should be evaluated for opportunities to reduce the required parking standards, as well as to create incentives to reduce impervious cover in existing and proposed developments. Additionally, porous pavement should be used when appropriate to increase water infiltration, as well as developing rain gardens that help store runoff during storm events, filter pollutants from the runoff and slowly releases the water. For more information on limiting runoff and impervious surfaces, please see the Surface Water Quality section of the Green Building and Environmental Sustainability Plan Element.

### **Wellhead Protection Areas**

As part of its 1991 Wellhead Protection Program Plan, NJDEP has delineated Wellhead Protection Areas (WHPAs) around all community wells. A WHPA is the area from which a well draws its water within a specified time frame (tiers). Pollutants spilled directly on or near the wellhead will enter the water source within that time frame. Once delineated, these areas become a priority for efforts to prevent and clean up groundwater contamination. Other components of the Wellhead Protection Plan include implementing best management practices to protect groundwater, land use planning and education to promote public awareness of groundwater resources.

Once WHPAs are delineated, potential pollution sources may be managed by landowners or municipalities in relation to tier locations. Protection of land and restriction on activities within wellhead zones relating to uses that generate contaminants, and to the storage, disposal, or handling of hazardous materials, are important for maintaining the quality of water within those zones.

According to available NJDEP data, one public water supply well exists within the Borough of Keyport. This well has an associated WHPA that extends into neighboring Aberdeen Township. Uses that are commonly associated with groundwater contamination, such as dry cleaners, heavy industrial uses, gas stations and any use that has associated outdoor storage that involved any harmful chemicals, should not be located within wellhead protection areas. It is recommended the Borough limits any additional hazardous uses that can contaminate the wellhead protection areas.

Existing industrial uses are located in the 1-year tier of the well-head protection areas, as well as certain portions of the Highway Commercial districts. The proposed Land Use Plan recommends the area maintain its existing uses due to the optimal location near regional highways and distance from more residential areas.

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However, it is recommended that the Borough continue to monitor the uses of these sites to ensure no uses associated with groundwater contamination are implemented in or near the WHPA. Furthermore, should the existing parcels become vacant, the Borough should consider pursuing and marketing the industrial sites as opportunities for small scale craftsmen and artisans, so as to limit the risk of groundwater contamination, as described in the Economic Element.

### Streams

Major surface hydrologic features within the Borough of Keyport are presented on the Streams and Lakes Map of the Natural Resource Inventory. Drainage within the Borough is generally toward the north-northeast. Main streams in the northwestern border and the northeastern border of the Borough include Matawan Creek and Chingarora Creek. The Luppataong Creek bisects the western portion of the Borough. These streams generally flow toward the north and directly drain into the Raritan Bay. The entire Borough is thus part of the Raritan/Sandy Hook Bay watershed and the Atlantic drainage basin.

All waterbodies in New Jersey are classified by NJDEP. For a complete list and description of waterbody classification, and the water quality each of these groups must be able to support, please see Surface Water Quality Standards N.J.A.C. 7:9B-1.12.

The three major streams in the Borough of Keyport—Matawan, Luppataong, and Chingarora—are classified as FW2-NT/SE1 by the NJDEP. FW2 is used to describe freshwater that is not considered to be of exceptional quality or significance. The code NT identifies non-trout waters, and SE1 is used to classify saline estuary waters. According to NJDEP rules, FW2 (both trout maintaining and non-trout maintaining) waters must provide for (1) the maintenance, migration and propagation of the natural and established biota; (2) primary and secondary contact recreation (i.e., swimming and fishing); (3) industrial and agricultural water supply; (4) public potable water supply after conventional filtration and disinfection; and (5) any other reasonable uses.

The determination of whether or not water quality is sufficient to meet a water body's designated use(s) is based on whether or not the waterbody is within established limits for certain surface water quality parameters. Some examples of surface water quality parameters include fecal coliform, dissolved oxygen, pH, phosphorous and toxic substances. NJDEP also evaluates water quality by examining the health of aquatic life in streams.

The New Jersey Department of Environmental Protection has divided the State into 20 Watershed Management Areas for the purposes of environmental planning and management. The major drainage systems of Keyport are within Monmouth Watershed Management Area 12 (NJDEP, 1996).

Water quality in the State is monitored by the NJDEP. The Matawan Creek and Chingarora Creek have been included on the 2006 Integrated List of Waters. The monitoring results publicly available were published in 2006 and reflect water quality conditions from 2004 through 2006. Both the Matawan Creek and the Chingarora Creek were assessed as non-attainment for supporting primary contact recreation (swimmable use), indicating relatively high chlordane, DDX, SO, mercury, pathogens and PCB concentrations in these waters. Priority rankings of pathogens in both creeks are high while the ranking of chlordane, DDX, dissolved oxygen, mercury and PCBs are medium. Matawan Creek also has a pH of medium ranking.

Both the Matawan Creek and Chingarora Creek located within the Borough were assessed with regard to aquatic life support (macroinvertebrates). Both creeks were assessed as nonattainment. An assessment of a stream as non-attainment indicates no support of aquatic life use. Principal land uses in the Raritan/Sandy Hook Bay watershed include suburban & urban residential, commercial and light industrial. Nonpoint source (NPS)

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pollution is caused by precipitation moving over and through land and carrying natural and anthropogenic pollutants into the surface and groundwater. Non-point source water quality problems associated with the land uses described above are related to suburban and urban runoff from flooding, fertilizers/pesticides/herbicides used on residential lawns and stream bank destabilization. No ponds or lakes exist within the Borough of Keyport. All bodies of water present are associated with the Matawan Creek, Luppataong Creek, Chingarora Creek and Raritan Bay.

The Recreation Element and OS&C Element both suggest acquiring land along the Borough's creeks and Bayshore for preservation, water quality protection and Resilience of Borough assets, both public and private. The Recreation Element also suggests, where appropriate and feasible, the Borough provide recreational opportunities along the Luppataong Creek, such as boat launches, boardwalks and waterfront paths.

### Flood-Prone Areas

The areas designated as flood-prone are based on readily available information on past floods, which may include detailed site-specific surveys and inspections. Information on potential flood zones is available on Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Association (FEMA). The FEMA FIRMs show areas subject to flooding as determined by historic, meteorological, and hydrological data; as well as open space conditions, flood control structures and land use in the watershed at the time the FEMA study is conducted. These maps delineate Special Flood Hazard Areas, commonly referred to as 100-year or base flood areas. These maps may also include the elevation of the base flood (100-year flood event), flood insurance risk zones and areas subject to inundation by a 500-year flood event, all of which may be used to establish the National Flood Insurance Program's (NFIP) flood insurance premiums. In general, there is an average of 1 chance in 100 that these flood-prone areas will be inundated in any year. A Flood-Prone (FEMA/FIRM) Areas Map for the Borough of Keyport is included in the Community Resilience Plan Element.

Keyport Borough has significant portions of its Bayfront properties, as well as properties along its waterways, identified and mapped to be within the critical "100-Year Flood Plain". As a coastal community, the Borough is subjected to tidal flooding caused by normal astrological (moon) tides and coastal storms. Under normal astrological conditions, property damage is relatively infrequent. Property damage routinely occurs during coastal storm events, primarily northeastern (Nor-Easter) storms, which are a common event, especially during the winter and spring seasons. Depending on the severity of the storm and astrological conditions occurring at the time of the event, significant flooding occurs.

Attempts to minimize potential flood damage are addressed via the Borough's Land Development Ordinance, FEMA and NJDEP/CAFRA regulations, all of which regulate land use and development within the Borough. The Community Resilience Element also proposes new regulations and design standards to promote Resilience and limit the potential for significant property damage.

The Borough's Bayfront is protected by a bulkhead from the Municipal Public Access Boat Ramp to Firemen's Park along the American Legion Drive. Several private homes along the bay are also bulk headed or protected by a sea wall. The lower half of the downhill side of the Front Street Block, the area near the Luppataong and Matawan Creeks along West Front Street and Beers Streets, the residential properties along the bulkhead along First Street, and the residential properties in the lower-lying areas along the Chingarora Creek, which forms the easterly border of the Borough, are located very close to these improvements and experience significant splash-over during coastal storm events.

## OPEN SPACE AND CONSERVATION PLAN ELEMENT

Planning for growth in this mature coastal community presents a challenge. Limited vacant parcels, growing residential and commercial demand and environmental constraints unique to Keyport must be balanced in order to preserve the quality-of-life Borough residents have come to expect. An ongoing goal of the community is to maintain natural habitat and open space while providing the amenities and services required by residents and visitors. This goal includes the provision of appropriate flood mitigation measures and projects while providing zoning and other incentives for new development and redevelopment to occur outside of the flood hazard area. Detailed information about the Borough's flood zones and proposed Resilience measures is included within the Community Resilience Plan Element.

The Land Use Plan and Community Resilience Element both propose to limit the development potential of those properties lying in flood-prone areas by maintaining the lower density, single-family residential areas. Multi-family uses are discouraged from being developed within the floodplain unless the site is raised out of the floodplain or proper engineering controls are put into place. Those uses are instead encouraged to be located in existing multi-family areas, with even higher densities encouraged south of Route 36 and Route 36, farthest from the flood-prone areas. The Community Resilience Element also requires the building of new structures within the flood-prone areas to exceed the base flood elevation (BFE) by three feet.

The Land Use Element recommends preserving the commercial uses in the downtown and waterfront areas, and includes adding a residential, mixed-use into the downtown. However, both the Land Use Plan and Community Resilience Element acknowledge the vulnerability of the area, to both existing commercial and future mixed-uses. Therefore, any new development should be located outside of flood hazard areas and appropriate Resilience design measures should be included in the site and building design.

The Land Use Plan and Community Resilience Element acknowledge the importance to the character, economy, and maritime history of Keyport. Marine-based commercial uses, which require being nearest to the water, are obviously vulnerable to flood-hazards. For those marine-based commercial uses to be incorporated into their own General Marine Commercial district, the Land Use and Community Resilience Plan recommends updating the Flood Damage Prevention Ordinance and requiring the anchoring of all structures and equipment.

### **Freshwater Wetlands**

Wetlands are generally defined as areas that are inundated or saturated by surface or ground waters at a frequency and duration sufficient to support vegetation adapted for life in saturated soil conditions. The Freshwater Wetlands Map for Keyport depicts wetlands within the Borough as interpreted by the New Jersey Department of Environmental Protection from 1986 color aerial infrared photography. These wetland areas are classified according to the U.S. Geological Survey Land Use and Land Cover Classification System used for land use mapping. The wetlands map is intended for use as a planning guide to indicate areas that may potentially contain regulated wetlands. Actual determination of regulated areas is dependent on a field delineation of the wetland boundary.

Keyport's wetlands border the Luppataong and Chingarora Creeks that flow through the Borough and are also located along the Matawan Creek. They include the Chingarora Creek and estuary, Luppataong Creek and estuary, Matawan Creek east and estuary and the Luppataong Marsh (located to the north and south of Maple Place). Wetlands in the Borough cannot be developed, as they are frequently flooded and serve as flood control areas for surrounding land. Further, as sea level continues to rise, they will be among the first areas to be inundated, so development should continue to be restricted. For a map of Keyport's wetland areas, refer to Figure 9.1, Critical Habitat in Keyport.

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As described above, most of Keyport's wetlands are located along the waterways and within flood hazard areas, and so have limited development potential. It is the recommendation of this Master Plan to continue to adhere to the highest standards set by NJDEP in relation to development along stream corridors and their wetlands. Any new development must adhere to all riparian buffers, so as to protect these environmentally sensitive areas.

As explained in previous sections, the Recreation Element recommends acquiring environmentally sensitive areas, like freshwater wetlands, adjacent to the Borough's creeks for preservation and water quality protection. The Recreation Element also suggests, where appropriate and feasible, the Borough provides passive recreation opportunities to interact with the wetland environment along the Luppapatong Creek, such as boardwalks and lookouts.

### Forests

There is only one type of forest coverage mapped in the Borough, which is deciduous forest. Deciduous forest exists mostly along stream corridors along the western and eastern portions of the Borough and through the center section of the Borough. Deciduous forests within the upland and lowland portions of Keyport commonly include a variety of species and need to be conserved. More detailed information about the Borough's forested areas is included in the NRI.

The proposed Land Use Plan and the recommendations set forth within the other Elements of this Master Plan are generally focused on redevelopment and rehabilitation, which is not anticipated to adversely impact the Borough's forested areas. However, every effort should be made to avoid the removal of trees during the course of redevelopment and rehabilitation project work. The Borough further recommends requiring tree removal permits for trees exceeding four inches in caliper, to ensure the more mature trees are preserved, as well as replacing such trees should they be determined to be a hazard to the community or dead. Furthermore, most of the Borough's forested areas are located along stream corridors, which are recommended for acquisition and preservation as open space and for potential passive recreation opportunities, where appropriate and feasible.

### Landscape Project and Natural Heritage Priority Sites

The NJ Division of Fish and Wildlife's Endangered Species and Nongame Species Program (ENSP) created the Landscape Project. The stated goal was to protect New Jersey's biological diversity by maintaining and enhancing imperiled wildlife populations within healthy, functioning ecosystems. This program began to map critical wildlife habitats for threatened and endangered (T&E) species throughout the State. The results of this mapping was released to the public in 2001 in Version 1.0, revised in 2004 to create Version 2.0, revised in 2007 to create version 2.1, revised in 2008 to create Version 3.0, and most recently revised in 2012 to create Version 3.1. This mapping was divided into the following habitat types: forest, grassland, forested wetland, emergent wetland, beach/dune, bald eagle foraging habitat, urban peregrine and wood turtle habitats. The Landscape Project further ranks each of these habitat types depending on the conservation status of the species present. A rank of 1 shows that a specific area meets the minimum size requirement for a specific habitat although there are no species associated with this area. A rank of 2 shows that there is potential habitat for non-listed state species of special concern. A rank of 3 maps habitat for State threatened species. State endangered species are represented by rank 4 and federally listed species are shown as rank 5. Only species and associated habitats with a rank of 3 or greater are currently regulated.

According to the Landscape Project Mapping, Version 3.1, the following habitats support T&E species in Keyport: beaches, tidal waters, and deciduous wooded wetlands; phragmites dominate interior and coastal wetlands; and high and low saline marshes. Please refer to Figure 9.1, Critical Habitat in Keyport map for the location of these habitats.

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T&E species habitat is proposed to be protected and preserved to the maximum extent practicable through the acquisition and preservation of undeveloped land along the Borough's stream corridors, waterfront and other forested areas as described herein. These actions, in conjunction with the enforcement of applicable land development and environmental regulations, are anticipated to promote the protection of T&E species habitat and the restoration of populations of T&E species.

### *Shellfish Classification*

The NJDEP Landscape Project classifies New Jersey's waters as to their suitability for the harvest of shellfish as follows:

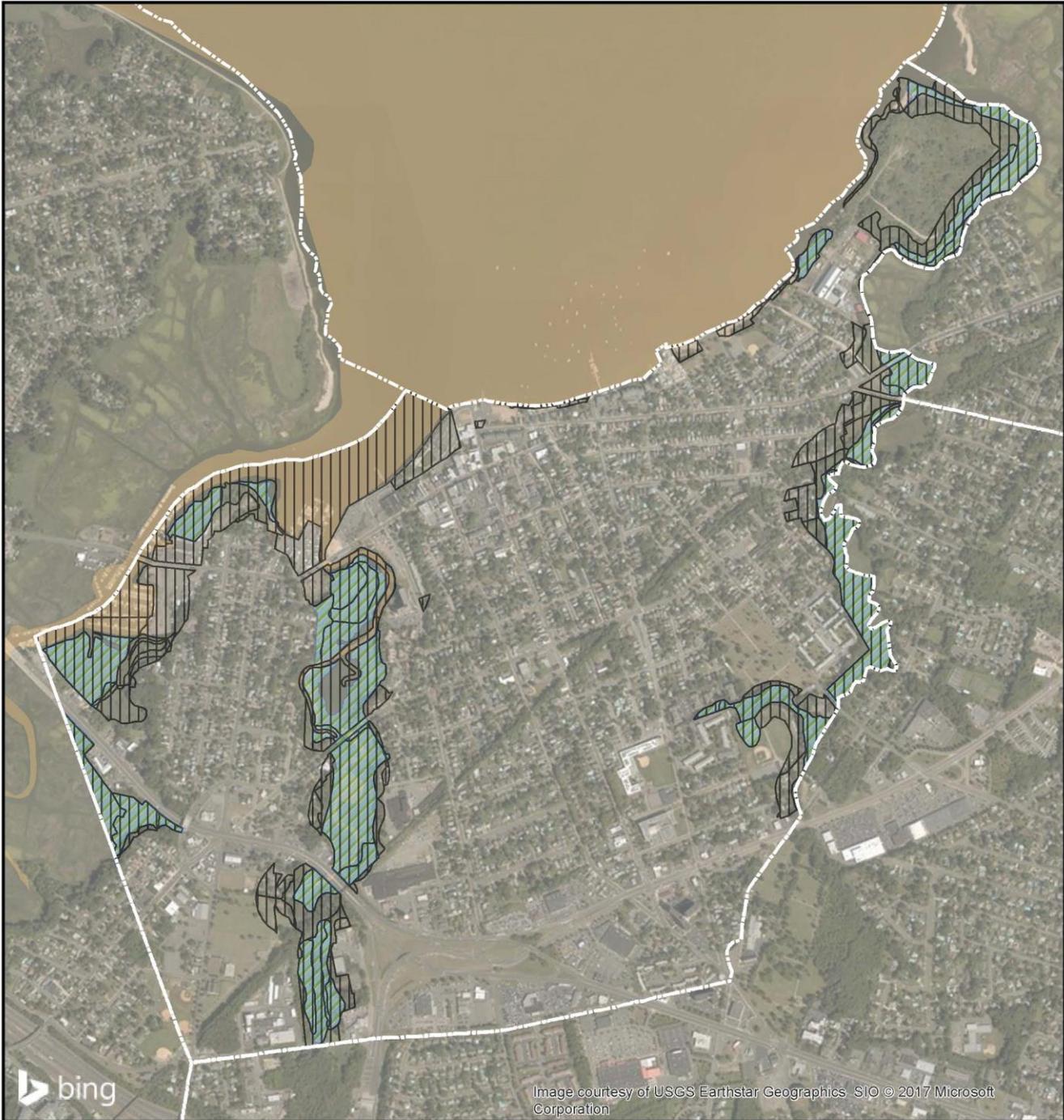
- *Prohibited*: Harvest not allowed under any conditions.
- *Special Restricted*: Harvest allowed with special permit requiring further purification of the shellfish before sale.
- *Seasonal* (November–April) & *Seasonal* (January–April): Harvest is permitted only during certain seasons of the year.
- *Approved*: Harvest permitted under any conditions.

Such classifications are based on the National Shellfish Sanitation Program as well as water quality testing, shoreline conditions surveys and water current/flow (hydrography) studies performed by NJDEP's Bureau of Marine Water Monitoring which monitors 2,500 locations a minimum of five (5) times annually. NJDEP classifies the coastal waters around Keyport "Prohibited" for the harvest of shellfish for human consumption.

It is envisioned that green infrastructure projects, including but not limited to living shorelines, oyster beds and similar projects, will be implemented along the waterfront in Keyport. These projects should be designed to promote improved water quality, increased vitality and quantity in shellfish populations and improved habitat for aquatic species. All waterfront projects and nearby landward projects must be designed to avoid significant adverse impacts to the aquatic environment. A Critical Habitats Map is shown on the next page of this Plan.

# OPEN SPACE AND CONSERVATION PLAN ELEMENT

## Figure 9.1: Critical Habitat in Keyport



<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 20px; height: 10px; border: 1px solid black; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px);"></span> Threatened Species Habitat</li> <li><span style="display: inline-block; width: 20px; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, green 2px, green 4px); border: 1px solid black;"></span> Wetlands</li> <li><span style="display: inline-block; width: 20px; height: 10px; background-color: orange; border: 1px solid black;"></span> Shellfish Habitat (Prohibited from harvesting)</li> </ul>	<p><b>MATRIXNEWORLD</b> Engineering Progress</p> <p>442 State Route 35, 2nd Floor Eatontown, New Jersey 07724 WBE/DBE/SBE</p> <p>Tel: 973-240-1800 Fax: 973-240-1818 www.matrixneworld.com</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: small;">PROJECT NUMBER: LD15-349</td> <td style="font-size: small;">DRAWN BY: MM</td> <td style="font-size: small;">SCALE: 1:14,576</td> <td style="font-size: small;">DATE: 2/9/2017</td> </tr> </table> <p style="font-size: x-small;">SOURCES: NJDEP GIS Data</p> <p style="font-size: x-small;">State Plane Coordinates: NAD_1983_StatePlane_New_Jersey_FIPS_2900_Feet</p>	PROJECT NUMBER: LD15-349	DRAWN BY: MM	SCALE: 1:14,576	DATE: 2/9/2017
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<p><b>Borough of Keyport Monmouth County, N.J.</b></p>					

# OPEN SPACE AND CONSERVATION PLAN ELEMENT

## MARITIME CULTURAL AND HISTORICAL RESOURCE

The Borough of Keyport has a long maritime history, with strong cultural ties to Keyport Harbor and the Raritan Bay. The residents of the Borough have expressed a strong interest in preserving and conserving this historical and cultural resource.

## OPEN SPACE

Keyport maintains a fair amount of existing open space and park areas. Table 9.1 contains a summary of these properties. Detailed information about each property is included in the Recreation Element.

TABLE 9.1. OPEN SPACE IN KEYPORT					
Block	Lot	Facility Name	Approx. Acreage	Recognized by NJDEP	Type of Park
127	13	Benjamin Terry Park	0.6 acres	Y	Passive
137	6	Cedar Street Park	3.8 acres	Y	Active
21.01	29.r	Fishing Pier	0.2 acres	Y	Active
21.01	35	Mini Park	0.2 acres	Y	Passive
21.01	49	Waterfront Park	3.5 acres	Y	Passive
21	20	Fireman's Park	2.5 acres	Y	Passive
56	1	Main Street	0.7 acres	Y	Active
9	12.01	Therese Avenue	0.9 acres	Y	Passive
94	1	Boat Ramp	2.1 acres	Y	Active
94	2	Beach Park	1.4 acres	Y	Passive
94	45	Veterans Park	1.4 acres	Y	Passive
39	32	Kearney Street	0.5 acres	N	Passive
40	7	Jack Conway Park	0.1 acres	N	Active
83	7	Elizabeth Street Community Gardens	0.1 acres	N	Passive
63	1	Public Library Gardens	0.3 acres	N	Passive
21.01	51.01	Steamboat Dock Museum Property**	0.1 acres	N	Passive
72	1	Keyport Central school playground	3.2 acres	N	Active
68	1	Keyport High School football field	5.7 acres	N	Active

\* Please note that the Henry Hudson Rail-to-Trail Park is a 14.1-acre County-owned passive recreational open space.

\*\*The Steamboat Dock Museum Property is not on the Borough's official ROSI and is not intended to be added to the Borough's official ROSI.

As mentioned previously, while the foregoing represent approximately 205 acres of land (Approximately 23% of the Borough's incorporated land mass), it is important to note that much of this land is not usable for recreational purposes, as it is comprised of wetlands and other inaccessible areas. A total of only approximately 41 acres of parks, recreation areas, marinas and/or boat ramps is useable for recreation (Approximately 4.6% of the Borough's land mass) and the remaining area of approximately 164 acres is comprised of undeveloped beaches, dunes, uplands and wetlands.

Keyport's Beach Park and the adjacent municipal Boat ramp are key waterfront and public access locations in the Borough. In addition to the beaches, the waterfront parks, Cedar Street Park and Firemen's Park are active public recreational facilities on the waterfront. Olsen's Boat Works, Pedersen's Marina, Brown's Point Marina, Captain John's, Seaboard Marina and Keyport Yacht Club also use the waterfront for economic activities that generate income.

## OPEN SPACE AND CONSERVATION PLAN ELEMENT

This Master Plan seeks to expand and enhance the Borough's open space and recreation areas. For detailed information about goals, objectives and recommendations as they pertain to recreational areas, please see the Recreation Plan Element and the recommendations section at the end of this Plan Element.

### COASTAL PROTECTION

In January 2007, the NJDEP Bureau of Coastal Engineering broke ground on a project that serves to transform the shore protection and public access of the Keyport Borough Waterfront through an imaginative and well supported project funded through a partnership of State, County and Local funding.

Keyport Borough's bulkhead replacement project replaced approximately 1,450 linear feet of the American Legion Drive Bulkhead from the Municipal Public Access Boat Ramp to the recreation area known as Fireman's Park. The project, while providing vital protection of the Borough's coastal bayfront, provides for greatly enhanced and recreational type public access to this area. The bulkhead was augmented with decorative railings and a 15-foot-wide promenade, allowing enjoyment of the newly protected waterfront and continues attracting visitors to the beautifully transformed waterfront. It is the intent of the Borough to extend the bulkhead to the Front Street bridge.

The Borough, through partial funding from the New Jersey Green Acres Program, concurrently rehabilitated the municipal fishing pier, which lies just to the west of the center of the bulkhead project. This pier is a vital part of Keyport's history as a marine community, allowing a true fisherman's element to the waterfront.

Green infrastructure projects that favor natural solutions over man-made hard structures are recommended to be utilized to add additional protection from future storm events. Detailed information about Coastal Protection of the waterfront and Resilience is included in the Community Resilience Plan Element.

### CLIMATE CHANGE

Due to climate change, the frequency and intensity of the hazard events is expected to increase in the future. Coastal erosion rates are likely to increase with rising sea levels. Storm effects will be more intense in the future. Some of the impacts climate change can have on Keyport's natural resources are:

- Inundation of low/lying areas
- Wetland loss and saltwater intrusion into estuaries and freshwater aquifers
- Land loss through submergence
- Erosion of lands in coastal areas
- Migration of coastal landforms and habitats
- Increased salinity in estuaries and coastal fresh
- 

Keyport recognizes that climate change is an important consideration that should be factored into the design of infrastructure and development projects, as appropriate. While portions of the Borough benefit from favorable topography that will provide a level of protection during storm events, other portions of the Borough along the waterfront and stream corridors are vulnerable to future storm events that are anticipated to be exacerbated by climate change. More detailed information about the vulnerabilities and the goals, objectives and recommendations that pertain to climate change are included within the Community Resilience Element.

# OPEN SPACE AND CONSERVATION PLAN ELEMENT

## REGULATORY ISSUES

### State Development and Redevelopment Plan

Under the State Plan, the majority of Keyport is classified as a PA1 Metropolitan Planning Area. Portions of the Borough are classified as PA5 (Environmentally Sensitive) Planning Area, predominantly along coast, wetlands, waterways. Additionally, Keyport has been identified as a “Regional Coastal Center.”

NJDEP’s Coastal Rules substantially incorporate the State Plan’s Resource Planning & Management Map (RPMM), and NJDEP impervious surface limitations are based on the Planning Areas set by the RPMM, with maximum impervious coverages for new development in areas falling under CAFRA established under these rules.

Additionally, new approaches for determining vegetative cover percentages for development sites have been established. Such regulations are intended to ensure that the Coastal Rules are closely coordinated with the provisions of the State Plan and with the Coastal Zone Management Act of 1972.

These and other recent amendments to the Coastal Permit Program Rules and the Coastal Zone Management Rules will substantially impact future development and redevelopment activities within the Borough.

### NJDEP CAFRA

As detailed elsewhere in this Comprehensive Master Plan Update, the Borough of Keyport is subject to the jurisdiction of NJDEP through CAFRA and the Coastal Zone Management Program, particularly along the Borough’s waterfront. By the very nature, these regulations will influence the size, type and environmental impacts of future development.

### Municipal Development Issues

As Keyport is nearly completely developed, it is envisioned that the majority of future development will take place in the form of redevelopment and rehabilitation. As a coastal community whose historical character, economy, Resilience and charm are directed toward the Raritan Bay, Keyport must address the problems and concerns similar to other nearly built-out coastal communities. Borough policymakers recognize that, as a Bayshore community, the Borough needs to balance its desire to promote redevelopment and rehabilitation with its need to preserve the environmental resources which are inextricably tied to the character, economy, and Resilience of the Borough. Policies and objectives related thereto are addressed throughout this Comprehensive Master Plan Update.

This Comprehensive Master Plan Update is a continuation of a long-standing civic tradition that defines the Borough of Keyport. While recognizing where State regulations require amendment to facilitate specific economic development goals and objectives, this Plan is designed to be generally consistent with CAFRA and other pertinent regulations.

## IMPACTS OF OTHER ELEMENTS ON THE NATURAL RESOURCES

Each Element of this Master Plan has been designed to balance future development and revitalization with environmental conservation and preservation. The goals, objectives and recommendations proposed by the other elements are not anticipated to have any significant adverse impacts to the conservations goals, objectives and recommendations set forth herein.

# OPEN SPACE AND CONSERVATION PLAN ELEMENT

## Land Use Plan Element

The Land Use Plan contemplates redevelopment, revitalization and Resilience initiatives that are primarily focused on previously disturbed land. These measures are designed to avoid significant adverse impacts to the environment. In addition, the land use Plan contains detailed goals and objectives that promote the goals and objectives set forth within this OS&C Plan.

## Community Resilience Plan Element

The Community Resilience Element contains detailed goals, objectives and recommendations for initiatives and projects that promote community Resilience in a sustainable way. Sustainable recommendations include green infrastructure projects and adherence to environmental regulations that will promote the goals of this OS&C Plan Element.

Many of the Community Resilience Plan recommendations pertain to flood-mitigating strategies in flood-prone areas and impact other natural resources of the Borough. Most of these recommendations are intended to improve the way existing uses interact and are impacted by these natural resources, specifically the flood-prone areas.

Another strong recommendation from the Community Resilience Element that would impact the natural resources of Keyport is preservation. As Keyport nears buildout, there are increasingly limited areas of land left that still have natural floodplain functions, mainly restricted to wetlands. Floodplains can absorb runoff and mitigate flooding issues. Returning lands to natural floodplain function can be done utilizing a variety of techniques including wetlands restoration, planting natural vegetation, reducing sediment compaction and creating a natural profile. Increasing the Borough open spaces, specifically those that are adjacent to flood-prone areas can help achieve the goals of Community Resilience, as well as improving the natural resources of Keyport.

Coastal erosion can become a problem in coastal areas and has a significant impact on the existing beaches and physiography of Keyport. Areas that should be closely monitored could include any waterfront that is not bulkheaded and has experienced erosion. Factors that could amplify erosion such as sea level rise and surge should be defined. The Borough should make an effort to identify, document and quantify areas of erosion. Identifying erosional hot spots and their potential impacts on homes and infrastructure can allow for mitigation actions that may prevent erosion from becoming a future problem. The loss of valuable waterfront and shoreline is a resource Keyport cannot afford to lose.

A possible solution for wetlands and shoreline migration are living shorelines projects. These projects aim to reestablish natural shorelines to create valuable ecosystems and erosion control features. The lower energy bayfront of Keyport is an ideal location for living shoreline projects and could be a good option for shoreline hardening projects that can sometimes amplify erosional forces. Creating living shorelines to mitigate erosion is an action that can help protect and improve this valuable resource of Keyport's.

## Housing Plan Element

The recommendations set forth within the Housing Element are not anticipated to have a significant adverse impact on the natural resources of Keyport. Most new housing development will be done through rehabilitation and redeveloping the downtown area. Housing is encouraged to be located away from flood hazard areas.

An increase in the existing density of the proposed transition area between downtown and the interior residential communities can increase the amount of impervious surface within that area. However, as the area is

## OPEN SPACE AND CONSERVATION PLAN ELEMENT

already developed densely with single- and two-family homes, any additional impervious surface created by a moderate-density multi-family dwelling should be offset with open space requirements, as recommended by this plan; as well as techniques to increase pervious surfaces such as utilizing porous pavement.

### **Circulation Plan Element**

The implementation of the recommendations set forth within the Circulation Element are not anticipated to cause significant adverse impacts to the natural resources of Keyport. Any projects that occur near environmentally sensitive areas must obtain any required permits from NJDEP and other agencies. As NJDEP carefully reviews transportation projects that require permits, it is anticipated that transportation projects that receive permits will be determined to cause no significant adverse impact to environmentally sensitive areas.

Additionally, the Circulation Element also recommends expanding bicycle routes in the Borough. An opportunity exists to provide bicycle paths through the open spaces recommended for preservation, such as along the Luppataong Creek. Such an option would not only incentivize the acquisition of these open spaces, but also would utilize them in a productive manner, and provide a net positive to the community. The Circulation Plan also encourages the Borough to pursue completing its path along Keyport's entire waterfront. Not only would this provide an excellent recreational opportunity, but would also ensure appropriate hazard-mitigating infrastructure such as bulkheads are installed where needed.

The Circulation Element's proposed increase of opportunities for alternative modes of travel would decrease the number of trips and miles traveled by individual vehicles. This will have a positive effect on water and air quality, as fewer pollutants will be entering streams from runoff and fewer particulate matters will be released from exhaust.

### **Economic Plan Element**

The Economic Element is not anticipated to introduce any significant adverse impacts on the natural resources of Keyport. The Economic Element proposes the maintenance of all existing commercial and industrial uses in the Borough. The Economic Element does recommend that the boundaries of the HC district be redefined along Route 36 to be a full block deep between Atlantic and Main Street to incorporate more developable land along the highway corridors. This may increase the existing impervious surface of that area, but as the areas are not near environmentally sensitive areas, any additional impervious surface can be mitigated with appropriate site design and runoff-mitigating techniques. For a complete description on increasing pervious surface and other strategies on improving water quality, please see the Green Building and Sustainability Element.

The Economic Element also recommends improving the Resilience of businesses in Keyport, including those that are marine-oriented. The Element recommends supplementing Flood Prevention Ordinance or add regulations to Borough Code requiring removal or securing of boats, floating docks, gangways, etc. from Keyport Harbor within a specified period from the issuance of an order from Emergency Management personnel. It recommended the establishment of penalties for owners of floating objects removed by the Borough due to compliance issues in order to prevent property damage during storm events. And also recommended to amend Flood Prevention Ordinance or add regulations to Borough Code prohibiting the construction of occupied structures seaward of the mean high water line or on piers or platforms except for essential structures for "functionally dependent uses" such as marinas or boatyards.

### **Historic Preservation Plan Element**

No significant negative impacts to the Borough's natural resources are anticipated from the goals, objectives and recommendations set forth within the Historic Preservation Element.

# OPEN SPACE AND CONSERVATION PLAN ELEMENT

## Recycling Plan Element

No significant negative impacts on the natural resources are anticipated from the goals, objectives and recommendations of the Recycling Element. Furthermore, an improved solid waste and recycling collection program will only improve the natural resources of Keyport. Increasing the Recycling Centers hours of business and an improved Hazardous Material Collection would only promote the responsible disposal of bulk items and hazardous materials, rather than dumping such items in environmentally sensitive areas.

## Recreation Plan Element

It is anticipated that the Recreation Element will not have a negative impact on the natural resources of the Borough. In fact, the Recreation Element identifies the importance of preserving and protecting the limited open spaces and natural resources within the Borough. The Borough desires to see a network of interconnected parks and open spaces; and also identifies the preservation and ability for the public to access all bodies of water as vital.

The Recreation Element also proposes to utilize those natural resources to enhance the recreational capabilities of the Borough. The Borough envisions an improved access to non-motorized water sports and activities such as kayaking, fishing, paddle boards and a rental facility to access the Luppataong Creek. It also recognizes the opportunities to not only preserve these stream corridors, but to utilize them in a manner that allows users to interact with the habitats. This would include walkways, boardwalks, look outs, etc. along the creek. Due to their interaction with environmentally sensitive areas, such recreational amenities are envisioned to be designed and utilized by Borough residents, and not to be marketed as a regional recreation destination. The Recreation Element also recognizes the importance of providing open space access to natural resources through the redevelopment appropriate sites.

## Green Building and Environmental Sustainability Element

The Green Building and Environmental Sustainability Plan (GBESP) Element contains several recommendations that would not only preserve and protect the natural resources of Keyport, but can provide substantial benefits to those resources. The GBESP analyzes the natural resources of Keyport, and includes a list of Goals and Objectives for the conservation and preservation of those resources. The Element also has specific recommendations for water conservation, reuse and improving water quality. The GBESP recommends updating and enforcing maximum coverage and impervious surface ordinances to limit the amount of runoff, and ensure maximum groundwater recharge. Likewise, utilizing rain gardens and encouraging private and community gardening can help retain storm water onsite, and slowly release the water. The gardens also provide opportunities to limit vehicle trips and miles traveled, as well as provide net positives to the community. The GBESP also proposes the Borough consider promoting and utilizing renewable energy sources.

## RECOMMENDATIONS

The following goals, objectives and recommendations are included as part of this OS&C Plan:

- 1. Periodically update the Borough's 2007 Natural Resource Inventory in order to reflect the most recent scientific findings and data regarding natural resources in the Borough.**
- 2. The Borough strives to conserve and preserve natural resources to the maximum extent practicable and seeks to implement "natural" projects such as living shorelines, oyster beds and other green infrastructure projects and initiatives.**

## OPEN SPACE AND CONSERVATION PLAN ELEMENT

**3. The Borough seeks to align all Master Plan elements and all future projects in a way that balances development and revitalization with conservation and preservation. Areas that are identified in other Master Plan elements as appropriate for development or redevelopment should be designed to complement or enhance the natural resources and in such a way that does not adversely impact natural resources or compromise the Resilience of existing development in the Borough.**

**4. Acquire, preserve, protect and maintain public spaces.**

The committee advocates policies that will protect and preserve the natural assets within the Borough's borders as detailed in the Natural Resource Inventory. The protection of these resources can also provide recreational benefits, as well as benefits pertaining to disaster mitigation and Resilience.

**5. Develop a strategy for the acquisition of open spaces and improved land stewardship.**

The committee recommends the Borough seek funding opportunities to acquire property for the purpose of increasing our public open spaces, with the least amount of burden to the taxpayer. This strategy will help to embolden the Resilience of the Borough when these properties are located in flood-prone areas and serve to preserve natural resources within the Borough. In addition, the committee recommends the formation of a Parks and Recreation Department whose responsibility will include stewardship over all open spaces. The Department's mission will be to ensure the protection and maintenance of open spaces and parks through collaboration with the Borough of Keyport, Keyport Department of Public Works (KDPW), Keyport Recreation Commission and Environmental Commission, and resulting in the preservation, utilization, maintenance and enjoyment of the parks/open spaces by the Borough's resident and visitors. Prior to acquisition, the Department will need to ensure adequate protection and maintenance of public spaces. This should include strategies and routines established by the Governing Body and Department of Public Works to keep these spaces clean, mowed, manicured, painted and operational to provide a peaceful, inviting environment to residents of the Borough and surrounding communities alike.

**6. The Borough should acquire, through grants and other funding opportunities, lands within the Borough for the purposes of increasing the Borough's open space, parks and waterfront access and promote more walkable neighborhoods. This would include the acquisition of properties that are integral to the character, economy, resilience and identity of our community.**

Many studies, summarized in a May 2010 study synthesis, published by Active Living Research ([www.activelivingresearch.org](http://www.activelivingresearch.org)) entitled "The Economic Benefits of Open Space, Recreation Facilities and Walkable Community Design" have concluded that walkable neighborhoods, parks and open spaces can generate economic benefits to local governments, home owners and businesses.

The Borough of Keyport affirms that new and existing open spaces bolster the economy, preserve the character, fortifies the Resilience of the Borough and plays an important role in the decision making of the Borough's policy-makers about zoning, land use, and Borough-purchase of lands for parks and similar initiatives. The Borough will proactively seek to secure grants and pursue other funding opportunities to purchase additional properties that will increase their public open spaces inventory. The purchase of select properties on the waterfront, especially those that are designated as environmentally sensitive areas (PA5), will enable abundant access to the waterfront and fulfill the Master Plan's mandate to increase the Resilience of the Borough.

Any initiative by the Borough to purchase privately-owned property to protect and preserve open spaces within the Borough should be done with little-to-no burden to the taxpayer. Potential purchases could include waterfront property such as beaches, bulkheads, marinas, marshlands, riparian zones, etc.

## OPEN SPACE AND CONSERVATION PLAN ELEMENT

Acquisitions beyond the waterfront could include lands contiguous with other open spaces such as parks, trails, school grounds, banks of waterways, etc.

The Open Space and Conservation Subcommittee identified several funding sources to help acquire open spaces including, but not limited to the following:

- Blue Acres grants
- Green Acres grants
- Creative funding opportunities – Go Fund Me, Kickstarter, etc.
- NJ open space grant opportunities
- Farm Subsidies/Grants

**7. New development of multi-family units above 4 units must include a percentage of open space within or proximal to the developed property.**

This open space is intended for the inhabitants of that developed area. If the area to be developed adjoins existing open public space, the open space should, where feasible, be a continuation of access to that public open space.

**8. Identify derelict property within the Borough for smart development to include public open spaces for all residents.**

There is opportunity within the Borough for smart development to include open spaces in new development plans.

**9. Implement non-structural green infrastructure projects instead of structural projects that rely on fabricated materials to the extent feasible.**

**10. Propose to nurture an active oyster culture that engages issues of water quality, rising tides and community based development along the Borough's waterfront, creeks and estuaries.**

Oysters are an integral part of our living shoreline strategy which includes dunes, vegetation, reefs, oyster beds and other means. Living shorelines along the estuaries, creeks, and when viable, in Keyport Harbor itself, must be established to add to the Resilience of the Borough. As described by the Virginia Institute of Marine Science,

*“Living Shoreline Treatments address erosion in lower energy situations by providing long-term protection, restoration or enhancement of vegetated shoreline habitats through strategic placement of plants, stone, sand fill and other structural or organic materials. Living Shoreline Treatments do not include structures that sever the natural processes & connections between uplands and aquatic areas.”*

Existing and future open spaces along the shorelines of Keyport Harbor and its estuaries can be strategically incorporated with living shoreline projects to protect these spaces and other assets inland. One such strategy the Borough should pursue is the development of oyster cultures that engages issues of water quality, rising tides, and community based development along the Borough's waterfront, creeks and estuaries. Oysters are an integral part of our living shoreline strategy which includes dunes, vegetation, reefs, oyster beds and other means.

## OPEN SPACE AND CONSERVATION PLAN ELEMENT

**11. Secure grants and/or work with the county to restore the Mott Street Bridge to allow free-flow of water to reduce marsh expansion south of Maple Place.** Achieving this could work towards wetlands restoration and preserve and protect private property from tidal flooding damage.

**12. Increase public awareness of new development impacting open space.**

Where new development may potentially impact open spaces within the Borough, codify that notice must be given by the Borough to all Borough residents beyond the current “200 foot” notification radius. Make every attempt to give notice to all residents via suitable means available to the Borough, such as robo calls, social media platforms, Borough website, print notifications and public notices, so that all residents may have the opportunity to participate in the discussion and approval process.

**13. Maintain the natural habitat of the Borough**

For any new construction or redevelopment projects (excluding rehabilitation projects) that will be required to install or replace trees/shrubs for screening or otherwise, codify that plant species from the Native Plant Society of New Jersey’s Wild and Native Plant list make up 25-40 percent of the planted area. These plant species should be drought and salt resistant.

Trees are integral to Keyport's environmental Resilience, cultural and civic history, as well as its natural beauty. Every effort must be made to maintain their integrity and replenish those lost through development, free cutting or natural disaster. The Borough should adopt an ordinance, similar to other municipalities of Monmouth County, requiring developers and residents to apply for a tree removal permit before removing a tree of 4” caliper or larger and specifying that trees, other than dead/diseased trees, must be replaced if removed.

Protect public/private trees and monitor the work done by public utility contractors when pruning trees.

**14. Explore opportunities to expand passive recreational opportunities into the marshlands and bay.**

Develop a system of infrastructure such as walkways, boardwalks, perches and lookouts for observing nature and wildlife in the marshlands and bay.

**15. Mandate Borough Officials and appointed committees be vigilant with keeping the best interests of our community as-a-whole at the forefront when considering further development in Keyport.** One example is Harborview at Keyport Condominiums. This condominium complex occupies 207’ of waterfront and is a direct impediment to a potential waterfront walkway from Lockport to downtown. For all such waterfront properties, waterfront access for the public should be considered at the time of planning and permitting and right-of-way made a condition of Planning Board approval.

**16. We recognize climate change and the impact sea level rise will have on the economic, residential, commercial and recreational viability of the Borough.**

The OS&C Element also recognizes the Borough’s need to become more resilient. As such, the OS&C Element supports the recommendations of the Community Resilience Element. Especially those recommendations that preserve and protect natural resources, such as the acquisition, where feasible and appropriate, of flood prone areas for use as open space rather than continued development.

**17. Encourage responsible development practices.**

Prior to construction, require a site plan that clearly indicates the areas of ground that will be disturbed and ensure this plan is followed, imposing penalties where disturbances are created outside of the outlined areas.

## OPEN SPACE AND CONSERVATION PLAN ELEMENT

**18. Encourage the remediation of contaminated sites to enhance the local environment, protect residents and return vacant sites to productive use.**

**19. Encourage new development of multi-family dwellings above 4 units to include techniques and strategies described in the Green Building and Sustainability Element.**

All new multi-family developments should consider using strategies and technologies that limit their impact on the natural environment. Developers should consider clustering their developments to limit the amount of impervious surface that would be needed; and utilizing porous pavers and rain gardens so as to further maximize the amount of water recharged into the ground during storm events.

**20. Monitor the uses of land located in or near environmentally sensitive areas, including well-head protection areas.** The Borough should develop a strategy and GIS database that identifies sites that present a higher risk of environmental contamination. Appropriate zoning amendments and redevelopment planning should then be implemented to ensure that any future change in use will result in a use that is less likely to contaminate the environs or in acquisition of the site(s) as open space.

**21. Energy and Air quality:** Recommendations for energy and air quality are included within the Green Building and Environmental Sustainability Plan Element of this Master Plan. This OS&C Plan Element promotes and supports those recommendations and offers the following additional recommendations:

- Amend the Borough Code to include landscaping standards that provide buildings with maximum solar access, shading and wind protection.
- Require air quality assessments at principal intersections for significant developments to identify problem areas and mitigation strategies.

### **22. Wetland and Forest Resources**

- Existing and proposed greenways should promote and preserve existing wetland and woodland corridors to the greatest extent possible. This is especially important where greenways are proposed along stream corridors.
- Reforestation and afforestation of open spaces through the use of native species is recommended to enhance habitat, promote recharge, and reduce surface runoff, erosion and flooding.
- A construction mitigation plan, which minimizes construction-related impacts on woodlands, should be required prior to disturbance of more than 10,000 square feet of woodlands.

### **23. Groundwater**

- Ongoing public education should be directed at water conservation and preventing the discharge of toxic and hazardous pollutants to groundwater.
- The Environmental Commission, in conjunction with the appropriate Health Department, could conduct an environmental audit of groundwater quality, including an analysis of existing groundwater samples and an identification of existing facilities, which could adversely impact groundwater. Among the facilities that be the following should mapped and inventoried are:
  - Underground storage tanks.
  - Gas, fuel, and sewer line locations.
  - Large septic systems for commercial/industrial use.
  - Permitted community septic systems.
  - Hazardous substance storage areas and facilities.
  - Permitted NJPDES groundwater or surface discharge facilities.

## OPEN SPACE AND CONSERVATION PLAN ELEMENT

- The Borough should consider a wellhead protection program to protect community water supply systems and areas in the Borough with wells that might be threatened by inappropriate land uses.
- Stormwater management ordinances should encourage the implementation of Best Management Practices (BMP's) that promote water quality objectives and the recharge of groundwater supplies. Infiltration and water quality basins should be required with new development to the greatest extent practical.
- Landscaping standards should require the use of native and locally adapted plants, and designs, which minimize irrigation, maintenance and turf areas and require mulches to preserve soil moisture.
- Irrigation systems for lawns and landscaping should be curtailed or eliminated in new developments and drip irrigation for localized watering should be encouraged.
- The Borough should evaluate alternative well testing methodologies in order to assure that groundwater availability is accurately analyzed. Test wells installed as part of a groundwater availability analysis should also be tested for potability.
- The Borough should relate the intensity of permitted development to conservative estimates of:
  - Available water resources; and
  - The ability of the soil and ground water to sustain on-lot disposal systems without degrading or impairing surface or ground water quality.
- Limit impervious cover to foster maximum recharge and sustainable yields in the district and regional watersheds dependent on groundwater supply.

### 24. Steep Slopes

- Strict adherence to development standards limiting the extent of disturbance to slopes greater than 15%, and requiring individual lot grading plans where disturbance is permitted.

### 25. Stream Corridors

- Vegetated buffers should be maintained along all stream corridors in the Borough. Where past land use practices have resulted in the removal of trees along stream corridors, management practices should include the reestablishment of tree cover.
- A stream corridor protection program should be developed and implemented which seeks to protect the stream corridor and adjacent wetlands, floodplains, and contributory uplands with steep slopes. Management strategies and monitoring standards should be developed for stream corridor areas.
- Keypoint and neighboring municipalities should develop consistent and/or compatible management strategies along stream or river corridors.

### 26. Surface Water Quality

- Water quality BMP's should be adhered to and refined, as needed, in order to protect the quality of surface waters and promote maximum habitat values. These include:
  - Arrange development on the least porous soils to promote infiltration and reduce sediment and pollutant loading;
  - Buffer strips and techniques to maximize overland flow, such as grassed swales and filter strips;
  - Regional stormwater management approaches and extended detention facilities;
  - Wet ponds (retention basins) and wetland or marsh creation;
  - Infiltration practices to detain runoff, including trenches, basins, drywells and other structural solutions; and
  - Water quality inlets and oil/grit separators.

## OPEN SPACE AND CONSERVATION PLAN ELEMENT

### **27. Threatened and Endangered Species**

- An ongoing inventory of threatened and endangered species, combining the records of the Natural Heritage Database with local sighting records should be developed and maintained.
- Alternative development options should be studied to aid in the preservation of critical habitat for threatened and endangered species, where appropriate.
- Conservation easements should be used to protect habitat areas while maintaining a reasonable level of a landowner's utility of his or her land.
- The Borough should promote the potential re-establishment of habitat on open space lands while also protecting existing habitat through open space purchases.

### **28. Light Pollution**

- Nationally recognized lighting recommendations for illuminance levels and uniformity ratios should be followed, such as contained in the Illuminating Engineering Society of North America (IESNA) Lighting Handbook.
- Architectural and sign lighting should be designed to minimize light that does not illuminate the target area.
- Lighting of building exteriors should be minimized or eliminated during those hours when it is not needed. Lighting controls such as timers, dimmers, motion sensing devices, and photo sensors should be encouraged.

### **29. The Borough will explore opportunities to partner with other entities to pursue opportunities for conservation, recreation and preservation with adjoining communities.**

Partnering with neighboring municipalities, state, county, federal and the private sectors to protect and conserve shared natural environments, wildlife habitats, watersheds, waterways and properties of historic significance can offset some of the costs associated with acquisition, maintenance and upkeep. The partnerships can also provide cost leverage when seeking grant funding.

# ECONOMIC PLAN ELEMENT

## 10. ECONOMIC PLAN ELEMENT

### INTRODUCTION

Though Keyport's economy has not seen significant growth in the last few years, action by the Borough to encourage public/private partnerships and new redevelopment holds promise for the future. Following the significant damages along the waterfront and the Central Business District from Hurricane Sandy in 2012, the rebuilding process has created the opportunity to make changes that encourage economic revitalization. With the designation of the entire Borough as an Area in Need of Rehabilitation, the Borough Council has authorized several redevelopment projects along the waterfront and highway commercial districts to take advantage of the Borough's natural and cultural resources to foster stronger economic growth in Keyport.

### KEY HIGHLIGHTS

The Economic Element begins by profiling some characteristics of Keyport not already covered in the Housing Element's Community Profile. The findings are as follows:

- Keyport's unemployment rate is similar to those at the State level, but is higher than Monmouth County rates.
- Median earnings of Keyport workers are lower than the County and State median earnings.
- Approximately 72% of Keyport residents drive alone to work.

The Economic Element also identifies the expected economic development in Keyport, based on County and State Plans, as well as the Borough's approved redevelopment plans. The Economic Element then uses this information to anticipate the type, character and extent of employment expected as they pertain to 5 land uses that support economic activities and development:

- Waterfront and General Commercial – small, retail and commercial employment centered around developing Keyport's tourist, art and culinary industries.
- Marine Commercial – The new General Marine Commercial District is intended to promote and continue Keyport's long maritime history.
- Neighborhood Commercial – This district should continue to provide those commercial uses that promote minimal vehicular traffic and encourage patrons to walk or bicycle to their establishments. The uses should continue to serve the local commercial needs of the immediate community.
- Highway Commercial – ideally located to capture the high volume of traffic experienced on the state highways daily. It is recommended the Borough better promote the development of professional and medical office spaces. Large, vacant storefronts offer a unique opportunity to provide an open market concept. The large spaces can provide opportunities for artist cooperatives, food courts and other similar activities. Façade and streetscape improvements are recommended to make the district more visually appealing.
- Industrial Zones – maintains an active industrial park, but the Borough should incentivize businesses with intense uses currently occupying commercial spaces in other districts to relocate into the industrial parks and zones. This zone should have the ability to adapt to market demands by either consolidating small spaces or providing multiple spaces for lease in large vacant spaces.

Much of the recommendations of this Element focus on promoting existing businesses, as well as the type of businesses Keyport would like to encourage. As much of the economic development anticipated to occur is focused on tourism, the recommendations also discuss improving the visual appeal of visiting and patroning

## ECONOMIC PLAN ELEMENT

businesses in Keyport. Please see the Policy Objectives and Recommendations section for a complete list of recommendations and descriptions.

### BACKGROUND INFORMATION

This section provides employment information for the Borough and other relevant information regarding the local economy of Keyport. For a complete community profile, please review the Housing Element of the Master Plan.

### Employment/Unemployment

Keyport’s unemployment rate has generally followed County and State trends, rising in the aftermath of the economic crisis and lowering more recently. Keyport’s unemployment rate, however, has tended to be higher than the County rate. Table 9.1 provides unemployment data from 2007 through 2015, as follows:

Year	Keyport	Monmouth County	New Jersey
2007	4.3	3.7	4.3
2008	5.5	4.8	5.4
2009	9.5	8.3	9.1
2010	11.2	8.7	9.5
2011	8.8	8.5	9.3
2012	10.4	8.7	9.3
2013	9.1	7.4	8.1
2014	6.7	6.0	6.7
2015	5.2	5.2	5.6

Sources: US Bureau of Labor Statistics, NJ Department of Labor and Workforce Development

The table below, also shown in the Community Profile section of the Housing Element, provides the occupation types and median earnings of the Borough’s residents compared to the County and State. A lower percentage of Borough residents have occupations in management, business, science and art compared to the County and State. Although a higher percentage of Borough residents, compared to County and State residents, are engaged in Natural Resources, Construction and Maintenance occupations. Residents of Keyport have lower median annual earnings than the County and State in similar occupation types.

	Keyport Borough			Monmouth County			State of New Jersey		
	Est.	Per.	Earnings	Est.	Per.	Earnings	Est.	Per.	Earnings
Management, Business, Science and arts	1,169	31.9	\$62,625	132,889	43.4	\$74,563	1,722,379	40.7	\$69,352
Service Occupations	554	15.1	\$17,760	47,780	15.6	\$20,983	710,670	16.8	\$21,248
Sales and Office	1,052	28.7	\$30,500	78,721	25.7	\$37,993	1,056,127	24.9	\$34,917
Natural Resources, Construction and maintenance	472	12.9	\$45,781	23,337	7.6	\$52,169	306,736	7.2	\$43,791
Production, Transportation and material moving	414	11.3	\$29,907	23,185	7.6	\$35,235	439,177	10.4	\$30,173
Total	3,661	--	\$38,160	305,912	--	\$50,104	4,235,089	--	\$43,019

\*Median Earnings are in 2014 Inflation-Adjusted Dollars

# ECONOMIC PLAN ELEMENT

## Projected Employment Growth

Employment in Monmouth County and in Keyport is projected to grow through 2040. Per North Jersey Transportation Planning Authority (NJTPA) projections, Keyport is anticipated to have a net increase of 440 new jobs by 2040 and is expected to have an annualized growth rate of 0.5 percent. Monmouth County's projected employment is expected to grow faster, creating 81,000 jobs, and an annualized growth rate of one percent. Additional jobs are anticipated to be created in Keyport as the result of revitalization efforts, redevelopment projects and the implementation of various economic development initiatives as set forth herein. Further, with education programs and job training, Keyport can create a highly-motivated work force to fill the many jobs to be created in the coming years.

## Transportation

In addition to the jobs anticipated to be created by redevelopment efforts, steps are being taken to make jobs outside the Borough more accessible to Keyport residents. Table 9.3 below shows the commuting patterns of the working population of Keyport.

	<b>Total</b>	<b>Percent (%)</b>
Drive-Alone	2,594	71.9
Drive-Carpool	328	9.1
Public Transit	248	6.9
Walk	137	3.8
Bicycle or Other	155	4.3
Worked at Home	144	4.0

Every effort should be made to connect Borough residents to various regional opportunities. For people facing transportation difficulties, i.e., no car in household, disability, etc., Monmouth County offers low cost transportation services to former public assistance participants who are seeking new or first-time employment, and residents with disabilities. Additionally, the Borough is planning to improve bicycle lanes, linking Keyport to the two nearby NJ Transit rail stations in Hazlet and Aberdeen, as well the as Academy Bus to New York City, located in the Airport Plaza. Further, the Circulation Subcommittee is considering the establishment of a commuter van to link Keyport residents to these nearby transportation hubs. More detailed information is provided in the Circulation Plan Element.

## ECONOMIC DEVELOPMENT GOALS OF REGIONAL, COUNTY AND STATE PLANS

### Monmouth County's 1982 Growth Management Guide

As noted in the Land Use Element, Monmouth County's 1982 Growth Management Guide designated the area comprising the Borough of Keyport as an Urban Growth Center. Per this designation, economic goals for Keyport are as follows:

- Encourage the adaptive reuse of vacant buildings and abandoned public facilities for new and more productive uses.
- Encourage the redevelopment of the urban centers through housing rehabilitation, reuse of buildings and channeling of commercial uses into downtown areas.
- Examine the urban centers' downtown districts to determine their individual economic assets.
- Channel suburban purchasing power into the urban centers' business districts.

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### Monmouth County Master Plan 2016

In October 2016, the Monmouth County Board of Chosen Freeholders, adopted by way of resolution, the Monmouth County Master Plan. The Monmouth County Master Plan identifies the Borough of Keyport as a recognized Arts, Culture and Entertainment (ACE) Hub. This special designation is given to a community that hosts a high concentration of arts and cultural activities, which serve both residents and visitors. They are lively locations with active nightlife attributed in some part to the cultural attractions. ACEs are considered vital components of both local and regional economies for providing more resilient and sustainable, year-round economy, especially in highly-seasonal markets. The Monmouth County Master Plan can be viewed on the [Monmouth County Division of Planning website](#).

### State Development and Redevelopment Plan

Keyport holds the designation of a Metropolitan Planning Areas (PA1) per the New Jersey State Development and Redevelopment Plan, discussed in detail in the Land Use Element. This plan outlines objectives that further economic revitalization goals for PA1 areas, considered mature towns and urban centers with strong ties to metropolitan regions. Among the objectives for these areas, economic priorities include:

- Provide for mixed-use concentrations of residential and commercial activity
- Provide for a variety of multi-modal transportation alternatives
- Prioritize clean-up and redevelopment of brownfields and greyfields sites
- Create cultural centers of state-wide significance

The redevelopment plans in place for several areas in Keyport advance the goals of both the County and State Plans to foster economic growth in the Borough. The Borough may seek to establish state recognized designations, such as the designation of a town center, commercial, core, node or a similar designation. These types of designations would enable the Borough, business owners and interested developers to qualify for additional grants, funding and incentives opportunities.

### AREAS IN NEED OF REHABILITATION AND REDEVELOPMENT

As stated in the *Redevelopment Plan* section of the Land Use Element, Keyport was designated as a Rehabilitation Area in 2007, pursuant to the Local Redevelopment and Housing Law (LRHL). Please review the *Redevelopment Plan* subsection within the Land Use Plan Element for more information regarding the Borough's designation as a Rehabilitation Area.

### Redevelopment Plans

This section reviews the economic components of redevelopment adopted by the Borough. Refer to the Land Use Element for a more detailed overview of each plan. While the plans differ in terms of specific goals and geographic areas, enhancing commercial zones along the waterfront and major transportation corridors is a consistent theme throughout.

#### *Aeromarine Area Redevelopment Plan*

In the early 2000s, the Keyport Unified Planning Board undertook a study to determine if a 50-acre area in the northeast portion of the municipality would qualify as an area in need of redevelopment pursuant to the criteria set forth in N.J.S.A. 40A:12A-5. Following the investigation, in 2005 the Borough approved the Aeromarine Area Redevelopment Plan, an initiative to revitalize the area, occupied by a landfill, wetlands, and vacant industrial buildings. Among the goals and objectives outlined in the plan, two address economic concerns:

## ECONOMIC PLAN ELEMENT

1. To stimulate an appropriate level of development that provides public benefits to the Borough and does not overwhelm the Borough's infrastructure.
2. To provide for an increase in the economic base of the redevelopment area and the entire Borough by redeveloping underutilized and non-productive properties.

In addition to the planned permitted uses of the redevelopment area, the Aeromarine Redevelopment Plan also called for uses that will enhance the economic vitality of Keyport. These include live-work units to comprise up to five percent of the total number of residential units; restaurants and bars with linkages to the waterfront area; and light-fabrication and craft-oriented studios. These land uses within the redevelopment area would employ residents, encourage entrepreneurial activity, and generate revenue.

In 2010, the Aeromarine Area Redevelopment Plan was updated with a Solar Overlay Amendment to redefine the objectives for the landfill portion of the site. This amendment called for the establishment of a ground-based solar panel energy facility to occupy between 15 and 25.3 acres of the total site area.

The Aeromarine Redevelopment Plan may be updated again at the appropriate time in order to align the Redevelopment Plan with the Borough's current goals and vision for the property.

### ***Brown's Point Marina Redevelopment Study***

In December 2014, Resolution #358-14 was adopted by the Borough to authorize the investigation of the Brown's Point Marine Area. At that time the area was occupied by a private business and several residences. The investigation was to determine if the area qualified as a non-condemnation area pursuant to the LRHL. The deteriorating condition of the buildings, largely due to Superstorm Sandy, did not advance the Borough's economic revitalization goals. The resulting study identified Lots 6, 6.01, and 9 as meeting the criteria of an area in need of redevelopment, and Lots 5 and 7 as necessary for effective redevelopment of the area. Since a portion of the area falls in the new, General Marine Commercial Zone, a redevelopment project should encourage sustainable, marine-based commercial uses, following the permitted principal uses of the zone that take advantage of the marine area.

### ***Highway-Commercial Redevelopment Plan***

Because Keyport, by way of State Routes 35 and 36, is considered the "Gateway to the New Jersey Bayshore Region," commercial redevelopment along these routes capitalizes on the heavy daily traffic to generate economic benefits for the Borough and potentially draw more visitors to the waterfront commercial district. Revitalization in the Highway Commercial District has been a stated goal of the Borough since the 1989 Master Plan. Following Keyport's designation as a Rehabilitation Area, in August 2009, the Borough adopted Resolution 176-09 which authorized the preparation of a redevelopment plan. The resulting document was adopted in June 2010.

As noted in the Land Use Element, the Highway-Commercial Redevelopment Plan outlines several economic goals for the area:

- Provide opportunities for retail spaces larger than those prevailing in the highway commercial district in order to assist in attracting new business.
- Improve new business opportunities through the promotion of new economic activities.
- Improve connections with the Borough's central business district.
- Create positive tax benefits for the Borough.

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- Capitalize on the presence of two state highways in Keyport, and the economic opportunities that this presents.
- Encouraging Public-Private Partnerships, especially between the Borough and NJDOT.

### ***Longview-Boatworks Redevelopment Plan***

In March 2016, the Borough Council adopted Resolution #108-16, authorizing the preparation of a redevelopment plan for the area known as Longview-Boatworks, situated on West Front Street and bounded by the Luppataong Creek and wetlands to the east and residential areas to the west and south. Considered a Brownfield Development Area by the NJDEP, the Redevelopment Plan stated as its overall goal the transformation of the area from "...vacant and undeveloped to economically and socially productive uses that will contribute to the general welfare of the Borough via increased tax ratables, increased foot traffic in the downtown area, and improvements to aesthetics and the Borough's sense of place", highlighting the economic potential of the area.

Economic objectives for the plan include:

- Provide an opportunity for the development of additional residential uses to increase density near Keyport's Downtown;
- Encourage redevelopment to increase tax ratable within the Borough of Keyport; and
- Provide for improvements to the West Front Street streetscape to enhance public space and provide for an aesthetically pleasing frontage that is consistent with the Borough's downtown streetscape standards.

### **Waterfront and Downtown Commercial Core**

Keyport's downtown commercial area is comprised of the area along Front Street between Beers Street and Church Street and along Broad Street from 1<sup>st</sup> Street to 3<sup>rd</sup> Street. Among the objectives of the improvement plan, one is the recharacterization of the waterfront as an interconnected "multi-activity" area, uniting recreational areas and water-oriented businesses along the waterfront.

Keyport's downtown commercial area is part of the Borough's authorized Business Improvement District (BID). The Borough's BID is managed by the Keyport Bayfront Business Cooperative (KBBC), comprised of business operators, property owners, and representatives from the municipal government and community. Purposes of the KBBC include aiding in business promotion for establishments in the Business Improvement District as well as fostering awareness and support of other local businesses.

### **Neighborhood Plans**

Neighborhood plans that evaluate and quantify the risks and associated impacts from flooding and rising sea levels in four of the most severely impacted neighborhoods in Keyport are currently being prepared under separate cover. The four neighborhoods under consideration include the following:

- Beers Street Basin
- First Street Waterfront
- Division Street Basin
- Walnut-Oak Street Basin

The plans will include a statement of goals and objectives, existing conditions of the neighborhood, a description of the flooding risks, a future land use plan and a list of recommendations. The recommendations may include design standards to promote resilience, proposed zoning, open space, areas recommended for redevelopment or rehabilitation, a Strategic Action Plan that identifies proposed amendments to the Borough

## ECONOMIC PLAN ELEMENT

code and capital improvement projects. The recommendations for commercial and mixed-use areas are anticipated to promote economic development.

### **TYPE & CHARACTER OF EMPLOYMENT ANTICIPATED**

As mentioned previously, as the Borough is approaching build-out, most growth in employment will occur through redevelopment and rehabilitation of vacant and underutilized properties in the existing commercial and industrial zones. Part of the strategy in reoccupying the vacant spaces includes enhancing the economic character of Keyport. Keyport intends to promote economic development in the arts, culinary, and tourism industry, as well as for existing businesses in the Borough. This would include promoting Keyport's rich maritime history.

As explained in the previous section, the Borough of Keyport has been recognized by the recently adopted Monmouth County Master Plan as an Arts, Culture, and Entertainment (ACE) Hub. This special designation is in keeping with the vision of this Master Plan in regards to the type and character of employment expected and to be promoted by the Borough.

The Borough also intends to capture the charm and character of its downtown through creative placemaking. A vibrant arts, culture and entertainment community has been slowly establishing itself here in the Borough over the past few years in an organic fashion. The Borough intends to leverage these assets and the natural charm of Keyport to attract new entrepreneurs and smart, creative employers, who will not only live and work in Keyport, but continue to contribute to its growth. According to the Center for Creative Placemaking, communities that engage in creative placemaking seek to:

- Leverage the creative possibilities in a place
- Capitalize on distinctiveness
- Empower artists and visionaries to help reach community potential.
- Create opportunities for people of all income levels and backgrounds to come together and to thrive
- Contribute to a mix of uses and pedestrian activity
- Attract businesses
- Improve social welfare
- Foster economic progress and entrepreneurship in the public interest
- Connect at the intersection of art and technology

The Borough intends to explore the concept of Creative Placemaking within a separate Master Plan Element. The Borough plans to pursue and secure grants to fund this important Element of its Master Plan.

### **Waterfront and Downtown Commercial Area**

The General Commercial District, located in Keyport's downtown and waterfront, would continue to serve as the commercial heart of Keyport. Its location to waterfront amenities, including views of not just Raritan Bay but of New York City as well, makes the promotion of this district for tourism, arts and culinary industries optimal.

The Borough's existing heritage and charm has been compared to historic fishing villages in Maine, and Keyport intends to promote that charm. The Land Use Plan has already identified those properties adjacent to the Waterfront Park as ideal for a General Waterfront District. Façade improvements to the rear of these properties would allow the businesses to serve patrons on two fronts; those patrons in the downtown, general commercial areas along West Front Street and those visiting the waterfront. Additional infrastructure and uses

## ECONOMIC PLAN ELEMENT

that promote commercial opportunities directly on the waterfront is encouraged, such as: motorized and non-motorized watercraft rentals, guided tours of the Bayshore region and additional docks that allow visitors to arrive by boat, patron the downtown and depart by boat.

The Borough's Recreation Commission should also actively develop working relationships with the marinas and businesses of the General Marine Commercial District, so as to utilize and share the economic opportunities of each district. As the Recreation Commission already organizes and hosts successful events along the waterfront, the Commission should also continue to develop relationships with other businesses of Keyport to introduce all businesses to the waterfront through temporary, short term vendors, such as pop-up stores or food trucks.

A key aspect to develop a strong tourism industry is the ability to have visitors stay overnight. Currently, the downtown and waterfront have few opportunities for visitors to stay overnight. This means patrons must leave Keyport, rather than stay the night and re-patron its businesses the next day. As explained above, the charm and character of the downtown makes it ideal for Bed & Breakfasts and Boutique Hotels.

### **General Marine Commercial District**

The new General Marine Commercial District is intended to promote and continue Keyport's long maritime history. Currently, the district is home to many marinas and other marine based businesses, such as sport fishing services. The Economic Element recommends this area continue promoting these types of businesses.

Brown's Point Marina, which was devastated by Sandy, has been designated as an Area In Need of Redevelopment. Both the Economic and Community Resilience Elements recommend the Borough ensures the long-term Resilience and sustainability of the area. Mitigation strategies and techniques recommended for the area include:

- Raising and adding bulkhead
- Develop better provisions for securing equipment and infrastructure such as docks, buoys, boat lifts, etc.
- Elevate essential equipment

For a complete list of mitigation recommendations, please see the Community Resilience Element.

### **Highway Commercial District**

Located at the intersection of two state highways and situated close to the Garden State Parkway, Keyport is ideally located to capture the high volume of traffic experienced on these roads daily. An improved visual streetscape would not only encourage new businesses to reoccupy its vacant stores but encourage visitors of the Bayshore and the Jersey Shore to give Keyport a visit either as a stop on their way elsewhere or as a primary destination. Developing design standards, including attractive facades, and streetscapes with distinctive designs for lighting and signage/wayfinding will define the identity of the district and the Borough.

Both the Land Use and Economic Elements affirm that the HC Highway Commercial zone is one of the few areas proposed to expand its commercial area. It is recommended that the boundaries of the HC district be redefined along Route 36 to be a full block deep between Atlantic and Main Street to provide better utilization of the properties for commercial development. Currently, most of the HC Highway zone extends only up to the parcels of land immediately adjacent to the state highways, which limits the type of commercial structures and opportunities.

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By extending one full block deep, the zone opens a wider range of development and economic possibilities. Promoting professional and medical office space are just two of the possibilities. As one of the fastest growing industries in New Jersey, Keyport needs to capitalize on promoting medical commercial opportunities. It is recommended the Borough better promote the development of professional and medical office spaces, as they are permitted uses in the HC zone. Large, vacant storefronts offer a unique opportunity to provide an open market concept. The large spaces can provide opportunities for artist cooperatives, food courts and other similar activities.

A visitor center is recommended to be established at an appropriate location in the Borough. For example, the site of the former Valley National Bank on Route 36 may be appropriate. As visitors enter Keyport from the Garden State Parkway, many are directed onto the southbound side of Route 36, and pass this site, making it an ideal location for such an establishment. Likewise, as visitors from the Bayshore leave they pass the site as well.

The location of this district also makes it ideal for short-term, hotel and long-term, extended stay establishments. The district is less than a mile from the Garden State Parkway and two NJ Transit train stations; less than an hour drive from New York City and other regional economic centers. The district is ideally placed to provide short- and long-term stay options for visitors to the region on business trips.

### **Neighborhood Commercial District**

The Land Use Plan and Economic Elements recommend the four Neighborhood Commercial Districts in the Borough continue to serve the local commercial needs of the community. The zone should continue to provide those commercial uses that promote minimal vehicular traffic and encourage patrons to walk or bicycle to their establishments.

Other vacant spaces in the neighborhood commercial zones can provide spaces for uses that are incompatible or not ideal with the downtown vision. The Keyport Post Office is currently leasing a prime downtown and waterfront location. Relocating the post office would create a new business opportunity in its former location that would promote commercial uses more in line with the Borough's vision.

### **Industrial Zones**

Keyport maintains a productive industrial park in the southeastern portion of the Borough. However, more can be done to ensure its industrial spaces are maximized. The Borough should create incentives for businesses that have an intense commercial or light industrial use and who currently occupy commercial spaces in the downtown core, along the highway commercial corridor, or in the general marine district to relocate into the industrial parks and zones. This would fulfil the intent of the industrial zones to isolate more intense uses from lighter, residential uses as well as create opportunities for new businesses with a use more in line with the district's vision.

Similarly, the Borough is aware of changing trends in the way industrial spaces are used and occupied, and realizes the need to adapt. Its recommended that land use and zoning ordinances in industrial spaces be amended to allow larger vacant spaces the ability to adapt into the open market concepts, as explained in previous sections. This would allow a single empty space to be occupied by multiple, smaller spaces that promote craft industries or professional tradesmen (plumbers, carpenters, etc.). Such users require a small space to work and need opportunities to find such space in an appropriate area for their purposes. Also, as a general trend, many industrial spaces that no longer serve their original purpose are being repurposed for activities such as indoor recreation, among other alternative uses.

# ECONOMIC PLAN ELEMENT

## POLICY OBJECTIVES AND RECOMMENDATIONS

Key policy objectives of this Plan include the following:

1. Promote economic development of the arts, the culinary industry, tourism and historical related businesses by encouraging redevelopment efforts such as public/private partnerships, infrastructure improvements and the support of private sector investments through supportive government regulations, policies and programs to maintain and improve upon the Borough of Keyport's historical heritage and charm.
2. Plan for and promote the further redevelopment of underutilized commercial and industrial areas of the Borough in order to create employment, generate tax ratables and enhance the quality of life for the residents and workers of Keyport.

The following objectives and recommendations are intended to promote economic Resilience in Keyport from future natural disasters and other economic disruptions in order to strengthen the Borough's ability to recover expeditiously:

- 1. The Borough should explore public/private partnerships with businesses in Keyport.**
  - Cultivate a more active relationship with the Recreation Commission and local marinas to draw both residents and visitors to the waterfront.
  - Explore the possibility of an open market concept in larger vacant commercial/industrial properties to draw in artist cooperative, food court and craft industries.
  - Create a government liaison that speaks with businesses in the Borough on a regular basis in order to understand their changing needs and ensure that local government and businesses work together to maintain and enhance the economic vitality of the Borough.
  - Generating tax ratable incentives to encourage new businesses and commerce.
- 2. Explore possibilities for diverse commercial activity along the waterfront and leverage existing waterfront resources.**
  - Consider dock and bulkhead development as well as commercial activities that tie into the waterfront (e.g., "dock and dine").
  - Encourage water-based sports businesses, such as boat rentals, tour boats and scuba diving.
  - Investigate the potential for successful "pop up" stores along the waterfront.
- 3. Strengthen the availability of employment resources for Keyport residents.**
  - Work with Keyport businesses and schools to create a job training program that satisfies the needs in the commercial and business districts.
  - Create an employment resource center.
  - Strongly encourage redevelopment projects to employ Keyport residents as a percentage of their workforce.
- 4. Market the Borough through public relations and advertising to enhance the tourism industry.**
  - Establish a welcome center at an appropriate location, such as the old Valley National Bank property as an introduction to Keyport and the entire Bayshore area.
  - Amend ordinances to permit bed and breakfasts.
  - Amend ordinances to permit hotels and extended stay hotels on Keyport's highway frontages.
  - Install comprehensive direction and promotional signage at all gateways to Keyport to direct visitors to community and commercial districts.

## ECONOMIC PLAN ELEMENT

- Develop and market a “brand” for the Borough that sets it apart from other towns, reflects its historic, maritime oriented charm and attracts visitors to the Borough.

### **5. Revitalize the commercial zones.**

- Many sites in neighborhood commercial zones around the Borough are vacant. These sites need to be carefully studied and considered for rezoning that is sensitive to the surrounding residential zones.
- Clean up appearances in the Commercial zones by:
  - Putting utility lines underground specifically along the waterfront, Front Street and Broad Street to the extent feasible.
  - Creating more regulations on garbage enclosures in commercial areas or possibly creating common areas with strict guidelines.
  - Provide incentives to industrial businesses presently in commercial zones to move to Industrial Zoned areas.

### **6. Analyze and update the Borough’s signage ordinance as it pertains to aesthetics and overall appearance in commercial areas in the Borough.**

- Signage and colors throughout the commercial areas of Keyport need to be more consistent to enhance historical heritage and charm.
- Emphasis should be placed on strategic planning for placement, size and appearance of commercial signage.

### **7. Highway Frontages**

- Capitalize on the presence of two state highways in Keyport and the economic opportunities that this presents by improving the visual streetscape with the commercial zones through design standards for buildings, properties and signs to reflect a historic atmosphere.
- Encourage and rezone more of the highway frontages to be used by professional and medical offices and small retail strip malls.

### **8. Improve connections with the Boroughs Central Business District**

- Actively address all of the gateway commercial property appearances to the waterfront and the downtown business district to better reflect the historic charm of the Borough of Keyport. Areas specifically identified, but not limited to, include commercial zones on Broad Street, Broadway, Front Street and First Street.

### **9. Economic Development**

- Promote continued growth and development of the Borough’s economic base.
- Aggressively market the Borough through public relations and advertising.

### **10. Improve transportation and circulation throughout the Borough and to neighboring municipalities.**

- Establish a transportation service connecting Keyport to Aberdeen-Matawan and Hazlet train stations to draw visitors and workers to the Borough’s commercial areas.
- Bicycle and pedestrian paths should be built and/or improved to encourage circulation throughout the Borough, particularly in the commercial and waterfront areas.
- Expand parking availability by constructing new parking lots and garages to address the needs of businesses, shoppers and residents in all commercial and water front areas.

## ECONOMIC PLAN ELEMENT

- Improve sidewalks and streetscapes as needed to promote safe and aesthetically appealing pedestrian access to commercial areas.

### **11. Permit process-quality improvement**

- Improving the permitting process to help speed recovery and save residents and business owners substantial amounts of money during recovery.
- It is recommended that the Borough review existing permitting procedures to determine improvements for fast-tracking/streamlining for expediting projects directly related to recovery or mitigation and that are consistent with any adopted Design Standards.
- This initiative is being completed under the PSPAG grant this has funded the preparation of this Community Resilience Plan.

### **12. Create and maintain a database of information on federal, state and county governments as well non-profit organizations pertaining to disaster recovery grants and funding for businesses.**

### **13. Design Standards (integrating elevated structures into community design character) are being prepared under the PSPAG grant that has funded the preparation of the Community Resilience Plan.**

- It is recommended that these design standards address the visual impact of mitigation measures such as elevating bulkheads, elevating buildings on foundations or pilings, etc.
- Such design standards might include requirements for skirting exposed pilings, parking under the lowest habitable floor, using exterior decking to stagger stairways to elevated first floor levels, etc. (see example of home designs in flood zones below).
- It is also recommended that commercial design standards be prepared as part of these design standards.

### **14. Improve flood-mitigation and stormwater management infrastructure as identified within the Community Resilience Plan.**

- This would include raising bulkheads and other measures in order to secure the commercial districts from flood hazards.

### **15. Complete a Post Disaster Recovery Capital Improvement Plan**

- This includes projects that provide hazard mitigation and Resilience for the Borough's commercial districts in addition to hazard mitigation and Resilience measures for residential districts.

### **16. Create a Borough Continuity of Operations Plan.**

- This will ensure that essential functions are maintained during and immediately after a disaster, allowing businesses to recover more quickly and customers to access businesses more quickly.

### **17. Ensure that Keyport maintains robust and resilient communications and data infrastructure for use by the public and private sector.**

### **18. Update Zoning Ordinance to include new Permitted Uses.**

- Consider updating the Borough's zoning to permit new uses such as business incubators, co-working office space and the associated accessory uses that these uses may seek.
- Accessory uses may include various amenities such as conference and event space. Permitting certain desirable commercial uses sends the message to developers that Keyport is open for business in terms of hosting these types of businesses.

## ECONOMIC PLAN ELEMENT

**19. Pursue a sustainable economic development strategy that supports businesses, employees and the overall quality of life in the Borough.**

**20. Market Vacant and Underutilized Properties**

- Use GIS to identify the Borough's existing vacant properties, foreclosures, vacant lots and redevelopment areas. Subsequently market the identified properties to the private sector in order to facilitate the rehabilitation or redevelopment of these properties, as appropriate.

**21. Parking Study**

- Consider commissioning a parking study for the commercial areas. The study would elucidate opportunities for increased parking capacity and more efficient use of available parking facilities in order to promote economic development.

**22. Facilitate and promote the success of the Keyport Bayfront Business Cooperative and the Keyport Business Improvement District.**

**23. Explore the opportunities and benefits of Creative Placemaking.**

- Explore opportunities to leverage Keyport's arts, cultural and entertainment economies along with other assets of Keyport, including its downtown and waterfront areas, to promote creative placemaking. Develop an additional Master Plan Element that explores the concept of creative placemaking and pursue grants to fund its preparation.

# HISTORIC PRESERVATION PLAN ELEMENT

## 11. HISTORIC PRESERVATION PLAN ELEMENT

### INTRODUCTION

The National Historic Preservation Act of 1966, as amended in 1980, encourages States and their component municipalities to assume active roles in historic preservation. In 1970, the New Jersey Register of Historic Places Act, N.J.S.A. 13-1B-15.128 et. seq., was enacted to recognize and preserve the State's historic, architectural, archeological and cultural heritage. This statute allows historic properties to be nominated and entered in the New Jersey Register of Historic Places, which is maintained by the Historic Preservation Office. The State Register mirrors the National Register and lists the buildings, districts, sites, structures and objects of national, state and local significance. Once a property is listed in the New Jersey Register, any public undertaking that would "encroach upon, damage or destroy" the registered historic property must be reviewed pursuant to this law and receive prior authorization from the Commissioner of the Department of Environmental Protection. Strictly private undertakings are not reviewable.

New Jersey's Municipal Land Use Law, N.J.S.A. 40:55D-1 et. seq., sets forth the criteria, standards and procedures by which municipalities may regulate the land uses within their jurisdiction, which also includes designating and regulating historic sites and districts. The Historic Preservation Plan Element of the Keyport Master Plan is prepared pursuant to N.J.S.A. 40:55D-28b(10) for the purposes of (a) indicating the location and significance of historic sites and historic districts; (b) identifying the standards used to assess worthiness for historic site or district identification; and (c) analyzing the impact of each component and element of the Master Plan on the preservation of historic sites and districts.

Historic properties are our physical links to the past, that provide meaning to our present and continuity with our future. Historic preservation is valuable to any community because it protects aesthetically attractive architectural elements, utilizes existing infrastructure and is essential to smart growth. However, historic preservation is not only about maintaining attractive buildings. The reuse of existing infrastructure prevents the further destruction of our valuable ecosystem. Historically, significant sites are often those that already provide the community with open space, recreation and scenic vistas.

Historic preservation also provides a foundation for economic development. Historic districts are often centers of tourism, commerce and government that draw regional populations. A recent study conducted for the New Jersey Historic Trust indicated that for every one million dollars invested in the preservation of New Jersey residential historic buildings, 25 new jobs and 1.1 million dollars in economic activity are generated at a state level. Those findings show the return increases to 75 jobs and 2.5 million dollars in economic activity on a national level.<sup>6</sup>

It is important to identify and take steps to preserve the historic and archaeological resources for the Borough as part of the Master Plan, so that appropriate methods for protection and conservation can be pursued, consistent with the requirements of the Municipal Land Use Law (MLUL).

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<sup>6</sup> A Historic Preservation Perspective, Office of State Planning memo dated April 1996.

# HISTORIC PRESERVATION PLAN ELEMENT

## KEY HIGHLIGHTS

The Historic Preservation Element provides an overview of historic preservation. It describes the National and State Registers of Historic Places, the eligibility requirements and the process for how to designate a property or district a historic resource.

The Element then provides a brief history of the Borough as well as a description of Keyport's own Historic Preservation Commission and its powers and duties. It is this Commission's responsibility to promote historic preservation, inventory historic sites and districts and advise the planning on development issues pertaining to Historic Preservation.

This Element provides an inventory of Historic Sites and Districts within the Borough, as they are listed on New Jersey and National Register of Historic Places and Monmouth County's Historic Sites Inventory. For a complete list of sites and their descriptions, please see Appendix E of this Master Plan.

As some sites are listed on the County's Historic Site Inventory but are not located within the Historic District, a Historic District Transition area is recommended. An alternative to expanding the boundaries of these districts and potentially detracting from their overall cohesiveness, the transition areas can be created to encompass the historic properties that fall outside of the established Historic Districts. Please see the *Historic District Transition Area* section for more information.

The Historic Preservation Element makes several recommendations to promote historic preservation. It is recommended that the Historic Preservation Commission be reconstituted, with an update and changes to its ordinance and that full membership be maintained in order to ensure an active Historic Preservation Commission. The reconstituted Historic Preservation Commission would be able to survey and update the historic sites inventory, explore additional sites and districts and establish a Historic Transition Area.

Additional recommendations include exploring and considering economic incentives for local property owners to restore and/or maintain their properties in a historic manner. Please see the *Recommendations for Future Preservation* for more information and recommendations.

## OVERVIEW

The Borough of Keyport Historic Preservation Plan Element has been prepared pursuant to N.J.S.A. 40:55D-28(b)(10). This Plan identifies the existing historic resources within the Borough, which includes the sites and districts listed within the New Jersey and National Register of Historic Places and other historically significant sites located within the Borough. Based on the Historic Preservation Committee's stated goals of updating the historic preservation ordinance, identifying new historic resources and involving more citizens in preservation, the Plan sets forth the goals and objectives of the Historic Plan Element; provides information about the past and present historic preservation efforts and initiatives undertaken by the Borough of Keyport; and provides recommendations for future preservation efforts within the Borough. The Plan concludes with recommendations for future preservation of the Borough's historic resources.

## NATIONAL AND STATE REGISTERS OF HISTORIC PLACES

The New Jersey and National Registers of Historic Places are the official lists of historic properties and districts deemed worthy of preservation. Inclusion in the Registers provides benefits and protection for listed resources and the information generated through the nomination process contributes to the growing body of knowledge

## HISTORIC PRESERVATION PLAN ELEMENT

about historic places in New Jersey<sup>7</sup>. The first national register was drafted in 1935 and became official with the enactment of the 1966 National Historic Preservation Act. The 1966 Act made the National Register of Historic Places the official list of buildings, structures, objects, sites or districts worthy of preservation and is maintained and expanded by the National Park Service on behalf of the Secretary of Interior.

The Act defines these historic resources as indicated below:

- ***Building***: Any structure created to shelter human activity.
  - Examples: Houses, barns, schools, railroad stations, theatres and factories.
- ***Structure***: Any construction other than a building.
  - Examples: Bridges, lighthouses, water towers, tunnels, canals or other civil engineering structures.
- ***Object***: A construction of functional, aesthetic, cultural, historical or scientific value that may be moveable and is generally related to a specific setting or environment.
  - Examples: Boats, locomotives, monuments, sculptures.
- ***Site***: The location of a significant event, prehistoric or historic activity or remnant of a building or structure.
  - Examples: Battlefield, landscape, ruins of a building or structure.
- ***District***: A geographically definable area containing buildings, structures, objects and/or sites that are linked historically or aesthetically by plans or physical development and acknowledge to possess collective importance.

The Historic Preservation Commission or any person may recommend designation of historic landmarks or historic districts that are in accordance with the National Register eligibility criteria or that possess one or more of the following attributes:

1. Character, interest or value as part of the development, heritage or cultural characteristics of the Borough, State or Nation; or
2. Association with events that have made a significant contribution to the broad patterns of Keyport's history.
3. Association with lives of persons significant to Keyport's past.
4. Embodiment of the distinctive characteristics of a type, period or method of construction, architecture or engineering; or
5. Identification with the work of a builder, designer, artist, architect, or landscape architect whose work has influenced the development of the Borough, State or Nation; or
6. Embodiment of elements of design, detail, material or craftsmanship that render an improvement architecturally significant or structurally innovative; or
7. Unique location or singular physical characteristics that make a district or landmark an established or familiar visual feature; or
8. Ability or potential ability to yield information important in prehistory or history.

In addition, certain other sites or structures may also be designated. These include cemeteries, birthplaces or graves of historical figures, religious properties, moved or reconstructed historic properties that are integral parts of historic districts, or those that meet other established criteria.

Pursuant to N.J.S.A.13: 1B-15.128, the New Jersey Register of Historic Places or State Register was established in 1970. The State Register parallels the National Register as a listing of sites of national, state and local

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<sup>7</sup> New Jersey Department of Environmental Protection Historic Preservation Office, Identification of Historic Resources. <http://www.state.nj.us/dep/hpo/1identify/identify.htm>. Accessed on November 29, 2016.

## HISTORIC PRESERVATION PLAN ELEMENT

significance with an emphasis on the last two categories. The same criteria, application forms and State administrative agency are used to process nominations to both registers. Properties approved on the State level for forwarding to the National Register are automatically entered in the State Register.

There are differences between the National and State Registers, as follows:

1. Private owner objection to a New Jersey Register proposal does not prevent designation, and
2. Only properties officially listed in the New Jersey Register are afforded protection.

The New Jersey and National Registers provide a degree of review and protection from public encroachment. The New Jersey Register law requires review of any State, county or municipal undertaking that involves properties listed on the New Jersey Register, which are designed to preclude destruction or damage of historic resources by public agencies.

Listing of the properties in the State and National Registry gives credibility to efforts of private citizens and public officials to preserve their resources. It does not interfere with the private property owner's right to alter, manage or dispose property. However, local preservation ordinances can regulate the private use, maintenance, alteration or demolition of a locally designated historic building, structure or site. It is important to note that listing in the New Jersey or National Registers does not designate the historic resources at the local level.<sup>8</sup>

### HISTORIC PRESERVATION COMMISSION

The Historic Preservation Commission was established in the Borough of Keyport in December of 1992, pursuant to the adoption of Ordinance #2-89. The Commission consists of five regular members and two alternate members. Of the five members, one member should be Class A (knowledgeable in building design and construction or architectural history and may reside outside the Borough) and one member should be Class B (knowledgeable or demonstrated interest in local history and may reside outside the Borough), and the remaining three should be Class C (Borough residents who hold no other municipal office, position or employment except for membership on the Planning Board or Board of Adjustment). The two alternate members shall meet the qualifications of Class C membership. The ordinance further sets forth the appointment of members, their terms and vacancies and other regulations regarding the rules and procedures for transacting business, compensation of members and compensation for experts and other staff services.

The powers and duties of the Historic Preservation Commission are as follows:

1. To prepare a survey of historic sites in the Borough.
2. To make recommendations to the Planning Board on the Historic Preservation Plan Element of the Master Plan and on the implications for preservation of historic sites of any other Master Plan elements.
3. To advise the Planning Board on the inclusion of historic sites in the recommended capital improvement program.
4. To advise the Planning Board and the Board of Adjustment on applications for development in any historic zoning district or sites designated on the Zoning Map or Master Plan.
5. To provide written reports on the application of the Zoning Ordinance provisions concerning historic preservation.
6. To carry out other advisory, educational and informational functions in order to promote historic preservation in the Borough.

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<sup>8</sup> The New Jersey and National Registers of Historic Places vs. Local Historic Designation.  
<http://www.nj.gov/dep/hpo/1identify/localdesignintion.pdf>. Accessed on November 30, 2016.

# HISTORIC PRESERVATION PLAN ELEMENT

## HISTORY OF KEYPORT

The first settlers of the coastal New Jersey area were the Lenni Lenape Indians, who in the 1600s were drawn to the area, known as Chingarora, for its location which offered both farmland and access to water for fishing and oyster and clam harvesting. Their control over the land did not last long. Following the Dutch surrender of New Amsterdam to the English in 1664, Colonel Richard Nicolls was named Governor of the newly acquired territories, including what would become New Jersey. The following year, Colonel Nicolls sold a tract of land covering the triangular area between Sandy Hook, the mouth of the Raritan River and Barnegat Bay to a group of 12 men. Settlers, primarily Baptists and Quakers from Long Island and parts of New England began to arrive. The land sold in that 1655 Monmouth (Navesink) Patent was officially named Monmouth County in 1683.<sup>9</sup>

On July 21, 1714, Thomas and Michael Kearney purchased 340 acres of land from John Browne, one of the original Monmouth patentees. Key Grove Farm was built on Wolf Hill along the Luppataong Creek, and quickly grew prosperous from shipping produce and oysters to Manhattan. Passed down in the Kearney family for about 100 years, in the 1820s the land was divided and sold at public auction to pay off estate debts. In 1830, 16 lots were purchased to form the Key Port Company, named after Key Grove Farm and its port location.<sup>10</sup> This Company governed the area until 1848.

The proximity of the village to the Raritan Bay and New York preserved its dominance in shipping and oyster harvesting from about 1830 through the early 1900s. Produce from across the county made its way to Keyport to ultimately be shipped across the bay to New York. The draw of this commercial activity and the development of stagecoach travel contributed to population growth; in 1854, Keyport was the largest municipality in the County. As transportation technology became more advanced, Keyport became an important site for sloop and steamboat construction. The first boat yard was opened by Benjamin Terry in 1850 and its production was soon oriented towards war, as the Union required boats for travel throughout the Civil War. In 1870, the village broke from Raritan Township (now Hazlet), which had governed the area since 1848 to become Keyport.

In the early 1900s war again played a role in the development of Keyport. The Aeromarine Plane & Motor Corporation, based in the Lockport area of the Borough from 1917, was contracted to construct one third of the Army and Navy training planes for World War I pilots as well as the first seaplanes.

Keyport's dominance in these industries has since slowed as residential development has gradually taken over industrial areas. Commercial activity has continued to be centered near the water, and the Borough is a part of the Jersey Shore region frequented by tourists in the summer months. This brief history highlights Keyport's transition from plantation to fishing village to modern community.

## SUMMARY OF HISTORIC RESOURCES IN KEYPORT: NEW JERSEY AND NATIONAL REGISTERS

As of November 29, 2016, the historic resources in the Borough of Keyport listed on the New Jersey and National Register of Historic Places are indicated below in Table 10.1. A Map depicting the Historic Districts is included in Appendix E for reference.

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<sup>9</sup> Klett, Joseph. "Using the Records of the East and West Jersey Proprietors." <http://www.nj.gov/state/archives/pdf/proprietors.pdf>; Accessed on November 29, 2016.

<sup>10</sup> Regan, Timothy E. *Images of America: Keyport*. Arcadia, 1998. p. 1.

## HISTORIC PRESERVATION PLAN ELEMENT

Resource	ID #	Location	Date of Designation
First Street Historic District	5303	North side of First Street between #51 and #309 and south side from Church Street to #302	SHPO Opinion: 11/19/13
Front Street Historic District	3351	Front Street, between Beers Street and Church Street	SHPO Opinion: 4/19/96
Garden State Parkway Highway	3874	Monmouth County, Keyport Borough	SHPO Opinion: 10/12/01

Source: The New Jersey and National Registers of Historic Places. [http://www.state.nj.us/dep/hpo/1identify/nrsr\\_lists/Monmouth.pdf](http://www.state.nj.us/dep/hpo/1identify/nrsr_lists/Monmouth.pdf); Accessed on November 29, 2016

Representative examples of prominent historic properties in the Borough are described below. A more comprehensive list of Keyport’s historical properties can be found within Appendix E, Inventory of Keyport Historic Sites, as excerpted from the Monmouth County Historic Sites Inventory.

### **42 Atlantic Street**

This home from the mid-19<sup>th</sup> century sits on a property with two outbuildings, a barn and a smokehouse, making it unusually complete for a developed area. Both the interior and exterior of the main house retain much of the original detailing, with the interior woodwork being particularly notable along the stairway, balustrade, wainscoting, door frames and molding.

### **169 Beers Street**

Notable for its conformity with the Greek Revival style in Monmouth County. When built in 1859, it was situated about ¾ mile from what was the village of Keyport. Largely unchanged, it is now surrounded by 20<sup>th</sup> century homes.

### **181 Broadway**

The house stands as a strong example of the Italianate style, notable for its intact wood ornamentation. Constructed between 1873 and 1889, the clapboard exterior, circular light in the center gable and several cornices remain.

### **Calvary M.E. Church**

The Methodist Episcopal congregation, the first to be formed after Keyport was founded, was based in this church following its construction in the late 1850s. The original tower was replaced in 1902 but the newer castellated tower presents a strong example of the Norman Revival style in Monmouth County. Though largely built in the Greek Revival style, the church retains some Gothic themes, particularly in the central and side windows.

### **Henry H. Seabrook House**

The Seabrook House was the home of Henry H. Seabrook, a prominent 19<sup>th</sup> century businessman. He managed the Middletown Point Steamboat Company and played a role in the turnpike and railroad ventures of the mid-1800s. Though the home has been covered in vinyl siding, the architectural character of the house, built in the Greek Revival style, remains.

### **H.P. Moller House**

The H.P. Moller House, located at 205 Main Street, stands as one of the larger remaining farmhouses from the 19<sup>th</sup> century in Keyport’s south side. Built between 1850 and 1860, the home is an example of the Italianate style with Colonial Revival modifications. Though records indicate different men as the owners throughout the years, legend has it that P.T. Barnum once called it home as well.

# HISTORIC PRESERVATION PLAN ELEMENT

## County and Municipal Historic Sites

In addition to the properties listed on the New Jersey and National Register of Historic Places, several other properties in Keyport have been identified as being historically significant in *The Monmouth County Historical Sites Inventory*. Between 1980 and 1984 the survey, the first of Monmouth County historical sites was conducted. Funding sources included both the Monmouth County Park System and the Historic Preservation Survey and Planning Grant from the National Park Service, administered through the New Jersey Historic Preservation Office with additional assistance from the Monmouth County Historical Association and the Monmouth County Planning Board. The resulting document has since been maintained and updated by the Monmouth County Park System. The historic preservation initiatives since those publications and updates have included listing of the First Street Historic District (ID#5303) in 2013 on the National and State Registry, as indicated earlier in Table 10.1.

Beyond the *Monmouth County Historical Sites Inventory* created in the early 1980s, with updated Keyport content in 2008, Borough records do not show any additional surveys being conducted. However, the series *Images of America* published two volumes on Keyport in 1998, written by Timothy E. Regan, which include a brief history of the Borough and a pictorial inventory of the historic structures located within the Borough, including those that had already been demolished.

It is recommended that the Historic Preservation Commission, in conjunction with the Keyport Historical Society and/or Monmouth County, undertake a municipal historic site survey to update the current inventory.

## SUMMARY OF EXISTING HISTORIC DISTRICTS AND RECOMMENDATIONS

In 1992, Keyport adopted Ordinance #2-89 regarding historic preservation in the Borough. In addition to setting administrative guidelines for the Historic Preservation Commission as noted above, it addressed the establishment of four historic districts: First Street District, Front Street District, Main Street District and Brown's Point District. Though the ordinance was not intended to amend zoning ordinances in the Borough, the goals for the districts are as follows:

1. Safeguard the heritage of the Borough by preserving resources within the Borough which reflect elements of its cultural, social, economic and architectural history.
2. Encourage the continued use of historic landmarks and to facilitate their appropriate reuse.
3. Promote appreciation of historic districts for education, pleasure and the welfare of the local population.
4. Maintain and develop an appropriate and harmonious setting for the historic and architecturally significant buildings, structures and districts within the Borough.
5. Foster beautification and private reinvestment.
6. Discourage unnecessary demolition of historic resources.
7. Encourage the proper maintenance and preservation of historic districts.
8. Enhance the visual and aesthetic character and diversity of the Borough.
9. Promote the conservation of historic districts and to invite voluntary compliance.

The first three historic districts listed above have since been included in *The Monmouth County Historical Sites Inventory*. The First Street District and Front Street District are also listed on the National and State Registries, as noted in Table 10.1.

The First Street District contains approximately 100 structures. The District is located along First Street, extending from numbers 51 to 309 on the north side and bracketed by Church Street to number 302 on the south side. These boundaries derive from the historical development of the area based on 19<sup>th</sup> and 20<sup>th</sup> century maps

## HISTORIC PRESERVATION PLAN ELEMENT

of the Borough, and also correspond with the cohesiveness of the environment. Though the growth of this area was largely due to commerce from the Lockport Dock at the end of Atlantic Street and some business as the intersection between Atlantic Street and First Street, the district is largely comprised of residential buildings. As one of the two early residential areas of Keyport, the First Street District is notable for its assortment of 19<sup>th</sup> century architectural styles, among them Greek Revival, Gothic Revival, Italianate, Second Empire and vernacular. The intrusions have generally been limited to alterations of existing buildings, although the clocks and streetcars that formerly enhanced this area no longer remain.

The Front Street District is also comprised of about 100 structures but differs from the First Street District in that the buildings were largely used for commercial purposes. Although the district encompasses the earliest developed area of Keyport, most of the buildings were constructed after the fire of 1877. These structures predominantly reflect the Italianate and vernacular styles. However, later construction in styles from Victorian Gothic to Colonial Revival brought about greater variety in the district. Intrusions can generally be characterized as fenestration and exterior surface. Overall, the district is most notable for the cohesiveness of its history and its importance as the downtown commercial core than for individual notable structures.

The Main Street District, centered around Main Street and Broad Street, is comprised of approximately 150 residential buildings, reflecting several 19<sup>th</sup> century architectural styles, among them vernacular Greek Revival and Queen Anne. As noted in the Monmouth County inventory, part of the established character comes from the mature trees that line the blocks. The district is also distinct in that very few intrusions have altered its character; the primary threat to the structures is deterioration.

The Historic Preservation Commission has also recommended considering South Keyport as another Historic District.

It is also important to note that numerous Century Homes exist in Keyport. The Keyport Historical Society maintains a registry of these homes. In addition, the Keyport Historical Society maintains detailed information about the historic resources in the Borough on their website (<http://keyporthistoricalsociety.com>). Further, additional information about the above referenced Historic Districts is available on the Borough's website (<http://www.keyportonline.com/content/4031/4052/4426/default.aspx>).

### HISTORIC DISTRICT TRANSITION AREAS

*The Monmouth County Historic Sites Inventory* also lists properties such as the Captain Thomas Walling House which are not contained within the established Historic Districts of Keyport. As an alternative to expanding the boundaries of these districts and potentially detracting from their overall cohesiveness, it is recommended that Historic District Transition area(s) be created to encompass the historic properties that fall outside of the established Historic Districts. Transition areas could also link the several Historic Districts that are separate but lie within close proximity to each other.

The transition areas also function to provide a buffer to the Historic Districts in that transition areas would establish architectural design standards whereby any proposed construction would be harmonious with the buildings within the Historic District. Therefore, the transition areas are intended to prevent incompatible design in new development from being located in close proximity to the Historic Districts.

### IMPACTS FROM OTHER MASTER PLAN ELEMENTS

As historic preservation has been considered as a key consideration in the development of the goals, objectives and recommendations of the other Master Plan elements, it is not anticipated that any significant adverse

## HISTORIC PRESERVATION PLAN ELEMENT

impacts from those goals, objectives and recommendations would occur to historic resources in the Borough as a result of the implementation of this Master Plan. The recommendations set forth below are anticipated to strengthen historic preservation in the Borough and are in accordance with the other Elements of this Master Plan.

### RECOMMENDATIONS FOR FUTURE PRESERVATION

**1. Update and enforce the current ordinance (#2-89) from 1992 that establishes the Historic Preservation Commission and Historic Districts with the changes set forth below. Implementation Timeframe: Within 1 year.**

- Section 2-7.6 (b) Members, Terms
  - Change “initial term of regular members shall not exceed four (4) years...” to “...shall not exceed three (3) years”.
  - Add verbiage to address that the initial membership would require staggered terms so that the entire membership does not turn over in any given year.
- Section 2-7.7 (f) 3 (a) Historic Preservation Review – Certificate of Appropriateness
  - Change all references to “Zoning Board of Adjustment or the Planning Board” to “Unified Planning and Zoning Board”.
- Include a member of the Unified Planning and Zoning board serve as a liaison.
- Create a website or space on the Borough website that citizens can go to for information.

**2. It is recommended that the Historic Preservation Commission be reconstituted and that full membership be maintained in order to ensure an active Historic Preservation Commission.**

**3. Update the survey of historic sites to note changes in the existing sites on the list and determine additional sites in Keyport Borough that could be deemed worthy of historic designation.**

The Historic Preservation Plan Element relied primarily on the *Monmouth County Historic Sites Inventory* from the early 1980s with updates from the Borough dated to 2006. It is therefore recommended that the Historic Preservation Commission, in conjunction with the Unified Planning and Zoning Board and/or Monmouth County, undertake an updated survey of sites worthy of historic designation. There may also be other sites in the Borough that may not be historically significant but do have local and cultural significance. Implementation timeframe: Within 2-5 years.

**4. Designate South Keyport as a Historic District. Implementation timeframe: Within 2-5 years.**

**5. Establish Historic Transition Area Zones to provide a buffer for the Historic Districts. Implementation timeframe: Within 2-5 years.**

**6. Participate in the Certified Local Government (CLG) Program.**

Under the program, governments will be considered for certification by the State Historic Preservation Office (SHPO), New Jersey’s State Historic Preservation Office, upon request of their chief elected official. Governments requesting certification will be required to submit evidence that they meet the basic program criteria. These criteria include establishment of a local historic preservation review commission, initiation and/or continued progress towards completion of a comprehensive survey and inventory of local historic resources, designation and protection of local landmarks and historic districts and development of a process

## HISTORIC PRESERVATION PLAN ELEMENT

which ensures public participation in the local historic preservation program. Program benefits are as follows:

- Eligibility to apply for a portion of the State's grant funding for historic sites survey and historic preservation planning projects.
- Certified local governments will be afforded the opportunity to comment on all New Jersey and National Register nominations in their jurisdiction.
- The Historic Preservation Commission will provide training sessions for local historic preservation review commission members. In addition, surveys conducted under the CLG Program will assist communities in meeting environmental review requirements for federal undertakings, and in identifying properties which are eligible for federal tax incentives and development grants (when available).

**7. Update the 1992 ordinance (#2-89) that created the Commission and historic districts and strengthen its enforcement.**

This will enhance the goal of preserving historic resources in the Borough. Ordinance amendments need to be consistent with the Municipal Land Use Law 40:55D-107.

**8. The goals of historic preservation could also be enhanced with stronger communication to the public on the work of the Historic Preservation Committee.**

Because designation on the National and New Jersey Register of Historic Sites may not have a direct impact on community opinions of these sites, it remains important that the Borough itself disseminate information about these places to foment awareness. This in turn could augment support of municipal designations of historic sites. The following recommendations address the need for clearer communication with the public:

- Develop either a section on the Keyport website or a separate webpage to provide residents with an overview of the Borough's history as well as up-to-date information about municipal historic sites.
- Organize a society of citizens interested in historical home renovation. Implementation Timeframe: Within 1 year.
- Create a Historic Preservation Guidebook in consultation with the Keyport Historical Society. This text would set standards for the proper preservation and maintenance of historic districts and sites, and the overall result would be to enhance the visual and aesthetic character and diversity of Keyport. Additionally, the guidebook could provide information to homeowners outlining the process of obtaining a historic designation for their home, as well as links to related grants for modifications that would enhance the historic value of the home (a good source would be Monmouth County Historic guidebook). Implementation Timeframe: Within 2 to 5 years.
- Encourage the library to purchase books on historical home renovation as another source of information. Implementation Timeframe: Within 1 year.

**9. Consider the implementation of economic incentives to encourage local property owners to restore and/or maintain historic homes.**

- Identify grant and loan programs available to municipalities or private homeowners to financially support historic preservation.
- Develop tools to encourage property owners to preserve, restore and adapt their historic structures. One such tool could include tax incentives for updating historical homes and buildings, consistent with the Historic Preservation Guidebook. Implementation Timeframe: Within 2 to 5 years.

# RECYCLING PLAN ELEMENT

## 12. RECYCLING PLAN ELEMENT

### INTRODUCTION

The purpose of the Recycling Plan Element is to demonstrate Keyport's consistency with the State Recycling Plan goals. This includes provisions for the collection, disposition and recycling of recyclable materials within any new development and to continue to promote recycling within the Borough. The State Recycling Plan goals are set forth in the New Jersey Statewide Mandatory Source Separation and Recycling Act, N.J.S.A 13:1E-99.11 et seq. (Recycling Act). According to the New Jersey Department of Environmental Protection's website:

*The passage of New Jersey's mandatory recycling legislation in April, 1987, was a major milestone in our state's solid waste management history and helped establish New Jersey as a leader in this field. The Recycling Act set forth an ambitious program that reshaped at least one aspect of the everyday lives of state residents, businesses, and institutions. Among other things, the Recycling Act required New Jersey's twenty-one counties to develop recycling plans that mandated the recycling of at least three designated recyclable materials, in addition to leaves. County recycling plans were also required to designate the strategy to be utilized for the collection, marketing, and disposition of designated recyclable materials. Other provisions of the Recycling Act required municipalities to adopt an ordinance based upon their county's recycling program.*

Initially, the Recycling Act called for the recycling of 15% of the municipal solid waste stream in the first year of the program followed by the recycling of 25% of the municipal solid waste stream thereafter. That goal was more than double through legislation enacted in 1992 (P.L. 1992, c.167), amending the 1987 Recycling Act with the new challenge to recycle 50% of the municipal solid waste stream and 60% of the overall waste stream by the end of 1995. The Act also established a tax credit program for the purchase of new recycling equipment. Other notable provisions of the Recycling Act include the following requirements:

- All counties and municipalities must designate a Recycling Coordinator (N.J.S.A. 13:1E-99.16).
- Municipalities must submit a tonnage grant report every year and publicize the provisions of the local recycling program at least every six (6) months (N.J.S.A. 13:1E-99.16).

In 2008, the "Recycling Enhancement Act" became law. The Act requires a recycling tax of \$3.00 per ton on all solid waste accepted at solid waste facilities. Municipalities can "earn" this money back by recycling material and diverting it from the solid waste stream. Each year, municipalities may report their tonnage of recycling and receive a grant in an amount not less than the annual amount of recycling tax paid by the municipality. Grant money must be used specifically in accordance with the Recycling Program Requirements.

The Borough has identified the following goals of the Recycling Element:

1. Promote recycling to reduce the solid waste stream and increase the reuse of natural resources.
2. Continue to provide a recycling program that fulfills State Recycling Requirements.
3. Provide a quality Recycling Program that benefits the Residents of the Borough of Keyport.
4. Encourage the reduction in the amount of solid waste that Keyport sends to landfills to the greatest extent practical, while at the same time furthering the goal of maximizing the amount of recycled materials collected from Residential, School and Non-Residential Properties.

## RECYCLING PLAN ELEMENT

- a. Although the state no longer collects solid waste tonnage data by municipality, the NJDEP's Division of Solid and Hazardous Waste estimated the Borough's recycling rate to be approximately 47%, falling short of the state's 60% goal for municipalities.
5. Encourage existing commercial, school and industrial uses to recycle and support the development of "green" industries that incorporate recycling into the production process.
6. Continue to increase recycling awareness through community outreach, i.e., mailings, event participation, and social media.
7. Maintain the efficient, user-friendly drop-off process at Keyport's Recycling Center.
8. Curb illegal dumping activities at the Recycling Center as well as throughout the Borough, particularly on the Henry Hudson Trail and walkways to the schools.
9. Continue to promote an increased demand for recyclable materials and recycled products, i.e., recycled paper for the copy machines, recycled toner cartridges and composted materials.
10. Continue to maximize the overall efficiency of the Keyport Recycling Program.

This Element provides an overview of the current status of solid waste management and recycling within the Borough along with waste generation and recycling rates. Lastly, a series of recommended actions and programs are presented for the Borough to pursue in order to increase the percentage of solid waste that is recycled in the community.

### KEY HIGHLIGHTS

The Recycling Element describes the Borough's waste and recycling collection program. Its municipal solid waste is collected once per week and is disposed of in accordance with the Monmouth County Solid Waste Management Plan. The Borough's recycling collection program is in accordance with the Recycling Act, including the adoption of a recycling ordinance, designating a Recycling Coordinator and reporting annual recycling tonnage<sup>11</sup>. Recycled material is collected bi-weekly. Ferrous and Non-ferrous metals can be dropped off at Keyport's Recycling Center, while hazardous waste can be dropped off at the County's Household Hazardous Waste Facility in Tinton Falls.

This Element also analyzes waste generation and recycling rates. Recycling tonnage reported to NJDEP in 2014 was 1,649 tons. It is the goal of the Borough's to increase this tonnage annually by 2%, and to increase the proportion of recycled materials relative to solid waste, currently at 47%. The Borough intends to implement best management practices described in the section *Waste Reduction* and also implement a compost program to aid in increasing its recycling rate and reducing its solid waste.

The Borough intends to realize the success of its strong Recycling Program on five beliefs. These beliefs are centered on education, cooperation, communication, enforcement and technology. For a complete description of these beliefs and other recommendations, please see the sections *Keyport's Recycling Program of Tomorrow* and *Recycling Plan Recommendations*.

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<sup>11</sup> Per a conversation with an employee at NJDEP, annual tonnage data is no longer recorded by NJDEP, as of 2014.

# RECYCLING PLAN ELEMENT

## CURRENT STATUS OF WASTE MANAGEMENT PROGRAM

### DEFINITIONS

- *Ferrous and Non-Ferrous Metal* – products that contain and are made out of iron.
- *Hazardous Waste* – waste that poses substantial or potential threats to public health or the environment.
- *Municipal Solid Waste* – a waste type that includes predominantly household waste (domestic waste) with sometimes the addition of commercial wastes collected by a municipality within a given area. They are in either solid or semi-solid form and generally exclude industrial hazardous wastes.
- *Recyclable Material* – used materials that can be made into new products and would prevent waste of potentially useful materials.
- *Recyclable Rates* – amount of materials that can be recycled during a specific time frame.
- *Waste Generation* – encompasses activities in which materials are identified as no longer being of value and are either thrown out or gathered together for disposal.
- *Waste Reduction* – the process and the policy of reducing the amount of waste produce by a person or society.

## WASTE AND RECYCLING COLLECTION PROGRAM

### *Municipal Solid Waste*

Waste is generally picked up once per week from each residence, church and all municipally owned buildings, parks and playgrounds, and facilities. All solid waste collected within the Borough of Keyport is disposed of in accordance with the Monmouth County Solid Waste Management Plan.

### *Recyclable Materials*

As stated previously, Recycling Act sets goals for recycling and requires each municipality to implement a recycling program. In addition, the Act required municipalities to adopt a recycling ordinance, designate a Recycling Coordinator, and report annual recycling tonnage to the New Jersey Department of Environmental Protection. The Borough has a recycling ordinance in place and can be found in Code Section 16-6 of the Borough Ordinance Book. The Borough has established the position of Recycling Coordinator in accordance with applicable law.

Recycled materials are picked up bi-weekly from each residence, business, church, and all municipally owned buildings, parks, playgrounds, and facilities. Designated recyclable materials for bi-weekly pick-up include:

1. *Beverage and Food Containers*: Aluminum, steel, tin and bi-metal cans.
2. *Glass*: All products made from silica or sand, soda ash and limestone, the product being transparent or translucent and being used for packaging or bottling of various matters; however, excluding blue or flat glass commonly known as window glass.
3. *Plastics*: Plastic containers PET (symbol 1), HDPE (symbol 2).
4. *Paper/Corrugated Cardboard*: All uncontaminated newspaper, magazines, books, junk mail, computer paper, office paper, corrugated cardboard and panels, etc.

### *Hazardous Waste*

Hazardous Waste can be dropped off to the Monmouth County Household Hazardous Waste Facility that is located on Shafto Road in Tinton Falls. The facility accepts mercury containing devices, pesticides, herbicides,

## RECYCLING PLAN ELEMENT

insecticides, DDT, fertilizers, solvents, wood preservatives, oxygen tanks, fire extinguishers, chemicals, batteries, paints, gasoline and oils. These materials can be dropped off during any of the schedule “Household Disposal Days” that are scheduled during the year.

### *Ferrous and Non-Ferrous Metal Products*

Ferrous and non-ferrous metal/bulk appliances/white goods can be dropped off at the municipal Recycling Center. Examples of bulky waste include washers, dryers, dishwashers, ovens, refrigerators, freezers, hot and cold water tanks, air conditioners, gas/oil/electric heaters, gas tanks, bicycles, metal lawn equipment or other large household appliances commonly referred to as white goods.

### **Waste Generation and Recycling Rates**

The Borough of Keyport is committed to the implementation of an effective recycled waste management program in compliance with the State recycling statute. The program calls for mandatory source separation of numerous items and leaves by both residential and commercial uses. The Borough offers curbside collection of most of the mandatory items as well as drop off access at the local Recycling Center located on Florence Avenue.

All businesses are required to recycle as per Borough ordinance and NJ State Law. Keyport's Recycling Ordinance identifies policies and procedures for Residential and Non-Residential recycling disposal and management.

The Borough produces annual Recycling Tonnage reports that categorize the recyclable materials into the following groups: Paper (includes corrugated, mixed office paper, newspaper and other paper/magazine/junk mail), Glass, Aluminum and Plastic. The data for the 2014 and 2015 reports is included in the table below. The Borough has set a goal to increase tonnage by two (2) percent per year going forward, which is reflected in the projections in Table 11.1. As 2015 estimates appear to be low, 2014 has been utilized as the base year in calculating the two percent (2%) per year goals.

<b>Year</b>	<b>Paper<sup>2</sup></b>	<b>Glass</b>	<b>Aluminum</b>	<b>Plastic</b>	<b>Total</b>
2025*	1,412.13	331.28	79.49	180.08	2,002.98
2020*	1,283.76	301.16	72.26	163.71	1,820.89
2019*	1,258.59	295.26	70.85	160.50	1,785.19
2018*	1,233.91	289.47	69.46	157.36	1,750.19
2017*	1,209.71	283.79	68.09	154.27	1,715.87
2016*	1,185.99	278.23	66.76	151.25	1,682.22
2015 <sup>3</sup>	469.35	66.95	20.76	51.3	608.36
2014	1,162.74	272.77	65.45	148.28	1649.24

1. Values given in tons, acquired from the Keyport Tonnage Report.

2. Paper includes Corrugated, Mixed Office Paper, Newspaper, and other Paper/Magazines/Junk Mail

3. Per a conversation with staff at the NJDEP Division of Solid and Hazardous Waste, the State no longer collects solid waste tonnage by municipality. NJDEP estimated the Borough's recycling rate to be approximately 47%, falling short of the State's 60% goal.

The Master Plan continues to support the concept of recycling. It is an environmentally sound practice with important practical benefits. The Master Plan encourages the Borough to provide a continuous education program. A carefully crafted and funded recycling effort is anticipated to more than pay for itself.

## RECYCLING PLAN ELEMENT

An enhanced recycling program should establish specific tonnage goals for each material and should have a public education as well as an enforcement component. Recycling in New Jersey and Keyport Borough is mandatory and the program outcomes should reflect the fact that all residents as well as businesses are required to recycle a variety of materials. To accomplish greater participation, additional education materials will need to be generated and distributed. Increased education, communication and enforcement should be fundamental components of a comprehensive effort. The County of Monmouth can provide brochures and programs to guide residents, businesses and institutions in finding alternatives to waste disposal and improving recycling within the Borough. The “Recycling Directory” is one of the most notable publications that the County of Monmouth can provide. These publications can be used to assist schools and businesses to establish recycling practices. A marked increase in recycled quantities will require a holistic approach and the Master Plan encourages the Borough to make this needed investment.

### WASTE REDUCTION

Recycling is just one part of an overall effort to decrease the amount of waste that requires management and disposal. Reduction, (also known as source reduction or waste prevention), is the first and most important tier of the “Reduce, Reuse, Recycle” solid waste management hierarchy. The term “waste reduction”, is used to describe activities that decrease the amount (weight or volume) or toxicity of waste entering the solid waste stream. Simply stated, waste reduction means cutting disposal by going right to the source: deciding not to make or buy something that becomes waste in the first place. Waste reduction includes activities that increase product durability, reusability and reparability. Reuse programs keep materials that would normally be discarded out of the waste stream. Waste reduction together with recycling and reuse form a comprehensive approach to eliminate waste from entering the disposal stream and decreasing the need to produce the source materials in the first place. The municipality should integrate waste reduction efforts with the recycling program. Education is a key component of a waste reduction program and special events can be used to support activities related to waste reduction and reuse. A municipal waste reduction program should include the following:

- Provide information to residents on the recycling program.
- Provide information and a demonstration area to inform residents on backyard composting (example: food and yard waste).
- Consider means of reducing the amount of unwanted printed materials tossed onto driveways and lawns.
- Support a municipal Reuse Day, or week, when residents can set out their unwanted goods at the curb for other residents to pick up. This will require promotion that includes information on the date of the event, how long the material will be left out for collection by residents and when the event ends.
- Provide community information on websites and organizations that link free, unwanted, useful items from donors to recipients, such as Freecycle.
- Provide community wide information on how to stop junk mail.
- Work with the Board of Education to purchase recycled paper.

Waste reduction for all municipal offices and buildings:

- Require that all discarded paper be recycled.
- Placing recycling containers conveniently next to every garbage.
- Clearly labeling what materials may be recycled so that all possible materials are diverted.
- Purchase items that are all or partially recycled paper products: paper towels, toilet paper, trash bags, scratch pads, business cards, paper towels, toilet paper and tissues.
- Recycle and use recycled toner cartridge.

## RECYCLING PLAN ELEMENT

- Use computers to reduce paper use: post notices electronically and send documents for review by email; let the recipient decide whether to print or not; set up shared file systems to let people access documents without requesting a hard copy; store files electronically only.
- Reformat fax forms to avoid a cover sheet.
- Buy printers and copiers that print on both sides. If you cannot print two sided documents, and if you have many printers, designate one to be the draft printer, and print on the back of used paper; print odd number sides, then print even number sides.
- Refurbish printer toner cartridges rather than purchasing new cartridges.
- Reuse old folders; use old memos for scrap paper.
- Reuse office furnishings.
- Use refillable products such as pens, pencils, tape dispensers and calendars.
- Use solar powered calculators.
- Eliminate single use cups. Encourage municipal workers to bring in their own reusable drinking cups.
- Remove the municipality and municipal employees from junk-mail lists.
- Select products from suppliers and manufacturers that use minimal packaging.
- Re-use packing material whenever possible.
- Create boxes for single sided prints. When enough single sided prints are compiled, create notepads.

To further reduce solid waste, the Borough should consider how sale and exchange of used goods can be accommodated while maintaining character of an area. These sales or exchanges, such as yard sales, flea markets and organized salvages are a valuable way to reduce solid waste and provide an outlet for local recycling and reuse efforts.

Additionally, the Borough should review the Land Use Ordinance to ensure that all commercial and multi-family developments provide adequate recycling space. Recycling should be as simple as possible. The Borough may also wish to consider ways to reduce construction and demolition waste. Construction and demolition waste is a particularly high contributor in a municipality such as Keyport where much of new development will be in the form of redevelopment. This could be done through an incentive program and/or mandatory requirements.

### COMPOST PROGRAM

A substantial amount of municipal solid waste is derived from food scraps. Nearly two thirds of the solid waste stream is comprised of organic materials such as yard trimmings, food scraps, wood waste and paper/paperboard products. A municipality can limit the amount of organic waste generated by implementing a multi-faceted composting policy. The Borough can increase its composting rates through a public education campaign to educate residents and business owners about the benefits of composting, how composting works and best practices on integrating composting into the home or business. Borough residents and business owners should be encouraged to compost their own yard waste and food scraps to reduce their own waste generation, reduce pressure on the compost facility and increase the sustainability of their home or business. Residents and businesses should also be encouraged to leave grass clippings on the lawn when they mow since not only does it cut down on waste (it is to be thrown away) and work (no need to move to the garbage or compose), but they provide a natural fertilizer for the lawn. However, it must be noted that not all organic materials can be composted and composting may not be appropriate on very small lots.

### KEYPORT'S RECYCLING PROGRAM OF TOMORROW

The Borough of Keyport realizes the success of its strong Recycling Program on five beliefs:

## RECYCLING PLAN ELEMENT

1. Emphasis on **education** of residents, particularly its youth, and better understanding as to how recycled items help the Borough of Keyport.
2. **Cooperation** between residents, businesses and institutions (i.e., schools and churches).
3. Proper **communication** to answer questions through all the different media outlets available, to both better understand residential demand and how to properly dispose of recyclable items.
4. Consistent **enforcement** of recycling ordinances.
5. Leverage new **technology** to promote recycling.

### RECYCLING PLAN RECOMMENDATIONS:

In addition, the Recycling Plan Element proposes the following recommendations:

1. The Borough of Keyport should review and, if needed, revise its recycling ordinance and the Municipal Land Use Ordinance. Revisions should reflect the mandatory nature of recycling and to ultimately increase the amount of recycling in Keyport.
2. The Municipal Land Use Ordinance should require that all new commercial development, as well as the already regulated residential development, meet the requirements set forth above to establish recycling plans and construct the facilities needed to carry out recycling.
3. Partner with the Board of Education to develop recycling educational programs in all of Keyport Borough's schools.
4. Provide recycling education for residents of the Borough's multi-family complexes.
5. Expand community partnerships to improve the communication to the community about the necessity and relevance of recycling.
6. Develop a communication strategy and advertising campaign using the Borough of Keyport's website.
7. Vigorously monitor and enforce recycling within the Borough. Identify those multifamily and commercial developments that are not complying and use enhanced communication, monitoring and enforcement to achieve the overall goals of the program.
8. Initiate a comprehensive waste reduction program beginning with a waste reduction program for all municipal buildings.
9. Retaining and protecting trees and flora in site development projects.
10. Increase the hours of operation of Keyport Borough's Recycling Center from one day per week to six days per week.
11. Acquire remote cameras to assist in countering illegal dumping at Recycling Center and other high litter areas.
12. Require that all discarded paper be recycled.
13. Provide community wide information on how to stop junk mail.
14. Host two (2) Paper Shredding Events per year. Can coordinate with the program and events administered by Monmouth County.
15. Provide lower cost access to backyard composting bins and education on proper use.
16. Encourage the use of re-usable bags and minimize the use of plastic bags.
17. Explore participation in the Food Waste Program.
18. Encourage the use of LED lights in business and municipal buildings.
19. Encourage residents to donate their used goods and furniture.
20. Make progress towards the exclusive use of clear garbage bags.

## RECYCLING PLAN ELEMENT

21. Ensure that adequate staffing is available to support the recycling program.
22. Encourage materials reuse and architectural salvage as appropriate in order to reduce construction generated waste.
23. Facilitate the recycling of e-waste by leveraging available programs and grant funds. Keyport will work with the state of New Jersey in support of the state's new Waste Management Act.
24. Seek out grant opportunities and incentives to continue to grow the Borough's recycling program.
25. Promulgate recycling information in an efficient manner by including it along with other public mailers that are provided.

In the mid-1990's, the Department of Environmental Protection offered a wide range of programs and grants to educate the public on the benefits of recycling and to assist municipalities in developing more efficient recycling operations. The long-term future of these programs is dependent upon additional funding. Therefore, these programs will be impacted by any positive or negative changes in funding levels in the future. One of these programs is the Recycling Tonnage Grant.

### Recycling Tonnage Grant

In previous years, the NJDEP has provided recycling tonnage grants to municipalities and counties in New Jersey. These grants were based on the tonnage of recyclable material generated by and recovered for recycling by residential and or commercial sources within a municipality. Up to \$5 per ton are provided depending on the amount of funding available to the Recycling Grant Fund, the dollar amount received by the county or municipality in the past and the eligible and actual amount of recycled materials within the county and municipality. These grants are dependent upon funding cycles. The Borough should contact NJDEP for annual availability: New Jersey Department of Environmental Protection Division of Solid and Hazardous Waste Office of Recycling and Planning, CN414. Trenton, NJ, 08625-0414.

### Bid Waste Services with another Municipality

The Borough may wish to consider bidding on waste and recycling services with adjoining municipalities to receive a more favorable price for services rendered. An EPA document entitled, "Joining Forces on Solid Waste Management", explores this potential. In addition, the New Jersey Department of Community Affairs (DCA) has been offering ongoing Regional Efficiency Development Incentive (REDI) grants to study the feasibility of consolidating services and providing start-up costs for new shared or regional services among municipalities.

### Encourage Recycling Through Development Regulations

The Municipal Land Use Law requires the recycling plan element to include provisions for:

*"the collection, disposition and recycling of recyclable materials within any development proposal for the construction of 50 or more units of single-family residential housing or 25 or more units of multi-family residential housing and any commercial or industrial development proposal for the utilization of 1,000 square feet or more of land." (NJSA 40:55D-28.b;12).*

It is recommended that the Borough Ordinance be updated, as needed, in order to reflect any changes in applicable State statutes and regulations and to enhance the recycling program by implementing some of the recommendations noted above through ordinance, where appropriate.

# GREEN BUILDING AND ENVIRONMENTAL SUSTAINABILITY ELEMENT

## 13. GREEN BUILDING AND ENVIRONMENTAL SUSTAINABILITY ELEMENT

### INTRODUCTION

This Green Buildings and Environmental Sustainability Plan Element of the Borough of Keyport's Master Plan ("Sustainability Plan") has been prepared in accordance with Municipal Land Use Law ("MLUL") section N.J.S.A. 40:55D-28.b.(16). The purpose of this element is to establish goals, policies and strategies to protect natural resources and to create a healthy and sustainable economy and society.

The 2008 statutory authorization for this plan element is among the most recent amendments to the Municipal Land Use Law. According to N.J.S.A. 40:55D-28b(16), a Green Buildings and Environmental Sustainability Plan Element:

*"...shall provide for, encourage, and promote the efficient use of natural resources; consider the impact of buildings on the local, regional and global environment; allow ecosystems to function naturally; conserve and re-use water; treat storm water on-site; and optimize climatic conditions through site orientation and design."*

When viewed together with the MLUL provisions for this Plan Element, a theme emerges centered on the underlying principles of conservation and balance at a broad-based level. This Sustainability Plan promotes the following purposes of the MLUL:

- To encourage municipal action to guide the appropriate use of or development of all lands in the state, in a manner which will promote the public health, safety, morals and general welfare;
- To secure safety from fire, flood, panic, and other natural and man-made disasters;
- To provide adequate light, air and open space;
- To ensure that the development of individual municipalities does not conflict with the development and general welfare of neighboring municipalities, the county and the State as a whole;
- To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions, and the preservation of the environment;
- To provide sufficient space in appropriate locations for a variety of agricultural, residential, recreational, commercial, industrial uses, and open space both public and private, according to their respective environmental requirements in order to meet the needs of all New Jersey citizens;
- To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion or blight;
- To promote the conservation of historic sites and districts, open space, energy resources and valuable natural resources in the State and to prevent urban sprawl and degradation of the environment through improper use of land;
- To encourage coordination of the various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land;
- To promote utilization of renewable energy sources; and
- To promote the maximum practicable recovery and recycling of recyclable materials from municipal solid waste through the use of planning practices designed to incorporate the State Recycling Plan goals and to compliment municipal recycling programs.

# GREEN BUILDING AND ENVIRONMENTAL SUSTAINABILITY ELEMENT

This Sustainability Plan has been prepared in furtherance of the MLUL purposes to conserve natural resources and promote the maintenance of a clean and healthy natural and built environment.

A Reexamination of the Borough of Keyport Master Plan was completed in December 2012 by T&M Associates in accordance with New Jersey Municipal Land Use Law at N.J.S.A. 40:55D-89. The Reexamination Report includes updated Goals and Objectives of the Master Plan. One of the recommendations of the Reexamination Report is that the Planning Board consider a Green Buildings and Environmental Sustainability Element "...for inclusion in the master plan either a standalone element or during the next comprehensive update of the Borough Master Plan." This Sustainability Plan has been prepared in accordance with this provision of the 2012 Reexamination Report and promotes the Goals and Objectives of the 2012 Reexamination Report.

As the terms "green design" and "sustainability" have become commonplace in today's lexicon and comprise the key terms in the title of this Plan, it is important to provide a definition of these terms. These terms are defined as follows:

- **Green design:** A general term implying improvement in design for the purposes of human and environmental health, i.e., continual improvement towards a whole and healthy integration of human activities with natural systems.
- **Sustainability:** The capability to equitably meet the vital human needs of the present without compromising the ability of future generations to meet their own needs by preserving and protecting the area's ecosystems and natural resources. The concept of sustainability describes a condition in which human use of natural resources, required for the continuation of life, is in balance with nature's ability to replenish them.

## KEY HIGHLIGHTS

The Green Building and Sustainability Element discusses many topics already included in the Master Plan, but from the point of view of green and sustainable design. Such topics include natural resources, land use, transportation, site design, renewable energy, water conservation, waste reduction, recycling, economic development, and public awareness. Each of these topics includes goals and objectives, some of which have already been identified in other elements, but all of which provide opportunities for Keyport to become a more "green" and sustainable place to live, work and play. Additional recommendations by the Green Building and Sustainability Subcommittee include:

- Encouraging the use of sustainable building materials, construction techniques, and Energy Star appliances. The Borough will research and make available information on grants and rebates for energy conservation.
- Encourage the use of renewable energy systems.
- Prevent or mitigate storm water runoff into public infrastructure, and instead to disperse stormwater on sight.
- Require minimal disturbance to the natural environment during construction.
- Pass an anti-light pollution ordinance.
- Create and maintain a built environment that is more friendly toward pedestrians, bicyclists, and handicapped persons.
- Create a stronger working relationship with the County Government, especially in regards to the Henry Hudson Trail, to ensure this key multi-modal asset is maintained and designed to be both safe and aesthetically pleasing.

## GREEN BUILDING AND ENVIRONMENTAL SUSTAINABILITY ELEMENT

- Promote and educate the public on the concepts of sustainability, its adoption, and practice within the community.

### NATURAL RESOURCES

Section N.J.S.A. 40:55D-28b(16) of the MLUL states that a Green Buildings and Environmental Sustainability Plan Element "...shall provide for, encourage, and promote the efficient use of natural resources." This section of the MLUL also references the environment, ecosystems, water, stormwater, and climatic conditions. As each of these aspects of sustainability involves natural resources, the consideration of natural resources is an important part of the foundation of this Plan.

The Borough of Keyport contains a wide variety of natural resources which include streams, freshwater wetlands, subsurface water, wildlife, vegetation, and the delicate ecosystems that interconnect these attributes. In addition, the Borough contains environmentally sensitive features that are derived from these resources, which include floodplains, riparian zones, and habitat for threatened and endangered species.

One of the ways to conserve these natural resources and environmentally sensitive features is thorough the efficient use of land. For example, cluster development uses land efficiently by concentrating development on a portion of a larger tract which frees up the other portion of the tract to be retained as open space. Another example is redevelopment whereby an existing developed site can be redeveloped to contain new uses that would otherwise have been located on an undeveloped property. Therefore, the re-use of the developed site spares undeveloped land that contains vegetation and wildlife from development and helps reduce sprawl.

A brief description of the various natural resources and environmentally sensitive features contained within the Borough, and as they pertain to green building and sustainability, is provided below. More detailed information regarding these features can be found within the Open Space & Conservation Element and the Borough's 2007 Natural Resource Inventory in Appendix F of this Master Plan.

### Wetlands

Wetlands, as described in the [Open Space & Conservation Element](#) and 2007 NRI, are transitional areas between well-drained, rarely flooded uplands and the permanently flooded deep waters of lakes, rivers and streams. They typically are found in upland depressions or along waterways where they are subject to periodic flooding.

Wetlands provide natural flood control by storing excess water and slowly releasing it to surface waters. Wetlands also serve as groundwater recharge areas and as filtration systems, removing pollutants from the water table and storing them in biomass. As the total area of wetlands and their natural functions decrease, the overall quality and quantity of surface water is altered. Often, expensive man-made utilities are required to make up for the loss of wetlands.

Keyport's wetlands border the Luppataong and Chingarora Creeks that flow through the Borough, and are also located along the Matawan Creek. Wetlands in the Borough cannot be developed, as they are frequently flooded and serve as flood control areas for surrounding land. Further, as sea level continues to rise, they will be among the first areas to be inundated, so development should continue to be restricted. For a map of Keyport's wetland areas, refer to the Figure 9.1 in the Open Space and Conservation Element.

# GREEN BUILDING AND ENVIRONMENTAL SUSTAINABILITY ELEMENT

## Flood-Prone Areas

As described in the [Open Space & Conservation](#) and [Community Resilience Elements](#), The areas designated as flood-prone are based on readily available information on past floods, which may include detailed site-specific surveys and inspections. Information on potential flood zones is available on Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Association (FEMA). These maps delineate Special Flood Hazard Areas, commonly referred to as 100-year or base flood areas.

Floodplains can be areas adjacent to streams, rivers, ponds, lakes, and other bodies of water. Keyport's floodplains are located along the Luppataong, Chingarora, and Matawan Creeks. These areas are a vital part of any river ecosystem, acting as water filters and wildlife nurseries. Floodplains serve a natural function by:

1. Storing flood waters thereby reducing the inundation of adjacent lands.
2. Absorbing and dissipating the energy of flood waters.
3. Acting as a sediment trap for silt and debris-laden flood waters.

## Water Resources

Keyport is located within the Raritan/Sandy Hook Bay Tributaries. Though Keyport does not have any C-1 waterways that require a 300-foot buffer limiting development, the wetlands surrounding the Borough's waterways are classified as Environmentally Sensitive Planning Areas (PA5), which have their own restrictions on development, enhancing the protection of Keyport's water resources. The Land Use Element contains a description of these constraints.

For about half of the year, Keyport depends on municipally supplied groundwater as part of its drinking water supply, thus drawing from the Merchantville-Woodbury and Potomac-Raritan Magothy aquifer systems. Special attention must be taken with the development of wellhead protection areas (WHPA) to ensure that no contamination occurs within the water system. The Borough has one WHPA in the southwestern portion of the Borough that extends into Aberdeen.

## Steep Slopes

Slope is measured as the percentage of vertical rise to horizontal distance. As noted in the Natural Resource Inventory, steep slopes in Keyport can be found bordering the Luppataong Creek, at the confluence of the Matawan Creek and Raritan Bay at the north end of Broadway, and at various locations along the Raritan Bay at the northern extent of the Borough. Please refer to the Topographical Map in the Natural Resources Inventory (NRI). Any potential development in these areas must be in accordance with an approved soil erosion and sediment and control plan (SESC), certified by the Freehold Soil Conservation District. This plan aids in minimizing erosion and any environmental impacts to water quality.

## Soils

Per the 2007 Natural Resource Inventory of the Borough of Keyport prepared by CME Associates, there are seven soil series present in Keyport's land area, and one category of urban land with over 85% impervious surface cover. The NRI contains a detailed overview of these soils.

Many of the soils in Keyport, as part of the wetland areas, drain poorly and are not suitable for development, but support the ecology of these areas. Therefore, these resources should be preserved through proper land use planning and zoning. Other soils present in the Borough, including the Pemberton, Tinton and Keyport series, are well-drained and loamy, and thus more appropriate for development and agriculture.

# GREEN BUILDING AND ENVIRONMENTAL SUSTAINABILITY ELEMENT

## Threatened and Endangered Species

The NJ Division of Fish and Wildlife's Endangered Species and Nongame Species Program (ENSP) created the Landscape Project. The stated goal was to protect New Jersey's biological diversity by maintaining and enhancing imperiled wildlife populations within healthy, functioning ecosystems. Only species and associated habitats with a rank of 3 or greater are currently regulated. For a detailed explanation of the Landscape Project and description of each rank, please see the *Landscape Project and Natural Heritage Priority Sites* section of the Open Space and Conservation Element.

According to the Landscape Project Mapping, Version 3.1, beaches, tidal waters, and deciduous wooded wetlands; phragmites dominate interior and coastal wetlands; and high and low saline marshes are places where endangered or threatened flora and fauna species can be found in Keyport, as shown on the Figure 9.1 Critical Habitat Map of the [Open Space & Conservation Element](#).

## Natural Heritage Priority Sites

According to the Natural Heritage Priority Sites Database, no known natural heritage priority sites exist in Keyport.

## Goals and Objectives for Natural Resources

The Goals and Objectives for the conservation of natural resources are included below. These Goals and Objectives have been prepared in accordance with the MLUL and the Goals and Objectives of the 2012 Master Plan Reexamination Report.

- Protect the environmental quality of the Borough's natural resources in order to preserve the balance of its ecological systems and safeguard the future health and welfare of its residents.
- Encourage the preservation of all environmentally sensitive lands within the entire Borough, including the protection of all wetlands areas in accordance with the provisions of the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A).
- Strengthen protection of marine areas and reintroduce native species where possible (e.g., oyster beds).
- Identify, protect and preserve environmentally sensitive natural features through sound planning and land use regulations.
- Encourage the use of conservation easements on environmentally sensitive lands in private ownership to protect them from future disturbance.
- Prior to construction, require a site plan that clearly indicates the areas of ground that will be disturbed and ensure this plan is followed, imposing penalties where disturbances are created outside of the outlined areas.
- Encourage the remediation of contaminated sites to enhance the local environment, protect residents and return vacant sites to productive use.

## LAND USE

Sustainable land use policy focuses land development toward areas that are served by sewer, water, transportation infrastructure (preferably multi-modal transportation infrastructure) and that do not contain environmentally sensitive features. Sustainable land use regulations support that policy by requiring compact development that contains a mix of appropriate land uses and provides a significant amount of open space in the surrounding environs. The open space areas contain the environmentally sensitive land areas which are protected from adverse impacts of development by appropriate policy and ordinance provisions.

Another key aspect of sustainable land use is the preference for redevelopment and infill development. Redevelopment provides for the efficient use of land by removing existing development that may be dilapidated

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or in a state of stagnation and replacing those obsolete land uses with new viable land uses that enhance the character of the community. Infill development involves the siting of new land uses on vacant properties contained within areas that are already developed. Both redevelopment and infill help prevent sprawl by providing a location for appropriate land uses that would otherwise be constructed on an undeveloped site in the environs.

As mentioned above, the areas targeted for development are surrounded by open space areas. Ideally, these open space areas should be linked to provide a network of open space where pedestrian, bicycle and other alternate modes of transportation may be accommodated and where recreational activities may be enjoyed by residents and visitors to the Borough. The establishment of open space networks is also valuable to wildlife species, as sustaining populations of many wildlife species requires safe routes for them to travel and ample space for them to thrive. Open space networks provide the connectivity and space needed by these species.

The establishment of these open space areas should include a strategy for preservation of these lands. Preservation of the open space areas will ensure that these amenities will be available for future generations to enjoy and prevent them from being consumed by development once development pressure starts to rise.

In addition to providing for the efficient use of land, compact development that contains an appropriate mix of land uses serves a public health benefit, as this type of development pattern is more walkable than traditional sprawl development patterns that tend to occur in suburban communities. Walkable communities enable residents to access commercial uses by foot or bicycle. The physical activity inherent in walking, bicycling, and similar activities has been shown to have significant health benefits, including improved cardiovascular health and general physical and psychological wellness. Sustainable land use policy and regulation provides the foundation for development patterns that provide these important public health benefits.

In addition, compact development reduces vehicle miles travelled by reducing distances between destinations and providing a more efficient road network. Further, compact development reduces the cost of energy and infrastructure by reducing the amount of infrastructure that is required to serve a given population. For example, if the majority of development is located in a small geographic area, the length of sewer and water lines required to serve the population in that area is much smaller than it would be if the homes and businesses in that area were dispersed, as is the case in a sprawling development pattern.

A diversity of housing stock, in terms of income and housing type, is also an important component of sustainability. Diverse housing types are positive contributions to residential/commercial mixed-use areas. Apartments and condominiums are well suited to the upper stories of buildings with commercial on the first floor. These upper story residences can not only provide the density necessary to support the commercial uses (customers and jobs) and mass transit, but they also provide modest priced and appropriately sized housing opportunities. Additionally, they can help ensure a mix of ages since upper story residences are commonly occupied by young adults. Residences on small lots, including but not limited to, townhouses, duplexes and modest sized multi-family homes, are appropriate in areas surrounding a mixed-use core. These areas can serve as a transition area to lower density parts of the neighborhood. Coupling the densities associated with these housing types with complete streets (those with pedestrian, bicycle and mass transit facilities) is an important step toward creating a sustainable community.

The 2012 Reexamination Report contains land use recommendations that are being implemented in this update of the Master Plan, and can be reviewed in the Land Use Plan Element. The recommendations include:

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- **Mixed Use:** Mixed use buildings (i.e. a vertical mix of commercial and residential uses within the same building) should be a permitted principal use in the GC General Commercial zone district. Typically, the ground floor is devoted to a non-residential use such as retail commercial or an office use and the second and possibly third floor are devoted to the residential use. Design standards for mixed use buildings will be necessary to regulate density of the residential use in addition to the area, yard and bulk standards. Possible development standards for mixed use buildings were discussed during the Smart Growth Visioning studies in 2004.
- **Parking in the front yard.** Provide a limit on the area of a front yard of a residential district lot that can be used for parking. Currently the Keyport Code allows a maximum coverage of the principal building in a residential district to be 30% (of the entire lot) and for an accessory building, a maximum of 10%. The maximum permitted percent coverage for both buildings and the impervious area in the RA, RB and RC residential zone districts is 60% of the full lot.

The maximum permitted coverage for parking should be governed by a minimum lot width permitted in the zone district. For example, a maximum of 50% coverage would be permitted in the front yard of a lot 60 feet in width or less and 35% for lots over 60 feet in width. However, an exception should be provided for parking in the front yard during snow or other weather emergencies

- **Accessory building height.** A maximum height of an accessory building should be established to reduce the adverse impacts on adjoining properties. A maximum height of 16 feet to the ridge line or highest point of the structure is recommended.
- **Zone boundary adjustment.** The zone boundary between the RA and RC district near Beers Street should be adjusted to follow a property line and not split a tax lot.

Providing community facilities within or proximate to neighborhoods is another important component of sustainable communities. Community facilities, such as parks with passive and active recreation, community centers and municipal facilities are best located in or proximate to neighborhoods to ensure that the maximum number of residents have convenient access to them. They also provide a place for social interaction and therefore contribute toward a sense of community.

Additionally, and critical to sustainability, locating these facilities in or near concentrations of users will reduce vehicle miles traveled as visitors will have less distance to travel to reach the facilities and may not need to rely upon a car to do so. Safe, convenient and pleasant pedestrian, bicycle and mass transit access should be provided to these facilities. Reducing vehicle miles traveled is a fundamental tenet of sustainability. This not only refers to passenger vehicles moving residents, commuters, etc., but it also refers to the movement of goods. By supporting compact development patterns and providing safe, convenient and pleasant alternative forms of transportation, the Borough can support the local economy. Today many find it just as convenient to get in the car and drive miles outside of their community for shopping; however, this occurrence would be reduced if it were more convenient to shop locally. This convenience is largely dependent on access to the site, as well as the availability of goods. Goods and services, which may be in the form of a neighborhood center, should be located in or proximate to neighborhoods, depending on the neighborhood size.

It is important that the Borough support the commercial component of its neighborhoods. They contribute positively to the sense of community and quality of life and serve to cut down on the Borough's vehicle miles traveled. Additionally, supporting the small businesses which are located in these neighborhood centers support

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goals for economic development and a diverse tax base. The Borough can further support these goals by evaluating the Land Use Ordinance to determine if an expansion of home occupations is appropriate and by supporting a buy local, or similarly styled, campaign.

Important to sustainability, local food shrinks a municipality's environmental footprint by reducing the travel required to bring food to a community. Food systems account for 17% of national energy usage. Local food production can reduce this figure with its lower vehicle miles required for carrying food. Food systems that rely on fresh locally grown food can offer benefits including increased access to nutrition and farmland preservation.

It is recommended that the Borough amend the Land Use Ordinance to expand its support for home gardening and community gardens as a means of reducing vehicle miles travelled, as well as increasing access to fresh and healthy foods. While it may not be appropriate for large farm animals, such as cows and pigs, to be kept on a modest sized neighborhood lot, fruit and vegetable gardens can easily be accommodated. There are numerous community benefits to local food production and supporting the growing movement of "urban homesteading", or victory gardens, where people take food production into their own hands and, for example, convert their rear or side lawns to fruit and vegetable gardens. The Borough's expanded support should include not only allowing agriculture by right (with reasonable conditions) but also specifically allowing gardens in front and side yards, where appropriate. The potential benefits of this movement may include, aside from increased food production, reduced stormwater runoff, a more interesting landscape and fewer chemical inputs if people choose organic agriculture. This includes not only gardens at the ground level, but roof-top gardens too.

The Borough can couple economic development strategies with those of community gardening and local agriculture by permitting farmer's markets on Borough-owned parks and permitting them as conditional uses in nonresidential districts. This could also support the Borough's idea to convert some large vacant industrial or commercial properties into open market spaces. These revisions to Borough policies will not only support local agriculture but will increase access to fresh and healthy fruits and vegetables.

Implementing sustainable land use practices will reduce energy consumption from vehicle miles traveled by providing a mix of uses in proximity to each other and by ensuring that residents and visitors may rely upon not just vehicular transportation, but also pedestrianism, bicycling and mass transportation. Sustainable land use practices promote alternative modes of transportation, increased reliance on local goods and services and improved public health. Additionally, sustainable land use practices which encourage neighborhood-scale building patterns will promote stronger community ties and lower infrastructure costs from reduced street miles and more efficient building patterns.

### Goals and Objectives for Sustainable Land Use

1. Balance development opportunities with the established pattern of development and existing infrastructure, where appropriate.
2. Coordinate land use and transportation planning.
3. Balance economic development with conservation/open space.
4. Continue to encourage the preservation of open space.
5. Identify opportunities to provide linkages between open space land areas in order to form an extensive open space network in the Borough.
6. This open space network should connect to the networks of surrounding municipalities in order to create a regional open space network, taking advantage in particular of the Henry Hudson Trail.
7. Collaborate with and seek funding through the County's Open Space Program and any other County, State affiliated programs.

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8. Maintain, preserve, and enhance the existing established residential character of Keyport.
9. Maintain and expand the Borough's parks and recreation system and facilities to meet the recreation needs of Keyport residents.
10. Explore the need for additional active recreation facilities.
11. Adjust policies to promote community gardens and/or local agriculture, and farm markets.
12. Respect the Borough's historic districts when making land use policies and decisions.
13. Ensure future redevelopment projects implement in sustainable planning and development strategies.
14. Continue to protect the Borough's wetland areas.

### TRANSPORTATION

Transportation infrastructure is an important component of sustainable land use planning. Transportation infrastructure has a circular relationship with land use whereby it may either be extended to land uses as they are approved and constructed or it may be constructed and subsequently attract development, as has been the case with the construction of State and Federal highways. Therefore, transportation infrastructure has profound implications for land use.

The Borough of Keyport contains a wide variety of roadways that range from State Highway Routes 35 and 36, down to low-intensity residential access streets. The roadway infrastructure, though compact, largely accommodates the range of residential, commercial and industrial developments that are dispersed throughout the Borough. As noted in the Circulation Element, one objective is to relocate industrial developments to the areas bordering Routes 35 and 36 to limit heavy truck traffic, and by extension roadway deterioration, in the smaller streets throughout the Borough. As mentioned previously, the current land use pattern is primarily comprised of residential areas, industrial zones, public land and parks scattered throughout the Borough with commercial uses located predominately along Routes 35 and 36 and the central business district.

A mixed-use core such as the Downtown/Waterfront District represents a more efficient transportation infrastructure design, where motorists and pedestrians would be able to access a wide variety of uses in close proximity to one another. In addition, this type of development is able to accommodate additional modes of transportation, such as walking and bicycling, much easier than a sprawling development pattern.

Further, the reduction in travel time provided by the more efficient transportation network and land use design will enable people to access their destinations more quickly. This quick access frees up time in the travelers schedule for other activities and improves the quality of life. The reduced time spent driving also reduces congestion on local roadways and reduces the amount of exhaust emitted into the environment.

Street connectivity is another important aspect of transportation infrastructure. Street connectivity is defined as the degree to which a system of streets contains multiple routes and connections serving the same origins and destinations. A connected street system provides increased travel efficiency, which reduces traffic congestion and provides convenient access to destinations. It is important to note that connectivity applies at all levels, including connections between local streets, neighborhoods, and regions.

There are many advantages to a connected street system, which include:

- Decreased vehicle miles traveled
- Less pollution
- Reduced travel times
- More convenient access to destinations
- Enhanced safety, as emergency vehicles will have multiple and potentially more direct routes to their destinations, therefore shortening emergency vehicle response time

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- Decreased traffic congestion

Complete streets are another critical component to a sustainable circulation system. Complete streets are defined as those streets that are designed and operated to enable safe access for all users, including children, seniors and those with physical disabilities. This means that pedestrians, bicyclists, motorists and transit riders of all ages and abilities are able to safely use and cross the street. Advantages of having complete streets include:

- Improved safety for all users
- Improved public health by increased usage by pedestrians and bicyclists due to an increased feeling of safety
- Decreased traffic congestion by encouraging more people to walk and bike, thereby reducing vehicle trips on local roadways

Complete streets initiatives must be combined with appropriate land use policy and regulation. Complete streets must provide land uses facing the street with pedestrian friendly site layout, appropriately sized sidewalks, and amenities for pedestrians and bicyclists, including benches, bike racks and canopies to access shelter during inclement weather. The overall streetscape should be interesting, provide direct access to destinations and have a design that encourages social interaction (pocket parks, sitting areas, etc.). The design should also include sufficient windows and views to provide “eyes on the street” to ensure a feeling of safety and security.

Buildings should be oriented toward the street with interesting architecture, as opposed to blank walls, and have a functional entrance, accessible from the street. Parking should be located along the side and rear of buildings.

A second aspect of transportation that is relevant with regard to sustainability is the mode of transportation utilized. Factors that come into play in this aspect include, but are not limited to, the fuel efficiency of the vehicle, the level of pollution emitted by the vehicle, travel time, and the number of modes of transportation available to a given destination.

Fuel efficiency is an important factor with respect to the environment and economy of travel. Increased fuel efficiency, such as that provided by hybrid and electric vehicles can both reduce pollution and save the operator a substantial amount of money. Therefore, the use of fuel efficient vehicles should be encouraged.

In order to set an example of the benefits of fuel efficient vehicle technologies it is recommended that the Borough consider purchasing fuel efficient vehicles, such as compressed natural gas, hybrid or electric vehicles, as part of its fleet of municipal vehicles when it comes time to replace older vehicles. This effort may both save the Borough money and help preserve the quality of the environment.

Another important component of sustainable circulation systems is multi-use paths, which provide shared space for pedestrians and bicyclists. While these paths are often referred to in the context of recreation, they are also a valuable way to reduce dependence on the single occupancy vehicle. In high speed, high vehicle traffic areas, they can provide pedestrian and bicycle facilities which are safely separated from the vehicle cartway. They can also provide shortcuts between streets and neighborhoods that will potentially make for a more pleasant experience, as well as a more convenient route. A successful example of this is the Henry Hudson Trail.

Transportation infrastructure for pedestrians and bicyclists should be included within the overall transportation network. This type of infrastructure is most easily implemented in conjunction with improvements to roadways,

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open spaces and the construction of commercial and residential development. Such improvements are addressed in detail in the Circulation Element of this Master Plan. Additionally, in the Municipal Access Plan submitted to the NJDEP in June 2015, the Borough outlined public concerns regarding the safety of pedestrian access to waterfront areas. It is recommended that the Borough continually seek to construct and improve infrastructure for pedestrians and bicyclists as opportunities arise through public improvements and new development.

Mass transit is another important aspect of sustainable transportation infrastructure. The Borough maintains a bus service via NJ Transit Bus Route 817, which runs through its downtown and services the waterfront communities between Campbell's Junction and Perth Amboy. The Borough does not contain any rail stations or other modes of mass transportation, but is within a short distance to both the Aberdeen-Matawan and Hazlet NJ Transit rail stations. Because no shuttle service to these stations exists, it is recommended that the Borough work with NJ Transit and Monmouth County to determine the feasibility of offering shuttle service from Keyport. The Borough should also improve and expand bicycle routes connecting Keyport to these stations.

To encourage bus ridership, which is heavily dependent on safety and convenience, there should be improvements to the bus stops that include comfortable waiting areas, lighting and bicycle facilities. To further enhance mass transit opportunities, the Borough should work with area municipalities and the New Jersey Department of Transportation on obtaining bus rapid transit (BRT) along one or more of the State Highways that run through the Borough. Bus Rapid Transit is defined by the Federal Transit Administration as:

*“An enhanced bus system that operates on bus lanes or other transit ways in order to combine the flexibility of buses with the efficiency of rail. By doing so, BRT operates at faster speeds, provides greater service reliability and increased customer convenience. It also utilizes a combination of advanced technologies, infrastructure and operational investments that provide significantly better service than traditional bus service.”*

Bus Rapid Transit would enable residents to access regional employment opportunities, shopping, and other destinations more quickly and efficiently than traditional bus service.

### **Sustainable Transportation Goals and Objectives**

The Goals and Objectives for sustainable transportation infrastructure are included below. Please refer to the Circulation Element for additional transportation infrastructure recommendations.

- To promote transportation infrastructure in accordance with the principles of smart growth in order to provide the Borough's residents with a more efficient, multi-modal transportation system that meets their needs.
- Create land use policies and ordinances that promote the creation of complete streets which are designed and operated to enable safe access for all users, including children, seniors and those with physical disabilities
- Encourage the use of fuel efficient vehicles.
- It is recommended that the Borough consider purchasing fuel efficient vehicles. Using vehicles, such as compressed natural gas, hybrid or electric vehicles, as part of its fleet of municipal vehicles when it comes time to replace older vehicles can save the Borough money and help preserve the quality of the environment.
- Work with NJ Transit and Monmouth County to determine the feasibility of shuttle service to the Aberdeen-Matawan and Hazlet Train Stations.

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- To work with the State and the County to incorporate sidewalks, bike lanes and other pedestrian and bicycle friendly amenities along State and County roadways.
- Work with area municipalities and the New Jersey Department of Transportation on obtaining Bus Rapid Transit (BRT) along one or more of the State Highways that run through the Borough in order to enabled residents to access regional employment opportunities, shopping destinations and other destinations more quickly and efficiently than traditional bus service.
- Promote mixed-use cores at or near major roadway intersections.
- Update the Borough's Land Use Ordinance to require traffic calming techniques to be included within future developments in order to avoid adverse impacts from traffic.
- Coordinate land use and transportation planning initiatives in order to improve efficiency and reduce costs.
- Take necessary measures to mitigate the effects of increased seasonal traffic.
- Monitor the effects of continued development on Borough roadways.
- Seek grants to support efforts for sustainable transportation planning.

### **GREEN BUILDINGS AND SUSTAINABLE SITE DESIGN**

People spend the vast majority of their time in buildings. This makes building and site design of paramount importance. Green building and sustainable site design incorporates a strategy that is geared toward reducing energy consumption, water use, waste generation, improving indoor air quality and preserving and enhancing the quality of the environment. These objectives are accomplished through efficient building and site design and the selection of materials that are made from renewable resources and non-pollution emitting.

Green building and sustainable site design provides many benefits, which include improved health for building occupants through improved indoor air quality. This benefit is realized through the utilization of non-hazardous and non-pollution emitting materials for the construction of the building and site amenities. For example, where construction materials and furniture containing volatile organic compound emitting glues might be used in traditional construction projects, materials that do not off-gas volatile organic compounds are used in green buildings. The use of these higher quality and environmentally friendly materials and products results in improved indoor air quality, which translates into fewer visits to the doctor, fewer allergies and lower probability of developing chronic illness.

Another benefit of green building and sustainable site design is the preservation and enhancement of the environment. Some examples of practices that achieve this objective include the following:

- Re-use of building materials from other buildings, where feasible, and from the recycling of waste generated by the project keep these materials out of landfills, which reduces waste and pollution.
- Stormwater is directed to cisterns that are used to irrigate landscaping, thereby reducing demand on the local aquifers and the potable water supply.
- Site layout is designed to take advantage of the natural contours of the site and maximize open space, which results in less site disturbance and reduced impacts to vegetation and wildlife.
- Various energy efficiency techniques, such as daylighting through careful placement of windows and building orientation, implementation of energy efficient fixtures and appliances and the use of environmental benign insulation enable reduced energy consumption, which translates into less natural gas, coal or other materials that need to be used at the power plant level, thereby eliminating additional pollution that would otherwise be emitted by these power plants.

The vast majority of green building techniques are not prohibitively expensive and, in fact, many are responsible for short term economic savings for items including, but not limited to, a smaller site area of

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disturbance and reduced tipping fees (fees for disposal of solid waste). Long term economic savings can be realized from reduced life cycle costs in the form of lower water consumption and lower energy consumption. Furthermore, reduced energy consumption can also result in the ability to downsize building operation systems such as the mechanical and or electrical systems.

In order to realize many of these benefits, a “green building” should be designed using a multi-disciplinary and integrated design process – one which relies upon collaboration and synergies between the design disciplines and building systems. This process is key to realizing the cost savings green building design can offer. The consideration of additional costs for green construction, compared to savings over the life of the building, is critical for those that own and operate buildings – including municipalities. Increases in cost may occur due to the following:

- The extent of green construction techniques employed
- The stage at which green construction goals and techniques are integrated in the building design
- The construction team’s experience with green construction

Despite initial costs, buildings that integrate sustainable practices will result in long-term cost savings derived from reductions in energy and water consumption, as well as, waste generation. While the actual additional cost of green building construction is variable, indications are that savings in electricity consumption, waste output and potable water use from green construction results in financial savings in the form of reduced electricity bills, waste collection bills and water / sewer bills. While New Jersey municipalities do not have authority to alter building codes to prescribe such standards as energy and water efficiency, the Borough should consider incentives in the Land Use Ordinances to encourage property owners to utilize green building design techniques. The Borough can also provide leadership in this arena by including green building design techniques in its own buildings as upgrades become necessary.

It is recommended that the Borough require a sustainable design assessment be completed for larger projects. This assessment provides information on what green building techniques have been used in the development and it lays the foundation for a dialogue with developers about what green building techniques are included and excluded from a project and why. Over time, the assessments will provide information on what green building techniques are the most cost efficient and effective in Keyport. The Borough may want to evaluate this section of the Land Use Ordinance to determine if the sustainable design assessment should be applied to a larger range of projects to ensure that developers of small and/or modest sized projects consider green building techniques. Particularly for small and modest sized projects, the Borough should consider providing additional guidance on the information required to reduce the burden on the developer of completing an assessment with sufficient detail. The Borough should also consider requiring that the assessment be a required component of a development application completeness determination. A list of some of the more common green building techniques is included below:

- Vent all combustion-based equipment
- Install energy efficient lighting
- Choose eco-friendly paints, sheens, and finishes
- Use low Volatile Organic Compound (“VOC”) construction products
- Choose hard, low-formaldehyde floors
- Use reclaimed or renewable materials
- Install a green roof
- Install water-saving fixtures
- Choose a high-efficiency water heater

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- Select energy-efficient equipment
- Minimize site disturbance
- Install or upgrade insulation
- Provide controls and zoning for HVAC
- Use ceiling fans for natural ventilation
- Install energy-efficient lighting
- Provide rainwater collection system

### Green Buildings and Sustainable Site Design Goals and Objectives

The Goals and Objectives for green building and sustainable site design are included below. It is important to note that information about the renewable energy production and water conservation components of sustainable design are addressed in Renewable Energy Resources & Infrastructure and Water Conservation & Reuse sections of this Plan, respectively.

1. To promote green building and sustainable site design in order to achieve a more environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life for Keyport Borough residents.
2. It is recommended that the Borough identify and encourage the use of incentives for green building and sustainable development provided by Federal, State and County entities and other organizations as they become available.
3. It is recommended that the Borough also consider offering financial incentives at the municipal level, for example, by reducing permit fees when proposals include specific consideration to sustainable building materials and construction techniques.
4. It is recommended that the Borough periodically update its ordinance in order to encourage or require that the latest techniques in sustainable design and development be utilized.
5. It is recommended that the Borough require a sustainable design assessment to be prepared for larger projects.
6. To perform an energy audit to pinpoint areas where energy is being used inefficiently and identify ways to increase the efficiency while reducing operating costs.
7. Promote energy conservation programs at the residential, commercial and Borough level through the use of efficient energy consuming devices.

### RENEWABLE ENERGY RESOURCES AND INFRASTRUCTURE

Renewable energy resources, such as solar, wind and geothermal energy, are a vast source of energy that can be harnessed and utilized to replace traditional fossil fuels. The cost of energy and the impacts of fossil fuel use on the environment are two of the most pressing issues that we face today.

The United States Energy Information Administration (“USEIA”) defines renewable energy as “energy sources that are naturally replenishing but flow limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy sources include: biomass, hydro, geothermal, solar, wind, ocean thermal, wave action and tidal action.”

Image 7, below, depicts a breakdown of energy usage by resource type, as provided by the USEIA. The most common types of renewable energy in New Jersey include solar, wind and geothermal with a limited amount of biomass and hydroelectric.

The renewable energy field is evolving rapidly. New technologies are being invented and implemented at a fast pace and have resulted in a flurry of new legislation at the State and Federal level. For example, in November

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2009 MLUL Section 40:55D-4 (Definitions) was revised to specify “wind, solar or photovoltaic energy facility(ies) or structure(s)” as inherently beneficial uses. Additionally, the 2011 New Jersey Energy Master Plan (EMP) sets forth a goal for 22.5% of New Jersey's energy to be generated by renewable sources by 2020.

While many people opt to use renewable energy for the protection of the environment, a comparable motivator is cost, as renewable energy use can provide substantial cost savings. As mentioned previously, it is recommended that the Borough identify and encourage the use of incentives for green building and sustainable development provided by federal, State and County entities and other organizations as they become available. As many of these incentives involve energy usage and conservation, this recommendation is particularly important with respect to renewable energy.

Another way in which the Borough can take advantage of the benefits of energy conservation is to conduct an energy audit of its buildings, vehicles and equipment. The energy audit is utilized to identify areas where energy is being utilized inefficiently and to identify ways to increase energy efficiency. This type of audit may be able to be completed at no cost or at a reduced cost through the utilization of State programs and incentives. Common improvements recommended in the findings of the audit may include, but not be limited to:

- Smart metering of the Borough’s existing lighting and HVAC systems to improve efficiency
- Solar powered street lights
- LED (Light Emitting Diode) street lights, traffic lights and exterior safety lighting
- High efficiency pumps for water and wastewater supply, storage and distribution (note that this must be coordinated with regional water and wastewater authorities)
- Pilot program for Compressed Natural Gas (CNG) vehicle usage in the Borough vehicle fleet

- Renewable energy technologies that have either been implemented or are under consideration within Keyport are solar, wind and tidal energy systems. Geothermal energy should also be considered. Information regarding each of these technologies as they pertain to the Borough is included below.

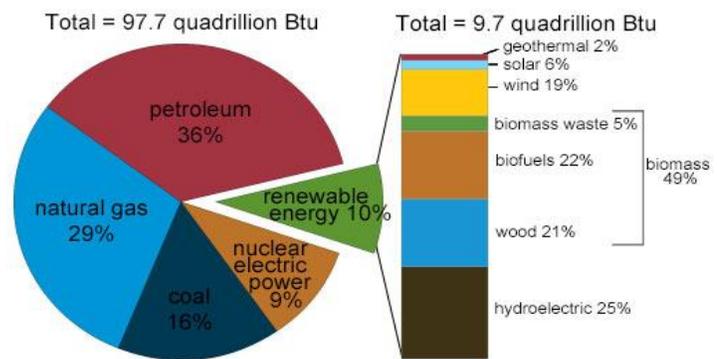
**Solar Energy Facilities**

Solar power derived from the installation of Solar Photovoltaic (PV) Panels and other technologies is a viable option to provide current and future energy needs, and should contribute to meeting EMP targets for renewable energy generation. These facilities are a viable option for providing energy for individual uses through the construction of ground or roof mounted solar arrays. Larger solar facilities may also be constructed for the purpose of providing energy directly into the grid for consumption by other uses. Intermediate sized facilities may be designed to provide energy for on-site use and feed excess energy into the electric grid network.

### Solar Energy Facilities

As stated previously, the MLUL was revised in 2009 relating to solar facilities. 40:55D-38.1 states (in part) that “(a)n ordinance requiring approval by the planning board of either subdivisions or site plans, or both, shall not include solar panels in any calculation of impervious surface or impervious cover.” 40:55D-66.11 (entitled “Wind and solar facilities permitted in industrial zones”) sets forth that renewable energy facilities are to be

U.S. energy consumption by energy source, 2015



Note: Sum of components may not equal 100% because of independent rounding.

Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 1.3 and 10.1 (April 2016), preliminary data



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permitted uses in all industrial districts “on a parcel or parcels of land comprising 20 or more contiguous acres that are owned by the same person or entity.” In addition, the MLUL now recognizes solar facilities as inherently beneficial uses as can be seen in the excerpt below.

“Inherently beneficial use’ means a use which is universally considered of value to the community because it fundamentally serves the public good and promotes the general welfare. Such a use includes, but is not limited to, a hospital, school, child care center, group home, or a wind, solar or photovoltaic energy facility or structure.

‘Wind, solar or photovoltaic energy facility or structure’ means a facility or structure for the purpose of supplying electrical energy produced from wind, solar, or photovoltaic technologies, whether such facility or structure is a principal use, a part of the principal use, or an accessory use or structure.”

Due to the Borough’s location and physical characteristics, solar energy is likely to be a widely used form of renewable energy for the foreseeable future. Roof mounted solar panels, when mounted parallel to the roof, are the most desirable type of alternative energy. With the exception of structures within historic districts, they provide the most unobtrusive form of renewable energy since they do not disturb the ground, and are able to visually blend into the built environment. Where proposed in historic districts or on a historic building, solar panels should not be visible from the front of the building so as not to detract from historic character.

Where roof mounted panels are not possible, ground arrays can be considered in appropriate areas of the Borough. While they provide the same benefit of renewable energy, they do present potential drawbacks of being visually obtrusive and being located on land which could otherwise serve as open space and/or wildlife habitat. Ground arrays are best located on lands that are not prime land for open space or other uses.

Energy conservation is critical in the discussion of reducing dependence on fossil fuels, as well as reducing building operating costs, and supporting sustainability principles. It is recognized that the Borough is constrained in its ability to rely upon passive solar strategies due to its developed character. However, new construction and redevelopment should utilize passive solar strategies to the extent possible. Passive solar design refers to the use of the sun’s energy for the heating and cooling of living spaces; it does not involve mechanical or electrical equipment. Building design examples of this include roof overhangs to provide shade in the summer and window glazings to maximize solar heat gain in winter and minimize it in summer. Another aspect of passive solar design, and one which is ripe for land use ordinance regulation, is building orientation to maximize solar heat gain in winter and minimize it in the summer. For a development to make best use of its solar resources, the homes must all be aligned with their long axis facing south and with no obstructions for their solar collectors. It may also require creative placement of roadways. To maximize this principle, blocks should be oriented within plus or minus 15 degrees of geographical east/west, and the east/west lengths of those blocks are at least as long, or longer, as the north/south lengths of the block. Additionally, buildings should be designed and oriented such that the longer axis is within 15 degrees of geographical east/west axis. If designed from the start to be energy efficient, the structure should be oriented with the long axis to the south and with most of the windows on that side. Thick, fully insulated walls and roofs (allowing for solar panel installation) along with efficient heating and cooling systems (such as geothermal) and energy smart appliances and lighting complete the picture. The source and nature of building materials and the waste stream from construction must also be factored into the building’s lifetime energy demand.

Older homes may not be aligned to take advantage of the sunlight, or may not have rooflines with the long axis facing south. In addition, the windows tend to be equally distributed on all four sides. To help address these issues, homeowners may utilize many different innovative development techniques. For example, a homeowner

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may choose to use techniques such as installing solar panels on an outbuilding that has the right solar orientation, replace the oil-fired boiler with an open loop geothermal system, direct rainwater collection to a storage tank for use in irrigation, install blown-in insulation, install new energy efficient windows and/or high-efficiency appliances.

When preparing planting and site plans, designers should be cognizant of the need for solar access for existing or future solar arrays. Solar access refers to the availability of or access to unobstructed, direct sunlight. The placement of new trees and buildings should be sensitive to the solar access needs of an existing array and should consider the solar access needs of any likely locations for future arrays.

In 2010, the Borough of Keyport's Aeromarine Area Redevelopment Plan was amended to include a Solar Overlay. This plan will convert the landfill portion of the redevelopment site into a ground based solar panel energy facility, establishing a minimum land area of fifteen acres for the facility, and a maximum output of 5 megawatts. This achieves the dual goal of site remediation and advancing sustainable energy use in the Borough. However, the Borough may opt to amend this Redevelopment Plan in the future and may wish to alter the combination of land uses and sustainable design features.

### Wind Energy Systems

Wind energy systems are another renewable energy option. The systems usually take the form of wind turbines with associated mechanical equipment to turn the kinetic energy of the blade rotation into electrical energy.

Elements of the MLUL were revised in 2009 relating to wind energy systems. 40:55D-66.12 (Municipal ordinances relative to small wind energy systems) sets forth that "(o)rdinances adopted by municipalities to regulate the installation and operation of small wind energy systems shall not unreasonably limit such installations or unreasonably hinder the performance of such installations." In addition, as mentioned previously, wind facilities are considered to be inherently beneficial uses as per the MLUL.

Notwithstanding the above, some of the common land use issues for wind turbine uses include height, aesthetics and structural integrity. Wind turbine height is a common provision in the regulation of these structures. For example, federal regulations exist for wind turbine heights within 10 miles of an airport. Height also ties into the aesthetics issue. Adverse aesthetic impacts can occur when the turbines are sited within or adjacent to a scenic or historic areas and significantly alter the viewshed.

With regard to structural considerations, it is important that the design and location of wind turbines be such that they do not pose a risk of collapsing or throwing a blade. Some of the concerns relating to these issues can be mitigated by locating the wind turbine at a minimum safe distance from other structures and/or providing a conservative minimum strength rating requirement in their design.

Wind energy systems may be appropriate in the Borough in certain situations where impacts to the viewshed are limited and sufficient area exists on-site to construct the turbine and provide sufficient buffer for safety considerations due to the remote risk of structural failure.

### Tidal Energy Systems

Gravitational forces and the rotation of the planet push and pull water levels, creating tides. Tidal energy systems utilize this movement to produce energy, and thus is a more predictable system than wind and solar power. There are three infrastructural models that produce tidal energy. The tidal barrage, similar to a dam, uses sluice gates to control the movement of water through a turbine system. However, few sites in the United States

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are considered appropriate for a tidal barrage. The tidal fence, a smaller and more economical model, forces water through a fence of vertical axis turbines. The third model, tidal turbines, are essentially underwater wind turbines, intended for areas with strong tidal flow.

A study would be necessary to analyze the potential financial and locational feasibility for tidal energy projects in Keyport. A key environmental issue to be investigated as part of the study is potential marine habitat disruption.

### Geothermal Energy Systems

Geothermal energy systems utilize the heat energy and stable temperatures found underground to provide heating and cooling for buildings. Geothermal systems have an advantage over solar and wind systems in that the sunlight and wind fluctuate significantly while the Earth's temperature remains stable and available for energy production 24 hours a day. In addition, the standard carrier medium for obtaining energy through geothermal systems is water, which is inexpensive and readily available in Keyport. Utilization of these systems is encouraged, where feasible, as it reduces demand on existing utility infrastructure and it is a renewable energy resource.

### Goals and Objectives for Renewable Energy Resources and Infrastructure

The Goals and Objectives for Renewable Energy Resources and Infrastructure are included below.

1. Conduct an energy audit of Borough buildings, vehicles and equipment.
2. Eliminate permit fees associated with the use of renewable energy resources.
3. Encourage the implementation and use of sustainable alternative energy infrastructure where compatible with adjacent land uses, including but not limited to solar, geothermal and wind energy systems to satisfy the energy needs of the Borough and its residents.
4. Periodically update the Borough's Ordinance to reflect new regulatory requirements for sustainability and alternative energy.
5. Encourage public and private actions that will conserve the Borough's nonrenewable energy resources.

### WATER CONSERVATION AND REUSE

Water conservation is an important aspect of sustainable development, as potable water resources become more scarce each year as usage increases and pollutants taint resources, which restricts their use for human consumption and/or requires treatment prior to consumption. In addition, when humans consume water, the source may be many miles away and the energy required to treat and convey the water can be significant. In addition, the withdrawals from the surface waters and groundwater bypass the natural hydrology through hard piping. The water that is consumed then becomes wastewater which is then treated and later discharged further downstream. This bypass of the natural hydrology is, in part, a cause for the impairment of the local watersheds. In order to provide a sustainable water supply and healthier watersheds, it is important to incorporate water conservation strategies that will reduce consumption and keep water local to the community. Some examples of these types of strategies are infrastructure improvements, leak detection surveys, high-efficiency appliances, rain barrels, cisterns and low-maintenance native and adaptive landscaping that requires less irrigation.

Sustainable landscaping practices provide a number of benefits. Plants which are native or adapted to this region are geared toward the local climate and soil conditions. As such, they typically require fewer or no pesticides and fertilizers, which have a positive impact on water quality since the runoff will contain less or none of these inputs, and they are typically compatible with area precipitation rates and therefore require less irrigation, which has a positive impact on water quantity. While they may be well adapted to the region,

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invasive plant species should be avoided. Invasive plant species are defined as introduced species that can thrive in areas outside of their range of natural dispersal and are commonly adaptable, aggressive and have a high reproductive capacity. Invasive plant species can cause a loss of habitat as they replace native plants and landscapes which are relied upon by wildlife. They can also cause significant maintenance problems when they spread to unintended areas.

Sustainable landscaping practices also address watering methods. Property owners can reduce water use by installing drip irrigation rather than sprinklers and installing rain sensors to ensure that plants and lawn areas are not watered when it is unnecessary. An additional consideration of sustainable landscaping is the reduction of lawn areas. Lawn areas do not provide good water infiltration and in fact, they can only absorb about a tenth the rainfall as a forested area. Replacement of lawn areas with forest, meadow or naturalistic plantings can also lead to fewer fertilizer and pesticide inputs, therefore positively impacting water quality.

Water resources primarily exist and surface and subsurface waters. Surface waterbodies are classified into watersheds. The USEPA defines a watershed as a geographic area in which all sources of water, including lakes, rivers, estuaries, wetlands, and streams, as well as ground water, drain to a common surface water body. The high points in the terrain, such as hills and ridges, define the boundaries of a watershed. Subsurface waters are organized into an aquifer classification system.

Large watersheds are made up of a succession of smaller ones, and smaller ones are made up of the smallest area – the catchment area of a local site. The land drains to the body of water for which each sub watershed is named. Each watershed corresponds to a hydrological unit code, or HUC, as delineated by the United States Geological Survey (USGS). A HUC-11 watershed (identified by an 11-digit code) contains a number of HUC-14 sub watersheds (identified by a 14-digit code). The State of New Jersey has 152 HUC-11 watersheds and over 900 HUC-14 sub watersheds.

The Borough of Keyport is within the Monmouth Watershed Management Areas (“WMA”). There are several significant stream corridors in the Borough, such as Matawan, Luppataong and Chingarora Creeks.

The aquifer system underlying the Borough includes the Potomac-Raritan Magothy and Mechantville-Woodbury systems. Water conservation techniques are important in reducing the drawdown of these aquifer systems so that they will continue to provide potable water to the region. For approximately half of the year, Keyport relies on municipally-supplied groundwater, but regulations set by the NJDEP in 1990 limit the withdrawal from these water sources. The Borough has since supplemented its water supply by purchasing water from New Jersey American Water between the months of September and May.

### Surface Water Quality

As described above in the Natural Resources section, as well as in the Open Space & Conservation Element, wetlands and riparian areas are of particular importance to water quality. These areas are known for their ability to filter pollutants and thereby improve water quality. Riparian areas are the land adjacent to surface waters that act as a buffer. When these areas contain vegetation, especially native and adaptive tall grasses, shrubs, and woods, this buffer acts to protect the surface waters from nonpoint source pollution (contaminants carried via stormwater runoff). Both wetlands and riparian areas are regulated by the NJDEP. In order to develop a sustainable plan for water resources, the Borough must understand the importance of these areas and the impacts from their development. While groundwater is not nearly as visible as streams and lakes, it is still heavily impacted by the land use and development at the earth’s surface. Interestingly, groundwater makes up

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approximately 30.1% of the earth's total freshwater, while surface waters, including streams and lakes, make up only 0.3% (the remaining is held in icecaps and glaciers).

The water cycle demonstrates how atmospheric moisture, surface waters, and groundwater are all interconnected. The impervious coverage caused by land development blocks water from infiltrating into the soil and recharging groundwater. As a result, when storms occur, more runoff enters the streams, causing increased flooding, and less water goes into the soil to recharge groundwater. In addition, during drought conditions, there is less groundwater (because of decreased recharge), causing a shortage in the availability of drinking water from wells and a shortage of groundwater flow into streams and lakes. The shortage of groundwater flow into surface waters (base flow) during low-flow conditions causes water quality to degrade, as a larger and larger percentage of the surface water is polluted water from point and nonpoint sources. For these reasons, the Borough should seek to reduce impervious cover. The Land Use Ordinance should be evaluated for opportunities to reduce the required parking standards, as well as to create incentives to reduce impervious cover in existing and proposed developments. Additionally, porous pavement should be used when appropriate to increase water infiltration, as well as developing rain gardens that help store runoff during storm events, filter pollutants from the runoff, and slowly releases the water.

Water quality standards are established by Federal and State governments to ensure that water is suitable for its intended use. The federal Clean Water Act (P.L. 95-217) requires that wherever possible, water-quality standards provide water suitable for fish, shellfish, and wildlife to thrive and reproduce and for people to swim and boat. All waterbodies in New Jersey are classified by NJDEP. For a complete description of the classification system, please see the Stream and Lakes section of the Open Space & Conservation Element.

The three major streams in the Borough of Keyport—Matawan, Luppataong, and Chingarora—are classified as FW2-NT/SE1 by the NJDEP. FW2 is used to describe freshwater that is not considered to be of exceptional quality or significance. The code NT identifies non-trout waters, and SE1 is used to classify saline estuary waters.

The major waterbody that limits Keyport's northern extent, the Raritan Bay, has suffered from poor water quality. The Raritan River Watershed Alliance and the New Jersey Water Supply Authority developed the Raritan Basin Watershed Plan in 2002 to address these issues, and list stormwater utility programs, the development of small-scale watershed plans, and educational programs as three key priorities to improve conditions in the river and bay. Though these goals remain in place, they require continued support and action from the communities surrounding the Raritan River and Bay to improve water quality conditions. As Keyport is not a member of the Raritan River Watershed Alliance, nor are the goals and recommendations of the 2002 Raritan Basin Watershed Plan applicable to the Borough; Keyport should support efforts of the Raritan River Watershed Alliance and Plan to improve the upstream water quality affecting the Raritan Bay.

### **Water Supply**

NJ American Water and municipal well water provide water service to the Borough. A public water supply well is located in the southwestern portion of the municipality. More detailed information regarding water service and public water supply wells can be found in the Utility Element.

#### ***Wellhead Protection Areas***

As described in the Open Space and Conservation Element, a Wellhead Protection Area is the area from which a well draws its water within a specified time frame (tiers). Pollutants spilled directly on or near the wellhead will enter the water source within that time frame.

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As described in the Open Space and Conservation Element, one public water supply well exists within the Borough of Keyport. This well has an associated wellhead protection area. Uses that are commonly associated with groundwater contamination, such as dry cleaners, heavy industrial uses, gas stations and any use that has associated outdoor storage that involved any harmful chemicals, should not be located within wellhead protection areas. It is recommended the Borough limits any additional hazardous uses that can contaminate the wellhead protection areas.

### Stormwater Management

One of the ways in which to maximize water conservation and efficiency is to utilize sustainable stormwater management practices. The techniques include, but are not limited to, the following:

- Direct roof gutters to a cistern that stores stormwater for use in irrigating landscaping.
- Design the stormwater management system to recharge 100 percent of the stormwater that falls onto the site.
- Utilization of bioretention basins, porous pavement, infiltration trenches, and vegetated swales, as appropriate.

Other water conservation techniques include:

- Installation of landscaping that is drought tolerant, and therefore, does not need to be watered as often.
- Installation of fixtures and equipment that is efficient and operates with reduced water consumption (e.g., low-water usage toilets, shower heads, etc.).
- Educating homeowner in the benefits and proper installation, use and maintenance of water conserving equipment.

In order to mitigate the impacts of development and impervious cover, innovative stormwater management techniques can be used to treat and infiltrate runoff and mimic the natural hydrology. As mentioned previously, some examples of these types of best management practices (“BMPs”) include bioretention basins, porous pavement, infiltration trenches, and vegetated swales. The Borough should encourage the use of these types of facilities that treat runoff, reduce runoff volume, and recharge groundwater. Unfortunately, the majority of the Borough has been developed without the benefit of these types of BMPs. Much of the Borough uses traditional detention basins, which don’t allow for any infiltration during most storm events. In order to improve stormwater management and reduce non-point source pollution in these areas, residents and business owners should be encouraged to use smaller on-site BMPs, such as rain gardens (small bioretention basins), dry wells, porous pavers, rain barrels, and disconnecting downspouts that are tied in directly to the storm sewers. If these types of on-site BMPs are used by many people in the community, they can become an effective tool to improving the water quality in the Borough’s watershed.

### Goals and Objectives for Water Conservation and Reuse

Implementing sustainable water resource practices will provide reliably clean water to the current residents of Keyport without compromising the ability of future generations to meet their own needs. The conservation of water quantity and the preservation and enhancement of water quality is a priority within the community. The goals for sustainable water resource practices must balance growth and redevelopment with conservation of resources. The Goals and Objectives for water conservation and reuse are included below.

1. To enforce that water resources are of critical importance to the Borough, additional consideration needs to be given to land use development techniques to protect water quality, reduce unnecessary water usage and preserve natural resources throughout the entire Borough.

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2. Promote the protection of groundwater resources by encouraging the remediation of contaminated sites and by prohibiting land uses that pose a relatively high risk of contaminating groundwater from locating within well head protection areas.
3. Promote adequate drainage and flood control through the codification of required stormwater management ordinances and by encouraging the use of best management practices when designing and implementing stormwater management systems. This includes:
  - a. Enacting stricter waterproofing requirements for the construction of new basements to prevent the need for a sump pump.
  - b. Requiring dry wells to handle sump pumps on site wherever possible. Larger projects will require the appropriate use of retention structures.
  - c. Prohibiting the discharge of sump pumps onto public streets.
  - d. Encouraging the use of permeable pavement, and in general requiring new construction to specifically address stormwater runoff.
  - e. Encouraging the use of rain barrels, green roof technology and the reuse of grey water where practical.
4. Encourage the construction of storm drainage systems that will minimize the hazards of flooding and erosion.

### WASTE REDUCTION AND RECYCLING

Waste reduction and recycling is an importance aspect of sustainability in two ways. The reuse of materials through recycling reduces the amount of raw materials that need to be extracted from the Earth, which reduces adverse impacts to the environment. In addition, the reduction of waste, either through efficiency or through recycling, reduces the amount of waste that goes to landfills and subsequently has the potential to contaminate groundwater and air resources.

The recycling of waste and used materials has become a required and commonly accepted practice within the State of New Jersey, pursuant to the NJDEP's 1987 Recycling Act. This Act, as well as information on recycling and recommendations for Keyport, are detailed extensively in the Recycling Element. For a complete list of suggested best practices, please see the Recycling Element.

### Goals and Objectives for Waste Reduction and Recycling

The following is a list of Goals and Objectives related to Waste Reduction and Recycling. For a complete list of the Borough's goals and objectives, and recommendations, please see the Recycling Element of this Master Plan.

1. Distribute materials on reuse and recycling awareness through a public education campaign that utilizes the Borough's website, flyers available at Borough facilities and other means, as appropriate.
2. Expand recycling services as new materials recycling technologies and services become available.
3. Provide services that promote efficiency and create a system that is user friendly.
4. Encourage materials reuse for both public and private sector projects.
5. Encourage existing commercial and industrial uses to recycle and/or reuse as many materials as is feasible, and reduce their overall waste stream.
6. Encourage the development of "green" industries that incorporate recycling into the production process.
7. Discourage littering and illegal dumping through public awareness campaigns on the adverse impacts and through active monitoring and enforcement of the law to the extent feasible.
8. Investigate the feasibility of partnering with adjacent municipalities and/or Monmouth County on recycling programs in order to save on administrative costs and to expand the reach of the program.
9. It is recommended that the Borough consider how sale and exchange of used goods can be accommodated while maintaining character of the area.

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10. Additionally, the Borough should review the Land Use Ordinance to ensure that all commercial and multi-family developments provide adequate recycling space.
11. Consider implementing a multi-faceted composting policy and try to increase its composting rates through a public education campaign to educate residents and business owners about the benefits of composting, how composting works, and best practices on integrating composting into the home or business.
12. In addition, the State of New Jersey Bureau of Recycling and Planning sets forth the following goals:
  - a. Increase demand for recyclable materials and recycled products
  - b. Increase the supply of high quality secondary materials;
  - c. Maximize the overall efficiency of the recycling infrastructure; and
  - d. Further recycling-related job development in the collection, processing and manufacturing sectors.

### **SUSTAINABLE ECONOMIC DEVELOPMENT**

Sustainable initiatives must not only be sustainable from an environmental and social perspective, they must also be sustainable from an economic perspective. Economic, environmental and social aspects of sustainability must be kept in balance in order to provide a holistic approach that not only conserves natural resources but improves the quality of life for residents, business owners and visitors. Therefore, in order to balance sustainable initiatives for environmental and social purposes, the sustainable economic development goals and objectives of this Sustainability Plan are included below.

#### **Goals and Objectives for Sustainable Economic Development**

The sustainable economic development objective identified to both support and balance the other goals and objectives in this Plan are presented below.

1. Promote continued growth and development of the Borough's economic base.
2. Plan for continued economic viability by strengthening the tax base through the encouragement of continued private investment and tax producing uses, which are consistent with community needs, desires, and existing development.
3. Ensure that transportation, business and economic development retain a healthy relationship with the residential character of the Borough.
4. Consider local agriculture and farm markets
5. Continue to work closely with the Economic Development Committee (EDC) to identify specific types of businesses & develop specific strategies to attract commerce.
6. Coordinate with the Greater Monmouth Chamber of Commerce, business programs at local colleges, and the NJ Small Business Development Center.
7. Continue to promote commercial development in appropriate areas of the Borough, while establishing standards for commercial site design.
8. Encourage a diversity of appropriate commercial uses within existing commercial zones.

### **PUBLIC AWARENESS AND EDUCATION**

Educating the public and providing opportunities for public involvement in sustainable projects and programs is a key ingredient to the success of the project or program. In addition, the holistic nature of sustainability reserves a key role for the public in that, with regard to conservation of resources and the environment, the key players are residents, business owners and government. As ecosystems and economic systems transcend political boundaries, the residents, business owners and government officials comprise the public as a whole. Therefore public education and outreach are of paramount importance in building support for sustainable initiatives and in instilling the best practices of sustainability into these individuals as good habits that people will practice and pass on to future generations.

# GREEN BUILDING AND ENVIRONMENTAL SUSTAINABILITY ELEMENT

Each aspect of this Sustainability Plan (e.g., water conservation, renewable energy, etc.) represents an opportunity for outreach and education. Goals and objectives for public outreach and education are set forth within the section below.

## Goals and Objectives for Public Awareness and Education

The goals and objectives for public education and outreach are presented below.

1. Educate residents about the importance of sustainability, conservation of natural resources, historic preservation, sustainable economic development and other aspects of sustainability through available media, such as the Borough's website, information kiosks, informational placards at Borough parks and buildings, and similar means.
2. Utilize public processes, such as Master Plan and Ordinance preparation and adoption, as an opportunity to increase public involvement and for education through holding well-advertised meetings and reserving ample time for public input.
3. Continue to educate the public through "Sustainable Jersey" and partnering with other "green" organizations in the area, which provide educational programs.
4. Support the works of the Environmental Commission and the "Green Team," established through participation in "Sustainable Jersey."
5. Educate the public and private sector about alternative energy choices and encourage their use.
6. Develop a program to enhance the availability and dissemination of information related to mass transportation and other alternative modes of transportation in order to increase the use of these alternative modes.

## RECOMMENDATIONS

In addition to the goals, objectives, and recommendations stated previously in this Plan, the Green Buildings and Sustainability Element includes the following policy, goals, objectives and recommendations

**Policy Statement:** This Borough declares that the waterfront, connected estuaries, green spaces and a neighborhood culture are major assets to our community. We further declare that the protection of these assets and the ability to connect them through a pedestrian friendly environment is of the utmost importance to the health of our community and the local economy. Our goal is to have Keyport continue to provide these assets to our residents – and to enhance existing conditions where possible to improve upon the charm of the Borough while ensuring a healthy and prosperous future.

### 1. Utilize "green" design, technology and best practices:

- Encourage the use of sustainable building materials, construction techniques, and Energy Star appliances by offering reduced permit fees. The Borough will research and make available information on grants and rebates for energy conservation.
- Encourage the use of renewable energy systems, i.e. solar, wind, tidal etc. by eliminating all associated local permit fees that apply directly to this application.
- Prevent or mitigate storm water runoff with the following measures:
  - Enact stricter waterproofing requirements for the construction of new basements to prevent the need for a sump pump.
  - Require dry wells to handle sump pumps on site wherever possible. Larger projects will require the appropriate use of Retention Structures.
  - Prohibit – year-round - the direct or indirect discharge of sump pumps onto public streets.

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- Encourage the use of permeable pavement, and require new construction to specifically address storm water runoff.
- Encourage the use of rain barrels, green roof technology and the re-use of grey water where practical.
- Require minimal disturbance to the natural environment during construction. Applications for construction should require a site plan that clearly indicates which areas of ground will be disturbed during construction. Barring any clear evidence of hardship, any disturbance outside of the specified area(s) will be considered a failure to build according to the plan and subject to restoration and penalty.
- Pass an anti-light pollution ordinance based on the Model Lighting Ordinance developed by the International Dark Sky Association to reduce the following: energy waste, negative effects on wildlife, sky glow, glare that reduces night vision, and light trespass onto other properties.

### **2. Transportation: Keyport's diverse population allows for various modes of transportation. These include pedestrians, bicycles and wheelchairs among others. It is essential to create and maintain an environment that allows for the most efficient means of transportation for all residents while reducing the need to use a fuel-driven vehicle. To this end we advocate the following:**

- A concerted effort to see that sidewalks and crosswalks shall be constructed, repaired and maintained for the safety of foot traffic and wheelchair accessibility.
- A survey of sidewalk availability and accessibility should take place with input from residents, the DPW & police department.
- All crosswalks in the Borough should be painted annually or as often as is deemed necessary to be maintained in good standing. This shall include a request to the Monmouth County Road Department to provide a similar schedule of painting for all county roads within the Borough. Regular inspections and refreshed paint should be applied to center line striping and curb markings to ensure "line of sight" to prevent vehicular accidents.
- "Pedestrian Law" signage shall be placed in optimal locations to alert motorists of high volume foot/wheelchair areas including but not limited to roads that intersect the Henry Hudson Trail, within the Business District, Waterfront, parks, and school zones.
- Where heavily used crosswalks intersect heavily traveled streets, traffic calming strategies should be used; such as but not limited to: speed bumps, curb extensions, living streets, and shared spaces.
- The Borough shall seek all available grant-funded programs from state and national levels to provide financial assistance/relief to offset painting costs and/or enforcement campaigns.
- Encourage the enforcement of the law in regards to pedestrian safety.

### **3. Henry Hudson Trail: We recognize great value in improving current conditions at the Henry Hudson Trail. This will provide a great opportunity to make the Borough more pedestrian friendly as well as an opportunity for community involvement and pride. To improve and connect the trail with existing municipal green space we advocate:**

- Reach out to - and work hand in hand with - the County Government to create and develop practical solutions for the maintenance and improvement of the area.
- An improvement to all grade crossings along the trail. The current situation is without exception unsightly and dangerous.
- A concentrated effort to remove overgrowth and maintain this reduction all along the trail.

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- Low level ground lighting should be considered to extend the useful hours of the trail and improve safety.

### **Additional Recommendations**

- 1. In order to protect, conserve and sustain our living marine resources, wetlands and wildlife habitat, we advocate the creation of a living shoreline - with the reintroduction of native species, specifically the establishment of oyster beds.**
- 2. We stress the need to enforce existing bulkhead maintenance ordinances as well as property maintenance for the general welfare and future of the Borough.**
- 3. Keyport has historically been a community comprised primarily of single family, owner occupied homes, and constitutes a major part of the community fabric of active volunteerism as well as the practical benefits of a more stable tax base and population. We support all efforts to preserve, sustain and improve the neighborhood atmosphere of the Borough and encourage standards be set for future construction that reflect this model.**
- 4. We believe that education is a vital link between the concept of sustainability and its adoption and practice within our community. As such, we strongly advocate for ongoing discussions between all members of the community (including, but not limited to students, senior citizens and civic associations as well as the general public) regarding sustainable policies and Green Building practices. Further, we encourage the ongoing distribution of information and ideas gleaned from these discussions to the public through the various media available to the Borough.**

# CONSISTENCY WITH LOCAL AND REGIONAL PLANS

## 14. CONSISTENCY WITH LOCAL AND REGIONAL PLANS

### INTRODUCTION

The New Jersey Municipal Land Use Law (MLUL) requires municipalities to examine the consistency of their Master Plan with those of adjacent communities, the county in which the municipality is located and the State Development and Redevelopment Plan (SDRP). This is done as an element of the Master Plan and ensures the compatible development of lands that border one another but are in separate communities and are under different jurisdictions.

The following is an analysis that compares Keyport Borough's Master Plan, land uses and zoning to neighboring municipalities' master plans and regional plans. In general, the Borough's land uses, Master Plan and Zoning Ordinance are consistent with those of the adjoining municipalities and with applicable regional plans.

### **Analysis of Neighboring Communities**

This Master Plan is generally consistent with the Master Plans of Aberdeen Township, Hazlet Township and Union Beach Borough.

#### ***Aberdeen Township***

There are no significant inconsistencies between Aberdeen and Keyport's land use along their border. In Aberdeen, this area is primarily zoned as single family residential, while the area bordering Matawan Creek classified as Conservation/Recreation, encompassing the estuarine areas. This creek serves as a divide between this land use and the General Marine Commercial zone on the Keyport side.

#### ***Hazlet Township***

Hazlet's 2008 Master Plan Reexamination Report, updating the 1978 Master Plan, recommends commercial revitalization in the areas bordering State Route 35 and State Route 36, which corresponds well with the redevelopment plans for the Highway commercial districts along those same arterials in Keyport. The Report also supports coordination with neighboring municipalities in order to advance the goals of the Bayshore Region Strategic Plan, discussed below, demonstrating a mutual desire for compatible future development.

#### ***Union Beach Borough***

Union Beach borders the far northeastern edge of Keyport Borough. On the Keyport side, this area is slated for redevelopment in the form of residential units and recreational open space. The most recent version of Union Beach's zoning map, adopted in 2008, highlights compatible land uses along this border. Public areas, in particular wetlands, dominate on the Union Beach side of the border, with a few residential parcels that complement the planned development in Keyport.

### **Monmouth County Comprehensive Plan**

Adopted in 1982 as the Monmouth County Master Plan, Monmouth County's Growth Management Guide (GMG) was the County's primary planning tool. Most of the Borough falls within the GMG's Urban Center Growth Area.

## CONSISTENCY WITH LOCAL AND REGIONAL PLANS

This Master Plan is compatible with the following Urban Center policies listed in the GMG:

- Encourage the adaptive reuse of vacant buildings and abandoned public facilities for new and more productive uses.
- Encourage the redevelopment of the urban centers through housing rehabilitation, reuse of buildings and channeling of commercial uses into downtown areas.
- Examine the urban centers' downtown districts to determine their individual economic assets.
- Channel suburban purchasing power into the urban centers' business districts.

In addition, this Master Plan complements the Environmentally Sensitive Area policies listed in the GMG:

- Encourage new coastal development compatible with the surrounding environment.

Monmouth County's Master Plan Update was updated in 2016. The theme of this new Master Plan is "Redevelopment, Revitalization, and Rediscovery" in the post-suburbanization era, ensuring stability and sustainability throughout the county for the future. As part of this process, the County identified specific Master Plan Goals, Principles and Objectives. Keyport's plans closely align with the County's Master Plan Goals # 2 and 3, to "Promote the protection and conservation of natural and cultural resources to help guarantee our long-term sustainability," and to "Promote beneficial development and redevelopment that continues to support Monmouth County as a highly desirable place to live, work, play, and stay" respectively. The Borough's planning efforts reflect several principles for Goal #2, including:

- Resources are the naturally occurring, life-supporting environmental infrastructure that all species rely upon and the built environment is dependent upon to function and prosper.
- Our cultural assets and resources reflect our shared heritage. Preserving them helps retain community distinctiveness, instills community pride, supports sustained economic development, attracts reuse and reinvestment, and greatly contributes to our overall quality of life.

As part of Goal #3, the County outlines several principles that also align with the Borough's planning efforts. These principles include:

- Encourage the creation of vibrant communities through a variety of housing choices, energy and transportations options, recreational and cultural offerings, health and safety initiatives, and businesses opportunities that result in a more sustainable and higher quality-of-life for all residents.
- Protect and strengthen the established character of municipalities and their distinct qualities.
- Encourage a variety of new and rehabilitated housing that will enable populations to more readily cycle through different life stages, giving residents an opportunity to age in place.
- The public will benefit socially and economically from the retention, attraction, and advancement of entrepreneurial and business enterprises that result in quality jobs and a stronger, more resilient tax base.
- Aligning State, County, and local investment strategies improves efficiency and reduces cost associated with repairing, replacing, and expanding systemic infrastructure.

As, explained in the Economic Element, the Borough of Keyport has been recognized by the County's Master Plan as an Arts, Culture, and Entertainment (ACE) Hub. This special designation is in keeping with the vision of this Master Plan in regards to the type and character of employment expected and to be promoted by the Borough.

Similarly, the Borough also intends to capture the charm and character of its downtown through creative placemaking. The County Master Plan encourages municipalities to leverage their arts, cultural, and

## CONSISTENCY WITH LOCAL AND REGIONAL PLANS

entertainment assets with their historic charm to attract innovative ideas, community involvement, entrepreneurial talent, and new businesses to a community. The Borough will be exploring opportunities for creative placemaking, and will consider adding a Creative Placemaking Element to this Master Plan.

This Master Plan is consistent with the Monmouth County Master Plan.

### **Monmouth County Solid Waste Management Plan**

This plan, prepared in 2009 as a response to the NJ State Solid Waste Plan, outlines standards for waste disposal and provides more information about recycling throughout the county. This Master Plan's goals of sustainable future development complement those set forth in the Monmouth County Solid Waste Management Plan.

### **Bayshore Region Strategic Plan**

Overseen by the Monmouth County Planning Board, the Bayshore Region Strategic Plan was a study funded by the Office of Smart Growth within the New Jersey Department of Community Affairs and adopted in 2006. Nine municipalities in the Bayshore region, linked by the Raritan Bay and Route 36, comprised the geographical focus. The plan was formulated as an element of the County Growth Management Guide, with the stated goal of "creat[ing] a vision and planning strategy to spur economic development in the region in a manner that recognizes the importance of preserving the region's environmentally sensitive natural resources and beauty" with objectives underlining the importance of land use that enhance economic development while preserving natural and historical resources that draw people to the region. The specific vision outlined for Keyport reads, "The Borough's historic and maritime character is preserved and the waterfront downtown area is strengthened. Access to the Borough from regional roadways is improved."

Among the plan's recommendations, the following are relevant to land use considerations in Keyport:

- Zoning along State Route 36
  - Use zoning and design techniques at the intersection between Broad Street and State Route 36 to emphasize it as a node in the Bayshore region
    - Rezoning should encourage walkable, mixed use areas and increased density where appropriate
  - Between Route 36 nodes, zoning should encourage low-intensity commercial uses
  - Municipalities along Route 36 should collaborate on a comprehensive zoning overlay
- Rehabilitation of Keyport's downtown waterfront area
  - Zoning overlays in the downtown areas should ensure consideration to overall historic character
  - Encourage water-dependent commercial uses, such as seafood coops or small craft marinas
- Waterfront and Open Space Redevelopment
  - In coordination with neighboring municipalities, develop a bicycle and pedestrian "Bayway" along the Raritan Bay

This Master Plan is consistent with the goals of the Bayshore Region Strategic Plan, particularly with respect to highway and waterfront commercial revitalization efforts as noted in the description of municipal redevelopment plans above.

### **State Development and Redevelopment Plan**

The NJ State Planning Commission is now staffed by the Office of Planning Advocacy (OPA) which is within the Department of State. The OPA has released a draft State Strategic Plan to supersede the current State Development and Redevelopment Plan (SDRP), which was adopted in 2001. Public Hearings were held in February, March and September of 2012. The draft State Strategic Plan is based upon a criteria-based system

## CONSISTENCY WITH LOCAL AND REGIONAL PLANS

rather than a geographic planning area. The draft State Strategic Plan has not been adopted by the State Planning Commission at this time and was put on hold following Hurricane Sandy.

The Keyport Borough Master Plan is consistent with the plans and policies of the existing SDRP. The SDRP places most of the Borough of Keyport in Metropolitan Planning Area 1 (PA1), although some of the areas bordering Keyport's wetlands are categorized as Environmentally Sensitive Planning Areas (PA5).

According to the State Plan, most of the communities within the PA1 planning area are fully developed or almost fully developed with little vacant land available for new development. The Keyport Borough Master Plan is consistent with the State Plan by preserving and protecting the established residential character of the Borough, promoting economic development by encouraging appropriate infill and redevelopment and promoting a diversification of land uses, promoting a fully intermodal transportation system that will enhance local circulation and reduce automobile dependency, promoting a balance of housing options to meet the needs of all residents, preserving and upgrading the existing utility infrastructure, providing adequate park, recreation and open space facilities, and preserving and protecting valuable historic and natural features within the Borough.

Environmentally Sensitive Planning Areas are characterized by their unique natural features that serve to provide important habitats, scenic vistas or water supplies. The State Plan seeks to protect these environmental resources through land preservation, accommodate and direct growth toward centers and protect the character of existing stable communities.

It is important to note that the Bayshore Region Strategic Plan supports establishing Keyport as a node along State Route 36, officially recognizing the Borough as an important center in the Bayshore area. This designation would benefit Keyport's efforts at economic revitalization in the commercial center. Additionally, this would enhance tourism to the Borough, as tourists are drawn to Keyport's environmental and cultural resources as historical preservation and waterfront redevelopment continue.

Overall, this Master Plan is consistent with the State Development and Redevelopment Plan.

# APPENDICES

## 15. APPENDICES

**APPENDIX A FEMA FLOOD MAP APPEAL**

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FEMA

IN REPLY REFER TO: APPEAL RES ID 1903

August 8, 2016

The Honorable Harry Aumack, II  
Mayor, Borough of Keyport  
70 West Front Street  
Keyport, New Jersey 07735

Community: Borough of Keyport,  
Monmouth County,  
New Jersey  
Community No.: 340304

Dear Mayor Aumack:

This letter is in response to feedback submitted on June 25, 2015, from Andrew Raichle of Matrix New World Engineering, regarding flood hazard information shown on the preliminary and revised preliminary Flood Insurance Rate Map (FIRM) for the Borough of Keyport, Monmouth County, New Jersey dated January 31, 2014, and January 30, 2015, respectively. Specifically the request presented scientific and technical data in support of the modification of the Special Flood Hazard Area (SFHA) boundary and Limit of Moderate Wave Action (LiMWA) for a portion of the Raritan Bay shoreline from Broad Street to Cedar Street in the Borough of Keyport. This submittal has been assigned tracking identification number 1903.

Please note that your request is considered an appeal because it satisfies the requirements defined in Title 44, Chapter I, Part 67 of the Code of Federal Regulations (44 CFR Part 67), and was submitted during the 90-day appeal period for your community.

The following data were submitted in support of this request:

- Report titled "Coastal Analysis – FEMA PFIS Appeal, Proposed Modification of V-Zones and LiMWA, Raritan Bay Shoreline: Broad Street to Cedar Street, Borough of Keyport, Monmouth County, New Jersey," dated May 2015, prepared by Matrix New World Engineering, which contained:
  - A copy of existing preliminary FIRM panel 34025C0029G, with the study area annotated on it;
  - Proposed modifications to the preliminary FIRM;
  - Certified topographic map showing existing and proposed flood zones; and
- Coastal Hazard Analysis Modeling Program (CHAMP) database files.

On February 12, 2016, the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) requested justification for parameters used in the Wave Height Analysis for Flood Insurance Studies model, as submitted in the CHAMP database, or a revised CHAMP database based on guidance provided in the February 12, 2016, Additional Data Request letter. On March 11, 2016, FEMA received a revised CHAMP database containing updated topography and revised modeling.

We have evaluated the updated topography and the revised modeling in the CHAMP database submitted on March 11, 2016, and found the changes support the modification of the SFHA boundary and LiMWA for a portion of the Raritan Bay shoreline from Broad Street to Cedar Street in the Borough of Keyport.

We have resolved this appeal in accordance with the requirements of 44 CFR Part 67. We have determined that the proposed SFHA boundary and LiMWA for the Raritan Bay shown on the preliminary and revised preliminary FIRM for the Borough of Keyport, Monmouth County, New Jersey dated January 31, 2014, and January 30, 2015, respectively, should be revised based on the submitted data. Please review the enclosed figures to verify that the updated flood hazard data for this appeal resolution has been satisfactorily incorporated, where appropriate.

Please submit any comments regarding this appeal resolution within 30 days of the date of this letter. You may provide your comments in one of the following ways:

- Directly through your dashboard on the Region II Preliminary Flood Map Feedback Portal at <https://feedback.region2coastal.com> by selecting the 'Add Resolution Letter Comment' option for the tracking identification number listed above. Detailed guidance is provided in the enclosed fact sheet.
- By standard mail or email to the address below. Please be advised that FEMA Region II has moved from 26 Federal Plaza to 1 World Trade Center as of March 1, 2016. Although the mailing address has not changed, digital submissions can be handled more efficiently than hard copy submissions. Please also include the tracking identification number referenced above.

Attention: Alan Springett, Senior Engineer  
FEMA Region II  
Mitigation Division  
26 Federal Plaza, Room 1337  
New York, NY 10278  
Phone: (212) 680-8557  
[Alan.Springett@fema.dhs.gov](mailto:Alan.Springett@fema.dhs.gov)

- For submittals sent via FedEx, UPS, or other overnight delivery service, please use the address below instead:

Attention: Alan Springett, Senior Engineer  
FEMA Region II  
Mitigation Division  
1 World Trade Center  
52<sup>nd</sup> Floor – Mail Room  
New York, NY 10007

If you feel that the technical issues originally raised have not been adequately addressed by this resolution letter and that an acceptable resolution will not be feasible through the submittal of additional comments as outlined above, please note that FEMA makes Scientific Resolution Panels (SRPs) available to support the appeal resolution process. SRPs are independent panels of experts in hydrology, hydraulics, and other pertinent sciences established to review conflicting scientific and technical data and provide recommendations for resolution. An SRP is an option after FEMA and a local community have been engaged in a collaborative consultation process without a mutually acceptable resolution.

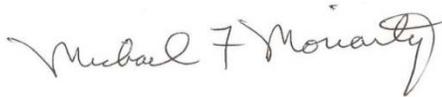
For additional information on the specific eligibility requirements for the SRP, your community may contact Mr. Springett, contact information above, or you may refer to the enclosed SRP Fact Sheet. To request that an

SRP review your scientific or technical data, your community must complete the enclosed SRP Request Form and submit it to the address above within 30 days of the date of this letter.

Once all outstanding appeals and comments on the preliminary FIRM and Flood Insurance Study (FIS) report have been resolved, we will finalize the FIRM and FIS report by issuing a Letter of Final Determination (LFD). The LFD will explain the adoption/compliance process and will state the date when the FIRM and FIS report will become effective.

We appreciate your comments and commitment to having the most accurate flood hazard information available reflected on the FIRM. If you have any questions regarding this matter, please contact Mr. Springett of my office.

Sincerely,

A handwritten signature in black ink that reads "Michael F Moriarty". The signature is written in a cursive style with a large, stylized 'M' and 'F'.

Michael Moriarty  
Director  
Mitigation Division  
FEMA Region II

Enclosures:

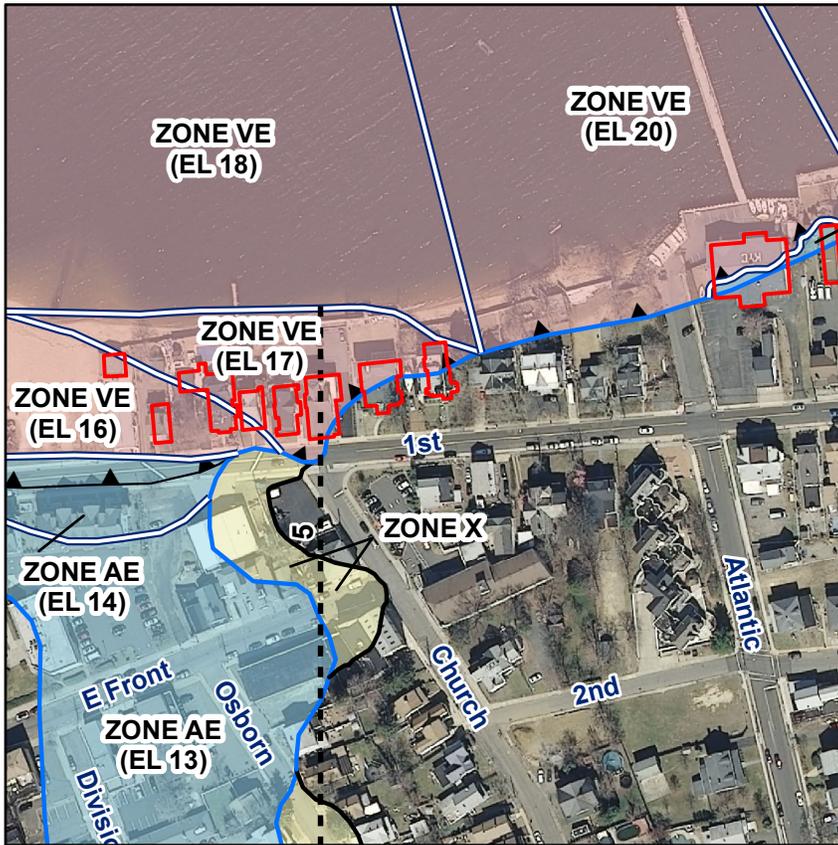
Appeal Resolution Figure: ID 1903 – Borough of Keyport, Monmouth County, New Jersey  
*Commenting on a Resolution Letter Using the Preliminary Flood Map Feedback Portal*  
SRP Fact Sheet  
SRP Request Form

cc: Robert Burlew, Construction Code Official, Borough of Keyport  
Andrew Raichle, P.E., Matrix New World Engineering  
Alan Springett, Senior Engineer, FEMA Region II  
John Moyle, State National Flood Insurance Program Coordinator, New Jersey Department of  
Environmental Protection (NJDEP)  
Joseph Ruggeri, P.E., CFM, Supervising Environmental Engineer, NJDEP

# Appeal Resolution, ID: 1903 - Borough of Keyport, Monmouth County, New Jersey

Property Address: various, Keyport, NJ  
 FIRM Panel: 34025C0029

## Revised Preliminary Mapping



ZONE AE  
(EL 20)

**Structure(s) Affected by Appeal**

**Flood Hazard Boundaries**

- 1 Pct Annual Chance Flood
- - - Floodway
- - - Zone D
- 0.2 Pct Annual Chance Flood
- = Zone Break
- Limit of Floodway
- Limit of Study

**Limit of Moderate Wave Action**

▲

**Primary Frontal Dune**

—

**Coastal Transects**

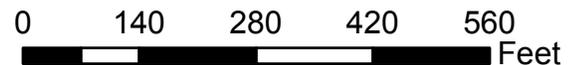
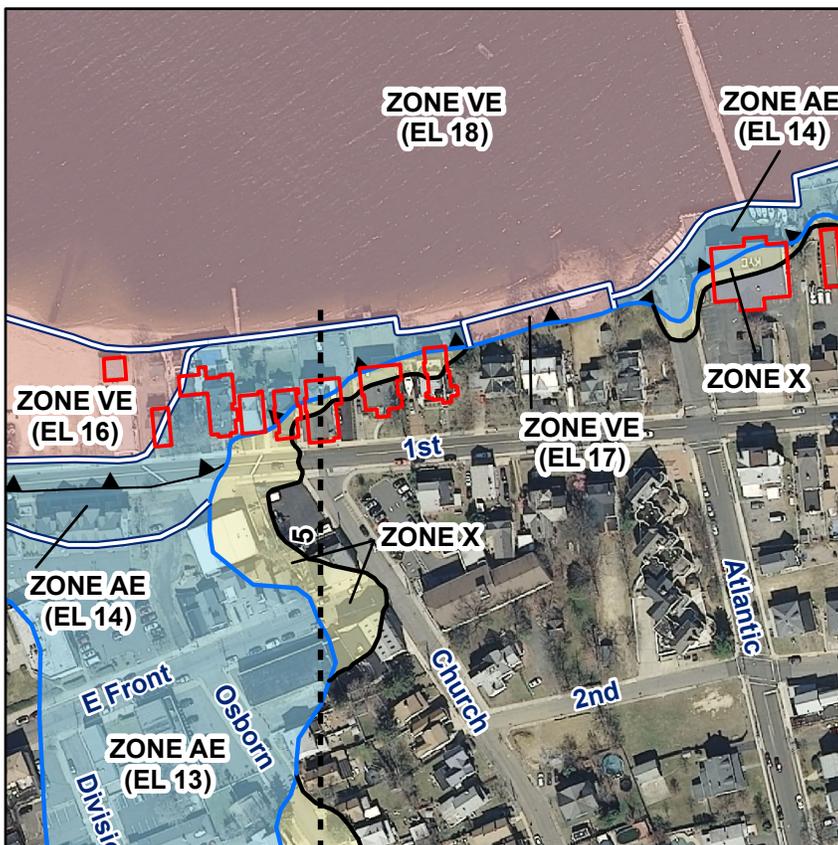
- - - -

**Flood Hazard Zones**

- Zone A
- Zone AE
- Zone AO
- Zone D
- Zone VE
- Zone X - 0.2 Pct

*Elevation information is provided in feet NAVD88.*

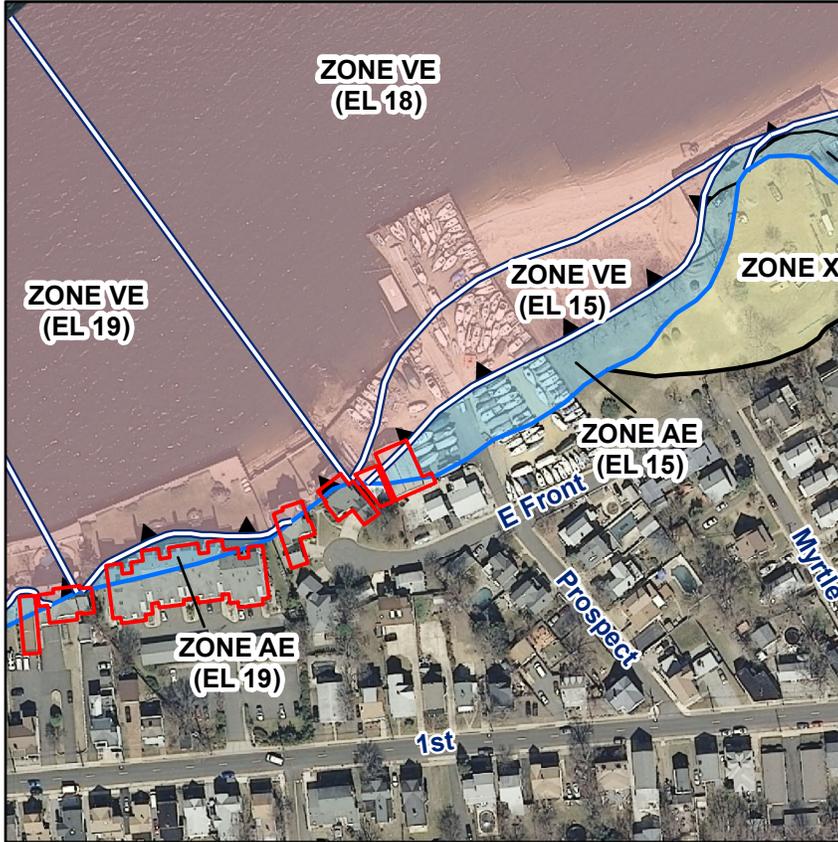
## Appeal Resolution Mapping



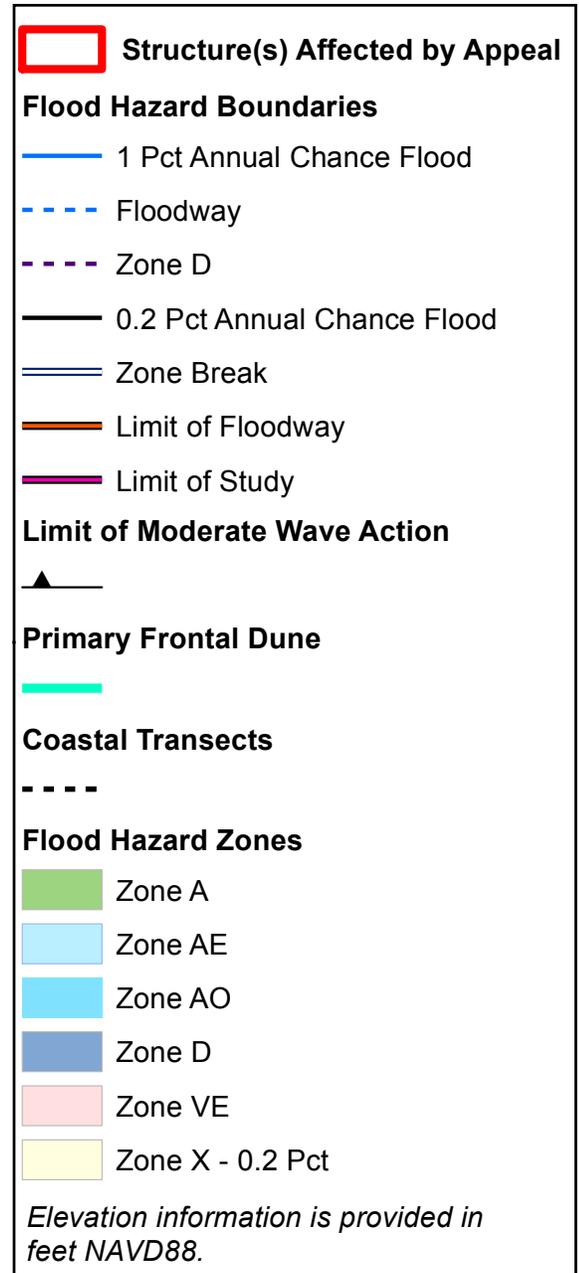
# Appeal Resolution, ID: 1903 - Borough of Keyport, Monmouth County, New Jersey

Property Address: various, Keyport, NJ  
 FIRM Panel: 34025C0029

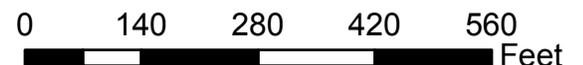
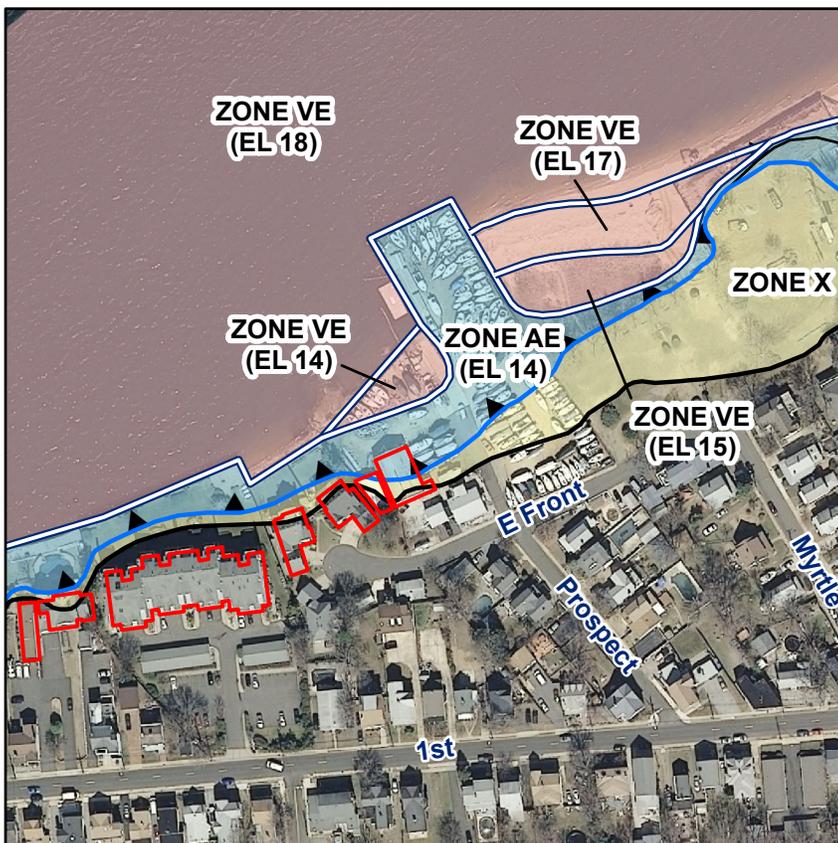
## Revised Preliminary Mapping



ZONE AE  
(EL 14)



## Appeal Resolution Mapping



**APPENDIX B FEMA FLOOD HAZARD AREA DESIGNATION DEFINITIONS**

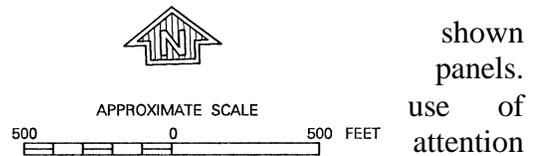
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## Map scales and north direction

Different scales may be used for a single community with more than one panel. As an example, the map scale on the Flood County FIRM Panel 0038 is 1 inch = 500 feet (one inch equals 500 feet), and the scale of panel 40 is 1 inch = 1,000 feet.

Different scales are used on FIRM and Floodway Maps, depending on the size of the mapped area for a community and the base map that is used.

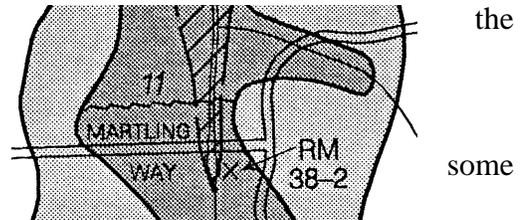
An arrow pointing north is shown on all maps, including the map index. For FIRMs and Floodway Maps, the north direction arrow is located near the map scale. The north direction on the maps may be “turned” to maximize the mapped area that can be on a panel and to minimize the number of panels. To ensure correct orientation and accurate the FIRM, it is very important to pay attention to the direction of the north arrow on the panel.



## Elevation reference marks

Elevation reference marks are located on FIRMs and Floodway Maps. For these two types of maps, locations are identified with a small “x” and the designation “ERM” or “RM” simply followed by a reference mark number. For the newer Digital FIRMs (DFIRMs), locations are identified with a small “x” and the designation “ERM” or “RM” followed by the panel number and the number of the reference mark. Descriptions of the marks, including their elevations, appear either on FIRM panels, on Floodway Maps, or in the FIS text. Note that some ERM and RM descriptions may appear on a different map panel than the mark itself due to space limitations.

ERMs and RMs are important sites. They provide a ground elevation reference for the surveyors to start from when they determine elevation of a building, a cross section, or topography for a site. Occasionally, an ERM cannot be found as described on the FIRM or Floodway Map because new construction or other change in the area has obliterated the monument. In these instances, the next closest ERM may be used. Alternatively, USGS, USC&GS, or NGS bench marks, which are marked on most USGS 7.5 minute series topographic maps, may be used.



## FIRM Zones

FIRMs show different floodplains with different zone designations. These are primarily for insurance rating purposes, but the zone differentiation can be very helpful for other floodplain management purposes. The more common zones are listed in Figure 3-10.

<b>Zone A</b>	<p>The 100-year or base floodplain. There are six types of A Zones:</p> <p><b>A</b> The base floodplain mapped by approximate methods, <i>i.e.</i>, BFEs are not determined. This is often called an unnumbered A Zone or an approximate A Zone.</p> <p><b>A1-30</b> These are known as numbered A Zones (<i>e.g.</i>, A7 or A14). This is the base floodplain where the FIRM shows a BFE (old format).</p> <p><b>AE</b> The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.</p> <p><b>AO</b> The base floodplain with sheet flow, ponding, or shallow flooding. Base flood depths (feet above ground) are provided.</p> <p><b>AH</b> Shallow flooding base floodplain. BFEs are provided.</p> <p><b>A99</b> Area to be protected from base flood by levees or Federal Flood Protection Systems under construction. BFEs are not determined.</p> <p><b>AR</b> The base floodplain that results from the decertification of a previously accredited flood protection system that is in the process of being restored to provide a 100-year or greater level of flood protection.</p>
<b>Zone V and VE</b>	<p><b>V</b> The coastal area subject to a velocity hazard (wave action) where BFEs are not determined on the FIRM.</p> <p><b>VE</b> The coastal area subject to a velocity hazard (wave action) where BFEs are provided on the FIRM.</p>
<b>Zone B and Zone X (shaded)</b>	<p>Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. B Zones are also used to designate base floodplains of lesser hazards, such as areas protected by levees from the 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.</p>
<b>Zone C and Zone X (unshaded)</b>	<p>Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. Zone C may have ponding and local drainage problems that don't warrant a detailed study or designation as base floodplain. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100-year flood.</p>
<b>Zone D</b>	<p>Area of undetermined but possible flood hazards.</p>

**Figure 3-10: Flood Insurance Rate Map Zones**

Note that the special Flood Hazard Area (SFHA) includes only A and V Zones.

**APPENDIX C    CRS PROGRAM INFORMATION**

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# Borough of Keyport *“Getting to Resilience”* Recommendations Report

Prepared by the Jacques Cousteau National Estuarine Research Reserve



March 2016

*Recommendations based on the “Getting to Resilience” community evaluation process.*



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## **Introduction**

The Getting to Resilience (GTR) questionnaire was originally developed and piloted by the New Jersey Department of Environmental Protection's Office of Coastal Management in an effort to foster municipal resiliency in the face of flooding, coastal storms, and sea level rise. The questionnaire was designed to be used by municipalities to assist reduce vulnerability and increase preparedness by linking planning, mitigation, and adaptation. Originally developed by the State of New Jersey's Coastal Management Program, the Getting to Resilience process was later adapted by the Coastal Training Program of the Jacques Cousteau National Estuarine Research Reserve (JC NERR), converted into a digital format, and placed on an interactive website. Further improving the questionnaire, the JC NERR added linkages to evaluation questions including the National Flood Insurance Program's (NFIP) Community Rating System (CRS), Hazard Mitigation Planning, and Sustainable Jersey. While this website is publicly available, through the facilitated Getting to Resilience process, JC NERR Coastal Community Resilience Specialists enhance the outcomes of the evaluation by providing community-specific recommendations, guided discussions with municipal representatives, a vulnerability analysis, and municipal plan reviews.

The Getting to Resilience process started as a facilitated discussion regarding the Borough's resilience strengths and challenges. Keyport is a small community of 7,500 people on the southern shore of Raritan Bay. It is bordered by Aberdeen Township to the west, Hazlet to the south, and Union Beach to the east. Matawan Creek creates the border between Keyport and Aberdeen Township and Chingarora Creek creates the border between Keyport and Union Beach. Luppataong Creek bisects Keyport as well.

Keyport is not a part of the Community Rating System yet but is considering joining the program. One of the priorities of the Borough is to increase awareness about floodplain issues within its citizens. Borough officials noted informative signage may be one of the strategies to increase awareness. The Borough has a high number of senior citizen and lower income areas that are socially and economically less able to bounce back from flooding and other disasters. Nuisance flooding regularly takes place at Fireman's Park, at the intersection of 1st and Walnut, and Beers Street. Division Street has issues with precipitation based flooding, attributed by Keyport staff as a stormwater system issue. Keyport is currently attempting to have FEMA's Preliminary Flood Insurance Rate Maps changed to more accurately reflect bulkheading and remove properties from the V zone designation.

The bridge over Matawan Creek will be raised in order to allow an increase in flow and hopefully reduce flooding. Floodproofing is taking place on many properties and home elevations are ongoing. Keyport recently enrolled in the Swiftreach emergency communications system which will increase the ability of emergency coordinators to disperse vital information during emergencies. The Borough meets the state's 1 foot freeboard requirement. Keyport noted that there have been studies and presentations given by academic institutions such as Stockton, Rutgers, and Princeton on their flooding vulnerabilities. These schools are seen as trusted sources of information. The Borough noted that there is a great deal of historical storm information contained in records and the knowledge of Borough staff and officials.

Sandy was a devastating event for Keyport. Flood levels were dramatic with 6.7 feet of floodwater on the top of the waterfront promenade. The Borough's wooden boardwalk and bulkheading were heavily damaged or lost during the storm. Staff lamented that the boardwalk and bulkheading were not able to be rebuilt stronger due to funding restrictions from FEMA. The Borough would like to see shore protection projects along the bayfront. Neighboring municipalities have had numerous sand replenishments of their bayfront. Keansburg had replenishment take place in the 1960's and then more recently post Sandy by the United States Army Corps of Engineers. According to municipal officials, a large amount of that sand is transported westward due to longshore transport and ends up on Keyport's beaches. This has led to wider beaches which provide some additional protection during storms. However, the wider beaches were no match for the storm surge and wave damages associated with Sandy. There is concern from Keyport staff that shoreline protection projects such as dunes and seawalls in neighboring towns will increase storm surges in Keyport as increased hardening may deflect flooding and wave energy towards Keyport.

## **Methodology**

The GTR questionnaire is broken into five sections: Risk and Vulnerability Assessments, Public Engagement, Planning Integration, Disaster Preparedness and Recovery, and Hazard Mitigation Implementation. In order to efficiently answer all of the questions within the questionnaire, participation from a wide array of municipal officials and staff is encouraged. These can include administrators, floodplain managers, emergency managers, stormwater managers, public works officials, town engineers, and appointed and elected officials. For Keyport this team Calvin Bell (Public Works), Robert Burlew (Floodplain Manager), Aubriann Fox (Administrator), Valerie Heilwell (Borough Clerk), and Stephen Gallo (Business Administrator). The questions in the GTR questionnaire were answered collectively by this group with JC NERR staff recording answers and taking notes on the discussions connected to each question.

The Getting to Resilience questionnaire was started with the Borough on October 30th, 2014. JC NERR staff met with four representatives of Keyport and two NJ DEP officials. A discussion of the Borough's resilience strengths and challenges began the meeting and section one of the questionnaire was completed. On November 13th, the questionnaire was completed with three representatives of Keyport meeting with JC NERR staff. Some additional questions were completed by an official unable to attend the second meeting. It should be noted that there was not participation from the Office of Emergency Management and there was limited knowledge of current planning documents by the staff that did participate. In an attempt to cover numerous sectors of municipal resiliency planning, this Recommendations Report may contain recommendations for actions already being undertaken by Keyport.

Upon completion of the GTR questionnaire, JC NERR staff analyzed the answers provided by the Borough's Staff, linkages provided by the GTR website, notes taken during the discussion of questions, various municipal plans and ordinances, and mapping of risks, hazards, and vulnerabilities provided by Rutgers University and the NJ Floodmapper and NJAdapt websites. After reviewing all of this

information, this recommendations report was drafted by JC NERR staff to help assist the Borough of Keyport's decision makers as the Borough works to recover from Superstorm Sandy and become more resilient.

## **Recommendations**

The Community Rating System (CRS) is a FEMA program, designed to reward communities for taking steps to reduce flooding risk. These activities and elements include public information, mapping, regulation, flood damage reduction, and warning and response initiatives. Actions under these categories are eligible for points that are added up to designate where the community is "rated" according to class rankings of 10 through 1. For each class the community moves up, they receive a reduction in flood insurance premiums of 5%. This can result in serious deductions for flood insurance costs for the community and its residents. Many recommendations in this report are connected to the CRS program as it helps communities save money and become better prepared.

### ***OUTREACH***

#### ***1. Make sure all outreach programs are quantified and catalogued according to CRS standards.***

Keyport plans to join the Community Rating System in an effort to reduce flood insurance premiums for residents and improve the Borough's flood resilience. Keyport should examine the current number of outreach programs it runs and determine what it would take to gain additional CRS points by adding more or expanding current efforts. Outreach should include information about the natural and beneficial functions of floodplains. Particularly after Sandy, residents throughout the impacted area have been looking for as much information as possible. A well organized and efficient outreach program can provide validated information from a trusted source and better prepare residents for natural risks. Past outreach efforts should be examined and revisited if they were successful.

It would be beneficial to develop a Program for Public Information (PPI) which would help to organize outreach and continue to include the current methods and avenues for outreach. A PPI is a researched, organized, and implemented program for public outreach that is seen as having a seven step process. These steps are Establish a PPI Committee, Assess the Community's Public Information Needs, Formulate Messages, Identify Outreach Projects to Convey the Messages, Examine Other Public Information Initiatives, Prepare a PPI Document, and Implement, Monitor and Evaluate the Program. If done correctly, a PPI will make outreach initiatives more effective and can gain CRS credits in numerous categories besides outreach. Although a PPI is not eligible for credit on its own, it acts as a multiplier in many CRS sections if the PPI is used to oversee outreach development. For guidance on establishing a PPI, visit [http://crsresources.org/files/300/developing\\_a\\_ppi\\_for\\_credit\\_under\\_the\\_crs\\_2014.pdf](http://crsresources.org/files/300/developing_a_ppi_for_credit_under_the_crs_2014.pdf). For more information on Outreach Projects, visit [http://crsresources.org/files/300/outreach\\_projects\\_for\\_credit\\_under\\_the\\_crs\\_2014.pdf](http://crsresources.org/files/300/outreach_projects_for_credit_under_the_crs_2014.pdf). For more information on Outreach Projects credit requirements, visit page 330-2 of the CRS Coordinator's Manual. [http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf)

**2. Develop a pre-flood plan for public information projects that will be implemented during and after a flood.**

Keyport should consider developing a collection of outreach projects in anticipation of future flooding events. The outreach should cover all necessary information such as evacuation routes, safety procedures, and recovery operations. This action could be undertaken through the PPI and would help Keyport save time and energy leading up to, during, and after a flooding event as outreach will already have been prepackaged and prepared for dispersal. Pre-flood planning should take place with careful coordination with the community's emergency manager. Examples of messages include evacuation routes, shelter locations, "Turn Around Don't Drown," when it is safe to go back, don't enter a flooded building until it has been cleared by an inspector, get a permit for repairs, substantial damage rules, mitigation opportunities during repairs, and information on mitigation grants. Pre-flood planning is eligible for CRS credits under Flood Response Preparations. For more information on Flood Response Preparations credit requirements, visit page 330-9 of the CRS Coordinator's Manual .  
([http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf))

**3. Make the public talks that took place post-Sandy about flood zones, flooding risk, building recommendations, etc into annual meetings.**

After Sandy, Borough staff have held talks and discussions on various flood related topics. By continuing to discuss the importance of planning for flooding, the Borough can set an example to its residents and businesses that readiness for disaster events should be maintained, even in relatively "quiet" times. A PPI can ensure these talks are well placed and effective. Well publicized and attended talks can reduce the workload on Borough staff that would otherwise need to give numerous one on one meetings. Suggested topics could include science behind storm surge, Base Flood Elevations, and elevating buildings to increase resiliency and reduce flood insurance rates. Additionally, these meetings can become an action in the Hazard Mitigation Plan.

A PPI can ensure these talks are well placed and effective. Well publicized and attended talks can reduce the workload on Borough staff that would otherwise need to give numerous one on one meetings. However, continuing to have staff available for one on one meetings is highly recommended as it is highly beneficial and earns CRS credits in the Regulations Administration section. For more information on Outreach Projects credit requirements, visit page 330-2 of the CRS Coordinator's Manual. For more information on the Regulations Administration credit requirements, visit page 430-40 of the CRS Coordinator's Manual.  
[http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf)

**4. Create and maintain a Flood Information section of the Borough website through the PPI.**

The Keyport website should have a flood related information posted under a Flood Information tab. Currently, the website hosts a Hurricane Recovery Resources section. This section would be ideal to build from. It would be beneficial to add and maintain information to highlight flooding and coastal

hazard risks according to CRS outreach criteria. For CRS credit, a Flood Information section only needs to be easily searchable through the Borough website. However, the more prominent the section is, the more likely the information will reach residents. The PPI should be responsible for this section of the website and should update it with care to ensure eligible for CRS credits in the Outreach section. This tab should also highlight the current link to the FEMA Region II website, <http://www.region2coastal.com/>. This website hosts Flood Insurance Rate Maps and a wide variety of other information that can further educate residents. By directing residents to this site, it can help reduce the workload on Borough staff that may have been asked to assist the public with simple items like finding a resident's Base Flood Elevation. The Flood Information section could also include pdf versions of CRS approved outreach brochures as well. The Monmouth County Planning Department has collected and received CRS approval for many outreach materials and they can be found on their website: <http://co.monmouth.nj.us/page.aspx?Id=4382>. For more information on Outreach Projects credit requirements, visit page 330-2 of the CRS Coordinator's Manual. [http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf)

##### ***5. Create a coastal hazard disclosure policy.***

Disclosure of known flood, erosion, or other coastal hazard risks at the time of property transfer is an important educational effort consistent with No Adverse Impact (NAI) (<http://www.floods.org/index.asp?menuID=460>) attitude. Some States (such as Florida and California) have disclosure requirements. If a disclosure is required for property in a flood or coastal hazard area, the seller is required to notify potential buyers of the risks and these risks can be factored into the purchase decision. If there is a shore protection structure on coastal property for sale, a disclosure policy could also require that prospective buyers be made aware of the issues surrounding such structures—their drawbacks, negative impacts, and the need for monitoring and maintenance. This type of policy can help sellers avoid transferring known adverse impacts that become unpleasant surprises to buyers.

During Getting to Resilience meetings, Borough staff noted that some lenders and real estate agents might be disclosing information about hazards associated with properties being considered for purchase. To ensure that this process is taking place and continues to occur and to establish congruence of methodology regarding these disclosures, a hazard disclosure policy could be established. The Borough would then be able to dictate what information must be shared with potential buyers and set guidelines for the education of new residents concerning their flooding risk. Disclosing these risks to the public using various techniques also may result in CRS credits in the Outreach Projects and Hazard Disclosure sections. For more information on Outreach Projects credit requirements, visit page 330-2 of the CRS Coordinator's Manual. For more information on Hazard Disclosure credit requirements, visit page 340-2 of the CRS Coordinator's Manual. [http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf)

## **MITIGATION**

### ***6. Create a detailed mitigation plan for areas that experience repetitive loss.***

Repetitive loss properties can be a large burden on towns over time. By creating a mitigation plan for these areas, the Borough may identify new strategies to tackle this issue, pinpoint at what point in time in the future that buyouts of these properties may be prudent, and achieve CRS credits in the Repetitive Loss Area Analysis section if CRS approved steps are taken. Furthermore, enacting mitigation for repetitive loss areas opens up a wide variety of CRS credits. The CRS requires separate reports for each specific area of repetitive loss with an additional reporting requirement. For more information on Repetitive Loss Area Analysis credit requirements, visit page 510-29 of the CRS Coordinator's Manual. [http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf)

### ***7. Utilize sea level rise and storm surge mapping to identify possible roadways at risk to sea level rise.***

Sea level rise and storm surge mapping indicates several roadways that may become impassable during flooding events. Some of these roadways may be adequately raised to avoid flooding but others may not. The Borough could identify roadways where flooding is indicated and survey for elevation of the road. This information could be used merely for identification of flooding hazards, information that could be used in evacuation planning or flood response, or as a catalyst for road raising infrastructure upgrades.

### ***8. Consider returning any properties acquired through Blue Acres or other buyout or acquisition programs to natural floodplain functions.***

As Keyport nears buildout, there are increasingly limited areas of land left that still have natural floodplain functions, mainly restricted to wetlands. Floodplains can absorb runoff and mitigate flooding issues. Returning lands to natural floodplain function can be done utilizing a variety of techniques including wetlands restoration, planting natural vegetation, reducing sediment compaction, and creating a natural profile. Returning acquired land to natural floodplain functions can achieve significant CRS credits in the Natural Functions Open Space (NFOS) section. Funding for mitigation projects like this could be available by applying for a portion of the funding available through the Federal Emergency Management Agency (FEMA) in two recently announced Hazard Mitigation Assistance (HMA) grant programs: Flood Mitigation Assistance (FMA) and Pre-Disaster Mitigation (PDM). For more information on Natural Functions Open Space credit requirements, visit page 420-13 of the CRS Coordinator's Manual. [http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf)

### ***9. Keyport should continue to identify, map, and keep data on areas of coastal erosion and consider creating erosion protection programs or instituting higher regulations for building in areas subject to coastal erosion.***

Erosion can become a problem in coastal areas. Areas that should be closely monitored could include any waterfront that is not bulkheaded and has experienced erosion. Factors that could amplify erosion

such as sea level rise and surge should be defined. The Borough should make an effort to identify, document, and quantify areas of erosion. Over the last 150 years, the streamfront and bayfront shoreline positions have undergone various changes. Identifying erosional hot spots and their potential impacts on homes and infrastructure can allow for mitigation actions that may prevent erosion from becoming a future problem. Additionally, unwanted deposition from shoaling and runoff can also be problematic for stormwater management near outfall pipes and navigation in waterways. Erosional hot spots could then be monitored for change, allowing for more ability to request funding for shoreline restoration projects. This information should be used to supplement a Shoreline Management Plan. It would be beneficial to explore expanding beach profiling already being done in the area by the Stockton Coastal Research Center.

Ongoing monitoring may also present a stronger case for funders when the Borough seeks support for shoreline restoration projects. Keeping information on coastal erosion can result in CRS credit in the Erosion Data Maintenance (EDM) section. In addition, this information will be valuable to monitor the success of any mitigation projects instituted to reduce erosion such as a possible breakwater, sand backpass system, or living shoreline projects. Additionally, erosion monitoring can be included in the capabilities section of a hazard mitigation plan. For more information on the hazards of coastal erosion and possible CRS credit requirements, visit [http://crsresources.org/files/2013-manual/coastal\\_hazards\\_supplement\\_2015.pdf](http://crsresources.org/files/2013-manual/coastal_hazards_supplement_2015.pdf).

***10. Explore partnering with organizations on living shorelines projects.***

A possible solution for wetlands and shoreline migration are living shorelines projects. These projects aim to reestablish natural shorelines to create valuable ecosystems and erosion control features. The lower energy bayfront of Keyport is an ideal location for living shoreline projects and could be a good option for shoreline hardening projects that can sometimes amplify erosional forces. Numerous groups and organizations are searching for municipal partners for such projects and Toms River should remain open to collaboration. Local groups such as the NY/NJ Baykeeper and the Nature Conservancy would be excellent partners in living shorelines initiatives. Creating living shorelines to mitigate erosion is a mitigation action that could be included in a hazard mitigation plan. NJ DEP is currently searching for 20 towns to participate in a program to build ecological solutions to coastal community hazards through natural hazard mitigation strategies such as living shorelines.

***PREPAREDNESS***

***11. Establish an emergency operations center.***

In the event of an emergency, the office of emergency management must have a safe location to carry out decision making and release of information. The center should be located outside of flood-hazard areas and be designed to withstand high winds. There should be a portable communications system that can operate under poor weather conditions and when power is not available.

### **12. Back up all municipal planning documents and other critical materials.**

In the event of a disaster, important information and documentation that could be used to guide the Borough to recovery needs to be accessible. In order to ensure sustained availability, all municipal planning documents, outreach associated with disaster events, and other critical materials should be backed up at offsite locations or in “cloud” networks.

### **13. Establish a flood warning system**

With the use of mapping information and personal knowledge of flooding events, Keyport has the capability to identify flood prone areas, conditions that result in flooding of those areas, and the severity and reach of flooding during coastal storm events. By combining this information with warning system such as Nixle, Swiftreach (recently added), or reverse 9-1-1, Keyport can target and alert residents in flood zones that flooding is expected in their neighborhood when warnings are released from the National Weather Service or National Hurricane Center. Keyport could also take advantage of the various tide gauges in the area to create an automated system. When the gauge reads predetermined tidal heights, a warning could be triggered in corresponding neighborhoods known to flood during those conditions. A full listing of the United States Geological Survey (USGS) stream and tide gauges for the area can be found at <http://waterdata.usgs.gov/NJ/nwis/current?type=flow>. Such a system could be eligible for credit for Flood Threat Recognition. For more information on Flood Threat Recognition credit requirements, visit page 610-5 of the CRS Coordinator’s Manual.

[http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf)

### **14. Create a special needs database.**

The State of New Jersey has undertaken efforts to identify residents that would need assistance during an evacuation. It is important to support these efforts and expand upon them in order to keep the list updated to ensure resident safety. Keyport should refer special needs residents to Register Ready. Once a resident registers they will get email reminders to update their information. Each municipality can receive a login and password to access those who registered in their town. This is usually done by the law enforcement in the town. If Borough staff have any questions or issues with the program they can contact Mary Goepfert 609-963-6900 ext. 6074 or [lppgoepm@gw.njsp.org](mailto:lppgoepm@gw.njsp.org). For more information on Register Ready, visit [http://www.state.nj.us/njoem/plan/special\\_needs7.html](http://www.state.nj.us/njoem/plan/special_needs7.html)

### **15. Work to become designated as a StormReady Community by the National Weather Service.**

The National Weather Service has created a community preparedness program to assist towns as they develop plans for a wide variety of severe weather events. This program provides guidance on hazardous weather identification, warning systems, and creating public readiness. This guidance can in turn be used to help inform possible mitigation actions for Hazard Mitigation planning. For more information, visit <http://www.stormready.noaa.gov/howto.htm>. Becoming a StormReady Community results in CRS credits. For more information on the StormReady Community credit requirements, visit

page 610-17 of the CRS Coordinator's Manual.

[http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf)

## **MUNICIPAL ORGANIZATION**

### ***16. Hold regular meetings of Borough staff to discuss resilience issues and share information.***

Keyport has had a steady turnover in staff that has resulted in some loss of knowledge of municipal -wide planning documents and other information that a variety departments should be working on together. By holding regular department head meetings, officials will be kept up to date on activities throughout the Borough. Cross fertilization of resilience ideas and concepts is also more likely to occur. If Keyport chooses to enter the Community Rating System, such cooperation throughout departments will be beneficial and necessary.

### ***17. Attend the Monmouth County CRS User Group Quarterly Meetings.***

The Monmouth County Planning Department has assisted with the creation of a CRS User Group. At quarterly meetings, Community Rating System information and experiences are shared between the County, State officials, non-profits, and representatives of towns from throughout the region. Non-CRS resilience related topics are also discussed. These meetings provide valuable information and networking opportunities.

### ***18. Adopt an ordinance to join the Monmouth County Emergency Intracounty Mutual Aid and Assistance Agreement Between Participating Units.***

The Monmouth County Planning Department has assisted with the creation of the Emergency Intracounty Mutual Aid and Assistance Agreement Between Participating Units. During disaster events, municipalities are occasionally hesitant to assist impacted neighboring municipalities due to financial and legal factors. The agreement aims to eliminate these obstacles. This agreement allows municipalities to share resources during disaster events and designates the mechanisms required to ensure proper compensation through FEMA. Municipalities also are able to provide aid to neighbors without fear of legal indemnity due to equipment and services provided.

### ***19. Transfer personal knowledge, documents, and other records of coastal storm and flooding event damages to digital format and place on a shared Borough computer drive to allow for access by multiple municipal departments.***

Memories of historical storm events, specifically ones that were not documented by state and federal agencies, are useful tools that can be used to plan for impending storms. However, it is vital that the information from these memories be available for all Borough staff. This information can be gathered and documented from current municipal staff, past municipal staff, and public input and may be very useful to identify past surge extents, conditions that caused amplification of storm damages, and vulnerable areas not shown by mapping. Meetings to allow for public input on historic storm damage

extents may also earn CRS credits in the Outreach section. Hard copies of documents and other records should also be digitized for preservation and access. Having all storm and flooding related information on a shared drive will help educate the staff and allow for access without having to coordinate an exchange of information. For more information on Outreach Projects credit requirements, visit page 330-2 of the CRS Coordinator's Manual.

[http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf)

**20. Have Borough municipal officials and staff participate in FEMA training courses.**

While going through the GTR questionnaire, it was expressed that some Borough officials had not taken advantage of FEMA trainings for certification. FEMA offers in person training and independent study programs. To find more information about in person training topics and dates please visit <http://training.fema.gov/> and <http://www.fema.gov/training-1> and for independent study programs please visit <http://training.fema.gov/is/>. Through the Coastal Training Program, the JC NERR offers free courses for municipal staff and elected/appointed officials. JC NERR is willing to work with the Borough to understand training needs and provide relevant courses when possible. Having municipal officials trained on various topics and techniques can result in CRS credits in the Regulations Administration (RA) section though it may require SID codes. For more information on Regulations Administration credit requirements, visit page 430-40 of the CRS Coordinator's Manual.

[http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf)

**21. Utilize the Community Vulnerability Assessment Tool, Risk and Vulnerability Assessment Tool, Hazard Assessment Tool, and HAZUS-MH to identify potential hazards, risks, and vulnerabilities and keep mapping information on file.**

There are numerous hazard, risk, and vulnerability assessment tools available to municipalities. It is recommended that the members of the municipal staff are familiar with the use of these tools. The importance of identifying hazard, risk, and vulnerability cannot be overstressed. Use of these tools can be beneficial in the CRS, hazard mitigation planning, creating municipal plans, zoning, and writing construction codes.

- The Community Vulnerability Assessment Tool is used to conduct a community vulnerability assessment to a wide range of hazards. It is often used in conjunction with the Risk and Vulnerability Assessment. <http://csc.noaa.gov/digitalcoast/training/roadmap>
- The Risk and Vulnerability Assessment Tool is used to identify people, property, and resources that are at risk of injury, damage, or loss from hazardous incidents or natural hazards. <http://csc.noaa.gov/digitalcoast/training/roadmap>
- The Hazard Assessment Tool is a risk assessment process which will help identify hazards, profile hazard events, inventory assets, and estimate losses. <http://www.fema.gov/hazard-mitigation-planning-risk-assessment>
- HAZUS-MH is a software package that uses models and Geographic Information Systems (GIS) technology for estimating physical, economic, and social impacts from various hazards such as floods and hurricanes. <http://www.fema.gov/hazus>

## **FEMA MAPPING**

### ***22. Adopt the latest version of FEMA’s flood maps as they are released, consider strengthening elevation requirements in the Flood Hazard Areas Ordinance as based upon the most stringent version of FEMA’s flood maps, and consider increasing freeboard requirements.***

Keyport has submitted an appeal analysis to FEMA to correct what the Borough feels were several mapping mistakes in the PFIRM concerning waterfront properties and their zonal designations. Once FEMA makes any necessary corrections, Keyport should move forward on adopting the flood maps. Keyport updated the Flood Hazard Areas Ordinance in February 2013. The Borough may want to consider writing new requirements as related to the Best Available Flood Hazard Data, as it should allow for change over time as FEMA’s maps are redrawn. While it had been decades since FEMA had remapped the FIRMs in our area, the remapping process can be anticipated to take place with higher frequency in the future. Best Available Flood Hazard Data is defined by NJ DEP as the most recent available flood risk guidance FEMA has provided. The Best Available Flood Hazard Data may be depicted on but not limited to Advisory Flood Hazard Area Maps, Work Maps or Preliminary FIS and FIRM. For more information on NJ DEP recommended Flood Damage Prevention Ordinances, visit <http://www.nj.gov/dep/floodcontrol/modelords/modelde-bestavail.doc>.

By maintaining the language “or the most stringent version of FEMA’s flood maps” to this ordinance, higher standards may be instituted that may result in the town becoming more resilient. For example, the Advisory Base Flood Elevation maps may have a more expansive V-zone or higher base flood elevations than future Flood Insurance Rate Maps. By requiring building to adhere to the stricter requirements of the Advisory Base Flood Elevation maps, more homes will be built to higher standards. The current ordinance already discusses using the Advisory Base Flood Elevation maps if they are more restrictive than the FIRM. An amended ordinance may also include some of the newer information coming out on FEMA’s maps including the Limit of Moderate Wave Action (LiMWA). That information can also be used to enhance the building standards in the form of higher freeboard requirements (higher freeboard requirements in areas that are within the LiMWA areas). Both actions can result in a large amount of CRS points in the Higher Regulatory Standards section. It is also recommended that Keyport consider exceeding the state’s 1 foot freeboard requirement to provide better protection during storm events and to provide a buffer for expected sea level rise. Each additional foot of freeboard requirement will gain additional points in the Community Rating System, to as high as 500 points. The Freeboard credits are located in the section of Higher Regulatory Standards. For more information on the Higher Regulatory credit requirements, visit 430-2 of the CRS Coordinator’s Manual. [http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf)

### ***23. Ensure the public is aware of any changes to FEMA’s flood maps as they are updated and adopted as well as if those updates result in changes to the Borough’s building requirements.***

Ensuring that the information on the maps is understood by all municipal leaders and staff prior to discussions with the public is critical to ensure the correct information disseminated by the Borough. For every release of a map update, the Borough could make a public announcement to its citizens and detail if any changes were made to the prior map, including if additional information such as the Limit of Moderate Wave Action has been added. Notifying the public of a new map product is an example of outreach that can be done by the Borough's PPI, raising the potential for CRS points. Including information on what changes occur when new maps are released on a Flood Information webpage could help to alleviate questions the public may have as each map is updated, thereby reducing the workload on Borough staff.

The new RISK map products from FEMA include a GIS layer depicting the "changes since last FIRM" which will help the Borough in describing the changes in flood zones on individual properties and for the Borough as a whole. A description of this data set can be found at: <http://www.region2coastal.com/flood-risk-tools/tool-descriptions> and the new data layer is being developed as part of the preliminary FIRM process. This data is in draft form now but will be released at the [www.region2coastal.com](http://www.region2coastal.com) website soon. The more familiar the citizens and businesses are with the maps, the more likely they will take appropriate actions.

***24. Make sure all flood maps are available on the Borough website, at Borough Hall, and at the local libraries.***

Keyport has made Flood Insurance Rate Maps (FIRMs) available in the past but must ensure that these maps are accessible and easy to find. Having the most up to date FEMA issued floodplain maps available at numerous locations in different forms of dispersal is critical to ensuring your citizens are informed and has the added benefit of allowing for CRS credits in the Outreach section. Maintaining the link to FEMA's Region II website on the Borough website is highly recommended. Some municipalities have trained librarians to direct and lead residents through the FEMA Region II website. For more information on Outreach Projects credit requirements, visit page 330-2 of the CRS Coordinator's Manual. [http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf)

***PLANNING***

***25. Create an Emergency Operations Plan.***

An Emergency Operations Plan should describe a hierarchy during emergencies. First responders should be identified. A list of contacts for operators of municipal facilities should be included. This plan can include information about Keyport's Community Emergency Response Team (CERT), a designated emergency operations. An Emergency Operations Plan is a state requirement and must be updated every three years. In addition, portions of an Emergency Operations Plan can be credited in CRS under the Flood response operations plan and Critical facilities sections.

**25. Create an Evacuation Plan.**

Evacuation Plans are critical planning documents designed to ensure efficient movement of citizens to safe locations prior to and during disaster events. Information should include what evacuation routes are prone to flooding, the necessary time frame to evacuate areas of residents and tourists, and conditions that would spur lane reversal. The plan should identify local and state evacuation assistance programs for the following special needs: hospitals, nursing homes, residents without personal transportation, the elderly, and the disabled. This plan should be created and updated with input from the County and neighboring municipalities. In addition, portions of an Evacuation Plan can be credited in CRS under the Flood response operations plan and Critical facilities sections.

**26. Consider creating a Borough specific Continuity of Operations Plan.**

A Continuity of Operations Plan (COOP) is separate from an Emergency Operations Plan and ensures that primary essential functions continue to be performed before, during, and after a wide range of emergencies. It is developed and maintained to enable each department, agency, and other governmental entity to continue to function effectively in the event of a threat or occurrence of any disaster or emergency that could potentially disrupt governmental operations and services. A COOP can protect essential facilities, equipment, vital records, and other assets. It can reduce or mitigate disruptions to operations. It can facilitate decision-making during an emergency. A COOP may include information about debris removal and FEMA reporting for reimbursement. JC NERR is able to provide example COP plans from the Borough of Avalon ([http://www.prepareyourcommunitynj.org/media/27952/Avalon\\_COOP\\_COG.pdf](http://www.prepareyourcommunitynj.org/media/27952/Avalon_COOP_COG.pdf)) and Brick Township. FEMA also provides a Continuity Plan Template (<http://www.fema.gov//media-library/assets/documents/90025>) that can be used as a starting point for local governments.

**27. Focus on including numerous possible mitigation projects in future hazard mitigation plan updates and incorporate those projects into the Capital Improvements Plan.**

Monmouth County has just completed and approved a Multi-Jurisdictional Hazard Mitigation Plan but Keyport should work with the county to alert them of hazard mitigation needs for future updates. Sandy has shown the need for numerous potential projects but funding is always an issue. By including these “wish list” projects in the Hazard Mitigation Plan, it leaves the door open for grant programs to fund the projects. Adding additional resilience projects could allow for them to be funded through future Hazard Mitigation funding opportunities. Projects that are not listed in the Hazard Mitigation Plan will struggle to find funding sources. A crosswalk of possible mitigation projects should be included in the Capital Improvements Plan which should be updated during the Master Plan rewrite. Keyport could reference FEMA’s “Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards” for mitigation project ideas. <https://www.fema.gov/media-library/assets/documents/30627>. It is also recommended that Keyport view the worksheets completed by other Monmouth County towns in the Monmouth County plan for more ideas on what to include. <http://www.monmouthsheriff.org/Sections-read-144.html>

***28. Consider creating a shoreline management plan or special area management plan.***

As shorelines are dynamic systems, it is important to have a well researched and documented plan that takes into account the forces at play and the desired uses for the bayfront and neighboring shoreline areas. A shoreline management plan should work in conjunction with the Recreation Master Plan to ensure that the shoreline is able to be utilized for many years without being too costly to maintain. Anticipated bayfront improvements and public access should be taken into consideration. This action could be eligible for CRS credit in the Natural floodplain functions plan section.

***29. Create an action plan for precipitation flooding events.***

Keyport occasionally receives flooding during heavy rain events. This flooding can prompt street closures and emergency response. By drawing upon the knowledge of past events and topographical information, an action plan could be created to identify how much rain it takes to create flooding at vulnerable locations. When heavy rain events are forecast, the Borough would be able to preemptively prepare staff and resources to address the anticipated issues. In addition, the development of this action plan could result in the understanding of the cause for flooding, possibly allowing mitigation of causes such as clogged or undersized stormwater pipes. Such mitigation actions could then be included in the All Hazards Mitigation Plan.

***30. Keyport should identify long-term inundation caused by sea level rise as a hazard in municipal plans and consider disclosing hazard risks.***

Keyport will experience impacts due to sea level rise and like all potential hazard impacts, this risk should be identified in town plans to ensure proper response. Flooding, storm severity, storm frequency, and sea level rise are combined hazards. Historical rates of sea level rise should be defined as part of this action and future predicted sea levels should be taken into account when making land use decisions, construction standards, etc. The historical rate of sea level rise along the New Jersey coast over the past half century was 3-4 mm/yr (or 0.12 -0.16 in/yr), while projected future rates are expected to increase. In the recent paper entitled "A geological perspective on sea-level rise and its impacts along the U.S. mid-Atlantic coast" Miller and Kopp state that for 2050, the "best" estimate for sea level rise is 1.3 feet along the Jersey Shore. By 2100, the "best" estimate for sea level rise is 3.1 feet along the Jersey coast. "Best" refers to a 50% likelihood of that level of sea level rise occurring, meaning that actual sea levels may be lower or higher than the "best" estimates.

While sea level rise is a monumental challenge to coastal areas, the challenge cannot be tackled until it is properly identified. Monmouth County has included sea level rise in their All Hazard Mitigation plan update, setting the example that should be followed by Keyport as a municipal specific All Hazard Mitigation Plan is written. Once this takes place, other local plans should reflect sea level rise as a hazard as well. This should include the recommended hazard disclosure policy. Disclosing these risks to the public using various techniques also may result in CRS credits in the Outreach Projects and Hazard Disclosure sections. For more information on Outreach Projects credit requirements, visit page 330-2 of

the CRS Coordinator's Manual. For more information on Hazard Disclosure credit requirements, visit page 340-2 of the CRS Coordinator's Manual.

[http://crsresources.org/files/2013-manual/crs\\_manual\\_508\\_ok\\_5\\_10\\_13\\_bookmarked.pdf](http://crsresources.org/files/2013-manual/crs_manual_508_ok_5_10_13_bookmarked.pdf)

***31. Examine municipal plans, strategies, and ordinances and consider rewriting sections to include the previous recommendations or reflect the risks, hazards, and vulnerabilities explored in the Getting to Resilience process.***

In order to fully embrace resiliency, municipal plans, strategies, or ordinances should incorporate resiliency recommendations and findings. These should include the Municipal Master Plan, All Hazards Mitigation Plan, Floodplain Management Plan, Evacuation Plan, Emergency Response Plan, Continuity of Operations Plan, Disaster Recovery Plan, Post Disaster Redevelopment Plan, Capital Improvements Plan, Economic Development Plan/Strategy, Coastal Plan, Shoreline Restoration Plan, Open Space Plan, Stormwater Management Plan, Historic Preservation Plan, Zoning Ordinance, Flood Damage Prevention Ordinance, and Building Code. If these plans, strategies, or ordinances do not currently exist, it is highly recommended the Borough move to create them. Further content regarding this recommendation can be found below in the section titled, "Coastal Hazard Incorporation in Planning". Rewriting certain planning documents such as Floodplain Management Plans, Evacuation Plans, Stormwater Management Plans could involve the creation of actions that in turn should be included in hazard mitigation plans.

### **Beginning the Long-term Planning Process for Sea Level Rise**

Keyport, like most other coastal municipalities, will experience impacts from sea level rise in the form of regular tidal flooding, heightened storm impacts, and saltwater intrusion of aquifers and freshwater systems, requiring mitigation actions. The range of options include buyouts, elevating properties, and hardening techniques to name a few, but the use of these options must be weighed, discussed, and decided upon.

The Blue Acres program is currently being administered by the NJDEP throughout the state and other buyout programs are also available. It would be prudent to look into repetitive loss properties that will also be threatened by sea level rise in the future to determine if buyouts of these properties would be an effective way to plan for sea level rise. It is important to note that as sea level rises, the competition for buyout programs will be higher and funding may become more limited. If the Borough feels that buyouts are not a good option, mitigation strategies should be investigated. However, not only will the individual mitigation options need to be examined, but the time frame of their effectiveness should be a factor. Cost-benefit analysis should accompany all mitigation projects to ensure that the lifespan of the mitigation and effectiveness when compared to rate of sea level rise is weighed against anticipated protection. In some instances, it may be determined that the cost of protecting already flood prone areas against sea level rise will be less effective than property acquisition. This may lead the Borough to reconsider mitigation measures such as buyout programs. Again, these decisions will not be easy ones to make but it is critical that the decisions do take place.

### Guilford, CT Example

JC NERR recommends Keyport consider learning from the resiliency planning process undertaken by Guilford, CT and described in “Town of Guilford Community Coastal Resilience Plan Report of Options to Increase Coastal Resilience”:

(<http://www.ci.guilford.ct.us/pdf/Coastal%20Resilience%20Plan,%20Report%20&%20Options.pdf>).

The goal of their Coastal Resilience Plan was to address the current and future social, economic and ecological resilience of the Town of Guilford to the impacts of sea level rise and anticipated increases in the frequency and severity of storm surge, coastal flooding, and erosion. The Town has drafted the report of options for increased coastal resilience as a step toward developing a Community Coastal Resilience Plan.

The four basic steps of the Coastal Resilience Plan are:

1. Generate awareness of coastal risk;
2. Assess coastal risks and opportunities;
3. Identify options or choices for addressing priority risks and vulnerabilities (short term); and
4. Develop and implement an action plan to put selected options or choices into place (long term).

Similar to Keyport, Guilford’s coastal neighborhoods are diverse and it is likely that each will be faced with a combination of vulnerabilities to sea level rise and the increased incidence and severity of coastal storms. A combination of adaptation measures will therefore be necessary in each neighborhood in order to reduce risks and increase resilience. Likewise, neighborhood-scale resilience planning will likely be important. Steps should be taken to evaluate individual adaptation measures and determine how comprehensive solutions can be developed and implemented for building coastal resilience.

A comprehensive risk and vulnerability assessment for the Borough of Keyport should include the following municipal sectors:

- Social – Residents, business community, and visitors.
- Economic – Residential Properties, commercial/industrial businesses, municipal resources, tourism, and future development.
- Infrastructure – Roads, bridges, railroads, stormwater, tide gates, marinas, and municipal facilities.
- Utilities – Public and private water supplies, septic systems, telecommunications, and electricity.
- Emergency Services – Fire, police, medical, sheltering, evacuation/egress.
- Natural Systems – Tidal wetlands and other coastal landforms.

When considering options for coastal resilience, the following three types of adaptation responses are typically considered:

- **Accommodation** implies that people continue to use the land at risk but do not attempt to prevent the land from being flooded. This option includes erecting emergency flood

shelters, elevating buildings on piles and elevating roadways.

- **Protection** involves hard structures such as sea walls and dikes, as well as soft solutions such as dunes and vegetation, to protect the land from the sea so that existing land uses can continue.
- **Retreat** involves no effort to protect the land from the sea. The coastal zone is abandoned and ecosystems shift landward. This choice can be motivated by excessive economic or environmental impacts of protection. In the extreme case, an entire area may be abandoned.

### **Salem, MA Example**

Additionally, Salem, Massachusetts recognized the importance of being prepared for climate change and produced a Climate Change Vulnerability Assessment and Adaptation Plan (Plan). The Plan investigates some of the most serious climate change impacts, the resulting stresses to different sectors in the City, and outlines project ideas to address some of the most critical issues. The goal for this plan was to identify immediate, actionable adaptation priorities, and incorporate these into existing and future projects and policies.

This Plan was intentionally designed to focus on four of the most critical climate change impacts on six sectors in the City, and to prioritize the vulnerabilities to help inform which actions will give the greatest benefit for Salem. The four key climate change impacts are extreme heat events, extreme precipitation events, sea level rise, and storm surge. The six sectors assessed in this Plan are critical building infrastructure, water, energy, stormwater, transportation, and vulnerable populations.

Highlights of Salem's approach included having a diverse stakeholder group involved and engaged in the planning process and engaging the public and business in the implementing of new projects and policies as a result of the plan. Additionally, section 4 of the plan lays out adaptation strategies to address Salem's priority vulnerabilities. The plan can be found at:

<http://www.cakex.org/sites/default/files/documents/SalemClimateChangePlan.pdf>.

### **NOAA's "Adapting to Climate Change: A Planning Guide for State Coastal Managers" Example**

Included in a 2010 NOAA's Office of Ocean and Coastal Resource Management manual titled, "Adapting to Climate Change: A Planning Guide for State Coastal Managers" is a thorough discussion of adaptation strategies and methods.

(<http://coastalmanagement.noaa.gov/climate/docs/adaptationguide.pdf>). Pleasantville could consider some of the options presented in this document for long and short-term resiliency planning. Many of these suggestions complement the suggestions provided earlier in this GTR Recommendations report:

#### **Impact Identification and Assessment**

- Research and Data Collection – Predict possible social and economic effects of climate change on communities. Calculate cost-to-benefit ratios of possible adaptation measures. Encourage adaptation plans that are tailored to specific industries.
- Monitoring – A comprehensive monitoring program that incorporates multiple tools and considers a variety of systems and processes can provide input to the vulnerability

assessment and adaptation strategy.

- Modeling and Mapping – Map which areas are more or less susceptible to sea level rise in order to prioritize management efforts.

### **Awareness and Assistance**

- Outreach and Education – Disseminate and make scientific fact sheets about climate change available to community members, visitors, elected officials, businesses and industries. Use multiple forms of communication such as news media, radio, brochures, community meetings, social networks, blogs and websites.
- Real Estate Disclosure – The disclosure of a property’s vulnerability to coastal hazards enables potential buyers to make informed decisions reflecting the level of impacts they are willing and able to accept.
- Financial and Technical Assistance – Provide flood insurance discounts for properties that exceed floodproofing standards by one or two feet. Encourage hazard mitigation by providing grants to areas that implement adaptation measures.

### **Growth and Development Management**

- Zoning – Zoning can be used to regulate parcel use, density of development, building dimensions, setbacks, type of construction, shore protection structures, landscaping, etc. It can also be used to regulate where development can and cannot take place, making it an invaluable tool in efforts to protect natural resources and environmentally sensitive areas and guide development away from hazard-prone areas.
- Redevelopment Restrictions – Combining restrictions with acquisition/demolition/relocation programs provides safer options to property owners in the wake of the loss of or damage to their homes or businesses.
- Conservation Easements – A conservation easement is a legal agreement between a landowner and a land trust or government agency that can be used to restrict development in sensitive and hazard-prone areas.
- Compact Community Design – The high density development suggested by compact community design can allow for more opportunities to guide development away from sensitive and hazard-prone areas.

### **Loss Reduction**

- Acquisition, Demolition, and Relocation – The most effective way to reduce losses is to acquire hazard-prone properties, both land and structures, demolish or relocate structures, and restrict all future development on the land.
- Setbacks – Setbacks can protect structures from hazards by keeping the structures away from a property’s most vulnerable areas.
- Building Codes – Building codes that regulate design, construction, and landscaping of new structures can improve the ability of structures in hazard-prone areas to withstand hazard events.
- Retrofitting – Existing structures can be protected from hazards through retrofitting.

- Infrastructure Protection – Infrastructure protection entails fortification against the impacts of climate change.
- Shore Protection Structures – Shore protection structures protect existing development allowing it to stay in place. They often damage or destroy other valuable coastal resources and create a false sense of security; nevertheless in some cases, for the purposes of protecting existing development, there may be no other acceptable or practical options.

### **Shoreline Management**

- Beach Nourishment – Beach nourishment is the process of placing sand on an eroding beach, typically making it higher and wider, to provide a buffer against wave action and flooding.
- Dune Management – Dunes may be restored or created in conjunction with a beach nourishment project or may be managed as part of a separate effort.
- Sediment Management – Dredging and placing sediment, building shore protection structures and other structures that trap or divert sediment.
- Regulation and Removal of Shore Protection Structures – To protect the natural shoreline and the benefits it provides, regulations can be used to limit shoreline hardening as well as promote alternative forms of protection.
- Rolling Easements – Rolling easements are shoreline easements designed to promote the natural migration of shorelines. Typically, rolling easements prohibit shore protection structures which interfere with natural shoreline processes and movement, but allow other types of development and activities. As the sea rises, the easement moves or “rolls” landward, wetland migration occurs, and public access to the shore is preserved.
- Living Shorelines – Living shorelines can be effective alternatives to shore protection structures in efforts to restore, protect, and enhance the natural shoreline and its environment. Living shorelines use stabilization techniques that rely on vegetative plantings, organic materials, and sand fill or a hybrid approach combining vegetative plantings with low rock sills or living breakwaters to keep sediment in place or reduce wave energy.

### **Coastal Ecosystem Management**

- Ecological Buffer Zones – Ecological buffers are similar to setbacks (and may be included within setbacks) but are typically designed to protect the natural environment by providing a transition zone between a resource and human activities.
- Open Space Preservation and Conservation – Open space preservation and conservation can be accomplished through the management of lands dedicated as open space through a number of the measures previously discussed, such as zoning, redevelopment restrictions, acquisition, easements, setbacks, and buffers.
- Ecosystem Protection and Maintenance – In the context of coastal adaptation, ecosystem protection largely involves the protection of tidal wetlands and other ecosystems. The facilitation of wetland migration is an important aspect of this.
- Ecosystem Restoration, Creation, and Enhancement – Similar to the above, ecosystem restoration and creation can replace tidal wetlands that are lost to sea level rise.

### **Water Resource Management and Protection**

- Stormwater Management – Drainage systems may be ill-equipped to handle the amount of stormwater runoff that will accompany the more intense rainfall events expected in the future, and those in low-lying areas will be further challenged by losses in elevation attributed to rising sea levels.
- Water Supply Management – Climate change will negatively affect both water quantity and quality, and coastal populations will continue to grow, so water supply managers must be prepared to respond to associated challenges to water supply.

Examples of adaptation measures considered in Guilford’s plan include management of coastal real estate and structures, shoreline protection and management of coastal and nearshore lands, roadway alterations, and protection or replacement of water supply wells and septic systems. All these adaptation measures are presented with a variety of options for consideration.

The Borough of Keyport may also gain some planning insight from the public participation process associated with Guilford’s resiliency planning. Guilford found their public believes that physical changes are needed to address sea level rise and increase coastal resilience, but that there are societal and institutional obstacles. Common themes noted from the public comments included:

- Coastal resilience planning – and many of the solutions that are implemented – may be best accomplished at the neighborhood scale; and neighborhood planning groups may need to be organized to begin looking at appropriate solutions;
- The tax base associated with coastal properties would need to be preserved in the short term and then some of the tax base may need to be shifted in the long term;
- Education and technical assistance are needed and desired by homeowners, and education could also be accomplished in the schools;
- Comprehensive solutions will be needed such as: addressing water and wastewater at the same time in neighborhoods where these systems will struggle or fail; ensuring that roadway improvements in one location are effective because improvements are also made elsewhere in the transportation network; and working on coordinated roadway and railroad improvements.

In thinking of their own public participation in resilience planning, Keyport could likely expect similar themes to emerge and could be prepared to offer the long-term planning options that may be under consideration by the municipality.

### **Coastal Hazard Incorporation in Planning**

Incorporation of coastal hazards into municipal planning is highly recommended to accurately reflect the risks of coastal living. Life in coastal communities largely revolves around weather and water conditions and planning should include consideration for current and future coastal hazards. While including information on coastal hazards in Emergency Response Plans and Evacuation plans is an easy connection to make, the path to incorporation of coastal hazards into documents such as a Master Plan may be more challenging to realize. However, to foster a community of resiliency, it is important to keep

hazards in mind throughout all planning documents. The Master Plan should be used to catalogue and document the goals of all other planning documents. The following is an example of how identification of coastal hazards can be introduced to a Municipal Master Plan through the Floodplain Management section. This sort of language and related content can be utilized in various other planning documents and then rediscussed in the Master Plan under the corresponding sections.

### **Municipal Master Plan Example**

The following excerpts are adapted from a comprehensive plan for Worcester County in Maryland, the equivalent to a municipal master plan. This comprehensive plan incorporates coastal hazards throughout the entire document to form an integrated approach to resiliency. Coastal hazards are often identified in the document as “current and anticipated challenges”. Individual sections (such as the Floodplain Management section given in this example) identify objectives and recommendations that should be mirrored in individual plans (a Floodplain Management Plan in this example). In doing so, all municipal plans are organized under the master plan and share the same language and goals. If choosing to update the Floodplain Management Plan, it is highly recommended to do so by following the guidelines set in Section 510 of the CRS which can result in large CRS credits. Refer to the following link for the Worcester County Comprehensive Plan for more ideas and examples of a planning document drafted with resiliency in mind. <http://www.co.worcester.md.us/cp/finalcomp31406.pdf>

#### ***Sample Introduction***

*Realizing that air, water, and land could be overused and despoiled, the plans organized within this document increasingly moved toward resource protection. If such damage occurred, local residents’ quality of life and tourism, the economic linchpin, would suffer. Preserving the Borough’s natural resources and character will therefore, continue to be this plan’s main purpose.*

*The plan’s purpose is to provide the following:*

- 1. An official statement of goals, objectives, policies and aspirations for future growth, development and the quality of life;*
- 2. A set of guidelines for the government and private sectors to maximize the Borough’s quality of life;*
- 3. A strategy addressing current and anticipated challenges ; and*
- 4. Sufficient policy guidance to effectively manage natural, human and financial resources.*

#### ***Sample Floodplain Management Section***

*Floodplains, lands along waterways subject to flooding, locally have low relief and sedimentary soils. Floodplains are defined by how often they flood. A 100-year floodplain has a 1% probability of flooding in a given year and is not tidally influenced. Local flooding can occur in major storm events. Many areas of the Borough of Keyport’s 100-year floodplain are highly developed. Residential, industrial, and commercial uses exist within this floodplain. Most of the time a floodplain is available for use. However, during floods they can be dangerous. Superstorm Sandy reinforced this fact. Floods injure people physically and emotionally and cause economic damage. Beyond this, emergency personnel are put at risk when called upon to rescue flood*

victims. In Keyport, flooding must be taken very seriously. To protect public safety and property, limiting future building in floodplains and stringent construction standards will help reduce injuries and property damage. Federal, state, and local policies should be consistent to implement this approach.

### **Objectives**

The Borough's objectives for floodplain protection are:

- Limit development in floodplains
- Reduce imperviousness of existing and future floodplain development where possible
- Preserve and protect the biological values and environmental quality of tidal and non-tidal floodplains, where reasonable and possible to do so.

Developed floodplains have a reduced capacity to absorb stormwater, resulting in increased flooding. For example, development results in new impervious surfaces (roads, sidewalks, roofs, etc.), which limit the effectiveness of the floodplain by reducing the land's absorption capacity. This increases the potential for flooding. It is therefore important that the natural floodplain character be maintained, wherever reasonable, to promote public safety, to reduce economic losses, and to protect water quality and wildlife habitat.

Keyport faces additional flooding issues. Several areas of the Borough commonly flood during storms with heavy precipitation. Sea level rise will increase flooding hazards as stormwater systems will become less effective. New Jersey is particularly vulnerable to sea level rise. During this century, as sea level rises, shorelines could retreat significantly in parts of the Borough. Narrow river beaches, bay beaches, and wetlands at low elevations, all important habitats, would be lost to even a modest rise in sea level and erosion would increase. Currently, the state recognizes a right to protect shores with hard structures (e.g. riprap). As sea level rises, these hard structures will prevent "migration" of beaches and wetlands, and these natural features will be lost.

### **Programs and Policies**

Flooding from coastal storms is a serious threat to life and property with the potential for extensive damage and disruptions. To reduce potential damage, the county is developing a hazard mitigation plan. This first step will provide guidance for pre-disaster activities. The second phase of addressing disasters is to develop a post disaster plan. Confusion and rapid decision-making follow a disaster. Advance planning can position the Borough to reduce its exposure to future disasters and reduce the need for ad hoc decision-making. Superstorm Sandy has taught us that effective post-disaster planning is necessary for an effective recovery process.

### **Recommendations**

1. Work with federal and state agencies to regularly update the Borough floodplain maps, with first priority being areas that are mapped as 100-year floodplain without base flood elevation established.
2. Limit new development and subdivisions in the floodplain.

3. *Promote uses, such as open space easements, natural areas, and recreational open space to reduce impervious surfaces in floodplains.*
4. *Work to acquire properties in the lowest lying portions of the 100-year floodplain, and return them to a natural state.*
5. *Reevaluate the effectiveness of the current floodplain protection regulations.*
6. *Discourage the location of new homes and roadways in the “V” or wave velocity zone and the 100-year floodplain.*
7. *Work with the county to update hazard mitigation plans for flooding, wildfire, and other natural hazards.*
8. *Develop and implement a post-disaster recovery and reconstruction plan to facilitate recovery and to reduce exposure to future disasters.*
9. *Consider code changes that will limit impervious surfaces.*
10. *Develop a sea level rise response strategy (including a two foot freeboard requirement for properties exposed to flooding and discourage further shoreline hardening).*

## **Mapping**

The following maps can be found in the appendices of this document. Maps were either requested by Borough staff or recommended by JC NERR staff during GTR meetings. These maps are also available on the Getting to Resilience website. The site hosts community profiles that include municipal mapping profile packets that are available for download. These maps can be used to help write and update the Municipal Master Plan, All Hazards Mitigation Plan, Floodplain Management Plan, Evacuation Plan, Emergency Response Plan, Continuity of Operations Plan, Disaster Recovery Plan, Post Disaster Redevelopment Plan, Capital Improvements Plan, Economic Development Plan/Strategy, Coastal Plan, Shoreline Restoration Plan, Open Space Plan, Stormwater Management Plan, Historic Preservation Plan, Zoning Ordinance, Flood Damage Prevention Ordinance, and Building Code.

### ***Sea Level Rise 1-3 feet with Critical Facilities***

Over the past hundred years, sea level has risen slightly higher than one foot in New Jersey. Due to a variety of factors including melting land ice and thermal expansion, it is anticipated that the rate of sea level rise will increase substantially in the future. While sea level rise poses its own threat to coastal communities, it also will increase the severity of storm surge and erosion. By examining sea level rise maps, the Borough can better understand future flooding risk and plan accordingly. As a large portion of the Borough is near current sea level, including some municipal property, Sea Level Rise maps should be utilized heavily for municipal planning documents.

### ***Storm Surge (SLOSH Category 1, SLOSH Category 2, & SLOSH Category 3)***

SLOSH or Sea, Lake, and Overland Surge from Hurricanes is a computerized model from the National Hurricane Program. SLOSH takes into account various factors to compute surge inundation above ground level or simple inundation. These factors include storm size, storm pressure, storm speed, storm path, wind speed, bathymetry, and topography. With this set of factors, SLOSH determines the worst surge impacts that can be expected from hurricanes

according to category. SLOSH maps are vital tools for Emergency Operations Center managers for making decisions about evacuation orders, timing of evacuation, and staging of emergency equipment prior to tropical weather systems.

### ***Marsh Migration 1-3 feet***

Marsh reaction to sea level rise has been mapped according to the Sea Level Affecting Marshes Model (SLAMM). Marshes provide various environmental and storm protection functions to communities and should be preserved. As sea level rises, many marshes will convert to open water or tidal mud flats. However, if suitable land is connected to current marshes, conversion of ecosystems may occur which could allow marshes to “migrate” further inland in balance with sea level. Upland areas that are deemed to be suitable marsh migration areas should be identified and preserved if possible and barriers to marsh migration should be eliminated. In doing so, the environmental and storm protection functions of marshes may persist despite sea level rise.

### ***Preliminary Flood Insurance Rate Map***

FEMA’s Preliminary Flood Insurance Rate Map (PFIRM) represents the current best available data for Keyport concerning 1% and 0.2% flooding scenarios. Base Flood Elevations and wave modeling are established for the 1% flood. Flood Insurance Rate Maps should be used to assist in zoning and building code decisions. Additional mapping information about floodplain maps can be accessed off of FEMA’s [www.Region2Coastal.com](http://www.Region2Coastal.com).

### ***Preliminary Flood Insurance Rate Map Table***

FEMA’s Preliminary Flood Insurance Rate Map (PFIRM) represents the current best available data for Keyport concerning 1% and 0.2% flooding scenarios. This table displays the coverage for the 0.2% zone, AE zone, and VE zone in terms of square miles and percent coverage. This table can be used to better understand the Borough’s floodplain and be used as reference for various decisions concerning zoning, building, etc.

### ***Sandy Surge Extent***

FEMA has mapped the limits of the storm surge caused by Superstorm Sandy. This map can be used as a reference for this historical flooding event.

## **Other Suggested Maps**

### ***Repetitive Loss & Severe Repetitive Loss***

Repetitive Loss and Substantial Damage maps can be used to identify “problem” areas. Depending on the location and size of these areas, the Borough can make decisions about how to prevent repetitive loss from occurring. These options can range from utilizing Blue Acres funding and returning the properties to a natural state to creating protective infrastructure projects in order to help protect from risk.

### ***Shoreline Change***

Shorelines are constantly in a state of change, be it from tidal fluctuations or erosional and depositional forces. Shoreline change can create large scale shifts in risk. Erosion may move shoreline closer to buildings and infrastructure, reducing natural buffers and heightening impacts. Deposition that moves shorelines or near shore features such as sandbars may in turn reduce rates of flow of streams and stormwater management systems and cause greater risk of precipitation driven flooding. Deposition can also cause navigation hazards to waterways and navigation channels. Shoreline Change maps can identify trends and should be incorporated into appropriate municipal plans.

### ***Overlays of Hazards and Populations, Infrastructure, and Building Footprints***

Though it is the goal of this report to guide the Borough of Keyport towards resiliency, risk will always exist. By overlaying hazards such as sea level rise and surge with population information, infrastructure, and building footprints, the Borough will be able to identify areas of highest risk and plan accordingly.

### ***Natural Resources, Historical Resources, Cultural Resources, & Economic Resources***

Mapping of a community's resources is an extremely useful tool, not only for creating a catalogue of a community's strengths, but also for identifying areas that should be protected. Overlaying hazards such as sea level rise and surge may lead Keyport to make decisions on protecting certain resources through retrofitting historical buildings or protecting natural resources by allowing for natural floodplain functions.

### ***Additional Mapping Resources***

NJADAPT ([www.NJAdapt.org](http://www.NJAdapt.org)) is a New Jersey-based website being built to host and apply climate science and impacts data. The objective of the NJADAPT platform is to provide communities with the ability to develop municipal profiles of various risks that may potentially impact their areas by making climate projection data for NJ more accessible. The initial development of the platform has been supported by the New Jersey Recovery Fund and NOAA.

The Flood Exposure Profiler is the first tool developed as part of the larger All Climate Hazards tools being developed through the NJADAPT initiative. The Profiler is broken into four major themes:

- Flooding (which shows the flooding hazards individually)
- Society (demographic data that shows information about populations, businesses, and employees)
- Infrastructure (provides information on facility and infrastructure locations that should be considered when planning for disaster events),
- Environment (data on coastal land use areas - marsh, open space, land use land cover).

Each of the profiles allow you to see the themed data and then overlay a hazard layer of your choice to see what the potential impacts may be. This tool allows you to create maps that you can then package and share links to or create pdfs from for further use.

## **Surge and Sea Level Rise Vulnerability**

As much of Keyport is at elevations near sea level, fluctuations in sea level through surge events and trends towards higher sea level are of great significance. SLOSH models indicate flooding should be expected on a similar scale of Sandy for powerful Category 1 hurricanes. SLOSH models for Category 2 and 3 storms show increased vulnerability and intensity. Areas that had inundation depths of 0-3 feet during a Category 1 storm are capable of depths of 6-9 feet in a Category 2 storm. Flooding also has the potential to impact a far greater area. The flooding extent moves further inland away from the bay and creeks. The northeast section of Keyport bordering Chingarora Creek would experience a more dramatic increase in flooding extent due to a lower relief than other waterfront areas. SLOSH maps for Category 3 show an extreme scenario. Areas that were flooded during Sandy and even some that did not see any flooding have the potential to be submerged with over 9 feet of floodwaters. The extent of the surge also increases much further inland, dramatically on the east side of Keyport, again due to the lower relief of the areas surrounding Chingarora Creek. It is important to note that in SLOSH mapping for Category 2 and 3, the critical evacuation routes of State Highway 35 and State Highway 38 are threatened by surge. As storm strength increases, the likelihood of safe use of these evacuation routes decreases. During Sandy, just 1 critical facility was threatened by flooding. However, for strong Category 2 storms, three fire stations are at risk for flooding. In strong Category 3 storms, 4 fire stations, Keyport High School, and the Keyport police station are at risk. Although storms of this magnitude are very rare for our area, they remain a possibility that requires attention and planning.

While the relatively low end scenarios of one and two feet of sea level rise will not result in flooding of Keyport, there will be an increased threat of flooding from storm events, in the form of coastal flooding in low lying areas and precipitation based flooding in areas along Matawan Creek, Luppatawong Creek, and Chingarora Creek. Two feet of sea level rise also may result in regular flooding of low lying bayfront areas such as the waterfront parking lot at Luppatawong Creek used for the Keyport Waterfront Farmers Market. Scientists anticipate the arrival of one foot of sea level rise before 2050. As sea level rise is expected to accelerate this century, three feet of sea level rise is very likely before 2100. In the table below, the “low”, “high”, and “best” estimates for sea level rise projections for New Jersey for the years 2050 and 2100 are displayed. “Best” refers to a 50% likelihood of that level of sea level rise occurring.

<b>Total sea level rise projections for New Jersey.</b>			
	Total	Total	Total
	cm	inches	feet
<b>2050 best</b>	<b>40</b>	<b>16</b>	<b>1.3</b>
2050 low	23	9	0.7
2050 high	60	24	2.0
<b>2100 best</b>	<b>96</b>	<b>38</b>	<b>3.1</b>
2100 low	50	20	1.6
2100 high	147	58	4.8
All values with respect to a year 2000 baseline.			

NJ sea level rise projection ranges and best estimates. Miller AK, Kopp RE, Horton BP, Browning JV and Kemp AC. 2013. A geological perspective on sea-level rise and its impacts along the U.S. mid-Atlantic coast. *Earth's Future* 1(1):3-18.

While one and two feet of sea level rise do not significantly impact Keyport, three feet of sea level rise will mean regular tidal flooding of several low lying areas bordering the waterfront and creeks. This includes a small area at the intersection of 1st Street, 2nd Street and Stone Road; Beer Street along Lappatong Creek; and several areas of American Legion Drive. Any level of inundation due to regular tidal flooding will have impacts on emergency response. Sea level rise will also result in greater impact of storm events as a surge atop a higher sea level will have a greater impact than the same surge atop a lower sea level. Necessary adaptation to sea level rise and the heightening of other hazards such as surge must be taken into account when planning for the future.

**CRS Sections That Likely Have Available Current Points**

The following sections of the Community Rating System will likely contain credit points that are available for Keyport based off of the answers given in our Getting to Resilience questionnaire, discussions with JC NERR staff, and reviews of the Borough documents. These sections represent the current state of the Borough but also include planned projects, uncompleted projects, and recommended actions deemed to be within the Borough’s reach. However, these projects may need to be complete in order to be granted credit. It is likely that the Outreach Projects in Section 330 will be highly achievable and less costly than other sections within the CRS. The following sections do not represent guaranteed points for the CRS but are likely achievable to a certain degree and should be investigated to determine the costs and benefits of the required actions when submitting to the CRS. When working with your CRS coordinator, we recommend inquiring about the following sections.

**Section 310: Elevation Certificates:** To maintain correct federal emergency management agency (FEMA) Elevation Certificates and other needed certifications for new and substantially improved buildings in the Special Flood Hazard Area.

- **Maintaining Elevation Certificates (EC):** Up to 38 points for maintaining FEMA elevation certificates on all buildings built in the special SFHA after the date of application to the CRS. All communities applying to the CRS must apply for this element. (could be done)

- **Maintaining Elevation Certificates for Post-FIRM Buildings (ECPO):** Up to 48 points for maintaining EC on buildings built before the date of application to the CRS but after the initial date of the FIRM. (could be done)
- **Maintaining Elevation Certificates for Pre-FIRM Buildings (ECPR):** Up to 30 points for maintaining elevation certificates on buildings built before the initial date of the FIRM. (could be done)

**Section 320: Map Information Service:** To provide inquirers with information about the local flood hazard and about flood-prone areas that need special protection because of their natural functions.

- **Basic Firm Information (MI1):** 30 points for providing basic information found on a FIRM that is needed to accurately rate a flood insurance policy. (GTR 1.7, 2.5)
- **Additional Firm Information (MI2):** 20 points for providing information that is shown on most FIRMS, such as protected coastal barriers, floodways, or lines demarcating wave action. (GTR 1.7, 2.5)
- **Problems Not Shown on the FIRM (MI3):** Up to 20 points for providing information about flood problems other than those shown on the FIRM. (GTR 1.7, 2.5)

**Section 330: Outreach Projects:** To provide the public with information needed to increase flood hazard awareness and to motivate actions to reduce flood damage, encourage flood insurance coverage, and protect the natural functions of floodplains.

- **Outreach projects (OP):** Up to 200 points for designing and carrying out public outreach projects. Credits for individual projects may be increased if the community has a Program for Public Information (PPI). (GTR 2.14)
- **Flood response preparations (FRP):** Up to 50 points for having a pre-flood plan for public information activities ready for the next flood. Credits for individual projects may be increased by the PPI multiplier. (Could be done)
- **Program for Public Information (PPI):** Up to 50 points added to OP credits and up to 20 points added to FRP credits, for projects that are designed and implemented as part of an overall public information program (Could be done)
- **Stakeholder delivery (STK):** Up to 80 points added to OP credits for having information disseminated by people or groups from outside the local government (Could be done)

**Section 340: Hazard Disclosure:** To disclose a property's potential flood hazard to potential buyers before the lender notifies them of the need for flood insurance.

- **Disclosure of the flood hazard (DFH):** Up to 25 points if real estate agents notify those interested in purchasing properties located in the Special Flood Hazard Area (SFHA) about the flood hazard and the flood insurance purchase requirement. An additional 10 points are provided if the disclosure program is part of a Program for Public Information credited under Activity 330 (Outreach Projects). (GTR 1.4)
- **Other disclosure requirements (ODR):** Up to 5 points for each other method of flood hazard disclosure required by law, up to a maximum of 25 points. (Could be done)
- **Real estate agents' brochure (REB):** Up to 8 points if real estate agents are providing brochures or handouts that advise potential buyers to investigate the flood hazard for a property. An additional 4 points are provided if the disclosure program is part of a Program for Public Information credited in Activity 330 (Outreach Projects). (could be done)
- **Disclosure of other hazards (DOH):** Up to 8 points if the notification to prospective buyers includes disclosure of other flood-related hazards, such as erosion, subsidence, or wetlands. (could be done)

**Section 350: Flood Protection Information:** To provide more detailed flood information than that provided by outreach products.

- **Flood protection library (LIB):** 10 points for having 10 Federal Emergency Management Agency publications on flood protection topics housed in the public library. (could be done)
- **Locally pertinent documents (LPD):** Up to 10 points for having additional references on the community's flood problem or local or state floodplain management programs housed in the public library. (could be done)
- **Flood protection website (WEB):** Up to 76 points for providing flood protection information via the community's website. An additional 29 points are provided if the website is part of a Program for Public Information (credited under Activity 330 (Outreach Projects)). (could be done)

**Section 360: Flood Protection Assistance:** To provide one-on-one help to people who are interested in protecting their property from flooding.

- **Property protection advice (PPA):** Up to 25 points for providing one-on-one advice about property protection (such as retrofitting techniques and drainage improvements). An additional 15 points are provided if the assistance program is part of a Program for Public Information (credited under Activity 330 (Outreach Projects)). (could be done)
- **Advisor training (TNG):** 10 points if the person providing the advice has graduated from EMI courses on retrofitting or grants programs (GTR 5.8)

**Section 410: Floodplain Mapping:** To improve the quality of the mapping that is used to identify and regulate floodplain management.

- **Floodplain mapping of special flood-related hazards (MAPSH):** Up to 50 points if the community maps and regulates areas of special flood related hazards. (GTR 1.7, 2.5)
- **New Study (NS):** Up to 290 points for new flood studies that produce base flood elevations or floodways. (GTR 1.7)
- **Higher Study Standards (HSS):** Up to 160 points if the new study was done to one or more standards higher than the FEMA mapping criteria. (GTR 1.7)

**Section 420: Open Space Preservation:** To prevent flood damage by keeping flood-prone lands free of development, and protect and enhance the natural functions of floodplains.

- **Open space preservation (OSP):** Up to 1,450 points for keeping land vacant through ownership or regulations. (GTR 5.9, 5.12)
- **Natural functions open space (NFOS):** Up to 350 points extra credit for OPS-credited parcels that are preserved in or restored to their natural state. (GTR 3.5, 5.9, 5.12)
- **Deed restrictions (DR):** Up to 50 points extra credit for legal restrictions that ensure that parcels credited for OPS will never be developed. (GTR 5.9)
- **Special flood-related hazards open space (SHOS):** Up to 50 points if the OSP credited parcels are subject to one of the special flood-related hazards or if areas of special flood related hazard are covered by low density zoning regulations. (GTR 5.9)
- **Natural Shoreline Protection (NSP):** Up to 120 points for programs that protect natural channels and shorelines. (GTR 5.9)
- **Open Space Incentives (OSI):** Up to 250 points for local requirements and incentives that keep flood-prone portions of new development open. (GTR 5.9)

**Section 430- Higher Regulatory Standards:** To credit regulations to protect existing and future development and natural floodplain functions that exceed the minimum criteria of the National Flood Insurance Program (NFIP).

- **Special Flood-related Hazard Regulations (SHR):** Up to 370 points for higher regulatory standards in areas subject to coastal erosion. (could be done)
- **Emergency warning dissemination (EWD):** Up to 75 points for disseminating flood warnings to the public. (notes from GTR meetings)

- **Flood response operations (FRO):** Up to 115 points with 10 points awarded for maintaining a database of people with special needs who require evacuation assistance when a flood warning is issued and for having a plan to provide transportation to secure locations. (notes from GTR meetings)
- **Critical facilities planning (CFP):** Up to 75 points for coordinating flood warning and response activities with operators of critical facilities. (notes from GTR meetings)
- **Protection of critical facilities (PCF):** Up to 80 points for protecting facilities that are critical to the community. (notes from GTR meetings)
- **Regulations administration (RA):** Up to 67 points for having trained staff and administrative procedures that meet specified standards. (GTR 3.4.5, 3.5.4, 3.5.5, 3.6.1, 3.7.1, 5.6, 5.8)
- **Freeboard (FRB):** Up to 500 points for a freeboard requirement. (GTR 5.4, 5.5)
- **Foundation Protection (FDN):** Up to 80 points for engineered foundations. (could be done)
- **Coastal A Zone Requirements (CAZ):** Up to 500 points if all new buildings in the coastal A Zone must meet the requirements for buildings in V Zones and for openings in A Zones (could be done)
- **State Mandated Standards (SMS):** Up to 20 points for a state-required measure that is implemented in both CRS and non-CRS communities in that state. (freeboard)
- **Other higher standards (OHS):** Up to 100 points for other regulations (could be done)

**Section 440: Flood Data Maintenance:** The community must maintain all copies of Flood Insurance Rate Maps issued for that community.

- **Additional Map Data (AMD):** Up to 160 points for implementing digital or paper systems that improve access, quality, and/or ease of updating flood data within the community. (GTR 1.7, 2.5)
- **FIRM Maintenance (FM):** Up to 15 points for maintaining copies of all FIRMs that have been issued for the community. (GTR 1.7, 2.5)

**Section 450: Stormwater Management:** To prevent future development from increasing flood hazards to existing development and to maintain and improve water quality

- **Watershed Management Plan (WMP):** Up to 315 points for regulating development according to a watershed management master plan (WMP) (could be done)

**Section 510: Floodplain Management Planning:** To credit the production of an overall strategy of programs, projects, and measures that will reduce the adverse impact of the hazard on the community and help meet other community needs.

- **Repetitive Loss Area Analysis (RLAA):** Up to 140 points for a detailed mitigation plan for a repetitive loss area. (GTR 1.11, 1.12, 2.1)

- **Floodplain management planning (FMP):** 382 points for a community-wide floodplain management plan that follows a 10-step planning process. (GTR 3.4, 3.4.1, 3.5, 3.7)
- **Natural Floodplains Function Plan (NFP):** 100 points for adopting plans that protect one or more natural functions within the community's floodplain (could be done)

**Section 520: Acquisition and Relocation:** To encourage communities to acquire, relocate, or otherwise clear existing buildings out of the flood hazard area.

- **Critical facilities (bCF):** Points awarded for facilities that have been acquired or relocated (GTR 5.2)

**Section 530: Flood Protection:** To protect buildings from flood damage by retrofitting the buildings so that they suffer no or minimal damage when flooded, and/or constructing small flood control projects that reduce the risk of flood waters' reaching the buildings.

- **Flood protection project technique used (TU\_):** Credit is provided for retrofitting techniques or flood control techniques. Retrofitting technique used: Points are provided for the use of elevation (TUE), dry floodproofing (TUD), wet floodproofing (TUW), protection from sewer backup (TUS), and barriers (TUB) Structural flood control technique used: Points are provided for the use of channel modifications (TUC), and storage facilities (TUF). (GTR 5.3)

**Section 540: Drainage System Maintenance:** To ensure that the community keeps its channels and storage basins clear of debris so that their flood carrying and storage capacity and maintained.

- **Capital improvement program (CIP):** up to 70 points for having a capital improvement program that corrects drainage problems. (GTR 3.7)
- **Coastal Erosion Protection Maintenance (EPM):** up to 100 points for maintaining erosion protection programs in communities with coastal erosion prone areas. (GTR 5.12)

**Section 600: Warning and Response:** The activities in this series focus on emergency warnings and response, because adequate notification combined with a plan for how to respond can save lives and prevent and/or minimize property damage. The activities emphasize coordinating emergency management functions with a community's other floodplain management efforts, such as providing public information and implementing a regulatory program. Separate, parallel activities are included for levees (Activity 620) and dams (Activity 630). Credit points are based on threat recognition, planning for a subsequent emergency response, and ongoing testing and maintenance. Up to 790 points. (GTR 4.2)

**Section 610: Flood Warning and Response:** To encourage communities to ensure timely identification of impending flood threats, disseminate warnings to appropriate floodplain occupants, and coordinate flood response activities to reduce the threat to life and property.

- **Flood response operations (FRO):** Up to 115 points with 10 points awarded for maintaining a database of people with special needs who require evacuation assistance when a flood warning is issued and for having a plan to provide transportation to secure locations. (could be done)
- **Flood threat recognition system (FTR):** Up to 75 points for a system that predicts flood elevations and arrival times at specific locations within the community (GTR 1.7)
- **Emergency warning dissemination (EWD):** Up to 75 points for disseminating flood warnings to the public. (could be done)
- **Critical facilities planning (CFP):** Up to 75 points for coordinating flood warning and response activities with operators of critical facilities. (could be done)
- **StormReady Community (SRC):** 25 points for designation by the National Weather Service as a StormReady Community. (could be done)
- **EWD9:** 10 points if all schools, hospitals, nursing homes, prisons, and similar facilities that need flood warning have NOAA Weather Radio receivers and at least one other automated backup system for receiving flood warnings. (could be done)

# Appendix

## 1 foot of Sea Level Rise Keyport Borough

### Legend

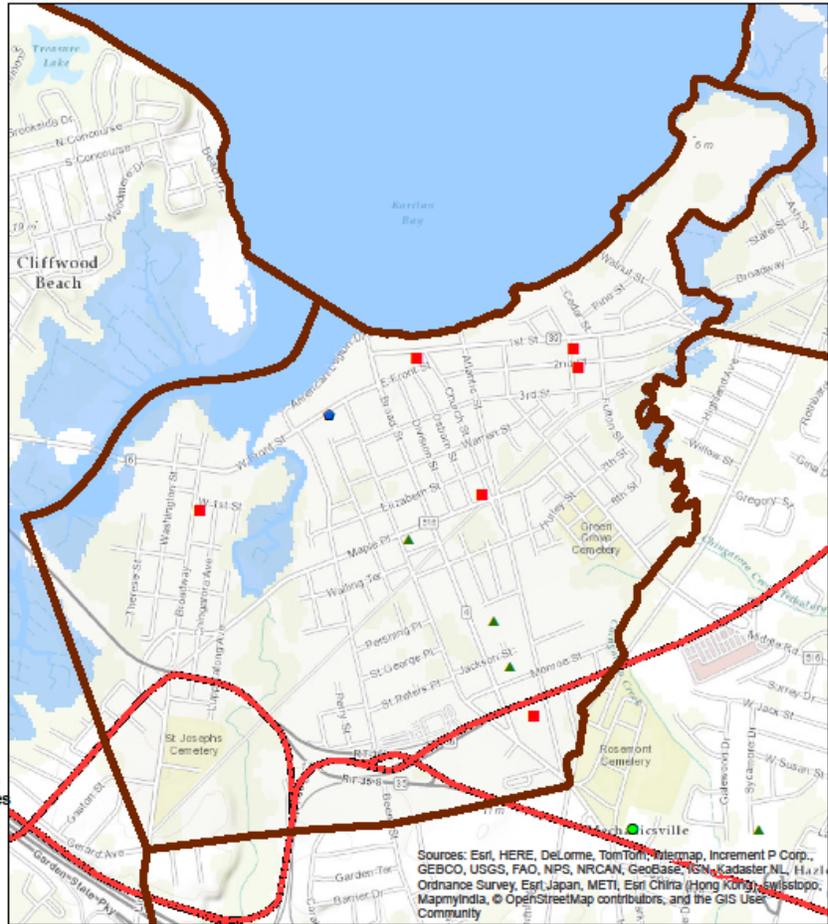
- Municipality
- ▲ Schools
- Fire Stations
- Law Enforcement
- Assisted Living
- H Hospitals
- Evacuation Routes
- 1ft SLR

0 0.125 0.25 0.5 Miles

Year 2010 Population: 7240

According to Kenneth G. Miller et al. in the 2013 study "A Geological Perspective on Sea-Level Rise and its Impacts Along the U.S. Mid-Atlantic Coast" a probable threat is the 1ft sea level rise condition that could be expected by 2050. This map depicts that sea level rise as well as the proceeding projections thereafter and is centered on target municipalities

Map Authors: Rachael Sacatelli and Bryan Serino  
 Rutgers, New Brunswick  
 Center for Remote Sensing  
 and Spatial Analysis



Sources: Esri, HERE, DeLorme, TomTom, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, HAZ, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

## 2 feet of Sea Level Rise Keyport Borough

### Legend

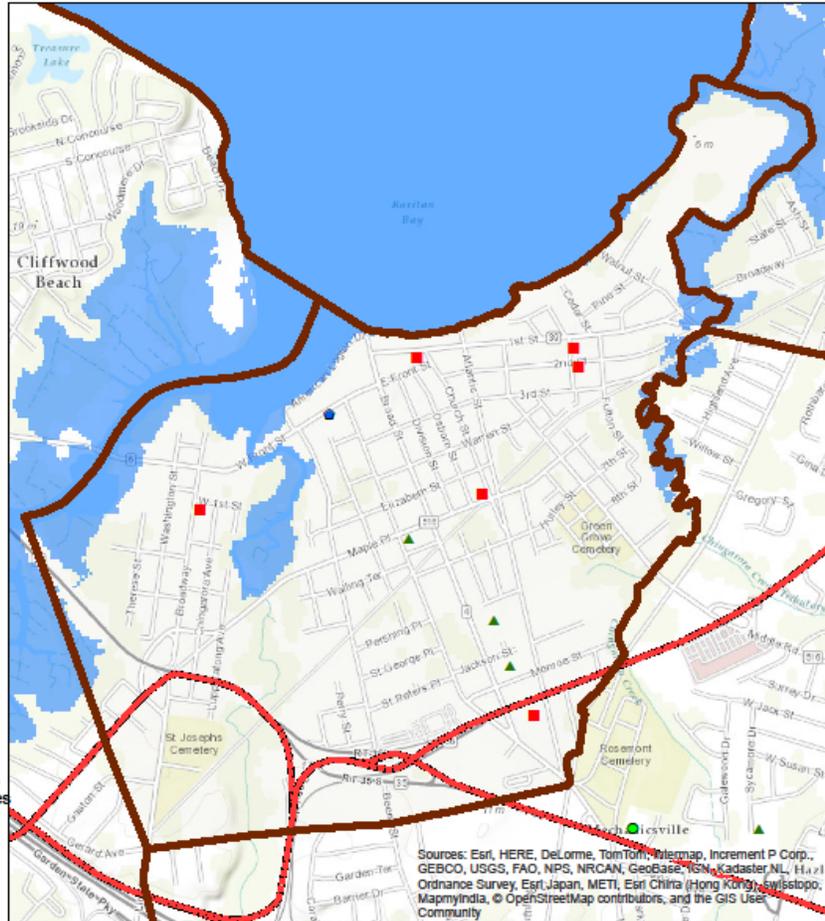
- Municipality
- ▲ Schools
- Fire Stations
- Law Enforcement
- Assisted Living
- Hospitals
- Evacuation Routes
- 2ft SLR

0 0.125 0.25 0.5 Miles

Year 2010 Population: 7240

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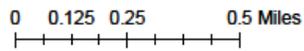


Sources: Esri, HERE, DeLorme, TomTom, Intermap, Incentiv P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, HAZ, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

### 3 feet of Sea Level Rise Keyport Borough

#### Legend

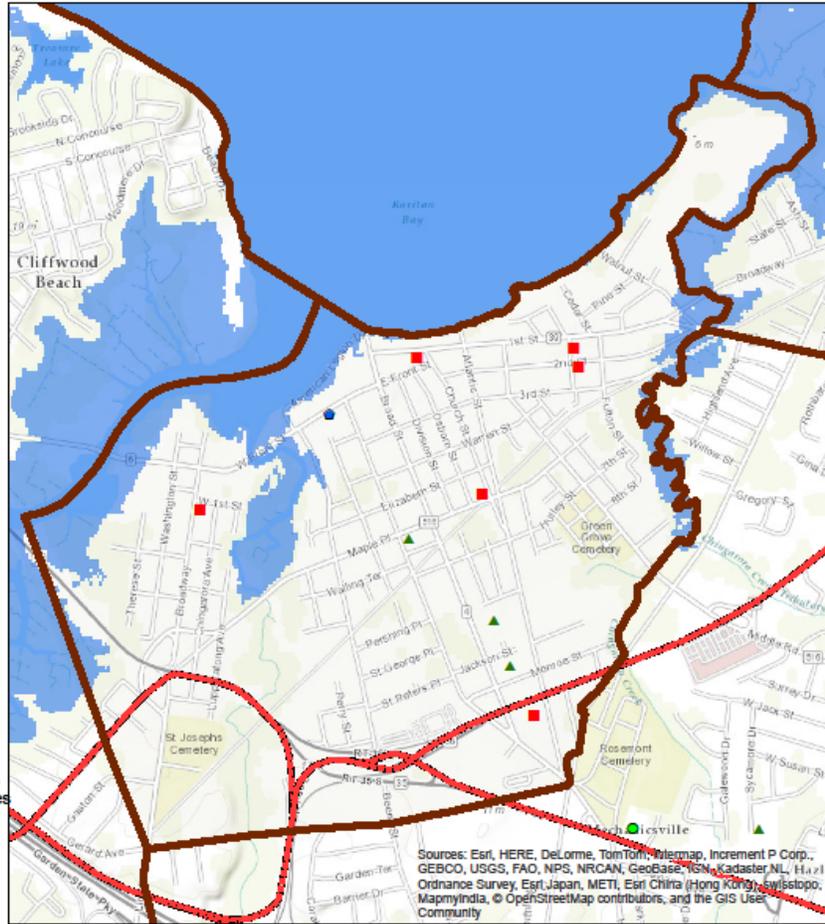
-  Municipality
-  Schools
-  Fire Stations
-  Law Enforcement
-  Assisted Living
-  Hospitals
-  Evacuation Routes
-  3ft SLR



Year 2010 Population: 7240

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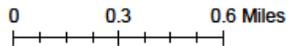
**Category 1 SLOSH Model  
Keyport Borough**

**Legend**

-  Municipality
-  Schools
-  Assisted Living
-  Law Enforcement
-  Hospitals
-  Fire Stations
-  Evacuation Routes

**Category 1 SLOSH**

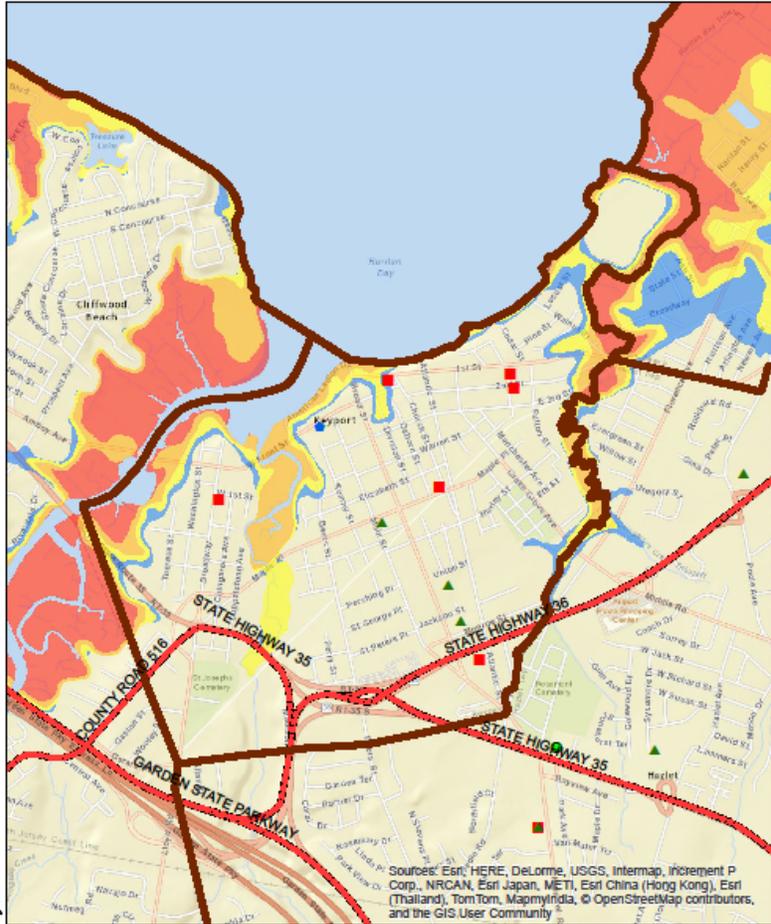
-  0 - 3 Feet Above Ground Level
-  3 - 6
-  6 - 9
-  > 9



Year 2010 Population: 7240

This map depicts the SLOSH model extents provided by NOAA. The depths are ranged from 0-9 or greater feet of inundation above ground level and are categorized in the legend above.

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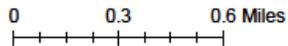
**Category 2 SLOSH Model  
Keyport Borough**

**Legend**

-  Municipality
-  Schools
-  Assisted Living
-  Law Enforcement
-  Hospitals
-  Fire Stations
-  Evacuation Routes

**Category 2 SLOSH**

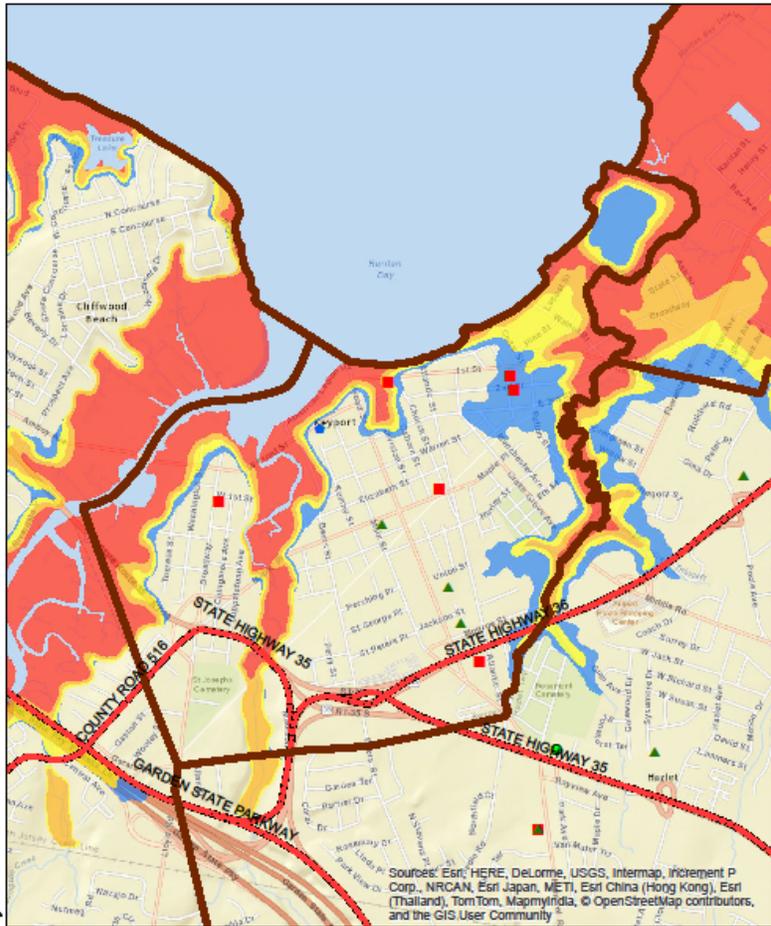
-  0 - 3 Feet Above Ground Level
-  3 - 6
-  6 - 9
-  > 9



Year 2010 Population: 7240

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**Category 3 SLOSH Model  
Keyport Borough**

**Legend**

-  Municipality
-  Schools
-  Assisted Living
-  Law Enforcement
-  Hospitals
-  Fire Stations
-  Evacuation Routes

**Category 3 SLOSH**

-  0 - 3 Feet Above Ground Level
-  3 - 6
-  6 - 9
-  > 9

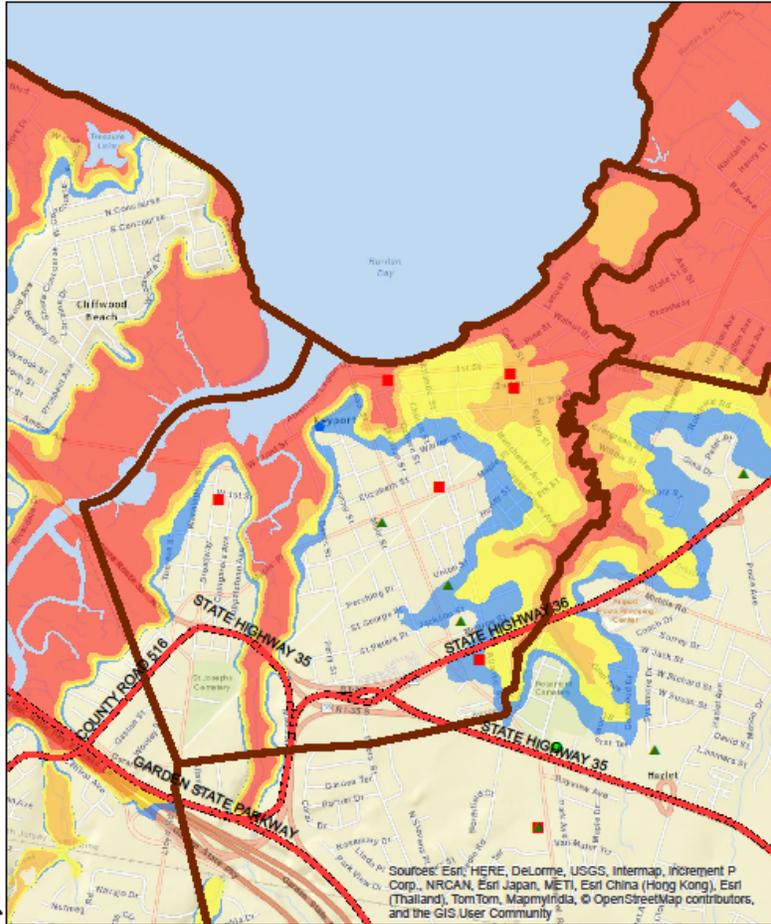
0 0.3 0.6 Miles



Year 2010 Population: 7240

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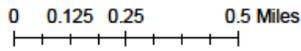


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## Marsh Retreat at 1 feet of Sea Level Rise Keyport Borough

### Legend

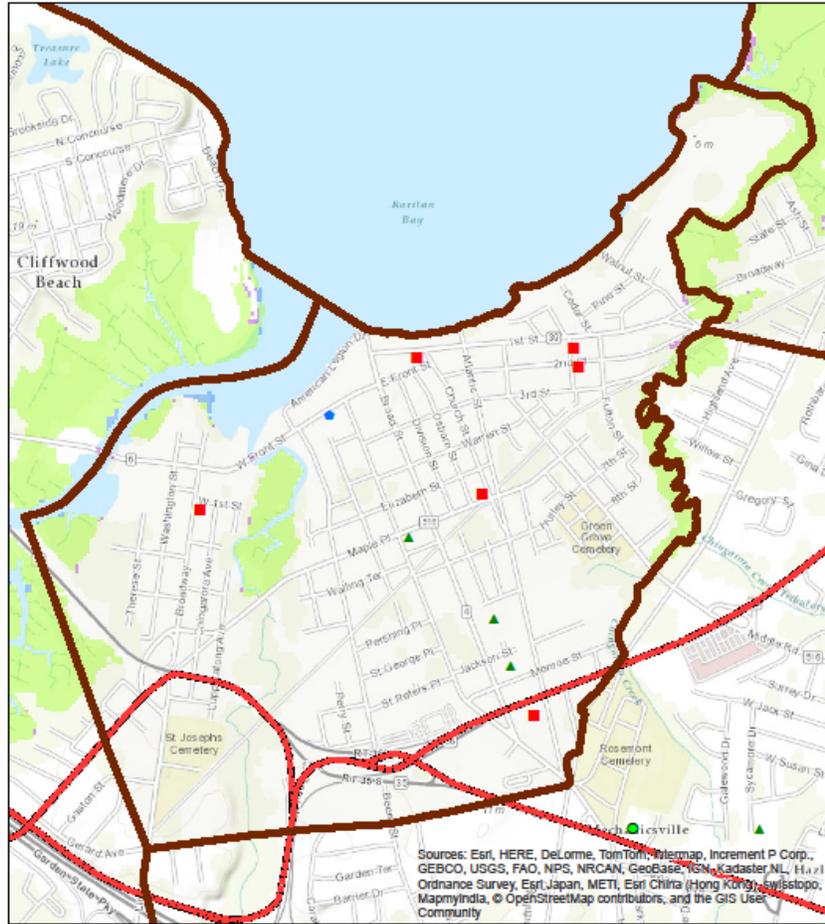
- Municipality
- ▲ Schools
- Fire Stations
- Law Enforcement
- Assisted Living
- Hospitals
- Evacuation Routes
- Marsh Retreat at 1ft SLR**
- Unimpeded Marsh Retreat Zone
- Impeded Marsh Retreat Zone
- Marsh Conversion: Unconsolidated Shore
- Marsh Conversion: Open Water
- Unchanged Tidal Marsh



Year 2010 Population: 7240

According to Kenneth G. Miller et al. in the 2013 study "A Geological Perspective on Sea-Level Rise and its Impacts Along the U.S. Mid-Atlantic Coast" a probable threat is the 1ft sea level rise condition that could be expected by 2050. This map depicts the marsh retreat caused by sea level rise centered on target municipalities.

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and Spatial Analysis

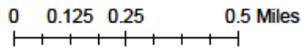


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## Marsh Retreat at 2 feet of Sea Level Rise Keyport Borough

### Legend

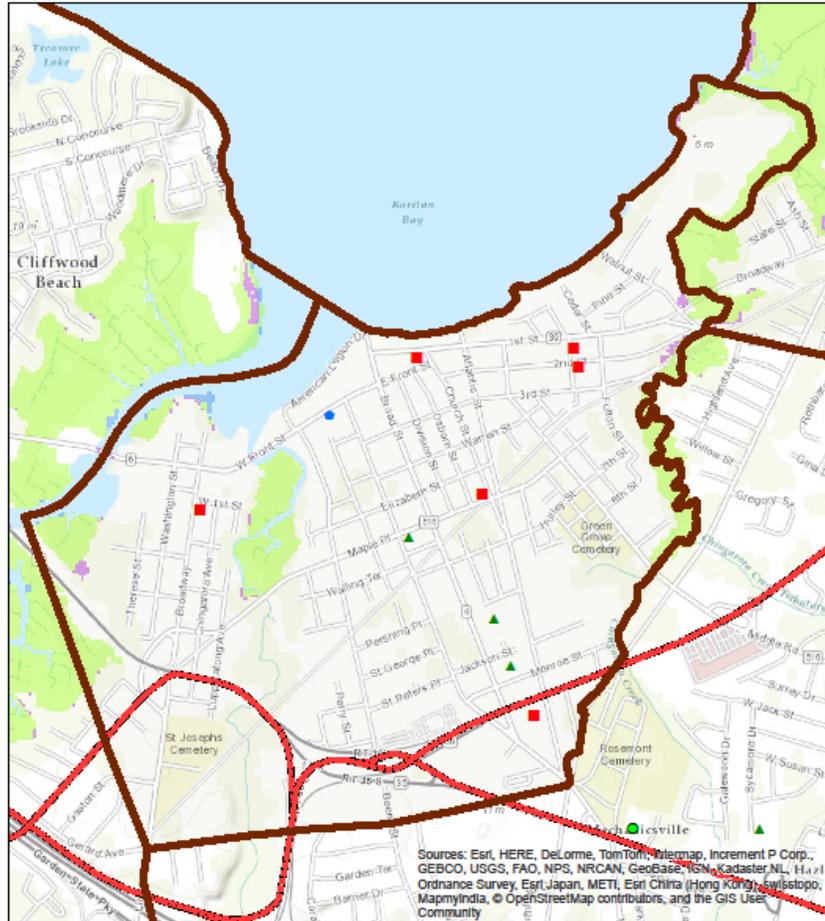
- Municipality
- ▲ Schools
- Fire Stations
- Law Enforcement
- Assisted Living
- Hospitals
- Evacuation Routes
- Marsh Retreat at 2ft SLR**
- Unimpeded Marsh Retreat Zone
- Impeded Marsh Retreat Zone
- Marsh Conversion: Unconsolidated Shore
- Marsh Conversion: Open Water
- Unchanged Tidal Marsh



Year 2010 Population: 7240

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## Marsh Retreat at 3 feet of Sea Level Rise Keyport Borough

### Legend

 Municipality

 Schools

 Fire Stations

 Law Enforcement

 Assisted Living

 Hospitals

 Evacuation Routes

### Marsh Retreat at 3ft SLR

 Unimpeded Marsh Retreat Zone

 Impeded Marsh Retreat Zone

 Marsh Conversion: Unconsolidated Shore

 Marsh Conversion: Open Water

 Unchanged Tidal Marsh

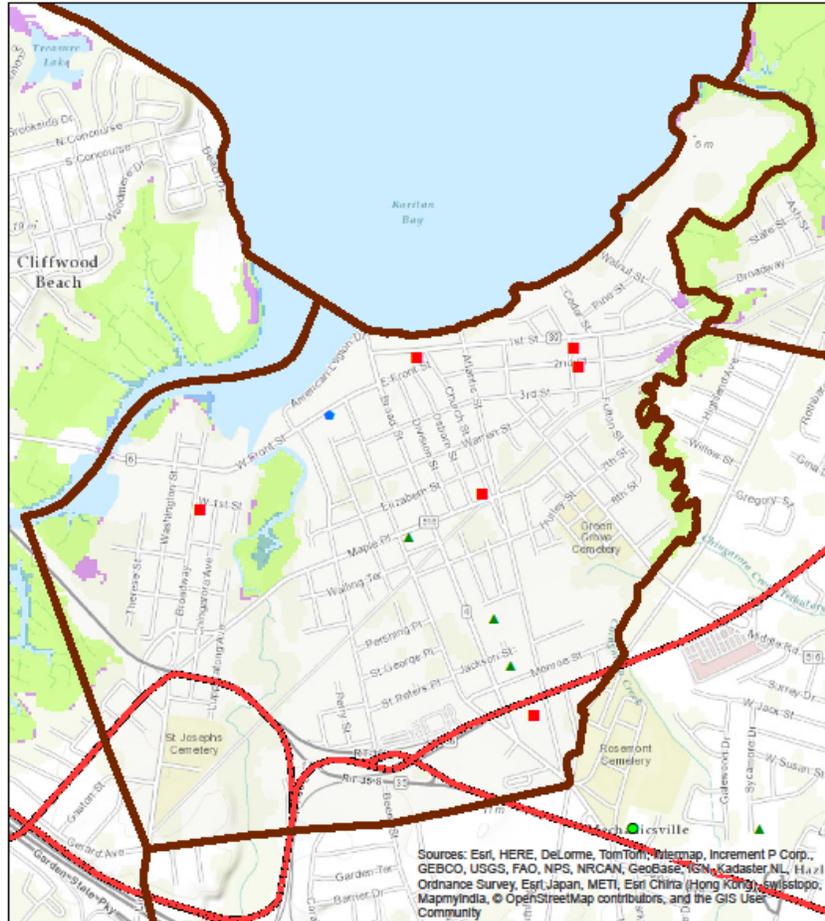
0 0.125 0.25 0.5 Miles



Year 2010 Population: 7240

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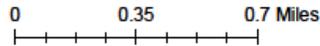
**FEMA's PFIRM Flood  
Zones for New Jersey  
Keyport Borough**

**Legend**

-  Municipality
-  Schools
-  Assisted Living
-  Law Enforcement
-  Hospitals
-  Fire Stations
-  Evacuation Routes

**PFIRM**

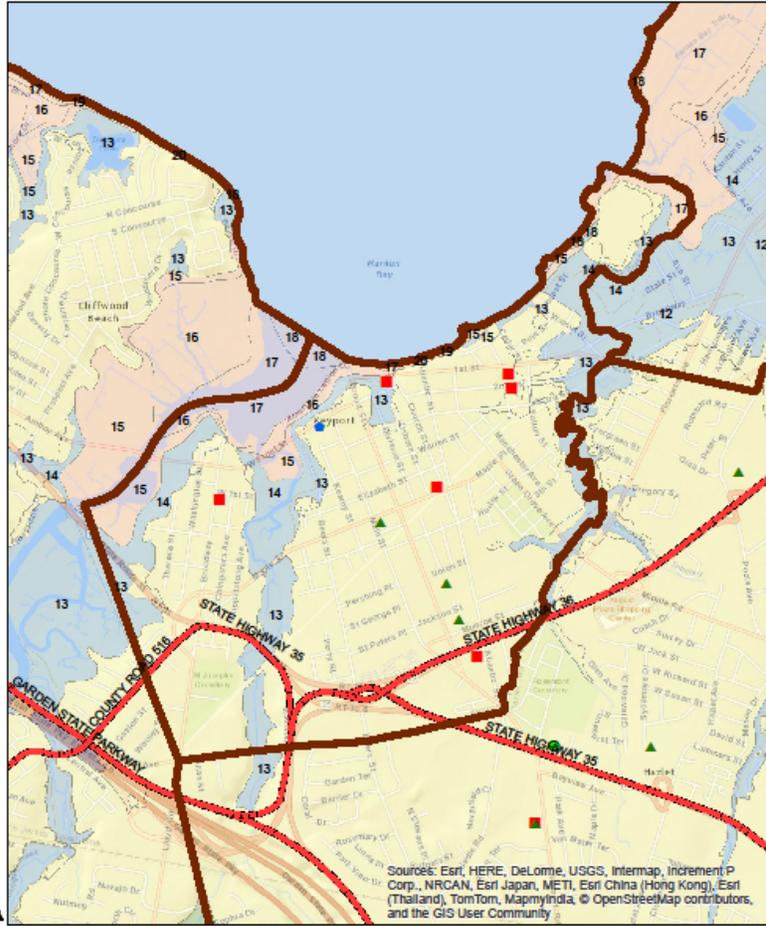
-  Zone X - 0.2% Annual Chance
-  A
-  AE
-  AO
-  D
-  VE



Year 2010 Population: 7240

This map shows the extents of FEMA's latest flood insurance rate maps for the state of New Jersey. The numerical label in the zones portrays the static ABFE zone. Please refer to the index for more information.

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and Spatial Analysis



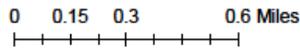
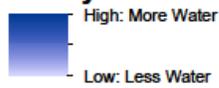
Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Tailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

## Sandy Storm Surge Keyport Borough

### Legend

-  Municipality
-  Schools
-  Fire Stations
-  Law Enforcement
-  Assisted Living
-  Hospitals
-  Evacuation Routes

### Sandy Storm Surge



Year 2010 Population: 7240

This map depicts the Sandy Storm Surge extents provided by FEMA. The depths are ranged in meters of inundation above ground level and are categorized in the legend above.

Map Authors: Rachael Sacatelli and Bryan Serino  
Rutgers, New Brunswick  
Center for Remote Sensing  
and Spatial Analysis



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp, GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS-User Community

## **APPENDIX D      REPRESENTATIVE LIST OF GRANT PROGRAMS**

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Included below is a list of several representative grants and funding programs for consideration by the Borough. The Borough's grant services consultant may have a more comprehensive list for consideration.

### ***New Jersey Environmental Infrastructure Trust (NJEIT)***

NJEIT is an independent State financing authority that provides low-interest rate loans ("H2IOans") to qualified borrowers in New Jersey for water quality and infrastructure projects.

"Clean Water" loans are available for Wastewater Projects associated with sewage collection, treatment or disposal, including correction of inflow/infiltration problems, sludge management and combined sewer overflows. Loans are also available for Stormwater Projects including construction, expansion or replacement of stormwater management systems, construction or expansion of basins, replacement of storm drains and rehabilitation of tide gates and extension of outfall points.

Green projects which Keyport may also wish to implement to reduce the impact of rainwater are also eligible, including replacing existing pavement with porous pavement, utilizing bio-retention, constructing green roofs, creating rain gardens, and other practices that mimic natural hydrology and increase effective perviousness.

### ***Flood Mitigation Assistance (FMA) Program***

The FMA program seeks to reduce or eliminate claims under the National Flood Insurance Program (NFIP). FMA provides funding to local communities for projects and planning that reduces or eliminates long-term risk of flood damage to structures insured under the NFIP. FMA funding is also available for management costs.

Funding for FMA is very limited and applications must come from local governments or other eligible organizations. The federal cost share for an FMA project is 75%. At least 25% of the total eligible costs must be provided by a non-federal source. At minimum, a FEMA-approved local flood mitigation plan is required before a project can be approved.

### ***Pre-Disaster Mitigation (PDM) Program***

The PDM Program is designed to assist local communities in implementing a sustained pre-disaster natural hazard mitigation program, with the goal of reducing overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding in future disasters. This program awards planning and project grants and provides opportunities for raising public awareness about reducing future losses before disaster strikes. Mitigation planning is a key process used to break the cycle of disaster damage, reconstruction, and repeated damage. PDM grants are funded annually by Congressional appropriations and are awarded on a nationally competitive basis. FEMA requires the adoption of a hazard mitigation plan as a condition for receiving funding for PDM mitigation projects.

### ***Emergency Management Performance Grant (EMPG)***

The Emergency Management Performance Grant Program plays an important role in the implementation of the National Preparedness System by supporting the building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal of a secure and resilient Nation. The EMPG supports efforts to build and sustain core capabilities across the five mission areas of Prevention, Protection, Mitigation, Response, and Recovery based on allowable costs.

### ***Homeland Security Grant Program (HSGP)***

Like the EMPG above, HSGP plays an important role in the implementation of the National Preparedness System by supporting the building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal of a secure and resilient Nation. The HSGP supports efforts to build and sustain core capabilities across the five mission areas of Prevention, Protection, Mitigation, Response, and Recovery based on allowable costs.

HSGP is comprised of three interconnected grant programs including the State Homeland Security Program (SHSP), Urban Areas Security Initiative (UASI), and the Operation Stonegarden (OPSG). Together, these grant programs fund a range of preparedness activities, including planning, organization, equipment purchase, training, exercises, and management and administration.

***Community Development Block Grants (CDBG)***

Entitlement Community grants through CDBG are federal funds, through the Department of Housing and Urban Development (HUD), intended to provide low and moderate-income households with viable communities, including decent housing, as suitable living environment, and expanded economic opportunities. Eligible activities include community facilities and improvements, roads and infrastructure, housing rehabilitation and preservation, development activities, public services, economic development, planning, and administration. Public improvements may include flood and drainage improvements.

***NJDEP Blue Acres Floodplain Program***

Properties and structures that have been damaged by, or may be prone to incurring damage caused by, storms or storm-related flooding, or that may buffer or protect other lands from such damage, are eligible for acquisition through the NJDEP Blue Acres Program. All Blue Acres acquisitions must be from willing sellers.

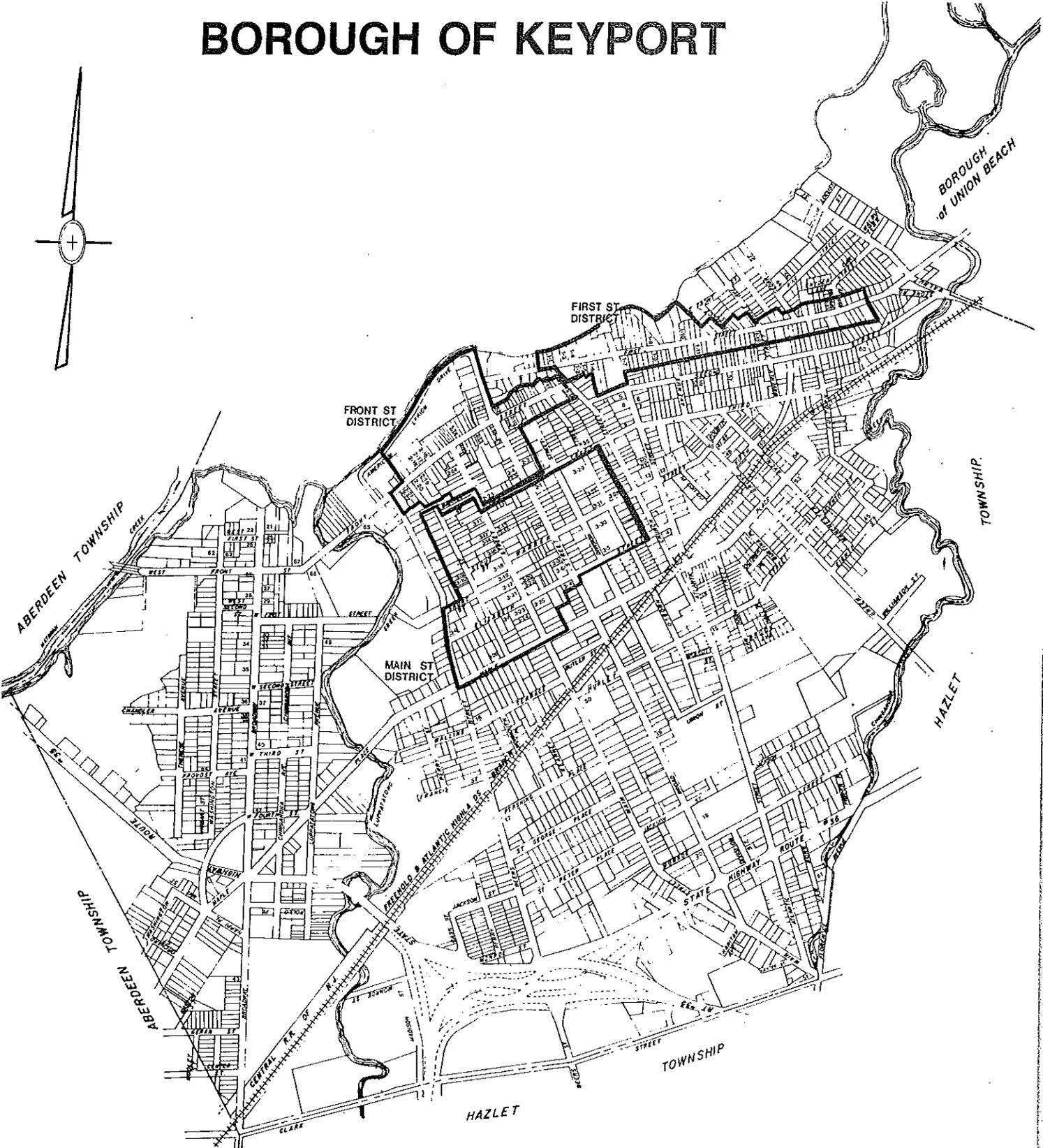
***NJDEP Green Acres Program***

Green Acres provides low interest loans and grants to assist local governments in the acquisition and development of open space for recreation and conservation purposes. Should Keyport wish to acquire property for open space in order to increase pervious coverage and mitigate the impact of rainfall, these funds would be applicable.

**APPENDIX E      HISTORIC DISTRICT MAP AND INVENTORY**

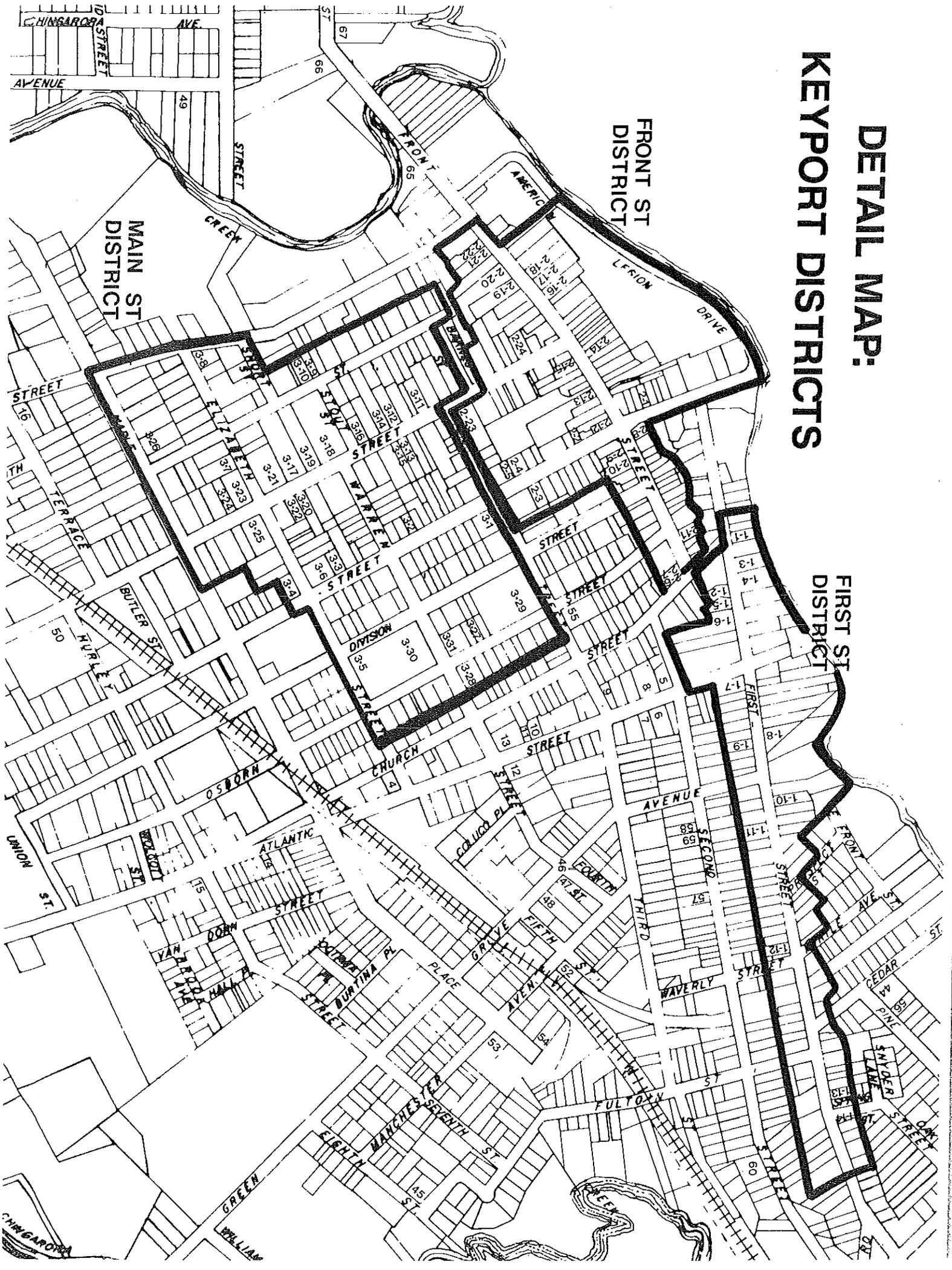
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# BOROUGH OF KEYPORT



Municipal Code 1322

# DETAIL MAP: KEYPORT DISTRICTS



**KEYPORT BOROUGH: 1321**

Y= Listed on or eligible for the National Register of Historic Places (NRHP) or NJ Register (SR)  
 N= Not eligible for the NRHP or SR  
 P= Potentially eligible for the NRHP (requires additional research)  
 D= Eligible as part of a recommended historic district  
 Y/D= Individually eligible and eligible as part of a recommended historic district

<u>INV #</u>	<u>SITE NAME</u>	<u>ADDRESS</u>	<u>NRHP ELIG.</u>
1322-1	First Street District		Y
1322-1-1		55 First Street	D
1322-1-2	The Van Brackle House	72 First Street	Y/D
1322-1-3		75 First Street	D
1322-1-4		79 First Street	D
1322-1-5		74 First Street	D
1322-1-6	Samuel G. Fairchild House	86 First Street	Y/D
1322-1-7		112 First Street	D
1322-1-8	Joseph Bailey House	129 First Street	D
1322-1-9		132 First Street	D
1322-1-10		153 First Street	D
1322-1-11		170 First Street	D
1322-1-12		216 First Street	D
1322-1-13	Zaccheus Snyder House	277 First Street	D
1322-1-14		289 First Street	D
1322-2	Front Street District		P
1322-2-1	Joseph Maurer Building	36 Broad Street	Y
1322-2-2	People's National Bank	70 Broad Street	D
1322-2-3	Palace Diner	83 Broad Street	D
1322-2-4	First Presbyterian Church	84 Broad Street	Y
1322-2-5	Raritan House Co. #2	86 Broad Street	D
1322-2-6	J.W. Keough Building	S. side East Front Street	D
1322-2-7	Keyport Academy	SW cr. East Front Street and Church Street	D
1322-2-8	Mansion House Hotel	5 East Front Street	D
1322-2-9		6 East Front Street	D
1322-2-10		8 East Front Street	D

<u>INV #</u>	<u>SITE NAME</u>	<u>ADDRESS</u>	<u>NRHP ELIG.</u>
1322-2-11	Keyport Borough Hall and Fire Station	51 East Front Street	D
1322-2-12	Walling Hall	SW cr. West Front and Broad Streets	D
1322-2-13		16-18 West Front Street	D
1322-2-14	People's National Bank	25 West Front Street	D
1322-2-15		34 West Front Street	D
1322-2-16	Surf Theater	59 West Front Street	D
1322-2-17		57 West Front Street	D
1322-2-18		67 West Front Street	D
1322-2-19	Captain G.W. Johnson House	74 West Front Street	D
1322-2-20	Captain Emson House	80 West Front Street	Y
1322-2-21	Captain Luff House	92 West Front Street	D
1322-2-22	Capt. Lewis Morris House	96 West Front Street	D
1322-2-23	First Baptist Church	NE cr. Main Street and Third Street	Y
1322-2-24	Jersey Central Power and Light Bldg.	18 Main Street	D
1322-2-25	Keyport Banking Co.	10 East Front Street	D
1322-2-26	Chadwick's	37 West Front Street	D
1322-2-27	Keyport Banking Company	2 East Front Street	D
1322-3	Main Street District		Y
1322-3-1	Keyport Public Library	SE cr. Broad Street and Third Street	D
1322-3-2	Thomas Marshall House	138 Broad Street	D
1322-3-3	T.S.R. Brown House	162 Broad Street	Y/D
1322-3-4		178 Broad Street	D
1322-3-5	Dutch Reformed Church Parsonage	125 Division Street	Y/D (with church)
1322-3-6	T.S.R. Brown House	1 Elizabeth Street	D
1322-3-7		47 Elizabeth Street	D
1322-3-8		95 Elizabeth Street	D
1322-3-9		50 Kearney Street	D
1322-3-10		54 Kearney Street	D
1322-3-11		60-62 Main Street	D
1322-3-12		74 Main Street	D
1322-3-13	Barton House	75 Main Street	D
1322-3-14	James Bedle House	80 Main Street	Y/D
1322-3-15	Nimrod Bedle House	83 Main Street	D

<u>INV #</u>	<u>SITE NAME</u>	<u>ADDRESS</u>	<u>NRHP ELIG.</u>
1322-3-16		88 Main Street	D
1322-3-17		92 Main Street	D
1322-3-18	Thomas B. Stout House	100 Main Street	Y/D
1322-3-19		102 Main Street	D
1322-3-20		115 Main Street	D
1322-3-21	Captain William Walling House	120 Main Street	D
1322-3-22		125 Main Street	D
1322-3-23		126 Main Street	Y/D
1322-3-24	J.B. Winterton II House	130 Main Street	D
1322-3-25		133 Main Street	D
1322-3-26		73 Maple Street	D
1322-3-27	W.S. Murphy House	84 Osborn Street	D
1322-3-28		91 Osborn Street	D
1322-3-29		35 Third Street	D
1322-3-30	Dutch Reformed Church	S. side Warren Street at Osborn Street	Y/D
1322-3-31		33 Warren Street	D
1322-3-32		53 Elizabeth Street	D
1322-3-33	The Chadwick House	69 Main Street	D
1322-3-34		173 Broad Street	D
1322-3-35	A. Salz House	56 Main Street	D
1322-3-36		83 Maple Place	D
1322-3-37		36 Kearney Street	D
1322-4		145 Church Street	N
1322-5		36 Atlantic Street	N
1322-6		41 Atlantic Street	N
1322-7		43 Atlantic Street	N
1322-8		42 Atlantic Street	P
1322-9		52-54 Atlantic Street	N
1322-10	Capt. Thomas Walling House	70 Atlantic Street	N
1322-11		74 Atlantic Street	N
1322-12		91 Atlantic Street	N
1322-13		92 Atlantic Street	N
1322-14	Second Baptist Church	205 Atlantic Street	N

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Wednesday, March 19, 2008

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<u>INV #</u>	<u>SITE NAME</u>	<u>ADDRESS</u>	<u>NRHP ELIG.</u>
1322-15		215 Atlantic Street	Demolished
1322-16		169 Beers Street	N
1322-17		237 Beers Street	P
1322-18	Keyport High School	NE cr. Broad and Monroe Street	N
1322-19		315 Broad Street	N
1322-20		398 Broad Street	N
1322-21		7 Broadway	N
1322-22	Cuttrell House	16 Broadway	N
1322-23		17 Broadway	N
1322-24		19 Broadway	N
1322-25		30 Broadway	N
1322-26		52 Broadway	N
1322-27		63 Broadway	N
1322-28		64 Broadway	N
1322-29		69 Broadway	N
1322-30	Eagle Hose Company #4	91 Broadway	N
1322-31		97 Broadway	N
1322-32		99 Broadway	N
1322-33		101 Broadway	N
1322-34		104 Broadway	N
1322-35		122 Broadway	N
1322-36		148 Broadway	N
1322-37		149-151 Broadway	N
1322-38		158 Broadway	N
1322-39		162 Broadway	N
1322-40		181 Broadway	P
1322-41		192 Broadway	N
1322-42		235 Broadway	N
1322-43		362 Broadway	N
1322-44		42 Cedar Street	N
1322-45		46 Eighth Street	N
1322-46		19 Green Grove Avenue	N
1322-47		21 Green Grove Avenue	N

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Wednesday, March 19, 2008

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<u>INV #</u>	<u>SITE NAME</u>	<u>ADDRESS</u>	<u>NRHP ELIG.</u>
1322-48		29 Green Grove Avenue	N
1322-49		11 Luppataong Avenue	N
1322-50	H.P. Moller House	205 Main Street	P
1322-51	Washington Hotel	470 Main Street	N
1322-52		33 Manchester Avenue	N
1322-53	C.S. Bucklin Canning Factory	75 Maple Place	N
1322-54		1 Maple Place	N
1322-55	Calvary M.E. Church	NE cr. Osborn and Third Streets	P
1322-56		12 Pine Street	N
1322-57	East Keyport School	110 Second Street	N
1322-58		78 Second Street	N
1322-59		82 Second Street	N
1322-60		210 Second Street	N
1322-61		249 Van Dorn Street	N
1322-62		26-28 Washington Street	N
1322-63		29 Washington Street	N
1322-64		170 Washington Street	N
1322-65		150 West Front Street	Y
1322-66	Henry H. Seabrook House	160-164 West Front Street	P
1322-67		168 West Front Street	N
1322-68		8 Luppataong Avenue	N
1322-69		82 Atlantic Street	N
1322-70		199 Second Street	N
1322-71	The Tenant Farmer House	4 Snyder Lane	N

**APPENDIX F      2007 NATURAL RESOURCE INVENTORY**

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# NATURAL RESOURCE INVENTORY

Borough of Keyport  
Monmouth County, New Jersey



Prepared by:



**Consulting & Municipal  
ENGINEERS**

1460 Route 9 South, Howell, NJ 07731

August 2007

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## **INTRODUCTION**

This Natural Resource Inventory (NRI) for the Borough of Keyport has been compiled pursuant to the authorization of the Mayor and Borough Council. In accordance with Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.), a municipal Master Plan is required to contain a land use plan element. An NRI is a compilation of basic environmental information that is an essential supplement to a land use plan. This document is therefore intended to be utilized by the Keyport Borough Environmental Commission, the Unified Land Development Review Board, and Borough Committee to aid in the identification of significant natural resources and the evaluation of environmental issues in land use planning.

Maps for this NRI were generated using Geographic Information Systems (GIS) software. A GIS facilitates the linking of digital spatial data that define the location and boundaries of natural and cultural resources to databases that contain information identifying the characteristics of each resource. Data used in this project was obtained from secondary sources including the New Jersey Department of Environmental Protection (NJDEP), the New Jersey Geological Survey (NJGS), the New Jersey Office of State Planning, and the Monmouth County GIS Management Office (MCGISMO). Compilation of the NJDEP data was completed in 1996/1997, the NJGS data was completed in 1998/1999, and the MCGISMO data was completed in 2000. The data is continually updated by NJDEP, with the last photo base map completed between 2002 and 2003. Most data sets were used as received from the source agencies, but some were partially modified to include changes that have occurred since the original data was acquired or to include local information. The base map depicting Keyport tax lots and roadways was created by CME Associates using Computer Aided Drafting and Design (CADD) software. The Association of New Jersey Environmental Commissions (ANJEC) document entitled "The Environmental Resource Inventory: NRI" also provided guidance in the preparation of this inventory.

Maps for this NRI are provided at two different scales. Maps at a 1"=5000' scale are bound into this document, and a set of similar maps at a 1"=2,500' scale are attached separately. The larger scale maps are intended to assist in the assessment of individual land parcels.

## **POPULATION**

The Borough of Keyport comprises an area of approximately 1.4 square miles. The Township population recorded in the year 2000 census is 7,568 (United States Census Bureau). There was steady growth in Borough population over the four decades from 1960 to 2000. During these forty years, population increased from 6,440 to 7,568 (See Table 1 Population Trends). However, there was a population decrease of 0.2% in the ten-year span between 1990 and 2000.

**TABLE 1**  
**POPULATION TRENDS**

<u>Year</u>	<u>Population</u>
1930	4,940
1940	5,147
1950	5,888
1960	6,440
1970	7,205
1980	7,413
1990	7,586
2000	7,568

## **CLIMATE**

The Borough of Keyport has a continental climate, with the prevailing winds from the south during summer months. The buffering effects from the Atlantic Ocean on temperature are substantial. In an average year, the growing season extends from early April until mid to late October and lasts approximately 240 days. Rainfall averages approximately 46 inches per year, and is more or less evenly distributed month to month. Total annual snowfall accumulations average 25”.

## **LAND USE**

The New Jersey Department of Environmental Protection GIS database includes eighteen different types of land uses within the Borough of Keyport. These land use types are interpreted from aerial color infrared photography, and do not reflect changes in land use that have occurred since the data was acquired. The Land Use Map is based on a land use and land cover classification system developed by the US Geological Survey and edited by NJDEP (U.S. Geological Survey, 1976). Brief definitions of each land use category mapped in Keyport are provided in this section. Map units representing wetland areas are described in the Freshwater Wetlands section.

### ***Altered Lands***

This map unit includes lands outside of an urban location that have been altered by human activities other than mining.

### ***Athletic Fields (Schools)***

This category includes athletic fields that are only associated with schools.

### ***Beaches and Dunes***

Areas in this category are predominantly composed of sand and may occur at the land-water interface of oceans, bays and estuaries. Beaches are generally elongated non-vegetated buffering systems subject to the action of waves and tides.

### ***Cemetery***

Areas set apart for containing graves, tombs or funeral urns. Cemeteries are separate from churchyards.

### ***Commercial and Services***

The commercial and services land use coverage includes properties that contain buildings predominantly used for services and the sale of products. Also included in this map unit are support areas such as parking lots, driveways, and associated landscaped areas. Due to the limitations in the mapping process, some residential and industrial land uses may be contained within this map unit.

***Deciduous Forest***

This map unit includes woodlands with an average tree height greater than 20 feet and at least 75% deciduous trees.

***Deciduous Wooded Wetlands***

These forest areas contain deciduous trees with an average tree height in excess of 20 feet. Species found here are well suited for wet, hydric soils found within wetland areas.

***Industrial***

Light and heavy industrial land uses are included in this map unit.

***Managed Wetlands***

Former natural wetland areas that now are part of an altered managed recreational area, but which still exhibit signs of soil saturation. These areas do not support typical wetland vegetation, but are vegetated primarily by grasses and other planted vegetation that may be routinely mowed.

***Open Tidal Bays***

Included in this category are large tidal water bodies that have large unrestricted openings directly to the Atlantic Ocean.

***Other Urban or Built-Up Land***

This map unit includes urban areas that are not associated with active commercial, industrial, service, transportation, communications, or utility facilities. These areas are usually open lands, possibly with abandoned buildings in a state of ruin. Cemeteries are also included in this category.

***Prime Farmland***

Prime farmland is based on data provided by the Natural Resource Conservation Service (NRCS). Prime farmland is generally defined by the US Department of Agriculture as land with the soil quality, growing season, and moisture supply needed to produce a sustained high yield of crops while employing conventional farming methods. The mapping therefore identifies the location and extent of the most suitable land for producing crops (Jablonski & Baumley, 1989). There is only one small area within the Borough of Keyport designated as prime farmland, however, it has been converted into a graveyard since the date of photographic interpretation.

### ***Recreation Land***

Areas depicted as recreation land have been specifically developed for recreational activities that are open to the general public.

### ***Residential***

Single unit medium density residential and multiple unit high-density residences are included in this land use category.

### ***Saline Marshes***

Areas that are open graminoid dominated regions associates with waters with salinities greater than 1 part per thousand. Saline marshes are dominated by cordgrasses, phragmites, cattails and bulrush.

### ***Tidal Rivers, Inland Bays & Other Tidal Waters***

Included in this category are the tidal portions of watercourses, enclosed tidal bays and other tidal water bodies such as tidal pools, ponds and natural lagoons.

### ***Transitional Areas***

Lands on which site work or construction has begun for a range of development types are mapped as transitional areas.

### ***Transportation, Communication, and Utilities***

Areas included in this category are limited access highways, railroad facilities, bus and truck terminals, airports, wetland rights-of-way, water treatment facilities, sewage treatment facilities, and communication towers.

## **STATE DEVELOPMENT AND REDEVELOPMENT PLAN**

The New Jersey State Development and Redevelopment Plan (“the Plan”) was initially adopted in June of 1992. A new State Development and Redevelopment Draft Final Plan was adopted on March 1, 2001.

In 1985, the New Jersey State Legislature adopted the State Planning Act (under N.J.S.A. 52:18A-196 et. seq.). According to the New Jersey Office of State Planning, the Plan was developed because the State of New Jersey needed sound and integrated statewide planning to “...conserve its natural resources, revitalize its urban centers, protect the quality of its environment, and provide needed housing and adequate public services at a reasonable cost while promoting beneficial growth, development, and renewal...” (New Jersey Office of State Planning, 2000). The Plan is designed to establish statewide planning objectives “regarding land use, housing, economic development, transportation, natural resource conservation, agriculture and farmland retention, recreation, urban and suburban redevelopment, historic preservation, public facilities and services, and intergovernmental coordination”.

The Resource Planning and Management Structure of the Plan has two basic concepts: Planning Areas and Centers/Environs. Planning Areas are determined by type and intensity of development, proximity to existing developed areas, public and private infrastructure, and environmental resources. Five Planning Areas are defined:

- PA1: Metropolitan Planning Area - Designed to “promote growth, stabilize and revitalize communities, modernize infrastructure, and redesign areas of sprawl”.
- PA2: Suburban Planning Area - Designed to “promote much of the statewide growth in centers and redesign areas of sprawl”
- PA3: Fringe Planning Area - Designed to “accommodate growth in centers and keep environs largely open”
- PA4: Rural Planning Area, which includes PA4B, the Rural/Environmentally Sensitive Planning Area - Designed to “promote a viable agricultural industry, protect large contiguous areas of farmland – including those on environmentally sensitive land – and accommodate growth in centers”.
- PA5: Environmentally Sensitive Planning Area, which includes PA5B, the Environmentally Sensitive/Barrier Island Planning Area - Designed to “protect environmental resources – including large areas of open lands and sensitive barrier islands – and accommodate growth in centers”.

Centers are defined as central places within planning areas where growth should be either attracted or contained, depending on the unique characteristics and growth opportunities of each center and the characteristics of the surrounding planning area in which it is located.

Environs are “areas outside centers and should be protected from the growth that occurs in centers”.

Two State planning areas are designated within the Borough of Keyport: the Metropolitan Planning Area (PA1) and the Environmental Sensitive Planning Area (PA5). It should be noted that State Planning Areas generally do not coincide with the Township boundaries, but extend into adjacent municipalities. The New Jersey State Development and Redevelopment Plan should be referenced for specific details on how the designated State planning areas may affect various aspects of development within the Borough of Keyport. A copy of the Plan can be obtained from the New Jersey Office of State Planning, Department of Community Affairs (33 West State Street, P.O. Box 204, Trenton, NJ 08625-0204, Phone: 609-292-7156).

## **HISTORIC SITES**

An inventory of historic sites in Monmouth County has been compiled by the Monmouth County Historical Association (1990), and this list was used to create the Borough of Keyport Historic Sites Map. The County inventory was performed in accordance with criteria established by the National Historic Preservation Act of 1966. Extant aboveground structures which are considered significant to or representative of the County’s history, culture, or architecture, were identified and documented in the inventory. Selection criteria included age, structural type, architectural style, and historical or cultural association. In general, sites at least 50 years old were considered for selection. The physical condition of a structure was also a factor in site selection.

Fishing Village – Keyport has a history as a fishing village, specifically oystering, as well as a port for steamboats. Records of sailboats and steamships built and used in Keyport through the end of the nineteenth century are kept at Keyport’s Steamboat Dock Musuem, which is located on Broad Street.

The New Jersey Department of Environmental Protection, Historic Preservation Office provides a current listing of the New Jersey and National Registers of Historic Places (last updated 7/20/06). After reviewing the list, there appears to be two places listed within the Borough of Keyport and they are the following:

Front Street Historic District – Front Street Historic District can be found on Front Street between Beers Street and Church Street. This district is associated with Keyport’s history of fishing and use as a port. (ID #3351)

Garden State Parkway Historic District – The Garden State Parkway right-of-way is listed on both the National Historic Places List and the State Historic Places List, however, the Garden State Parkway and its right-of-way are not located within the Borough of Keyport’s boundaries.

## **GEOLOGY**

### **Physiography**

The Borough of Keyport is located entirely within the Atlantic Coastal Plain physiographic province. The Coastal Plain is characterized by low lying terrain with open stream valleys and broad, gently sloping divides. Topography in the Coastal Plain is a result of the differential erosion of unconsolidated, gently dipping strata of gravel, sand, silt, and clay. Relatively resistant geologic formations erode less rapidly and typically form the higher elevations. The majority of Keyport is at an elevation less than 50 feet, with the lowest areas along the northern boundary of the Borough at sea level. The highest point in the Borough of Keyport is on Route 35 near its intersection with Clark Street at an elevation of 47 feet above mean sea level (NGVD 1929). Steep slopes exist along the Luppataong Creek near the southern border of the Borough and near the confluence of the Matawan Creek and Raritan Bay near the north end of Broadway. Coastal bluffs, also considered to be steep slopes, are located in various locations along the Raritan Bay at the northern border of the Borough.

## **Stratigraphy**

The Atlantic Coastal Plain is mainly composed of strata of clay, silt, sand, and gravel deposited during the Cretaceous and Tertiary geologic time periods. These layers of unconsolidated sediment lie over a basement of much older Precambrian and early Paleozoic crystalline rock (schist and gneiss). The sedimentary formations dip gently toward the southeast (10 to 60 feet per mile), and generally thicken toward the southeast (Kümmel, 1940).

Each sedimentary formation of the Coastal Plain consists of a succession of strata of similar or variable characteristics that were deposited over a particular interval of geologic time. The surface outcrop patterns of the formations generally trend from southwest to northeast. On a local scale, formation boundaries typically appear irregular due to their gentle dip and the effects of topography. Sedimentary strata of the Coastal Plain dip to the southeast, and the formations become successively younger toward the southeast. Brief descriptions of each formation that outcrops within the Township are obtained from Wilber & Johnson (1940).

### *Woodbury Formation (Kwb)*

The *Woodbury* formation consists of a dark gray clay-silt that weathers brown or orange pink. Iron oxides fill fractures to form layers in the most weathered beds. This unit is massive except for the base where thin quartz sand layers are present. Locally and near the top, thin strings of pale-greenish-brown, smooth surface glauconite occur. The formation also contains finely dispersed pyrite, carbonaceous matter, and small pieces of carbonized wood as much as 12 inches in length. The *Woodbury* maintains a thickness of about 49 feet throughout most of the outcrop belt.

### *Merchantville Formation (Kmv)*

The *Merchantville* formation consists of black, glauconitic, micaceous clay deposited in a marine environment. Maximum thickness is approximately 60 feet and it dips towards the southeast. The *Merchantville* is conformable (transitions gradually) to the underlying Magothy sand/clay. In Keyport, the *Merchantville* is found beneath a majority of the Township.

*Magothy Formation (Kmr)*

The *Magothy* formation is typically comprised of sand, quartz, fine to coarse grained, locally gravelly (especially at the base) and weathers to yellow brown or orange brown. This formation is interbedded with thin-bedded clay or dark-gray clay-silt, mainly at the top of the formation. Maximum thickness of the Magothy sand is 260 feet.

**TABLE 2  
GEOLOGIC FORMATIONS OF THE BOROUGH OF KEYPORT**

AGE	FORMATION	HYDROGEOLOGIC UNIT		THICKNESS (Feet)
Upper Cretaceous (70-100 mya)	Woodbury Clay	Merchantville-Woodbury Confining Unit		50
	Merchantville Formation			60
	Magothy and Raritan Formations	Raritan-Magothy Aquifer System	Upper Aquifer	50-200
			Confining Unit	50-150
			Middle Aquifer	50-150
Pre-Cretaceous	Pre-Cambrian/Lower Paleozoic Schist and Gneiss	Bedrock Confining Unit		----

**Adapted from Pucci, Gronberg, & Pope (1989)**

According to the NJDEP Technical Manual for Stream Encroachment, all three (3) of these formations (Magothy, Merchantville, and Woodbury) may contain iron sulfide minerals (pyrite or marcasite), that if exposed to air for a period of time can produce sulfuric acid. This material can drastically impact new and proposed vegetative cover and cause water pollution. The handling of this material should be done in accordance with the aforementioned NJDEP Stream Encroachment Manual.

## **AQUIFERS**

Aquifers are saturated geologic formations capable of yielding significant quantities of water under conventional pumping pressures. An unconfined aquifer is a near surface aquifer that has the water table as its upper boundary (also called a water table aquifer). A confined aquifer is a fully saturated unit bounded above and below by relatively impermeable formations called confining units. Aquifers underlying the Borough of Keyport include the Merchantville-Woodbury aquifer system and a portion of the Potomac-Raritan Magothy aquifer system.

Although the Potomac-Raritan Magothy aquifer system is not exposed at the surface within Keyport, the formation is present at depth within the Borough. The Raritan and Magothy formations are a complex sequence of interbedded sand, gravel, silt, and clay strata. In the northern Coastal Plain, this sequence can be divided for simplicity into upper and middle aquifers separated by a confining unit (Pucci, Gronberg, & Pope, 1989). Locally, the upper and middle aquifers may be respectively correlated to the Old Bridge sand and Farrington sand members of the Raritan-Magothy formations. A lower aquifer corresponding to the Potomac formation is absent in the northern Coastal Plain, and the middle aquifer is underlain directly by Pre-Cretaceous bedrock or by a clay layer that rests on bedrock. The Raritan-Magothy aquifer system is assigned rank "A" by the New Jersey Geological Survey, with an average yield of high capacity wells in excess of 500 gallons per minute. Water is typically fresh and moderately hard, with a near neutral pH. Elevated iron and manganese levels are common (NJDEP, 1996).

The Merchantville-Woodbury overlies the Raritan-Magothy aquifer system. The confining unit is comprised of silt and clay with thin layers of sand. An aquifer rank of "E" is assigned to the Merchantville-Woodbury formation, with an average yield of high capacity wells less than 25 gallons per minute.

Groundwater recharge is the transmission of water from the surface to the saturated zone beneath the water table. Areas of high aquifer recharge areas typically correspond to the outcrop occurrence of permeable strata that are hydraulically connected to an aquifer. Potential recharge areas therefore roughly correspond to areas where geologic formations comprising aquifers are exposed at the surface. Actual groundwater recharge is dependent on climate, soil characteristics, slope, vegetative cover, and land use. The method for quantitatively evaluating recharge areas and creating detailed groundwater recharge maps is outlined in the New Jersey Geological Survey

methodology from NJ Geological Survey Report GSR-32 "A Method for Evaluation for Groundwater Recharge Areas in NJ".

### **WELLHEAD PROTECTION AREAS**

Under the 1986 Federal Safe Drinking Water Act Amendments Program, New Jersey developed a Well Head Protection Program (WHPP) to prevent contamination of groundwater resources. The delineation of well head protection areas (WHPA) is one of the components of the WHPP. The WHPA is the area from which a well draws its water within a specific time frame. Once delineated, these areas become a priority for efforts to prevent and clean up ground water contamination and potential pollution sources may be managed in relation to their location within the WHPA.

The Borough of Keyport has one WHPA located within the southwestern portion of the site. The WHPA extends into neighboring Aberdeen Township.

### **STREAMS AND LAKES**

Major surface hydrologic features within the Borough of Keyport are presented on the Streams and Lakes Map. Drainage within the Borough is generally toward the north-northeast. Main streams in the northwestern border and the northeastern border of the Borough include Matawan Creek and Chingarora Creek. The Luppataong Creek bisects the western portion of the Borough. These streams generally flow toward the north and directly drain into the Raritan Bay. The entire Borough is thus part of the Raritan/Sandy Hook Bay watershed and the Atlantic drainage basin.

All streams within the Borough of Keyport are classified as FW2-NT/SE1 by the New Jersey Department of Environmental Protection (NJAC 7:9B; NJDEP, 2005). FW2 is a general surface water classification applied to fresh waters that are not considered to be of exceptional quality, significance, or resource value (i.e., not FW1 waters). NT is the designation for non-trout waters. SE1 represents the general surface water classification applied to saline waters of estuaries.

The New Jersey Department of Environmental Protection has divided the State into 20 Watershed Management Areas for the purposes of environmental planning and management. The major drainage systems of Keyport are within Monmouth Watershed Management Area 12 (NJDEP, 1996).

Water quality in the State is monitored by the NJDEP. The Matawan Creek and Chingarora Creek have been included on the 2006 Integrated List of Waters. The monitoring results publicly available were published in 2006 and reflect water quality conditions from 2004 through 2006. Both the Matawan Creek and the Chingarora Creek were assessed as non-attainment for supporting primary contact recreation (swimmable use), indicating relatively high chlordane, DDX, SO, mercury, pathogens and PCB concentrations in these waters. Priority rankings of pathogens in both creeks are high while the ranking of chlordane, DDX, dissolved oxygen, mercury and PCBs are medium. Matawan Creek also has pH of medium ranking.

Both the Matawan Creek and Chingarora Creek located within the Borough were assessed with regard to aquatic life support (macroinvertebrates). Both creeks were assessed as non-attainment. An assessment of a stream as non-attainment indicates no support of aquatic life use.

Principal land uses in the Raritan/Sandy Hook Bay watershed include suburban & urban residential, commercial and light industrial. Nonpoint source (NPS) pollution is caused by precipitation moving over and through land and carrying natural and anthropogenic pollutants into the surface and groundwater. Non-point source water quality problems associated with the land uses described above are related to suburban and urban runoff from flooding, fertilizers/pesticides/herbicides used on residential lawns, and stream bank destabilization.

No ponds or lakes exist within the Borough of Keyport. All bodies of water present are associated with the Matawan Creek, Luppataong Creek, Chingarora Creek and Raritan Bay.

### **FLOOD-PRONE AREAS**

The areas designated as flood-prone are based on readily available information on past floods, which may include detailed site-specific surveys and inspections. Information on potential flood zones is available on Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Association (FEMA). The FEMA FIRMs show areas subject to flooding

as determined by historic, meteorological, and hydrological data, as well as open space conditions, flood control structures, and land use in the watershed at the time the FEMA study is conducted. These maps delineate Special Flood Hazard Areas, commonly referred to as 100-year or base flood areas. These maps may also include the elevation of the base flood (100-year flood event), flood insurance risk zones, and areas subject to inundation by the a 500-year flood event, all of which may be used to establish the National Flood Insurance Program's (NFIP) flood insurance premiums. In general, there is an average of 1 chance in 100 that these flood-prone areas will be inundated in any year. A Flood-Prone (FEMA/FIRM) Areas Map for the Borough of Keyport is included in this document and zones designations within the borough are described in the table below.

**TABLE 3**

**BOROUGH OF KEYPORT FLOOD INSURANCE RATE MAP ZONE DESIGNATIONS**

<b><u>ZONES</u></b>	<b><u>EXPLANATION</u></b>
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but not flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths area between one (1) and three (3) feet; base flood elevations are shown, but no flood hazards factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected be levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazards factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazards factors determined.

## **FRESHWATER WETLANDS**

Wetlands are generally defined as areas that are inundated or saturated by surface or ground waters at a frequency and duration sufficient to support vegetation adapted for life in saturated soil conditions. The Freshwater Wetlands Map for Keyport depicts wetlands within the Borough as interpreted by the New Jersey Department of Environmental Protection from 1986 color aerial infrared photography. These wetland areas are classified according to the U.S. Geological Survey Land Use and Land Cover classification system used for Land Use mapping. The wetlands map is intended for use as a planning guide to indicate areas that may potentially contain regulated wetlands. Actual determination of regulated areas is dependent on a field delineation of the wetland boundary.

Freshwater wetlands in Keyport are commonly associated with stream corridors. General wetland types found within the Township include:

Deciduous Wooded Wetlands – This map unit includes closed canopy swamps associated with watercourses and marsh edges, as well as isolated wetlands. The wetlands are dominated by deciduous tree species (>75%) with an average height greater than 20 feet.

Deciduous Shrub/Scrub Wetlands – This map unit includes brush/shrubland swamps with deciduous species less than 20 feet in height predominant (>75%).

Herbaceous Wetlands – This map unit includes non-tidal swamps dominated by non-woody plant species. Typical herbaceous wetlands may be located on open lake edges and floodplains, and in abandoned wet agricultural fields.

Managed Wetlands – This map unit includes modified former natural wetland areas that are managed for miscellaneous types of agriculture other than cropland and pasture land. Included in this category may be orchards, nurseries, sod and seed farms, cranberry and blueberry farms, live stock feed lots, poultry farms, horse farms, and other specialty farms that have hydric soils.

Saline Marshes – This map unit includes open graminoid regions associated with waters with salinities greater than 1 part per thousand. Typical saline marshes may be located adjacent to estuarine tributaries that empty into the Atlantic Ocean and Open Bays.

## **SOILS**

### **Soil Series**

Abbreviated descriptions of the soils series that have been mapped in the Borough of Keyport are obtained from the Soil Conservation Service of the United States Department of Agriculture soil survey for Monmouth County (Jablonski & Baumley, 1989).

#### *Humaquepts – frequently flooded (HV)*

The *Humaquepts – frequently flooded* map unit consist if somewhat poorly drained to very poorly drained soils on flood plains. These soils are subject to frequent flooding with water covering some areas several feet deep during flood stage. These soils formed in stratified, sandy or loamy sediments of fluvial origins. Slopes ranges from 0 to 2 percent. *Humaquepts* differ in stratification from place to place. Consequently, a typical pedon is not given. The solum ranges from 24” to 48” thick. These soils are extremely acid to slightly acid. Characteristics vary greatly from site to site, but *Humaquepts* generally consist of stratified loamy sand, sandy loam, loam, and silt loam that may include gravelly or mucky layers. The soils apparent seasonal high water table is between the surface and a depth of 1.5’. *Humaquepts* are Group 1 in the New Jersey Hydric Soil List, and nearly always display consistent hydric conditions.

#### *Keyport Series (KeA and KeD)*

The *Keyport* series consist of nearly level to moderate sloping well-drained soils in depressional areas and on low divides and side slopes. A typical profile may include 0” to 10” brown sandy loam, 10” to 18” yellowish brown silty clay loam, 18” to 44” mottled dark yellowish brown silty clay loam, and 44” to 60” gray silty clay loam. These soils have a seasonal high water table at 1.5’ to 4.0’ deep. The *Keyport* series is not listed on the New Jersey Hydric Soils List.

### *Pemberton Series (PeA)*

The *Pemberton series* consist of moderately well drained and somewhat poorly drained soils on low divides and depressional areas. A typical profile has a brown loamy sand surface layer about 10" thick, a yellowish brown loamy sand subsurface layer 15" thick, a mottled dark yellowish brown and yellowish brown sandy clay loam subsoil 20" thick, and a mottled pale olive fine sandy loam substratum to a depth of 60" or more. The seasonal high water table is 1.0' to 4.0' below the surface. Pemberton soils are not on the New Jersey Hydric Soils List.

### *Psamment - waste substratum (PW)*

The *Psamments - waste substratum* map unit consist of reclaimed areas or areas used as sites for sanitary landfills. The mapped areas are generally rectangular in shape and typically range from 10 to 25 acres in size. Typically, a 24" to 48" cover of sandy fill material has been placed over the refuse. Included in these soils are areas of *Udorthents* and soils that have not been covered with fill. Also, some small areas of sand and gravel pits may be included. The properties and characteristic of this map unit differ greatly from place to place. For most uses onsite investigation and evaluation are needed.

### *Sulfaquents and Sulfihemists (SS)*

The *Sulfaquents and Sulfihemists* consist of poorly drained and very poorly drained soils in tidal marshes and estuaries that are subject to tidal flooding. This map unit is about 40 percent Sulfaquents (mineral), 30 percent *Sulfihemists* (organic), and 30 percent other soils. Permeability of these soils is moderate or moderately rapid. The water table fluctuates with the tides in these soils. The properties and characteristics of these soils differ so greatly that onsite investigation and evaluation are needed for most uses.

### *Tinton Series (TUB)*

The *Tinton series* consist of well drained soils on uplands and terraces. These soils formed in acid, loam, Coastal Plain sediments that area 10 to 40 percent glauconite, by volume. A typical profile of the Tinton series may include dark brown loamy sand from 0" to 7" deep, yellowish brown loamy sand from 7" to 32" deep, dark yellowish brown sandy clay loam from 32" to 46" deep, and dark yellowish brown loamy sand from 46" to 60" deep.

Depth to the seasonal high water table is greater than 6'. The Tinton series is not on the New Jersey Hydric Soils List.

*Udorthents* (UA, UD)

Areas mapped as *Udorthents* consist of soils that have been altered by excavating or filling. In filled areas these soils typically consist of loamy material that is more than 20" thick. The filled areas are on flood plains, in tidal marches, and on areas of moderately well drained to very poorly drained soils. Included with these soils in mapping are soils that may contain such materials as concrete, asphalt, metal, and glass, as well as areas of undisturbed soils. The properties and characteristics of these soils vary greatly from place to place, and onsite investigation is needed to determine suitability for most uses.

*Urban Land* (UL)

The *Urban land* map unit consists of areas that are more than 85% covered by impermeable surfaces. Urban land is typically covered by dwellings, roads, shopping centers, parking lots, and industrial areas. Relatively small areas of undisturbed soils and *Udorthents* may be included in this map unit. Properties and characteristics vary from site to site, and field investigation is needed to determine suitability for most intended uses. Urban land is mapped in complexes with various undisturbed soil series where the areas of each are in an intricate pattern and it was not practical to map them separately.

**TABLE 4  
SELECTED SOIL PROPERTIES**

<u>MAP UNIT</u>	<u>SOIL SERIES</u>	<u>SLOPE %</u>	<u>DEPTH TO SHWT (feet)</u>	<u>DRAINAGE CLASS</u>	<u>FLOODING FREQUENCY</u>	<u>SURFICIAL PERMEABILITY (in/hr)</u>	<u>HYDROLOGIC GROUP</u>	<u>SURFACE EROSION POTENTIAL K-FACTOR</u>
HV	Humaqupts	0-2	0.0-1.5	Somewhat poorly drained to very poorly drained	Frequent	Properties Variable	--	Properties Variable
KeA	Keyport sandy loam	0-2	1.5-4.0	Moderately well drained	None	0.6-6.0	C	0.37
KeD		5-10						
PeA	Pemberton	0-5	1.0-4.0	Moderately well to somewhat poorly drained	None	2.0-6.0	B	0.20
PW	Psammets	0-2	---	Excessively drained to somewhat poorly drained	Properties Variable	Properties Variable	---	Properties Variable
SS	Sulfaquents and Sulfihemists	0-1	---	Poorly drained to very poorly drained	Frequent	Properties Variable	---	Properties Variable
TUB	Tinton loamy sand	0-5	>6.0	Well drained	None	0.6-6.0	A	0.20
UA	Udorthents	0-3	1.5-2.0	Well drained to somewhat poorly drained	None	Properties Variable	---	Properties Variable
UD								
UL	Urban Land	---	>2.0	Excessively drained to very poorly drained	None	Properties Variable	---	Properties Variable

## NOTES:

1. SHWT is apparent seasonal high water table; a '+' sign indicates a water table above the surface of the soil.
2. Urban land complexes are undifferentiated areas of soil and urban land (impermeable surfaces). Properties for urban land vary greatly from site to site.

### **Soil Properties**

The Soil Survey of Monmouth County, New Jersey (Jablonski & Baumley, 1989) contains information on soil properties, characteristics, and limitations pertaining to agriculture, woodland management, recreation, wildlife habitat, site development, sanitary facilities, construction materials, water management, engineering, and hydrology. A table of selected properties for the soil types occurring in the Borough of Keyport is included in this document.

#### *Texture*

*Textural classes* are defined by the relative proportion of sand, silt, and clay particles in a soil mass. Sand includes soil particles ranging in size from 2mm to 0.05mm; silt particles range from 0.05mm to 0.002mm; clay particles are smaller than 0.002mm (U.S.D.A. System of Soil Textural Classification). The sand size fraction may be subdivided into very coarse, coarse, medium, fine, and very fine sand. Gravel includes particles greater than 2mm.

#### *Slope*

Slope is the inclination of the land surface from the horizontal. The slope between two points on the land surface is thus the difference in elevation divided by the horizontal distance between the points, which may be expressed as a percentage. Moderate to severe limitations on site development are generally associated with slopes in excess of 10% (slope classes D and E).

#### *Seasonal High Water Table*

The water table is the surface below which a soil is saturated. The elevation of this surface varies spatially and with time, and is usually highest in the winter and early spring. A perched water table occurs where a saturated zone overlies an unsaturated zone, usually due to the presence of a low permeability layer impeding the vertical movement of ground

water. Moderate limitations on site development are generally associated with a depth to the seasonal high water table less than 4 feet; severe limitations exist for groundwater shallower than 1 foot below the land surface.

### *Drainage Class*

Drainage is the removal of excess surface and subsurface water. The Soil Conservation Service defines seven classes of natural soil drainage (Jablonski & Baumley, 1989).

- Excessively Drained: Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep.
- Somewhat Excessively Drained: Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff.
- Well Drained: Water is removed from the soil readily, but not rapidly. Well drained soils are commonly medium textured.
- Moderately Well Drained: Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.
- Somewhat Poorly Drained: Water is removed slowly enough that the soil is wet for significant periods during the growing season. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

- Poorly Drained: Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.
  
- Very Poorly Drained: Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Very poorly drained soils are commonly level or depressed and are frequently ponded.

*Flooding*

Flooding is the temporary covering of the soil surface by flowing water due to overflowing streams or runoff from adjacent slopes. The Soil Conservation Service has estimates of the frequency, duration, and probable period of occurrence of flooding for each soil series. There are five categories for flooding frequency:

None	Flooding is not probable;
Rare	Flooding is unlikely but possible under unusual weather conditions (near 0 to 5 percent chance of flooding in any year);
Occasional	Flooding occurs infrequently under normal weather conditions (5 to 50 percent chance of flooding in any year);
Common	This term is used when classification as occasional or frequent does not affect interpretations;
Frequent	Flooding occurs often under normal weather conditions (more than a 50 percent chance of flooding in any year).

Soil survey information on flooding is based on the physical characteristics and typical landscape position of a soil series. The Federal Emergency Management Association (FEMA) has more detailed information available as part of the National Flood Insurance Program. FEMA delineated flood zones are based on detailed topographic surveys and hydraulic engineering calculations. A Flood-Prone Areas Map (FEMA FIRM) for the Borough of Keyport is included in this document.

### *Permeability*

Permeability is the property that characterizes a soils ability to transmit water or air. The permeability of a particular soil is dependent on the size, shape, and structural arrangement of the soil particles. Soil Survey estimates of permeability are reported as the number of inches per hour that water moves vertically downward through saturated soil. The following terms are used to describe permeability in soil descriptions:

Very Slow	< 0.06 in/hr
Slow	0.06-0.2 in/hr
Moderately Slow	0.2-0.6 in/hr
Moderate	0.6-2.0 in/hr
Moderately Rapid	2.0-6.0 in/hr
Rapid	6.0-20 in/hr
Very Rapid	> 20 in/hr

Surficial permeability refers to water movement through the surface of an undisturbed soil profile. The Soil Survey of Monmouth County contains permeability estimates for additional horizons in the profile of each soil type. Soil permeability can be a critical parameter in the design of septic system disposal fields and certain types of drainage systems. Soil survey estimates of permeability are typically used as a planning guide to identify areas of potentially permeable soils. Actual permeability is generally assessed by onsite investigation and evaluation or laboratory testing.

### *Hydrologic Group*

Soil series are assigned to one of four hydrologic groups according to the estimated stormwater runoff that would occur during long-duration storms. The groupings assume a soil to be unvegetated, and are determined by the rate at which a soil intakes water when thoroughly wet.

- Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

- Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.
- Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.
- Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to two groups, the first grouping refers to runoff when the soil is drained (relatively low water table) and the second grouping refers to runoff when the soil is undrained (relatively high water table). Hydrologic soil groupings are used to estimate runoff in stormwater management design.

### *Erosion Potential*

Soil erosion is the removal of soil material from the land surface by the action of rainfall and surface runoff. The K-factor is used to indicate the susceptibility of a soil to sheet and rill erosion (sheet erosion is the removal of a layer of soil material; rill erosion is the removal of soil in a network of shallow, steep-sided channels). Estimates of the K-factor are primarily based on the percentage of silt, sand, and organic matter in a soil. Values of K range from 0.05 to 0.69, with higher values indicating a greater susceptibility to sheet and rill erosion by water.

## **FORESTS**

There is only one type of forest coverage mapped in the Borough and it is deciduous forest. Deciduous forest exists mostly along stream corridors along the western and eastern portions of the Borough and through the center section of the Borough.

Deciduous forests within the upland portions of Keyport commonly include the following species:

- **Dominant Trees**

White Oak	(Quercus alba)
Black Oak	(Quercus velutina)
Chestnut Oak	(Quercus muehlenbergii)
Tree-of-Heaven	(Ailanthus altissima)
White Mulberry	(Morus alba)
Black Cherry	(Prunus serotina)
Red Cedar	(Juniperus virginiana)
Black Birch	(Betula lenta)
Norway Maple	(Acer platanoides)

- **Non-Dominant Trees**

Shagbark Hickory	(Carya ovata)
Pignut Hickory	(Carya glabra)
American Holly	(Ilex opaca)
Sugar Maple	(Acer saccharum)
Flowering Dogwood	(Cornus florida)
American Beech	(Fagus grandifolia)
Quaking Aspen	(Populus tremuloides)

The following tree species commonly occur in deciduous forests within the lowland portions of the Township:

- Dominant Trees

Red Maple	(Acer rubrum)
Silver Maple	(Acer saccharinum)
Pin Oak	(Quercus palustris)
Gray Birch	(Betula populifolia)
Sweetgum	(Liquidambar styraciflua)
Blackgum	(Nyssa sylvatica)
Black Willow	(Salix nigra)

- Non-Dominant Trees

Green Ash	(Fraxinus pennsylvatica)
River Birch	(Betula nigra)
American Hornbeam	(Carpinus caroliniana)
Sweetbay Magnolia	(Magnolia virginiana)
American Sycamore	(Platanus occidentalis)

This G.I.S. mapping is a general assessment of the Township's woodlands, and is intended for overall planning purposes. A site-specific assessment of forest types typically requires an onsite inspection and evaluation.

### **RARE SPECIES AND NATURAL COMMUNITIES**

The map coverage has been provided by the N.J. Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, does not indicate that rare species or natural communities exist within the Borough.

The term rare has been utilized by the Natural Lands Management Office to include both endangered and threatened plant and animal species, and species that could potentially become endangered or threatened if the population continues a downward trend. Also included within this coverage are natural communities.

The United States Department of the Interior, Fish and Wildlife Service was contacted in an effort to determine whether or not federally listed endangered and threatened species exist in the Borough of Keyport. They have indicated that no federally listed endangered or threatened species are likely to exist within the Borough as a result of limited wooded areas, and generally narrow beaches. The Fish and Wildlife Service did indicate, however, that an occasional transient bald eagle (*Haliaeetus leucocephalus*) or roseate tern (*Sterna dougallii*) may exist within the Borough. Additionally, based upon correspondence received from the Land Use Regulation Program of the New Jersey Department of Environmental Protection, the State listed black crowned night heron (*Nycticorax nycticorax*) exists along portions of the bay shore where sufficient tree cover exists.

### **SHELLFISH CLASSIFICATION**

The New Jersey Department of Environmental Protection (NJDEP) prohibits the harvesting of shellfish for human consumption in the coastal waters of the Borough of Keyport.

**APPENDIX - A**

**WILDLIFE**

## WILDLIFE

Lists of the mammals, birds, reptiles, amphibians, and fish common to Northern Coastal Monmouth County were adapted from State checklists generated by the New Jersey Division of Fish and Wildlife. Wildlife habitats found within Keyport include woodland habitat (deciduous forests) and wetland habitat (marshes, swamps, and other shallow water areas). These generalized habitat types are typically intermingled with each other and with the increasing urban/suburban environments in the Borough. Relatively larger parcels of wildlife habitat in Keyport generally coincide with forested and wetland areas shown on the land use map.

The Natural Heritage Program of the New Jersey Department of Environmental Protection Division of Parks and Forestry maintains a database on rare plants, animals, and natural communities in the State. A list of rare species for which there are records of sightings within Monmouth County is included here. This list includes vertebrate, invertebrate, and vascular plant species that are listed as endangered or threatened in the State of New Jersey (N.J.A.C. 7:25). Endangered species are defined as those whose prospects for survival within the State are in immediate danger due to one or many factors including habitat loss, over exploitation, predation, competition, or disease. An endangered species requires immediate assistance or extinction will probably follow. Species listed as threatened may become endangered if conditions surrounding the species begin to or continue to deteriorate. The potential for a particular rare species to be present in the Township is dependent on the presence of suitable habitat. Identification of suitable habitat generally requires a field evaluation by an experienced wildlife biologist.

### MAMMALS OF NORTHERN COASTAL MONMOUTH COUNTY

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>
Opposum	<i>Didelphis marsupialis</i>	Red Squirrel	<i>Tamiasciurus hudsonicus</i>
Short-tailed Shrew	<i>Blarina brevicauda</i>	Southern Flying Squirrel	<i>Glaucomys volans</i>
Least Shrew	<i>Cryptotis parva</i>	White-footed Mouse	<i>Peromyscus leucopus</i>
Eastern Mole	<i>Scalopus aquaticus</i>	Muskrat	<i>Ondatra zibethicus</i>
Star-nosed Mole	<i>Condylura cristata</i>	Brown Rat	<i>Rattus norvegicus</i>
Eastern Cottontail	<i>Sylvilagus floridanus</i>	House mouse	<i>Mus musculus</i>
New England Cottontail	<i>Sylvilagus transitionalis</i>	Meadow jumping mouse	<i>Zapus hudsonius</i>
European Hare	<i>Lepus capensis</i>	Raccoon	<i>Procyon lotor</i>
Gray Squirrel	<i>Sciurus carolinensis</i>		

**REPTILES & AMPHIBIANS OF NORTHERN COASTAL MONMOUTH COUNTY**

<b><u>COMMON NAME</u></b>	<b><u>SCIENTIFIC NAME</u></b>	<b><u>COMMON NAME</u></b>	<b><u>SCIENTIFIC NAME</u></b>
Common Snapping Turtle	Chelydra s. serpentina	NJ Chorus Frog	Pseudacris feriarum kalmi
Stinkpot	Sternotherus odoratus	Eastern Garter Snake	Thamnophis s. sirtalis
Tremblay's salamander	Ambystoma x tremblayi	Northern Brown Snake	Storeria dekayi
Blue-spotted salamander	Ambystoma laterale		

**BIRDS OF NORTHERN COASTAL MONMOUTH COUNTY**

<b><u>COMMON NAME</u></b>	<b><u>SCIENTIFIC NAME</u></b>
Catbird	Dumetella carolinensis
American Crow	Corvus brachyrhynchos
Mourning Dove	Zenaida macroura
American Black Duck	Anas rubripes
Mallard	Anas platyrhynchos
Great Black-backed Gull	Larus marinus
Herring Gull	Larus argentatus
Osprey	Pandion haliaetus
Laughing Gull	Larus arcticus
American Robin	Turdus migratorius
Spotted Sandpiper	Actitis macularia
Snowy Egret	Egretta thula
Cattle Egret	Bubulcus ibis
Song Sparrow	Melospiza melodia
Barn Swallow	Hirundo rustica
Downy Woodpecker	Picoides pubescens
Hairy Woodpecker	Picoides villosus
Red-bellied Woodpecker	Melanerpes carolinus
Canada Goose	Branta Canadensis
White-Throated Sparrow	Zonotrichia albicollis
European Starling	Sturnus vulgaris
Northern Raven	Corvus corax
Snow Goose	Chen caerulescens
Mute Swan	Zenaida macroura
Great Blue Heron	Ardea herodias
Little Blue Heron	Egretta caerulea
Green Heron	Butorides virescens

**FISH OF NORTHERN COASTAL MONMOUTH COUNTY**

<b><u>COMMON NAME</u></b>	<b><u>SCIENTIFIC NAME</u></b>
American eel	<i>Anguila rostrata</i>
Moon Jellies	<i>Aurelia aurita</i>
Red Jelly	<i>Cyanea capillata</i>
Weakfish	<i>Cynoscion regalis</i>
Flounder	<i>Pseuopleuronectes americanus</i>
Fluke	<i>Paralichthys dentatus</i>
Bluefish	<i>Pomatomus saltatrix</i>
Black Seabass	<i>Centropristis striata</i>
Clearnose Skate	<i>Raja aglanteria</i>
Blueback Herring	<i>Alosa aestivalis</i>
Hickory Shad	<i>Alosa mediocris</i>
Alewife	<i>Alosa pseudoharengus</i>
American Shad	<i>Alosa sapidissima</i>
Atlantic Manhaden	<i>Brevoortia tyrannus</i>
Bay Anchovy	<i>Anchoa mitchilli</i>
Sheepshead Minnow	<i>Cyprinodon variegates</i>
Banded Killifish	<i>Fundulus diaphanous</i>
Mummichog	<i>Fundulus heteroclitus</i>
Striped Killifish	<i>Fundulus majalis</i>
Atlantic Silverside	<i>Menidia menidia</i>
Northern Searobin	<i>Prionotus carolinus</i>
White Perch	<i>Morone americana</i>
Striped Bass	<i>Morone saxatilis</i>
Oyster Toadfish	<i>Opsanus tau</i>
Blue Crab	<i>Callinectes sapidus</i>
Horseshoe Crab	<i>Limulus polyphemus</i>
Surf Clams	<i>Spisula solidissima</i>
Oysters	<i>Crassostrea gigas</i>

Source: Marine Fish of New Jersey, NJDEP, Division of Fish & Wildlife

**RARE SPECIES OF MONMOUTH COUNTY (VERTEBRATES)**

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>FEDERAL STATUS</u>	<u>STATE STATUS</u>
Cooper's Hawk	Accipiter Cooperii		E
Grasshopper Sparrow	Ammodramus savannarum	(PS)	T/T
Upland Sandpiper	Bartramia longicauda		E
Piping Plover	Charadrius melodus	(LE-LT)	E
Wood Turtle	Clemmys insculpta		T
Bog Turtle	Clemmys muhlenbergii	(LT-T(S/A))	E
Timber Rattlesnake	Crotalus horridus horridus		E
Bobolink	Dolichonyx oryzivorus		T/T
Bald Eagle	Haliaeetus leucocephalus	(PS)	E
Pine Barrens Treefrog	Hyla andersonii		E
Red-headed Woodpecker	Melanerpes erythrocephalus		T/T
Yellow-crowned Night-heron	Nyctanassa violacea		T/T
Osprey	Pandion haliaetus		T/T
Savannah Sparrow	Passerculus sandwichensis		T/T
Northern Pine Snake	Pituophis melanoleucus		T
Pied-billed Grebe	Podilymbus podiceps		E/S
Vesper Sparrow	Poocetes gramineus		E
Black Skimmer	Rynchops niger		E
Least Tern	Sterna antillarum	(PS)	E
Barred Owl	Strix varia		T/T

Source: NJDEP Natural Heritage Program Database 1999

Key: E – Endangered State Status      LT – Endangered Federal Status  
 T – Threatened Stat Status      PS – Potential Similarity of Appearance  
 LE – Endangered Federal Status      Species

**RARE SPECIES OF MONMOUTH COUNTY (INVERTEBRATES)**

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>FEDERAL STATUS</u>	<u>STATE STATUS</u>
A Noctuid Moth	Apamea apamiformis		
A Noctuid Moth	Chytonix sensilis		
Northeastern Beach Tiger Beetle	Cicindela dorsalis dorsalis	LT	E
Pine Barrens Bluet	Enallagma recurvatum		
Henry's Elfin	Incisalia henrici		
Frosted Elfin	Incisalia irus		
Golden-winged Skimmer	Libellula auripennis		
Coastal Swamp Metarranthis	Metarranthis pilosaria		
A Satyr	Neonympha areolata septentrionalis		
Sunflower Borer Moth	Papaipema necopina		
Yellow edged pygarctia	Pygarctia abdominalis		
Regal Fritillary	Speyeria idalia		
A Noctuid Moth	Zale curema		

Source: NJDEP Natural Heritage Program Database 1999

Key: E – Endangered State Status      LT – Endangered Federal Status  
T – Threatened Stat Status      PS – Potential Similarity of Appearance  
LE – Endangered Federal Status      Species

**RARE SPECIES OF MONMOUTH COUNTY (VASCULAR PLANTS)**

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>FEDERAL STATUS</u>	<u>STATE STATUS</u>
Yellow Giant Hyssop	Agastache nepetoides		
Sea-Beach Pigweed	Amaranthus pumilus	LT	E
Wild Wormwood	Artemisia campestris ssp caudate		
Red Milkweed	Asclepias rubra		
White Milkweed	Asclepias variegata		
Cornel-Leaved Aster	Aster infirmus		
Low Rough Aster	Aster radula		E
Pale Indian Plantain	Cacalia atriplicifolia		E
Pickering's Reedgrass	Calamagrostis pickeringii		E
Pine Barren Reedgrass	Calamovilfa brevipilis		
Barratt's Sedge	Carex barrattii		
Clustered Sedge	Carex cumulata		E
Variable Sedge	Carex polymorpha		E
Spiny Coontail	Ceratophyllum echinatum		E
Pear Hawthorn	Crataegus calpodendron		E
Fleshy Hawthorn	Crataegus succulenta		E
Lancaster Flatsedge	Cyperus lancastris		
Coast Flatsedge	Cyperus polystachyos		E
Trailing Tick-Trefoil	Desmodium humifusum		E
Larger Buttonweed	Diodia virginiana		E
Leatherwood	Dirca palustris		
Parker's Pipewort	Eriocaulon parkeri		

Source: NJDEP Natural Heritage Program Database 1999

Key: E – Endangered State Status                      LT – Endangered Federal Status  
T – Threatened State Status                      PS – Potential Similarity of Appearance  
LE – Endangered Federal Status                      Species

**RARE SPECIES OF MONMOUTH COUNTY (VASCULAR PLANTS CONTINUED)**

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>FEDERAL STATUS</u>	<u>STATE STATUS</u>
Pumpkin Ash	Fraxinus profunda		E
Pine Barren Gentian	Gentiana autumnalis		
Sea-Beach Milkwort	Glaux maritime		E
Swamp-Pink	Helonias bullata	LT	E
Whorled Pennywort	Hydrocotyle verticillata		
New Jersey Rush	Juncus caesariensis		E
Northern Blazing Star	Liatris scariosa var novae-angliae		E
Mudweed	Limosella subulata		E
Sandplain Flax	Linum intercursum		E
Southern Twayblade	Listera australis		
Hairy Woodrush	Luzula acuminata		E
Climbing Fern	Lygodium palmatum		
Slender Water-Milfoil	Myriophyllum tenellum		E
Virginia False-Gromwell	Onosmodium virginianum		E
Mistletoe	Phoradendron serotinum		
Sea-Side Plantain	Plantago maritime		
Slender Plantain	Plantago pusilla		E
Purple Fringeless Orchid	Platanthera peramoena		E
Sea-Beach Knotweed	Polygonum glaucum		E
Torrey's Mountain Mint	Pycnanthemum torrei		E
Greenish-Flowered	Pyrola chlorantha		E
Wintergreen			
Sea-Side Crowfoot	Ranunculus cymbalaria		E

Source: NJDEP Natural Heritage Program Database 1999

Key: E – Endangered State Status      LT – Endangered Federal Status  
T – Threatened Stat Status      PS – Potential Similarity of Appearance  
LE – Endangered Federal Status      Species

**RARE SPECIES OF MONMOUTH COUNTY (VASCULAR PLANTS CONTINUED)**

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>FEDERAL STATUS</u>	<u>STATE STATUS</u>
Grass-like Beaked Rush	Rhynchospora globularis		E
Knieskern's Beaked Rush	Rhynchospora knieskernii	LT	E
Pale Beak Rush	Rhynchospora pallida		
Heart-Winged Sorrell	Rumex hastatulus		
Southern Arrow Head	Sagittaria australis		E
Shining Willow	Salix lucida		
Salt Marsh Bulrush	Scirpus maritimus		E
Slender Nut Rush	Scleria minor		
Sea-Side Arrow-Grass	Triglochin maritimum		E
Pine Barren Bellwort	Uvularia puberula var nitida		E
Narrow-Leaved Vervain	Verbena simplex		E

Source: NJDEP Natural Heritage Program Database 1999

Key: E – Endangered State Status      LT – Endangered Federal Status  
T – Threatened State Status      PS – Potential Similarity of Appearance  
LE – Endangered Federal Status      Species

**APPENDIX - B**

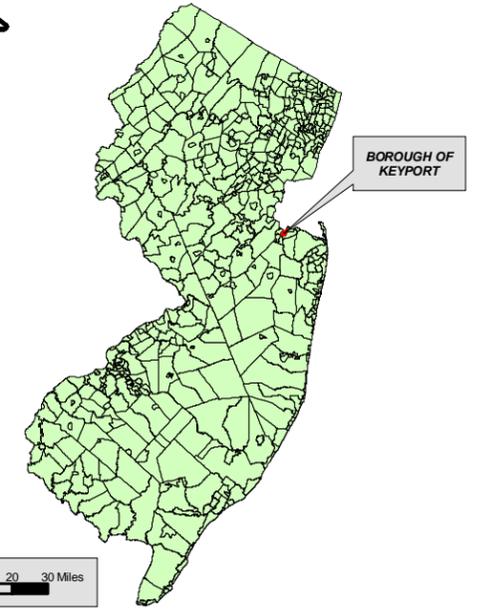
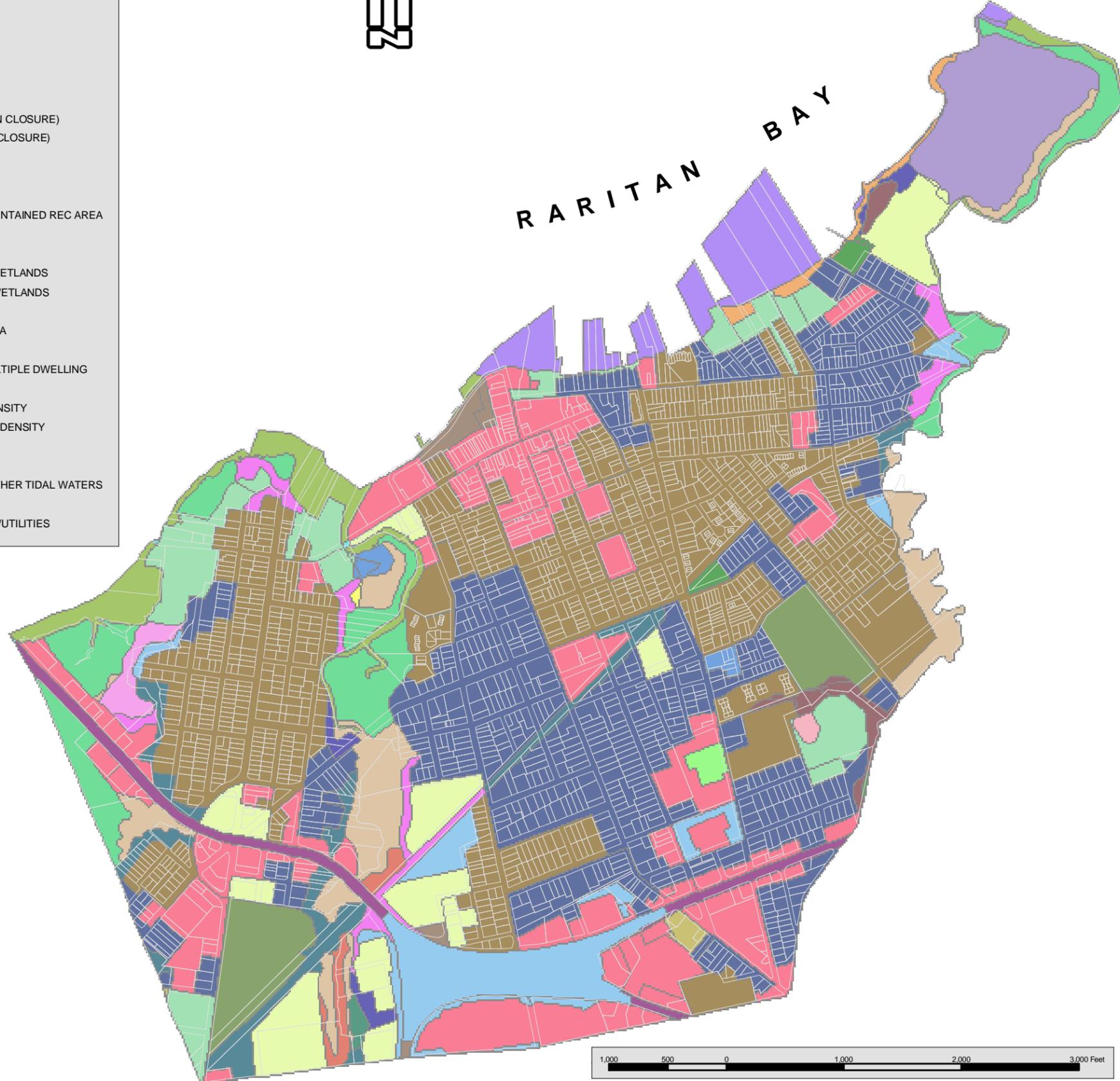
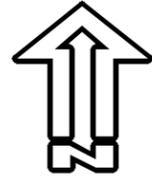
**GIS IMAGERY**

**LEGEND**

**LAND USE 2002**

**LABEL02**

- ALTERED LANDS
- ATHLETIC FIELDS (SCHOOLS)
- BEACHES
- BRIDGE OVER WATER
- CEMETERY
- COMMERCIAL/SERVICES
- DECIDUOUS BRUSH/SHRUBLAND
- DECIDUOUS FOREST (10-50% CROWN CLOSURE)
- DECIDUOUS FOREST (>50% CROWN CLOSURE)
- DECIDUOUS WOODED WETLANDS
- INDUSTRIAL
- MAJOR ROADWAY
- MANAGED WETLAND IN BUILT-UP MAINTAINED REC AREA
- OPEN TIDAL BAYS
- OTHER URBAN OR BUILT-UP LAND
- PHRAGMITES DOMINATE COASTAL WETLANDS
- PHRAGMITES DOMINATE INTERIOR WETLANDS
- PHRAGMITES DOMINATE OLD FIELD
- PHRAGMITES DOMINATE URBAN AREA
- RECREATIONAL LAND
- RESIDENTIAL, HIGH DENSITY OR MULTIPLE DWELLING
- RESIDENTIAL, RURAL, SINGLE UNIT
- RESIDENTIAL, SINGLE UNIT, LOW DENSITY
- RESIDENTIAL, SINGLE UNIT, MEDIUM DENSITY
- SALINE MARSH (HIGH MARSH)
- SALINE MARSH (LOW MARSH)
- TIDAL RIVERS, INLAND BAYS, AND OTHER TIDAL WATERS
- TRANSITIONAL AREAS
- TRANSPORTATION/COMMUNICATION/UTILITIES

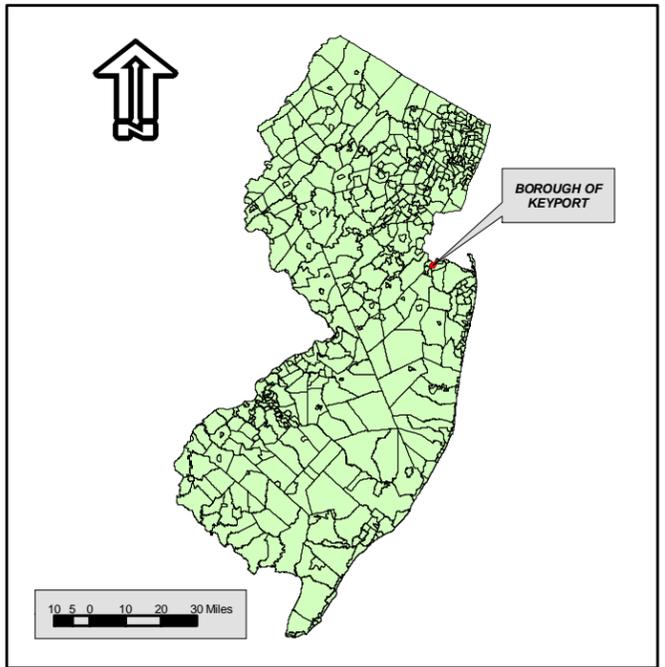


**2002 Land Use/Land Cover  
Natural Resource Inventory  
Borough of Keyport  
Monmouth County, New Jersey**

prepared by:



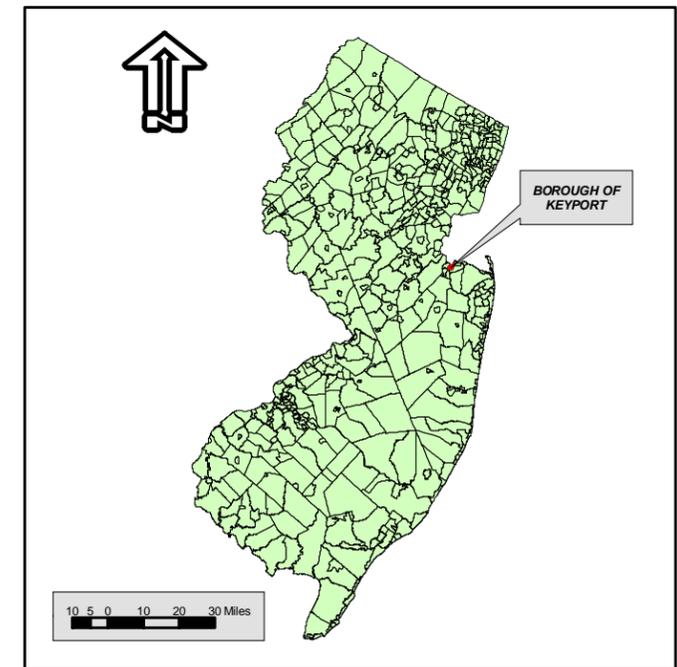
**Gregory R. Valesi, P.E., P.P.**  
New Jersey Professional Planner N.J. Lic. No. 4361  
New Jersey Professional Engineer N.J. Lic. No. 34458



**Smart Growth  
Planning Areas:  
Natural Resource Inventory  
Borough of Keyport  
Monmouth County, New Jersey**



Gregory R. Valesi, P.E., P.P.  
New Jersey Professional Planner N.J. Lic. No. 4361  
New Jersey Professional Engineer N.J. Lic. No. 34458



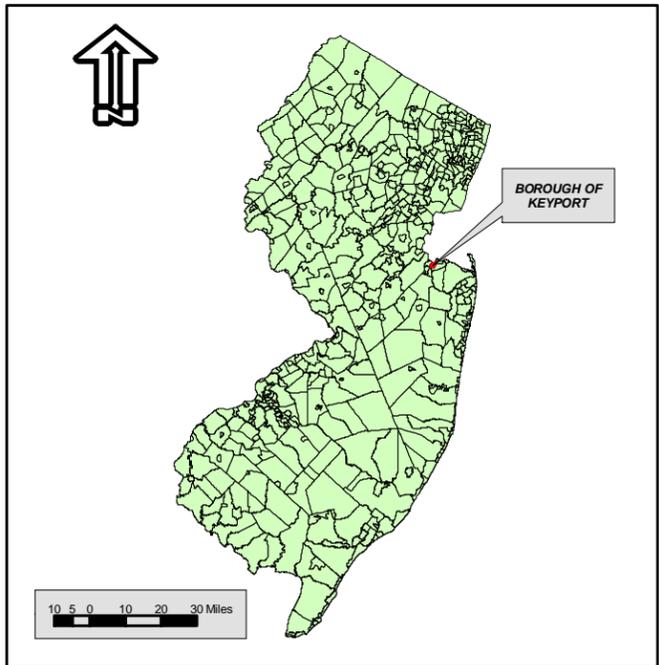
*Historic Properties:  
Natural Resource Inventory*

**Borough of Keyport**

**Monmouth County, New Jersey**



prepared by:  
**Gregory R. Valesi, P.E., P.P.**  
 New Jersey Professional Planner N.J. Lic. No. 4361  
 New Jersey Professional Engineer N.J. Lic. No. 34458

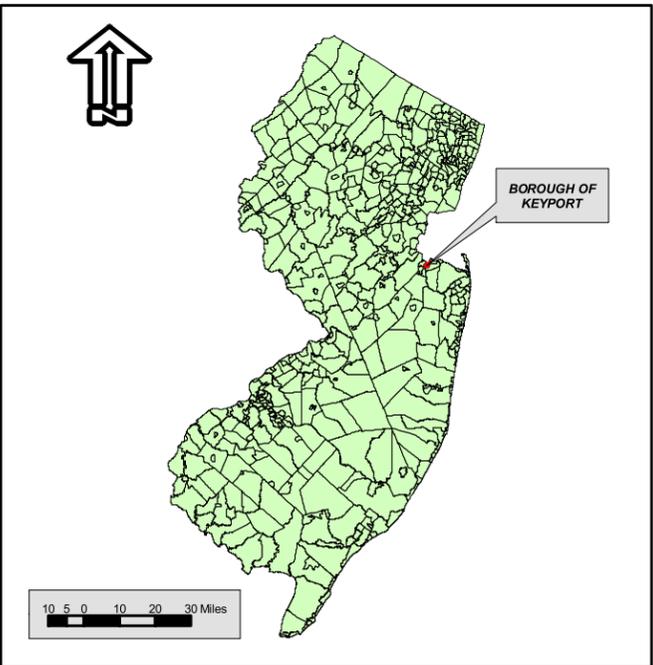


**NJGS Bedrock Geology  
Natural Resource Inventory  
Borough of Keyport  
Monmouth County, New Jersey**

prepared by:



Gregory R. Valesi, P.E., P.P.  
New Jersey Professional Planner N.J. Lic. No. 4361  
New Jersey Professional Engineer N.J. Lic. No. 34458



*Topography  
Natural Resource Inventory*

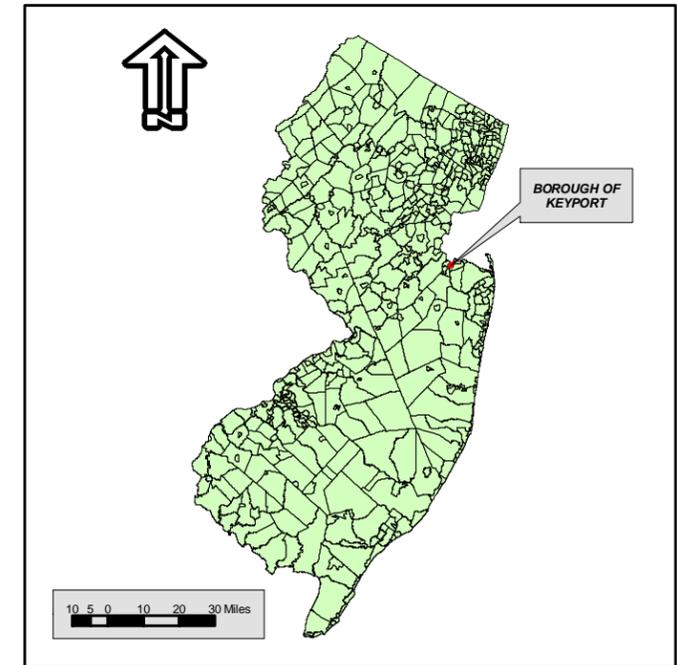
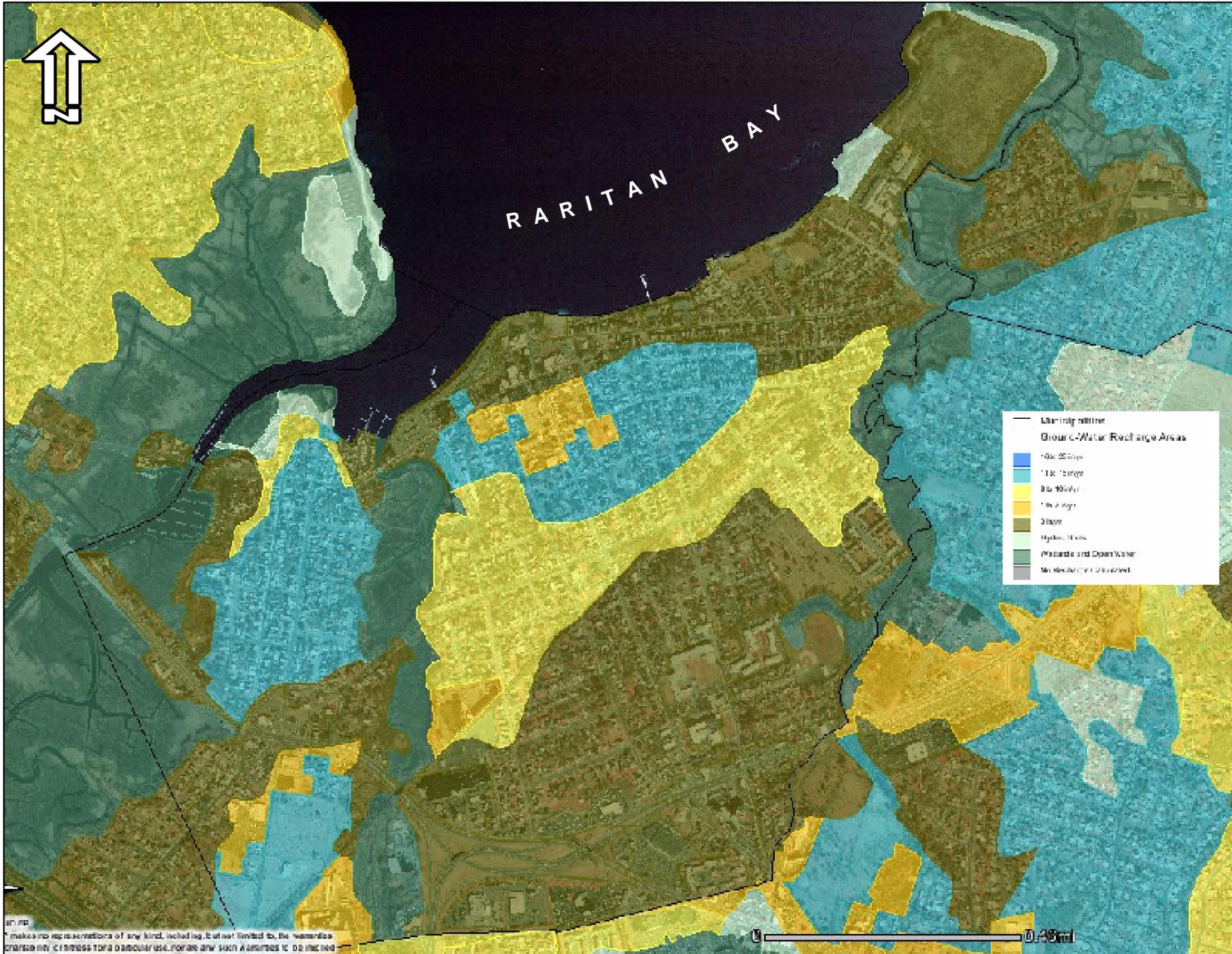
**Borough of Keyport**

**Monmouth County, New Jersey**

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Gregory R. Valesi, P.E., P.P.  
 New Jersey Professional Planner N.J. Lic. No. 4361  
 New Jersey Professional Engineer N.J. Lic. No. 34458

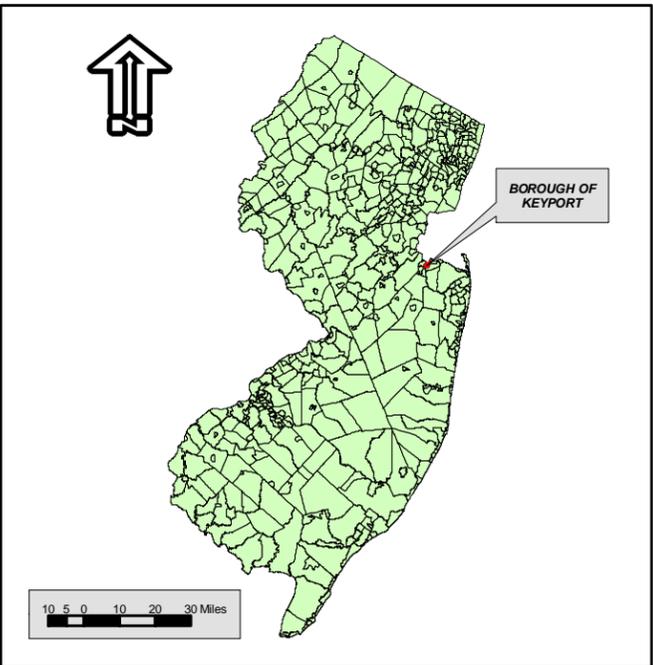
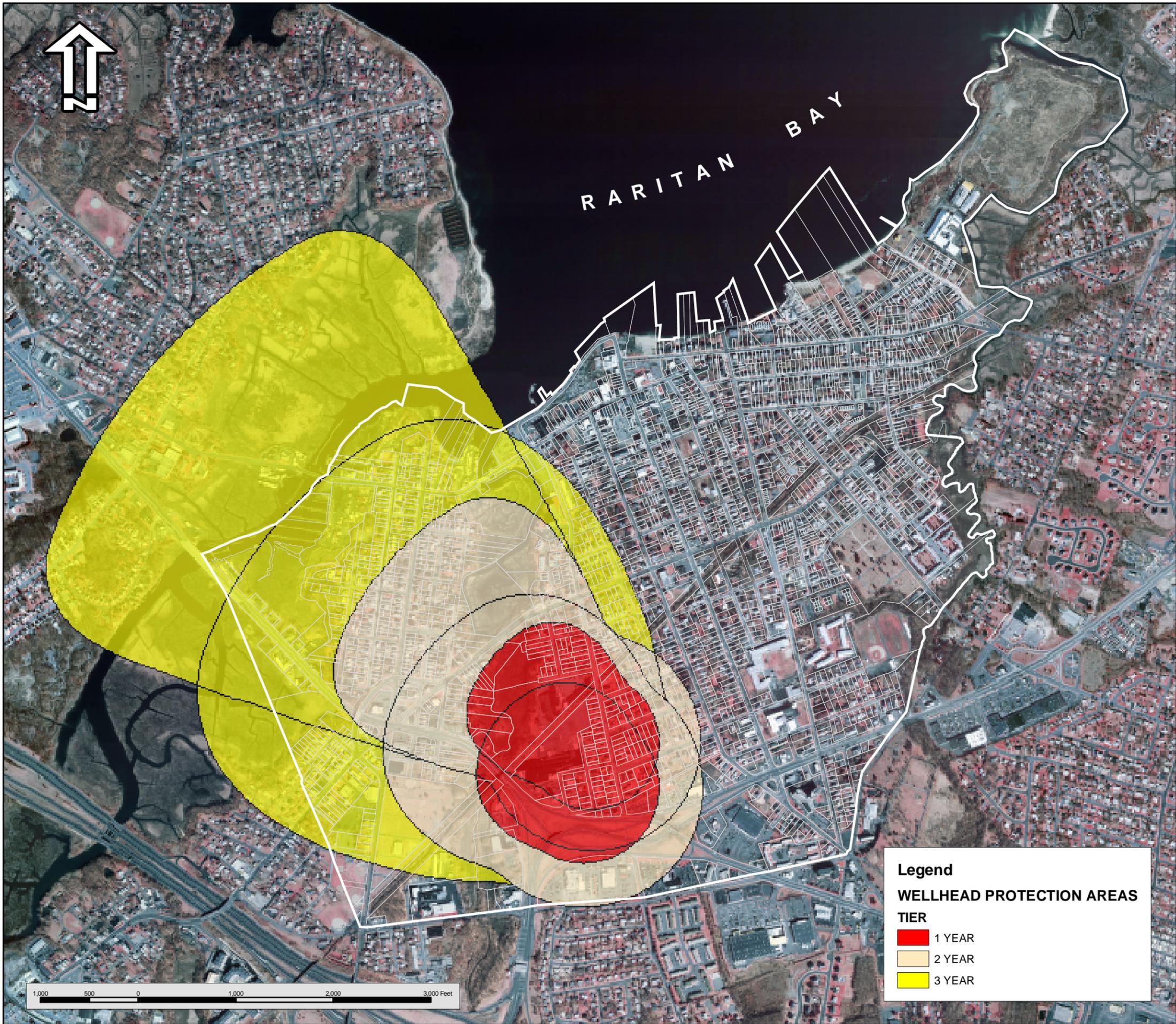


**Ground-Water  
 Recharge Areas  
 Natural Resource Inventory  
 Borough of Keyport  
 Monmouth County, New Jersey**



prepared by:  
**Gregory R. Valesi, P.E., P.P.**  
 New Jersey Professional Planner N.J. Lic. No. 4361  
 New Jersey Professional Engineer N.J. Lic. No. 34458

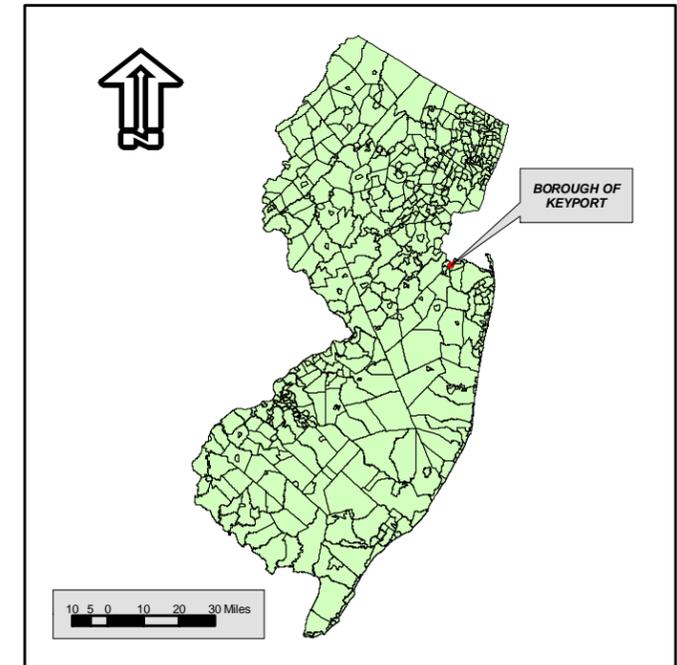
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**Community Wellhead  
 Protection Areas:  
 Natural Resource Inventory  
 Borough of Keyport  
 Monmouth County, New Jersey**



Gregory R. Valesi, P.E., P.P.  
 New Jersey Professional Planner N.J. Lic. No. 4361  
 New Jersey Professional Engineer N.J. Lic. No. 34458



**Streams, Lakes  
 & HUC 14 Watersheds  
 Natural Resource Inventory  
 Borough of Keyport  
 Monmouth County, New Jersey**



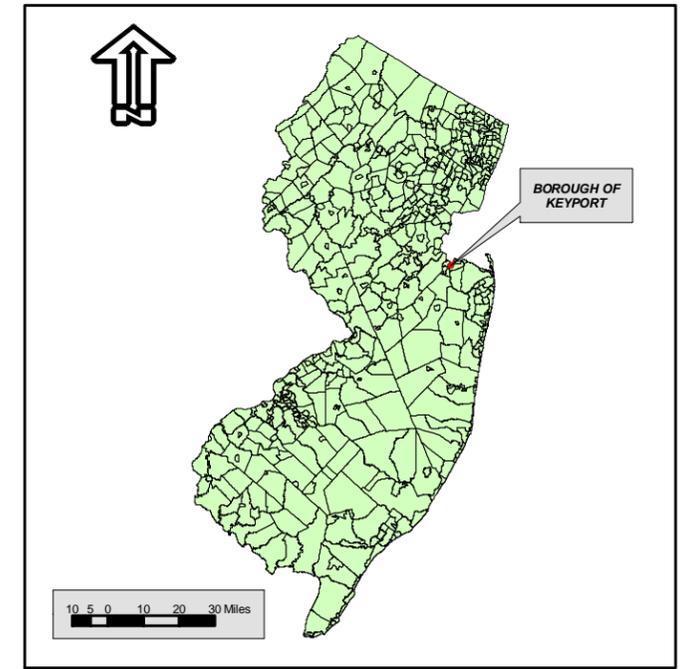
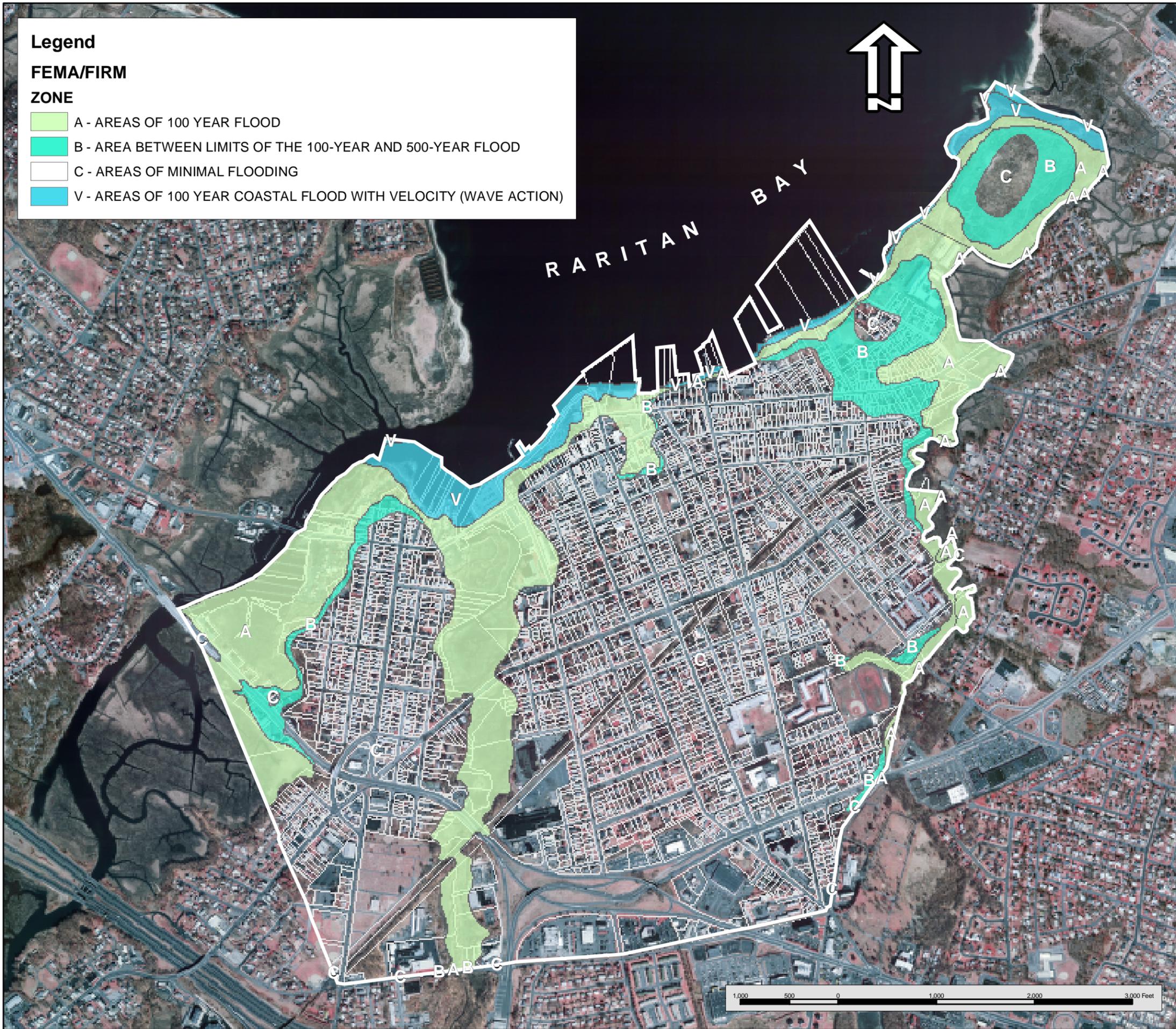
prepared by:  
**Gregory R. Valesi, P.E., P.P.**  
 New Jersey Professional Planner N.J. Lic. No. 4361  
 New Jersey Professional Engineer N.J. Lic. No. 34458

**Legend**

**FEMA/FIRM**

**ZONE**

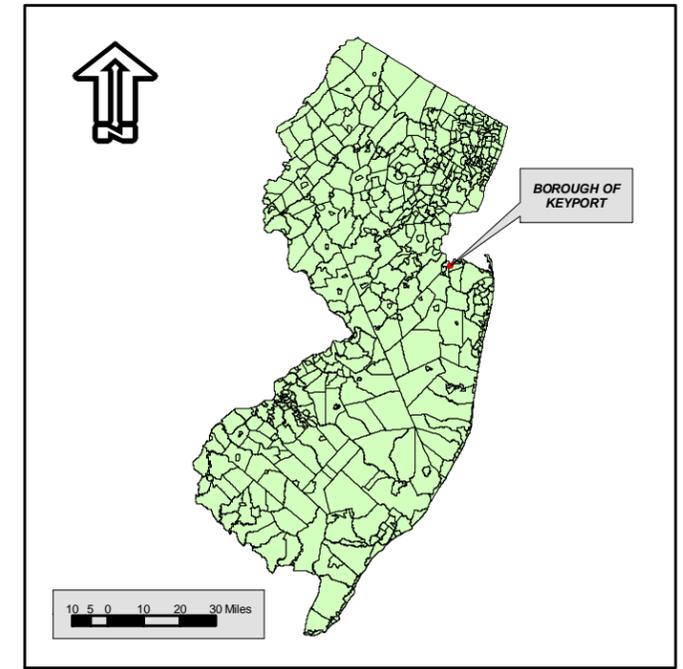
- A - AREAS OF 100 YEAR FLOOD
- B - AREA BETWEEN LIMITS OF THE 100-YEAR AND 500-YEAR FLOOD
- C - AREAS OF MINIMAL FLOODING
- V - AREAS OF 100 YEAR COASTAL FLOOD WITH VELOCITY (WAVE ACTION)



**FEMA/FIRM Q3 Flood Data  
Natural Resource Inventory  
Borough of Keyport  
Monmouth County, New Jersey**



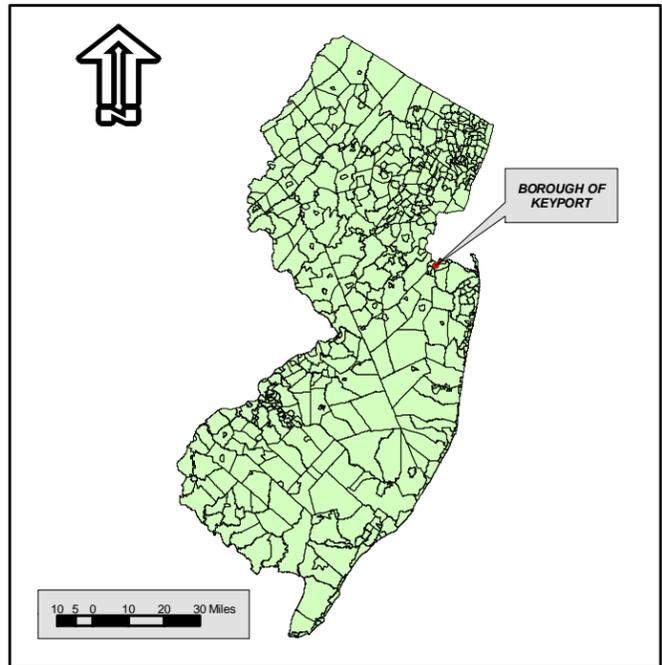
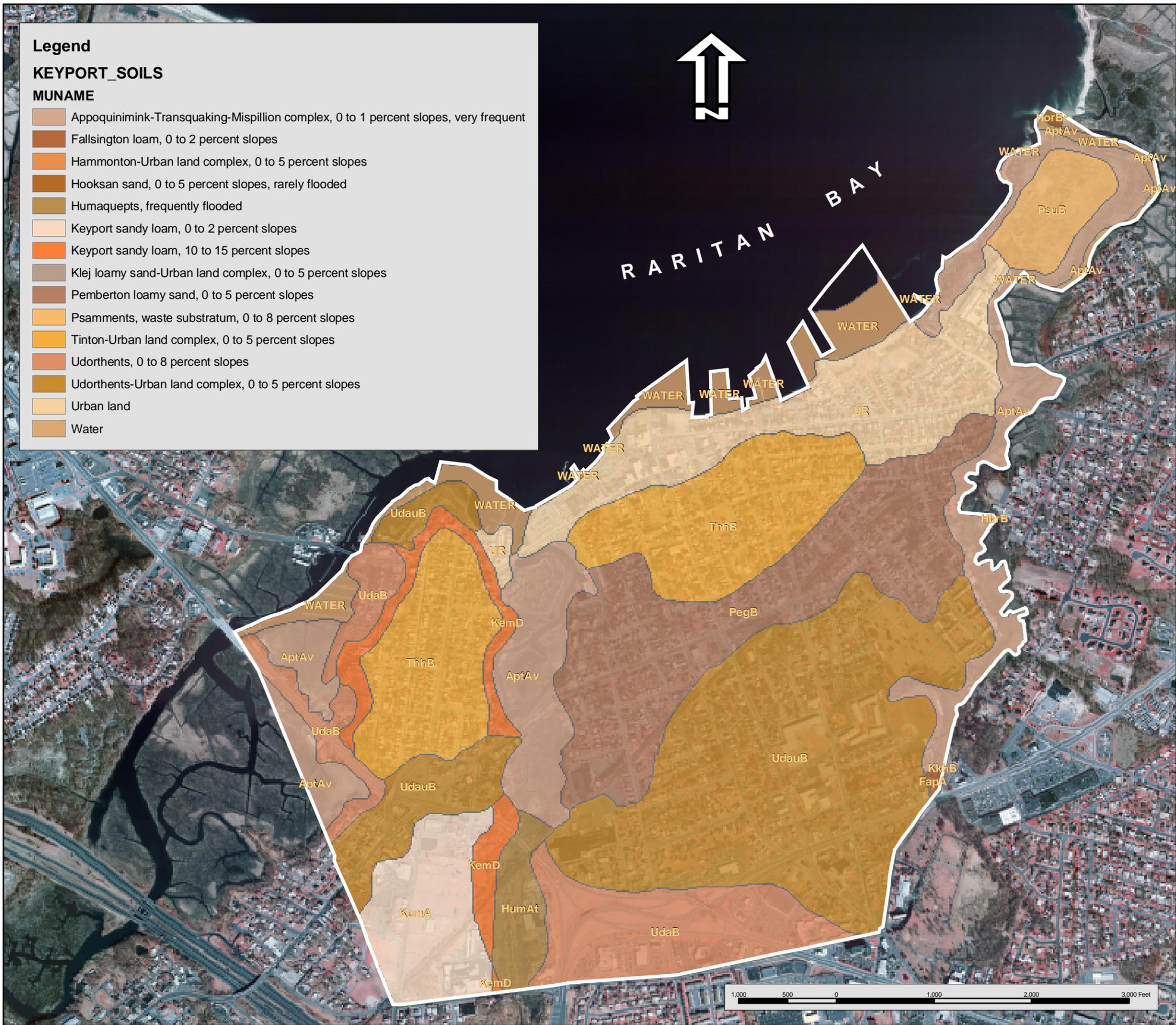
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**Gregory R. Valesi, P.E., P.P.**  
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New Jersey Professional Engineer N.J. Lic. No. 34458



*(NJDEP) Wetlands*  
*Natural Resource Inventory*  
**Borough of Keyport**  
*Monmouth County, New Jersey*



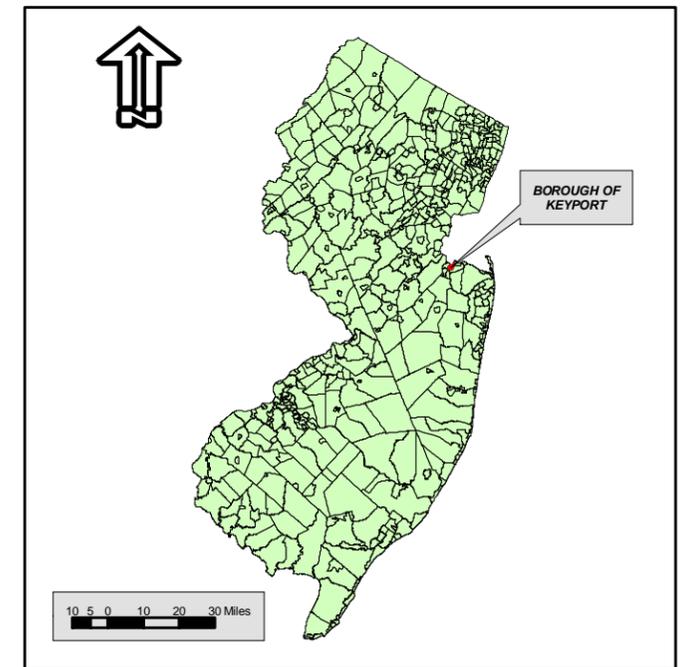
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 New Jersey Professional Planner N.J. Lic. No. 4361  
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**Soils (SSURGO)**  
**Natural Resource Inventory**  
**Borough of Keyport**  
**Monmouth County, New Jersey**



prepared by:  
**Gregory R. Valesi, P.E., P.P.**  
 New Jersey Professional Planner N.J. Lic. No. 4361  
 New Jersey Professional Engineer N.J. Lic. No. 34458



**Shellfish Classifications**  
**Natural Resource Inventory**  
**Borough of Keyport**  
**Monmouth County, New Jersey**



prepared by:  
**Gregory R. Valesi, P.E., P.P.**  
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## **INTERNET REFERENCES**

<http://www.monmouthplanning.com>

<http://www.nj.gov/dep/fqw/>

<http://www.shore.co.monmouth.nj.us/>