COMPLETE STREETS: A REPORT ON THE EXISTING CONDITIONS

JULY 1, 2021

AN ELEMENT OF THE KEYPORT COMPELTE STREETS DESIGN AND IMPLEMENTATION PLAN

NJTPA
NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

The Pearl of the Bayshore SM
Keyport
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Keyport
COMPLETE STREETS PLAN

This report has been prepared as part of the North Jersey Transportation Planning Authority (NJTPA) Planning for Emerging Centers Program with financing by the Federal Transit Administration and the Federal Highway Administration of the U.S. Department of Transportation. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The NJTPA is solely responsible for its contents.

Report prepared for the North Jersey Transportation Planning Authority and the Borough of Keyport by:

FHI Studio in collaboration with StreetPlans

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INTRODUCTION

This is a technical report on the existing conditions in Keyport Borough ("the Borough") as they relate to Complete Streets. It is the first technical report developed as part of the **Planning for Emerging Centers: Keyport Complete Streets Policy and Implementation Plan.**

Planning for Emerging Centers

Planning for Emerging Centers is a program that provides technical assistance in support of efforts by municipalities to create more sustainable, transit-supportive and walkable communities as well as comprehensive approaches to strategic planning at the local level. Through this program, the North Jersey Transportation Planning Authority (NJTPA) provides consultant and staff support to municipalities to conduct various planning studies including integrating transportation into land use plans, transit area plans, multimodal (e.g. vehicular, bus, bike, pedestrian) circulation elements of master plans, climate change and sustainability plans and others.

The program seeks to advance the goals found in the NJTPA Long Range Transportation Plan (Plan 2045) which was published in 2015. The program implements the strategies and actions developed through Together North Jersey, a consortium of public, private and non-profit groups that developed a Regional Plan for Sustainable Development. The NJTPA has been a leading partner in the Together North Jersey consortium.

The Borough of Keyport applied for this technical assistance and was awarded the project in 2019. That same year the consultant team was selected and the project began in 2020.

NJTPA

The NJTPA is the federally-funded Metropolitan Planning Organization (MPO) for the northern New Jersey region, home to 6.7 million people and covering over one-half of the state's land area. The NJTPA Board consists of 20 voting members: representatives from the New Jersey Department of Transportation (NJDOT), New Jersey Transit Corporation (NJ TRANSIT), and the Port Authority of New York and New Jersey (PANYNJ); a Governor's Representative; a Citizens' Representative; and one elected official from each of the 13 northern New Jersey counties and from the cities of Newark and Jersey City.

The NJTPA conducts comprehensive long-range transportation planning and annually oversees over $2 billion in transportation investments, for one of the most dynamic and complex transportation systems in the nation. The NJTPA sponsors and conducts studies, assists member planning agencies (known as NJTPA "subregions"), and provides a forum for inter-agency cooperation and public input into funding decisions.

Project Goals

The primary goal of this study is to develop a **Complete Streets Policy and Implementation Plan, and create an ordinance for the Borough of Keyport that will institutionalize and streamline the integration of complete streets elements into future municipal transportation planning and land use decisions**.

The policy and the ordinance will not only include complete streets elements but green infrastructure recommendations. The policy and implementation plan will cover all public right of ways in the Borough (see Figure 1)

The results of this effort will improve the Borough of Keyport's ability to:

- accommodate mobility needs of the growing population;
- ensure the safety of pedestrians and bicyclists;
- build resiliency to flooding, severe weather, and other effects of climate change; and
- promote long-term economic, residential, commercial and transportation sustainability.

In order to achieve the above outcomes, the Complete Streets planning effort will:

- Institutionalize the complete streets policy in the Borough of Keyport.
- Engage local stakeholders, residents and community members to foster consensus and support for context-sensitive complete streets designs.
- Create accommodating, sustainable, and safe streets for all modes of transportation.
- Establish roadway typologies that will serve as a guide for future transportation planning and projects.
- Integrate complete streets policies into the subdivision and site plan review processes.
- Incorporate green infrastructure elements into complete streets policy and design.
- Develop an evaluation framework for measuring effectiveness of complete streets design practices on a variety of indicators, such as safety, economic, environmental, and public health.
- Integrate smart streets and state-of-the-art technologies into complete streets policy and design.
- Use new and emerging technologies and concepts to address long standing transportation and mobility related problems.

Consultant Team

The NJTPA hired **FHI Studio** and **Street Plans** ("Consultant Team") to support the Borough in the preparation of the plan.

The lead consultant **FHI Studio**, has expertise in land use planning. FHI's land-use professionals support communities by providing comprehensive planning, redevelopment, zoning, placemaking, and transit-oriented development (TOD) planning services.

FHI will be supported by **Street Plans,** a recognized leader and steward of the global Tactical Urbanism movement. Principal Mike Lydon is a co-author of the acclaimed Tactical Urbanism book, published by Island Press in 2015, and the firm has so far published six open-source guides on the methodology.

Figure 1. Keyport: Borough

- open space
- wetlands areas
- downtown business district

MOBILITY HISTORY

Historically, streets have almost always been multimodal. Pedestrians, cyclist, horses, streetcars, and slow-moving private vehicles shared streets with merchants and recreational uses. The following provides a brief overview of the history of transportation in Keyport in an attempt to better inform the public about how streets have changed over time.

Establishment

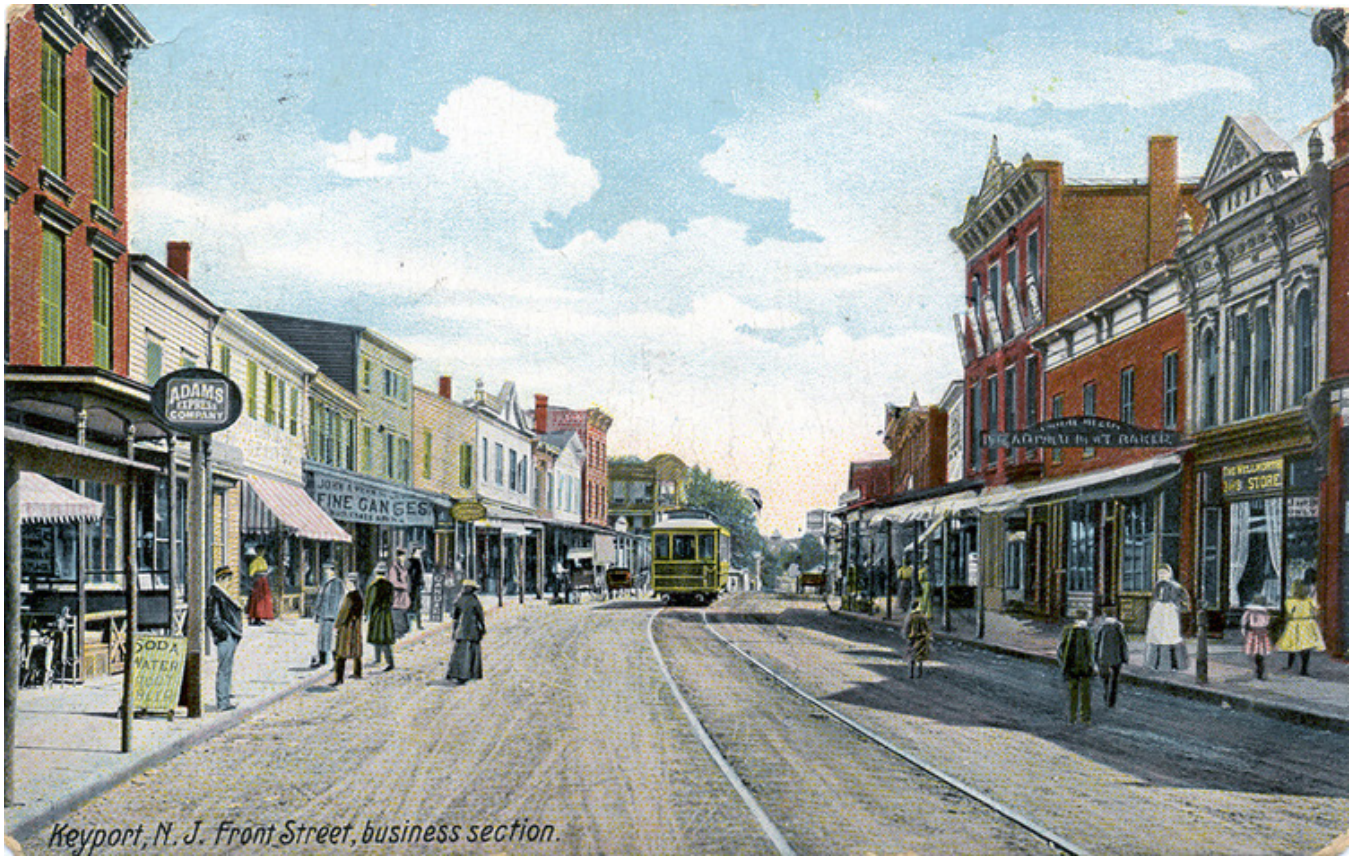
Keyport was established in 1830 and was a major shipping and ship-building center during the 19th Century. **During this period, the dense road network of Keyport's central business district had been mostly developed, while just outside remained primarily agricultural with more curvilinear roadways.** In the late 19th and early 20th centuries, the Jersey Central Traction Company developed a network of **horse cars** across northern New Jersey. Horsecar service between Keyport and Matawan began in 1891, and the first electric cars began appearing in 1901. In 1911, Keyport was connected to Perth Amboy via trolley service thanks to the construction of a bridge across the Raritan River.

Horse car service between Keyport and Matawan began in 1891. Historic postcard courtesy of the Keyport Historical Society

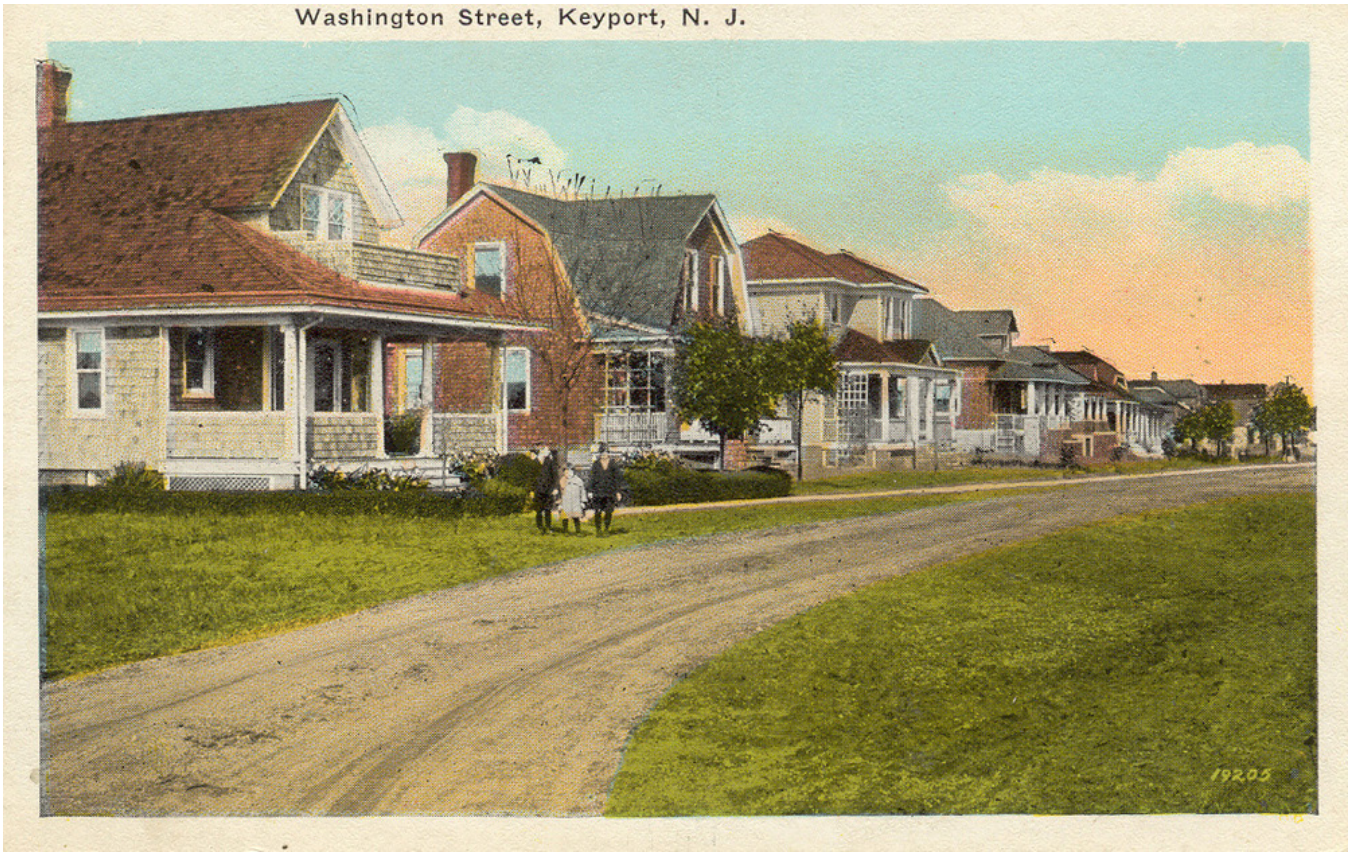
For the most part, the streets had a mix of modes. Historic postcards illustrate people walking freely in the streets alongside bicycles, horse-drawn carriages, and trolleys. Many of the streets in the central business district (e.g., Front Street) had paved sidewalks with a planted buffer in the early 20th century, but more residential streets not far beyond the central business district (e.g., Washington Street) did not.

Historic Image of Front Street

Keyport's Front Street was historically multimodal. Bicycles and horse-drawn carriages are shown in the top postcard (dated 1907). The postcard below shows the electrified streetcar, which arrived in Keyport by 1911. Note that people once walked freely in the street. Historic postcards courtesy of the Keyport Historical Society



Residential streets in Keyport



Not all streets featured sidewalks. Some residential streets like Washington Street were once curb-less. Early sidewalks on residential streets featured a planted buffer to the unpaved roadway. Historic postcards courtesy of the Keyport Historical Society

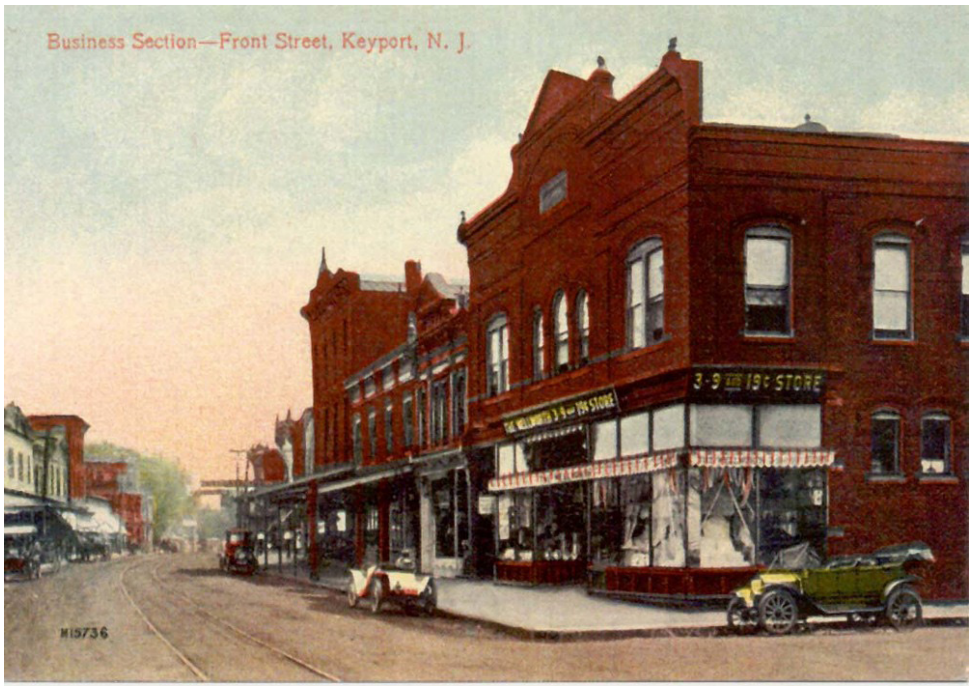
The Automobile

The introduction of the automobile brought few changes to Keyport roadways initially. Historic postcards show automobiles mixing with other road users. However, the trolley company discontinued service by 1923 after only 12 years of electrified operation. Roads were paved, and tracks were buried. By 1950, Monmouth County had an extensive paved road network. Routes 35 and 36, which appear to be unpaved in historic aerials in 1930, had become paved thoroughfares by mid-century. The Garden State Parkway south of Keyport was still farmland in 1951. By the end of the decade, it was a paved interchange resembling today's footprint. This interchange, however, would continue to evolve with grade separation and lane expansion in the following decades.

As the roadways were increasingly designed for faster vehicle speeds, other modes were either eliminated or pushed to their own rights-of-way. Electrified

The unpaved streets of Keyport were shared by private automobiles, horses, pedestrians, and bicycles for the early decades of the 20th century. Historic postcards courtesy of the Keyport Historical Society

Front Street After the Introduction of the Car



Keyport in 1951

This 1951 aerial of Keyport shows a network of roadways. Routes 35 and 36 had already been constructed, but the Garden State Parkway was not yet built. Historic aerial courtesy of the Keyport Historical Society

passenger rail was only available for a short period in Keyport's history, but rail service was reintroduced in nearby municipalities when NJ TRANSIT's Coast Line extended to Matawan in 1982 and then to Long Branch in 1988. The Henry Hudson Trail, a 24-mile bicycle and pedestrian paved trail, today runs through several municipalities in Monmouth County including Keyport. Fittingly, this trail is built on a former rail right-of-way.

Put in a historical context, Keyport's transportation system has always been changing and adapting based off the transportation needs of its citizens. Complete streets would in many ways reinstate some of the shared roadway practices seen in the early 20th century but use a more modern design approach that takes into account roadway paving, stormwater management, vehicular accommodations, and vehicle speeds.

PREVIOUS PLANS

This chapter provides a summary of previous planning efforts as they relate to complete streets planning. Many of these plans are discussed in greater detail in the following topic-based section of this report.

MUNICIPAL PLANS

Master Plan (2017)

In 2017, Keyport compiled a Master Plan to outline a future vision for the Borough. **The Master Plan highlighted the desire of Keyport to maintain its small town quality by restricting development and density increases to designated areas,** with a focus on sustainable practices to reduce the risk of natural disasters damaging life and property in the future. Access to the water and various waterfront amenities are highlighted as key characteristics of the Borough that should be preserved and protected in conjunction with completed projects designed to enhance those areas. See Key Master Plan Goals and Objectives on the following page for more details.

Circulation Element

Overview

As part of the 2017 Master Plan, Keyport developed a Circulation Element to lay out its vision for future transportation needs within the Borough. The plan primarily focused on improving the road infrastructure to **enhance both vehicular and pedestrian safety in Keyport**. Parking constraints and potential remedies were also identified as issues that need to be addressed so that Keyport could better serve residents and tourists alike.

An increase in **truck and excursion bus traffic** was identified as contributing to an increase in traffic congestion along multiple roadways in the Borough. Roads near the downtown and waterfront were identified as particularly problematic.

Frequent crashes and unsafe travel behaviors were identified as major issues, and the Circulation Element identified **traffic calming measures** as a key to improving the safety and efficiency of the roadway network.

The Circulation Element noted that parking was becoming tougher to find downtown, due to increase tourist and resident traffic. The element noted the need for **improved non-motorized modes of transit** so that residents and visitors do not need to rely solely on automobiles to attend destinations. However, the plan identified **sharp street corners and shared travel ways** as roadblocks to improved public transportation options.

The Circulation Element of the 2017 Master Plan also highlighted improvements to the bicycle and pedestrian network that should be made to enhance the experience for all users. **Better connections to the Henry Hudson Trail, as well as a more walkable downtown were identified as key focus areas.** In addition, the **exploration of additional transit options from neighboring bus, ferry, and rail systems** was discussed as a future method of reducing the strain on local roads.

KEY MASTER PLAN GOALS AND OBJECTIVES

The Master Plan (2017) identifies overarching goals and objectives that are "standards upon which the constituent's proposals for the physical, economic, and social development of the Borough are based." The following goals and policy statements are those that are particularly relevant to this complete streets effort.

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.

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.

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.

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.

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.

Specific Goals and Objective

Keyport grouped the Circulation Element's goals into sections. The first section aims to improve the parking situation across the Borough. The Element highlighted a need for a **Parking Commission** to analyze existing parking rates and the needs of the community. It also identified minor changes to existing parking areas to improve traffic flow and visibility.

The next section of goals focused on **improving the flow of traffic** while increasing safety in the Borough. **School drop zones** were identified as being an area of concern with regards to safety and traffic flow. The possibility of a **Borough-wide traffic study** was raised, with the potential of creating a **north/south circulation system utilizing one way streets to improve flow and reduce accidents**. Other minor improvements were noted, mostly to improve vehicular and pedestrian safety at key intersections in Keyport.

Improvements to the pedestrian experience section three of the Circulation Element's goals and objectives, with the primary goal of **identifying areas where pedestrian safety and visibility should be enhanced**. This would be accomplished through **wider sidewalks, re-striped crosswalks, and other pedestrian safety measures** as necessary in key locations.

Commuting to and from Keyport to neighboring towns and regions is primarily conducted by automobile, as there is only one bus route servicing the Borough. **Improving the accessibility and viability of commuter services in the Borough** was a key goal that Keyport identified as a place to improve, whether it be through NJ Transit service increases, or other, creative solutions such as a transit village or local shuttles to and from neighboring train stations.

Additionally, Keyport expressed the desire to become a bike friendly town by **including bike lanes on all roads that are capable** of accommodating them and improving connectivity to existing bicycle resources within the Borough.

Land Use Element

The important relationship between land use and the transportation system is widely recognized: the way the Borough chooses to use its land will impact the transportation network it needs to maintain and build. Vis-versa the transportation network it builds will impact how it can use its land.

The Land Use Plan Element details the existing and proposed land uses in the Borough. This included describing the Borough's approved redevelopment plans on four significant parcels: Aeromarine Property, Brown's Point, Longview-Boatworks, and the Highway Commercial District. The Land Use Element included a Proposed Land Use Map which is typically used to guide decisions about changes to zoning. For the purposes of this project, **the Proposed Land Use Map will serve as the foundation for the land use portions of the transect based street typologies**.

A more detailed analysis of the current and proposed land use, as well as the recommendations for changes in land use, will be explored in the Land Uses & Essential Destinations section of this report.

Community Resilience Element

The Community Resilience Element identified four risks and vulnerabilities facing Keyport: flood, precipitation, extreme wind, and climate change. As will be discussed later in this report, there are significant areas within Keyport that are susceptible to environmental dangers. The Resilience Element recommended that:

- New development be **built above the base flood elevation (BFE)**, as defined by the most up-to-date FEMA FIRM maps.
- The Borough work to limit the impact of rain on stormwater infrastructure by using **sustainable stormwater practices**. Stormwater management systems should be designed to recharge 100 percent of stormwater that falls on site, as opposed to a detention basin that doesn't allow for infiltration.
- The Borough encourages 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.

- The Borough should move forward with an analysis of the sewer and stormwater system and address infrastructure conditions.

As part of this work, the Master Plan both identified existing evacuation routes as well as those roads which were likely to become inundated under different storm conditions. This work is explored in more detail in the Green Infrastructure section of this report and will be critical to incorporate into the complete streets recommendations in this plan.

Coastal Vulnerability Assessment (2017)

Superstorm Sandy caused extensive damage to the Borough of Keyport including extremely high flood levels of 6.7 feet above the Borough's waterfront promenade and wind damage to 113 properties and to Keyport's critical infrastructure. This damage accumulated a total of $5,976,300 in property value loss. According to the Borough's Strategic Recovery Planning Report (SRPR) the Borough's wooden boardwalk and bulk heading were heavily damaged or lost during the storm. A total of 53 residential properties reported damage by flooding or other hazards.

The Coastal Vulnerability Assessment (2017) built off of work done in Post-Sandy Planning Assistance Grant (PSPAG), Strategic Recovery Planning Report (SRPR), and the Getting to Resiliency Report (GTR) to fully catalog Keyport's biggest vulnerabilities, identify objectives to mitigate the known vulnerabilities, and to set forth an adaptation plan to implement in the future. The plan identified flooding on Beers Street and 1st Street as moderate priority and flooding on West Front Street as lower priority, with the recognition that all projects identified were a priority.

Capital Improvement Plan

The Borough of Keyport has prepared the Capital Improvement Plan (CIP) through the New Jersey Department of Community Affairs Post Sandy Planning Assistance Grant (PSPAG) Program. Projects identified in the CIP include those from the Borough's Master Plan, Neighborhood Plans, Hazard Mitigation Plan, and Coastal Vulnerability Assessment. This Plan aims to include all of these recommended projects to provide a clear plan on how to fund and construct these hazard mitigation and resiliency projects to better prepare Keyport for natural hazards, particularly flooding and major storm events. As the Borough moves forward with its complete streets implementation, a key step will be determining how to prioritize, fund, and construct improvements. An update of the CIP will likely be necessary to accomplish that goal.

Keyport Hazard Mitigation Plan (2017)

The purpose of the Hazard Mitigation Plan was to protect the Borough, its citizens, assets, and operations in the best possible manner from the effects of natural hazards. To do this, the following objectives were established:

- Reduce exposure of all properties within the flood hazard area of the borough.
- Protect the commercial district by reducing exposure to natural hazards.
- Mitigate risk to all potential natural hazards and reduce the vulnerability of critical facilities.
- Increase open space, buying at risk properties, reducing impervious surface coverage, improving drainage, raising structures.
- Effectively implement floodplain ordinances, regulations, and building codes to protect structures from flooding.
- Improve flood insurance rates and also improve public education regarding potential flood hazard damage.
- Work with federal, state, and county agencies to leverage mitigation funds to reduce exposure and increase resiliency.

In addition, the Hazard Mitigation Plan suggested further implementing green and gray infrastructure solutions to mitigate flooding (including establishing a green infrastructure program), identify points of necessary infrastructure coordination with neighboring municipalities, plan for operation continuity of critical infrastructure, and facilitate mobility and connectivity for ease of emergency evacuation.

The plan concluded by identifying past Hazard Mitigation measures identified by the 2014 Strategic Recovery Planning Report that had not been fully implemented, as well as identifying techniques the entire Borough could utilize to improve resiliency in general.

NEIGHBORHOOD PLANS

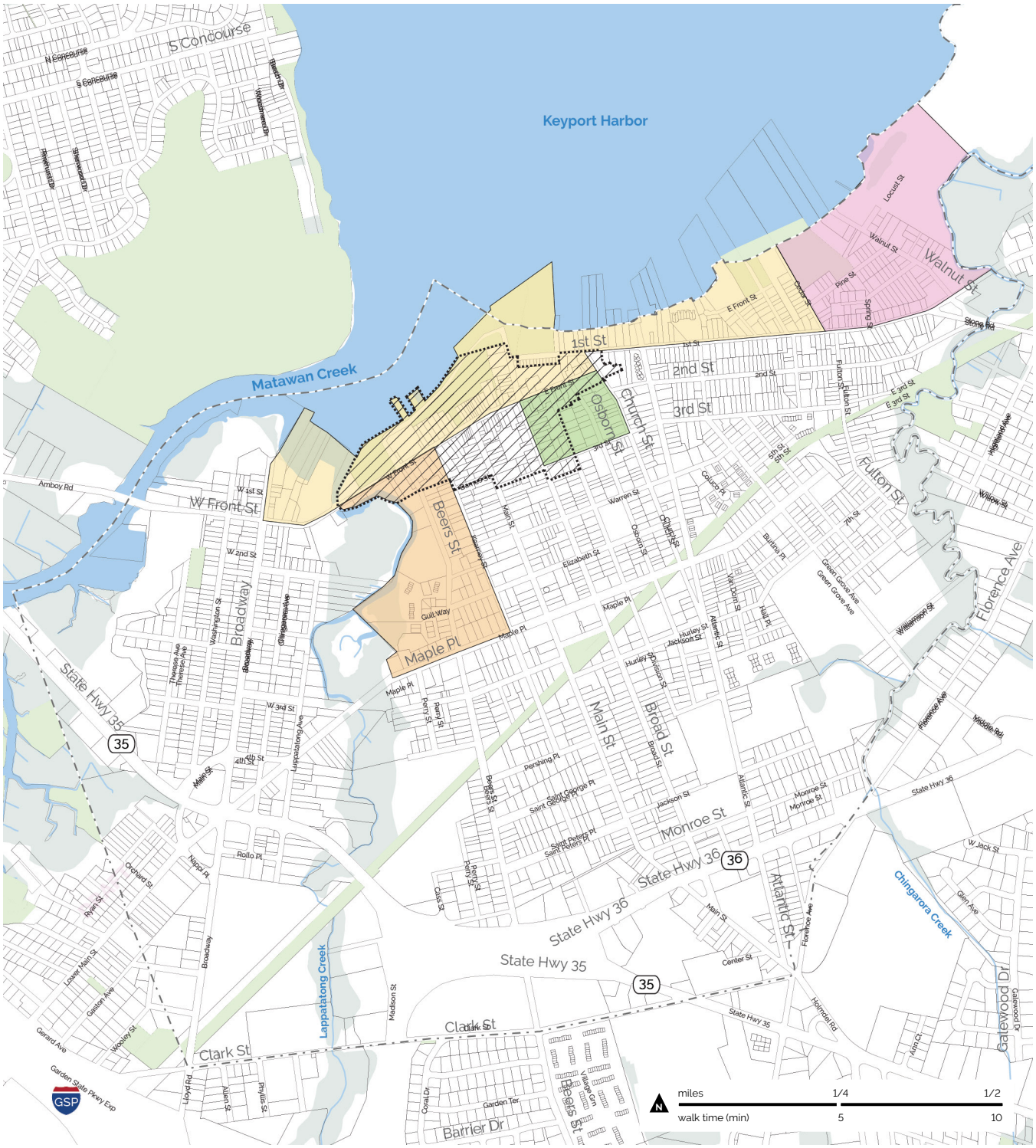
After Superstorm Sandy, the New Jersey Department of Community Affairs (NJDCA) established the Post Sandy Planning Assistance Grant Program to support long range planning for redevelopment in the areas damaged from Superstorm Sandy. This led to the creation of the Strategic Recovery Planning Report (SRPR) which focused on community oriented goals and strategies most urgently needed for public safety and economic recovery adopted their SRPR in April 2014 and included an amendment in August of 2014 with recommendations for Neighborhood Plans in four areas of the Borough: Beers Street basin, First Street Waterfront, Walnut-Oak Street basin, and Division Street basin,.

The neighborhood plans focused on the land use of clearly defined blocks within Keyport, identifying parcel use, as well as non-conforming lots, and performing a risk assessment of the neighborhood. **Detailed analysis of stormwater and other types of natural hazards was conducted**, and risk factors were assigned to parcels on their proximity or susceptibility to future hazardous events.

This neighborhood level of analysis resulted in concrete recommendations for each neighborhood to pursue in order to reduce the risk of flooding during future storms and other natural hazards. **Reductions in impervious surfaces, improvements to drainage systems, and reinforcing critical infrastructure or raising structures were highlighted as key mitigation strategies for all neighborhoods**. In addition, changes to the various local zoning codes and ordinances were recommended to future proof the neighborhoods through more targeted regulations to encourage hazard mitigation techniques to be deployed in future developments.

The following specific recommendations were identified in the above Hazard Mitigation Plan and the Neighborhood Plans.

Figure 2. Planning Neighborhoods



Neighborhood Preservation Plan

First Street Basin Neighborhood

Beers Street Basin Neighborhood

Walnut-Oak Street Basin Neighborhood

Division Street Basin Neighborhood

Beers Street

- Enhance stormwater management by **implementing green infrastructure techniques** in strategic locations such as excess right-of-way or undeveloped or underutilized areas.
- Raise street surface levels in areas that are most prone to flooding.
- Educate the public on the importance of stormwater management and the potential benefits of green infrastructure techniques.

First Street Neighborhood

- **Build natural and built defense structures** to resist sea level rise and storm surge. This would manifest itself in elevated bulkheads, levees, wave breaks, living shorelines, improved dunes, increased open space along the Bay, stormwater infrastructure, and other similar options.
- Incorporate **green streets** or other alternative mitigation strategies in conjunction with the recommended stormwater improvements to East Front Street and other locations such as 1st Street.
- Make overall drainage improvements to the neighborhood to assist in mitigating floods including **green stormwater infrastructure in the entire watershed of the creeks**.
- Improve the existing **stormwater management facilities for draining Division Street and First Street** including capacity and larger pipes both for the outfall pipe and the overall system in order to prevent backwater flooding from the Bay.
- **Reduce impervious surfaces** throughout the neighborhood and increase open space to the maximum extent possible

Walnut-Oak Street Neighborhood Plan

- The plan noted that **bridges in the area are often impassable**, as two of the lowest areas of the neighborhood are found at the base of the bridges on either side and that First Street is particularly vulnerable to flooding. The Plan notes that many sidewalks are overgrown while roads are cracked and uneven, or filled with sediment.
- The Plan recommended **drainage improvements to stormwater conveyance systems** in the neighborhood including green streets and green stormwater infrastructure.
- The Plan recommended **elevating First Street over Chingarora Creek** to improve stormwater drainage and prevent blockage during storm events. It also recommends that the Borough work with the Borough of Union Beach and the Township of Hazlet to **elevate the main roads in the Walnut-Oak Neighborhood**.
- The Plan notes that there will be **considerable structural repair needed at the end of Walnut Street** on the road, sidewalks, drainage, and bulkhead, and the use of the location almost exclusively for passive recreation, the Borough should consider removing part of the bulkhead and road back to the existing vegetated buffer, after assessing the potential effect, if any, on adjacent private property.
- The Plan recommends that the paved area on Walnut at the existing street end could be replaced with a **bioswale and newly constructed bulkhead** with both natural drainage and improved pipe systems and a flood tolerant garden or estuarine vegetation and dunes below, to which filtered runoff would drain from the bioswale.

Division Street

- The plan recommends that green streets or other alternative mitigation strategies be used in conjunction with the recommended stormwater improvements to Division Street. Incorporating green streets would supplement the upgraded stormwater system and reduce the strain during a major storm to allow water to more naturally percolate into the ground.
- The plan recommended upgrades and improves to streets and sidewalks where needed and to **add streetscape improvements within the neighborhood**. Specific areas that could use curbing, sidewalk, and asphalt improvements include East Front Street, Division Street, sidewalks on Church Street, and specific areas of Broad Street.

Neighborhood Preservation Plan

The Borough of Keyport, in partnership with its community-based Neighborhood Stakeholder Team, created a viable and comprehensive five-year Downtown Keyport Neighborhood Preservation Program Plan. The plan is a blueprint to create long-term neighborhood preservation while keeping the distinct aspects of the neighborhood in line with the traditions and spirit of the Borough and the community.

A key recommendation of this plan is to coordinate efforts with this Complete Streets Program to identify potential sidewalk and pedestrian improvements. One of the justifications for this action was that over 70 percent of the Team's survey participants responded that improvements to sidewalks was a "priority" or a "major priority." The Team's goal would be to implement the proposed improvements in Year 4 (2024).

The plan includes a number of implementation recommendations, including the following which are relevant to this complete streets planning effort:

- Investments in road closure and traffic control improvements to allow for permanent road barrier gates which can be opened during normal traffic and closed during times of flooding and/or for special events in the Bayshore.
- Investment in public benches, seating, and signage, including a gateway sign.
- Improvement to parking regulations
- Development and implementation of a shuttle bus, including the necessary infrastructure the bus.
- Sidewalk and pedestrian area improvements.

COUNTY PLANS

Monmouth County Master Plan 2016

The Monmouth County Master Plan was written and in 2016. This plan shifted gears from the growth-oriented plans of the 1960s and 80s, to that of a County focused on redevelopment, revitalization, and rediscovery of communities throughout the County. This is due in part to the bulk of the County being built out in terms of character and physical space. Therefore the local focus has shifted to maintaining or enhancing the identities of the various municipalities through sustainable redevelopment and improvements. All these elements are designed to maintain the high quality of life standard that Monmouth County has become known for throughout the state and country.

With regards to Keyport, the Monmouth County Master Plan highlights key funding provided to the Borough. In 2015, Keyport was awarded $204,000 in open space grant program funding to redevelop the Main Street Park. In addition, the Ralph Pier replacement improved public access to the bay and provided recreational services. These two open space redevelopment projects, while small in scope, improved and reactivated key portions of the Borough for the benefit of residents and tourists alike.

Culturally, this plan expanded on the number of recognized **Arts, Cultural, and Entertainment Hubs** recognized in the Coastal Monmouth Plan from five to eight, to also include the Borough of Keyport. These places or destinations were defined as containing a robust mix of arts, cultural, and entertainment activities. These hubs form the backbone of a more resilient and sustainable, year-round local economy to support seasonal dependent markets. The 2016 Master Plan called for a cohesive marketing theme to further strengthen these hubs and focuses on elevating the coast of Monmouth County as an art, cultural, and entertainment destination.

Highlighting the 2016 Master Plan's desire to encourage redevelopment and remediation, the authors noted the redevelopment of the Keyport Public Works yard into the Keyport Waterfront Park along American Legion Drive. This redevelopment project was further enhanced by the Ralph Pier Replacement mentioned previously.

On the sustainability front, Keyport was granted $6,000 for recycling containers, a paper shredding event, and for the purchasing of educational books related to recycling as part of the Monmouth County Recycling Stimulus Initiative program in 2015 and Matawan were some of the first towns to receive this funding. Additionally, the Borough of Keyport was awarded Bronze Status in 2015 from Sustainable Jersey, and most recently re-certified Bronze in 2019.

Bayshore Region Plan

This Office of Smart Growth of the New Jersey Department of Community Affairs funded this plan as an addition to the County Growth Management Guide of 1995. This plan created 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. This goal would be accomplished through identification and assessment of current and future land use needs, natural resource preservation, economic development strategy, and maintaining the maritime character of the region through strategic redevelopment and revitalization opportunities available to the different municipalities. Each of the nine regions were asked to provide resolutions of support and are responsible for implementing segments of the plan.

Per the Bayshore Plan, **Keyport is focused on maintaining the maritime character of the borough and protecting and expanding marina uses on the waterfront**. Improving access to Keyport from regional roadways was also a primary goal of this plan. These goals will be accomplished through strategic redevelopment of vacant parcels and converting multifamily buildings to single family use and restoring the historic character of the borough. A recurring theme throughout this plan is the heavy focus on Keyport's contribution to the waterfront redevelopment plan through capital improvements to the waterfront promenade, reinforcing the overall character of the region.

2010 Bike Map

The 2010 Monmouth County Bike map was originally developed in 1988 by a group of local bicyclists but has subsequently been updated. The ratings presented on this map are subjective in nature, and the set of criteria accompanying the ratings consist of volume and speeds, width and condition of shoulders, sight distance, curb cuts, and other obstacles to bicyclists. County streets were given one of three ratings: good, fair, or poor, and importantly the ratings reflect off peak traffic conditions within the hours of 9 a.m. to 4 p.m.

In Keyport, most of the roads highlighted are either in fair or poor condition with regards to bicyclists' perceived comfort, indicating that improvements could be made to increase the usability of these roadways. While the Henry Hudson Bike Trail does bisect Keyport, there are few adjoining routes in Keyport itself which would be relatively comfortable for a bicyclist to travel on to use the trail, according to the 2010 Bike Map.

Monmouth Natural Hazard Mitigation Plan

Per state regulations, Monmouth County is required to have and maintain a Natural Hazard Mitigation Plan in order to receive disaster assistance in the event of future natural disasters. The first plan was approved by FEMA in 2009, and the 2014 Natural Hazard Mitigation Plan represents the required five-year update of the initial plan. The plan identifies potential hazards to the county, performs a risk assessment for all 53 municipalities, identifies the capabilities and resources available for hazard mitigation, establishes goals and strategies to prevent future damages, and finally outlines a method to maintain and integrate the plan procedures for all stakeholders.

The 2014 Plan updated the relevant planning and outreach activities that have occurred since the initial plan. Further, it identified and recorded instances of natural hazards that have occurred as well, including changes in development and progress on local mitigation efforts based on the previous plan. Finally, it also included the most recent guidance published by New jersey with regards to hazard mitigation.

COMPLETE STREET POLICIES

NJDOT Complete Streets Policy

The New Jersey Department of Transportation (NJDOT) adopted a Complete Streets Policy in 2009, which the National Complete Streets Coalition ranked as one of the strongest in the nation. However, NJDOT has jurisdiction over less than 10 percent of roadway lane-miles in New Jersey. The vision of a statewide "comprehensive, integrated, connected multi-modal network of transportation options" requires that counties and municipalities also adopt and institute Complete Streets policies.

Monmouth County Complete Streets Policy

In July 2010, Monmouth County became the first New Jersey county to adopt a Complete Streets Policy, modeled after the New Jersey Department of Transportation (DOT)'s own policy adopted in December 2009. Over the next four years, other counties and towns slowly began to adopt their own Complete Streets policies, many modeled on the state policy.

DEMOGRAPHICS

INTRODUCTION

The Borough Keyport is a small, fully developed municipality that measures approximately 1.4 square miles. With a population density of nearly 5,000 persons per square mile, Keyport is nearly five times as densely populated as the County and State.

Because of the relatively small size of the study area, the demographics of the entire Borough was analyzed unless otherwise noted. The demographic profile focuses on the overall Borough and its relationship to trends within Monmouth County and throughout the state.

GENERAL POPULATION CHARACTERISTICS

The population of the Borough in 2018 was 7,070 **Borough has experienced an approximately 7 percent decline in population growth between 1990 to 2018, see Figure 3.** In contrast, the County and the State have seen 11 percent and 14 percent growth over the same time period.

Despite this declining population, the Borough is experiencing a renaissance, particularly along the waterfront. From the expanded Waterfront Promenade to the businesses facing the waterfront, the downtown greatly benefits from having such natural assets.

Keyport is significantly more densely populated than the County and State. This is likely a result of a mix of multi-family and large-scale apartment buildings such as Keyport Leisure Bay Apartments and Bethany Manor Senior Citizen Housing. Additionally, Keyport's single-family homes are primarily built on small parcels, which allows many homes to be built on a single block. Dense development patterns such as those found in Keyport can contribute to a vibrant pedestrian environment if appropriate facilities are available and in good conditions. People on the streets can create

Figure 3. 2018 Keyport Demographics Summary

	Borough	County	State
2018 Population	7,070	623,387	8,881,845
Change (1990 - 2018)	-7%	12%	15%
Average Household Size	2.32	2.64	2.71
Median Household Income	$56,000	$95,699	$79,363
% Owner-Occupied Housing	49.8%	73.7%	63.9%
Median Housing Value	$258,600	$408,400	$327,900
Median Gross Rent	$1,081	$1,372	$1,295
Population Density Per Square Mile	4,812	950	1,013

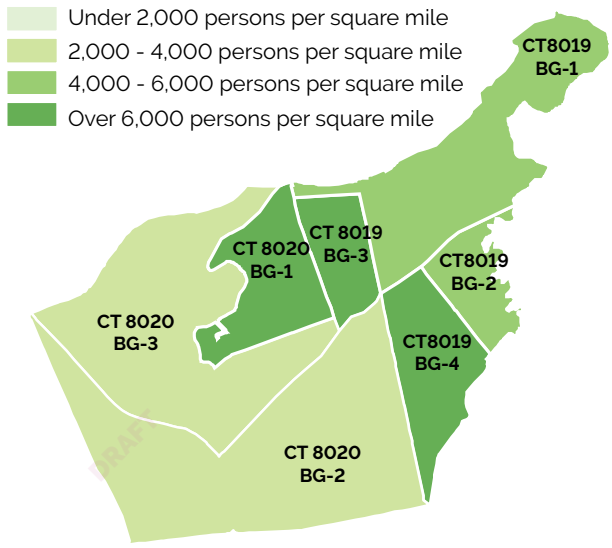
US. Census Bureau; 1990 Summary File 1; 2000 Summary File 1; 2018 5-Year ACS Estimates

a sense of neighborhood and place and can improve safety. Sidewalks and bicycle facilities are generally more utilized in locations where population densities are high. Finally, higher population densities support higher-quality public transportation.

Population Density

Keyport is more densely populated than both the County and the State and some areas of the Borough are denser than others. Figure 5 illustrates that census tract block groups near the waterfront tend to be more densely populated than other areas. But Census Tract 8019, Block Group 4 is the most densely populated area in the Borough, at over 7,500 persons per square mile.

Figure 5. Keyport Population Density



US. Census Bureau; 2018 5-Year ACS Estimates

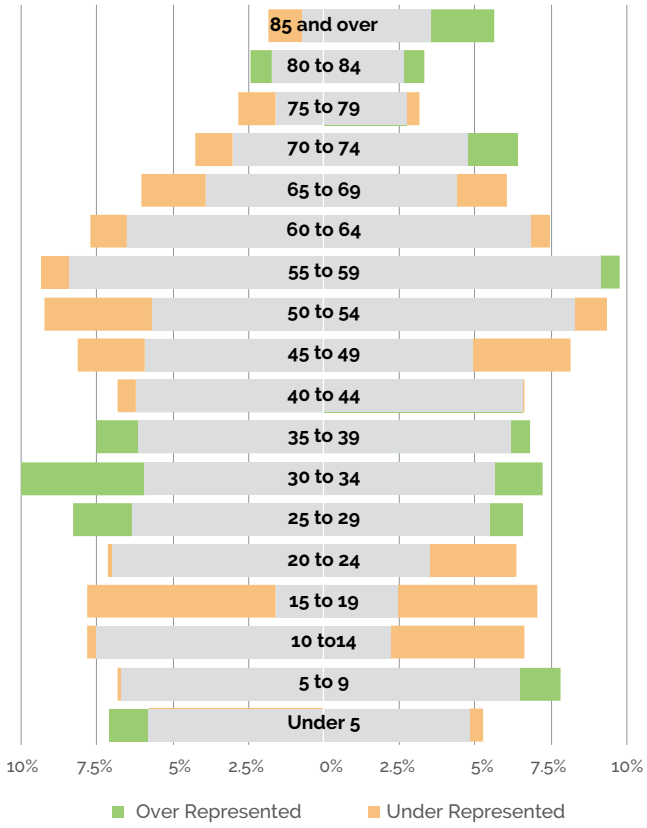
In the graphic to the right compares the relative proportion of the population that each age cohort makes up in the County and Keyport. Areas highlight in orange are age cohorts where the Borough has fewer residents relative to its overall population. This shows that, relative to the County, this age-group is under represented in Keyport. The reverse is true with areas highlighted in green.

Age

The median age in Keyport is 41.7 years. As illustrated in Figure 4, the composition of Keyport's population is substantially different than the county. The Borough has proportionately fewer residents between the ages of 45 and 69. As a result, the Borough has proportionately more residents who are in the Millennial generation: those between the ages of 25 and 40. Notably, the Borough has a significant lack of residents who are in their teenage years.

As the Borough undertakes its complete streets planning work, it will be worth paying attention to the needs and preferences of the millennial cohort: working to keep them in the Borough will likely be an important step in ensuring long-term population sustainability. Moreover, the Borough will likely need to pay attention to the needs of those over the age of 80 who are over-represented in the Borough and who often face some of the biggest mobility obstacles.

Figure 4. Age Distribution Keyport and Monmouth County



US. Census Bureau; 1990 Summary File 1; 2000 Summary File 1; 2018 5-Year ACS Estimates

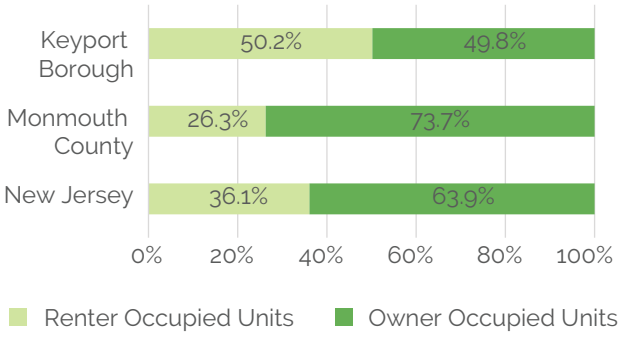
Housing

Within the Borough, about half of the housing stock is **owner-occupied units. This is almost 24 percent less than the County, and also lower than that of the State.**

Approximately 51 percent of Keyport's renters are spending over 30 percent of their income on gross rents. Homeowner's with mortgages who are paying 30 percent or more of their income on ownership costs make up approximately 35 percent of homeowners. These numbers are on-par with percentages from the County and the State.

Median housing values in Keyport are $258,600, which is nearly $150,000 lower than that of the County, and almost $70,000 less than the State's values. Median gross rents are also lower than both the County and the State. When planning for complete streets, **it will be important for the Borough to consider the mobility needs of these relatively lower-income residents and how providing more transportation choices may result in improved economic opportunity**.

Figure 6. Owner and Renter Occupied Housing Units in Keyport, 2018



US. Census Bureau; 2018 5-Year ACS Estimates

MOBILITY

The following provides a top-level overview of the mobility characteristics in the Borough based on data provided by the US Census Bureau.

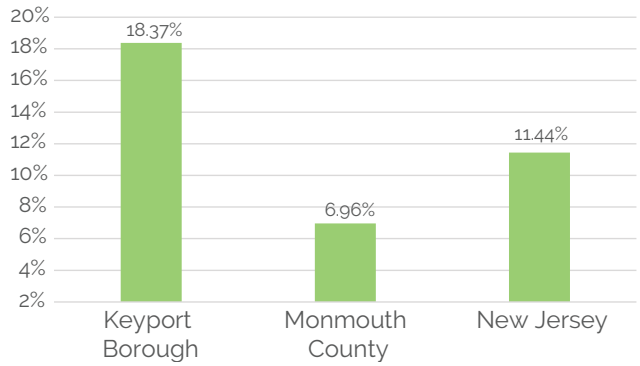
Car Ownership

As shown in Figure 4, **over 18 percent of Keyport's households do not have access to a vehicle.** This number is almost three times higher than that of Monmouth County and it is also higher than the State's percentage of zero-vehicle households. This means that having **access to high-quality transportation options is critically important for almost 1 in every 5 Keyport residents**.

Modal Split

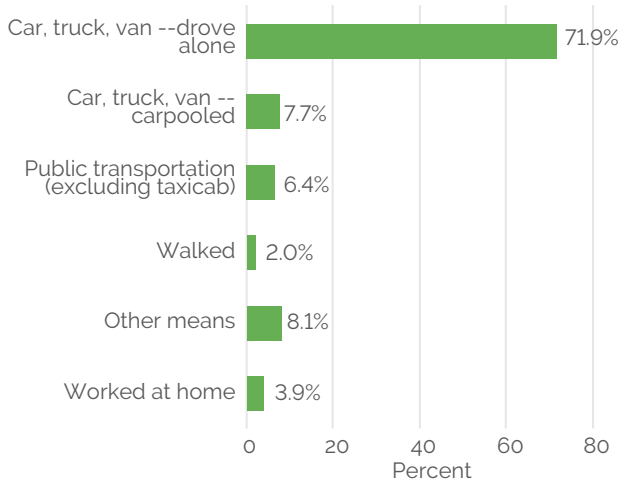
Almost 72 percent of Keyport's residents rely on personal vehicles to travel to and from work. When they do, they drive alone (Figure 8). This percentage is less that the County's (76 percent), but is equal to that of the state. The proportion of workers taking public transportation to work is less than that of the County and State, and is likely the result of few public transportation options available to Keyport residents.

Figure 7. Households with no Vehicle in Keyport



US. Census Bureau; 2018 5-Year ACS Estimates

Figure 8. Commuting Modal Split in Keyport



US. Census Bureau; 2018 5-Year ACS Estimates

JOURNEY TO WORK: IT'S NOT EVERYTHING

One of the most popular ways to understand how people use the transportation network is to use United States Census data to find out what mode of transportation people use to travel to work. This is done in large part because this data is easy to acquire and is very accurate. However, this method provides an incomplete picture of how streets are used and can often be gender and aged biased. In New Jersey, only 63 percent of the population is participating in the workforce. That means that journey to work data does not provide information about the nearly four in 10 people who use the streets but do not work. Those who are not in the workforce tend to be younger and older residents. Women still provide the majority of informal care to spouses, parents, parents-in-law, friends and neighbors as well as childcare.* They still disproportionately perform household tasks, including grocery shopping. By focusing on journy-to-work, much of this data is not captured. Unfortunately, there is no good dataset that captures this information. However, stakeholder interviews and public engagement efforts that are part of this project can better capture this information, if only in an anecdotal way.

** Navaie-Waliser, M., Feldman, P. H., Gould, D. A., Levine, C. L., Kuerbis A. N., & Donelan, K. (2002). When the caregiver needs care: The plight of vulnerable caregivers. American Journal of Public Health, 92(3), 409–413.*

Workplace Destinations

Approximately 33 percent of Keyport's residents travel less than 10 miles to work and 5 percent of residents both live and work in the Borough. One of the top workplace destinations for Keyport residents is New York City, with 14 percent of residents commuting there for work. Other top locations include Red Bank, Jersey City, and Newark.

In 2017 (latest available year), there were approximately 1,395 workers commuting into the Borough.

Figure 9. Where Keyport Workers are Going (Percent of workforce traveling to desination)

US. Census Bureau Center for Economic Studies, 2017 All Jobs

EQUITY ANALYSIS

The following section provides a closer look at Keyport's demographics, utilizing Census Block Group information for the seven census blocks within the Borough. This allows for a more targeted analysis of the Borough. Later in the planning process, this information can be used to determine priority implementation of complete streets.

Age

Census Tract 8020, Block Groups 1 and 2 had the greatest number of over-64 residents (26 percent). Census Tracts 8019, Block Group 2 and Census Tract 8020, Block Group 3 had the greatest number of children under the age of 5, at around 7 percent for both block groups. Census Tract 8019, Block Groups 1 and 2 had the greatest number of persons under the age of 18 with 24 percent and 28 percent of the total population in each block group. Children under 5, persons under the age of 18, and those over the age of 64 are much more likely to be dependent on public transportation and multi-modal transportation options compared with other age groups who may have access to personal vehicles.

Female Head of Householder

Female headed households are an important indicator for areas where there may be particular need for a diversity of mobility options. Female-headed households, particularly those led by women of color, are more likely to be food-insecure and live in poverty than other U.S. households.[1] These households are particularly vulnerable because not only do they only have one parent to raise children but also the household head may also face gender discrimination.

The Census Tract 8020, which covers the western section of the borough, approximately 5.6 percent of households were headed by women. This number is greater than that of the rest of the Borough and that of the County.

Figure 10. Female Head of Household in Keyport

Female Head of Household	
Census Tract 8019	2.6%
Census Tract 8020	5.6%
Keyport	4.3%
Monmouth County	4.6%

US. Census Bureau; 2018 5-Year ACS Estimates

WHY PLAN FOR VULNERABLE POPULATIONS?

By definition, complete streets planning is a process of designing streets for all users. Often, this is understood to be all types of modal road users (e.g. bicyclists, pedestrians, truck drivers, etc.). However, there has been increasing recognition that the definition of "all users" must include people who may have particular needs because of their age, ability, or geographic location. Moreover, as complete streets have moved from theory to implementation, municipalities have learned that communities of color, immigrant communities, and other historically disadvantages groups may have different needs that impact what will be a complete street for them.

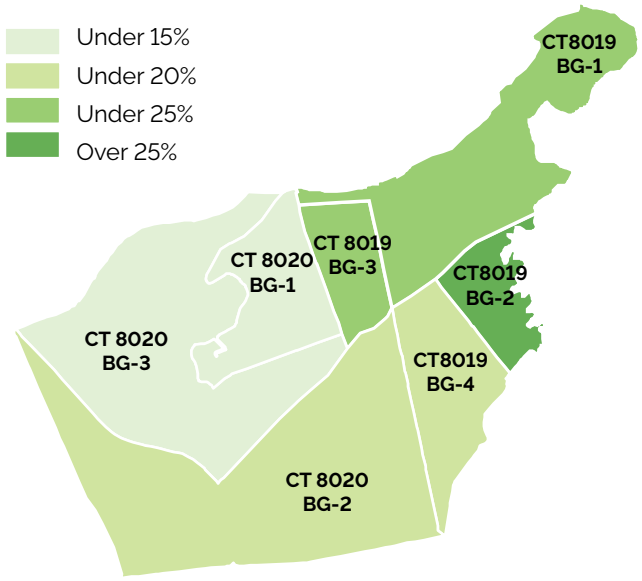
An illustrative example is the impact that a new bus route can have on two different people: one who can afford to own a car and one who cannot. For the person with a car, the bus route may create more convenient access to work, potentially at a more affordable price. For someone who does not have a car, the new bus route could produce substantially new employment opportunities as well as increased access to essential services. As a result, the bus route will have a substantially larger impact on quality-of-life of someone who cannot afford to own a car. Examples like this have helped to illustrate the need to pay attention to socio-demographic characteristics when both planning for and implementing complete streets.

Younger Residents

When streets are designed only for cars, they become barriers for children, who cannot safely walk or bicycle along or across them. Unfortunately these safety fears are well founded – pedestrian injury is a leading cause of unintentional, injury-related death among children, age 5 to 14.[2]

The percentage of the population enrolled in school varies across Keyport's seven block groups. As illustrated in Figure 11, Block Groups in the north and west are substantially more populated by school aged children, as a percentage of the total population.

Figure 11. School Enrollment in Keyport



US. Census Bureau; 2018 5-Year ACS Estimates

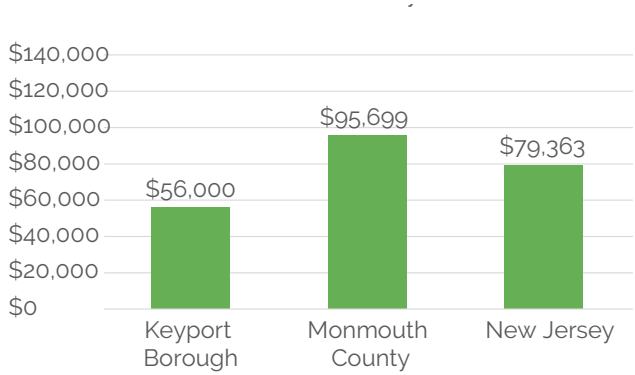
Those in Poverty

Limited transportation options can have the biggest impact on low-income households. These households are more likely to be affected by disruptions in mobility needs (e.g. expensive car repairs, reduced transit service, etc.) because they have fewer resources to compensate for the problems. Moreover, they are more likely to need to walk, bike, or take transit to access essential services and employment.

Keyport Borough's median household income of $56,000 is significantly lower than Monmouth County's median income of $95,699. It is also about $23,300 lower than the State's median household income.

The Borough's poverty rate of 12.8 percent is higher than both the County and the State's poverty rate. Of this population, **approximately 19.6 percent are children under the age of 18**. Approximately 12 percent of Keyport's households received Supplemental Nutrition Assistance Program (SNAP) benefits. This percentage is higher than both the County and the State's numbers.

Figure 12. Median Income Comparisons

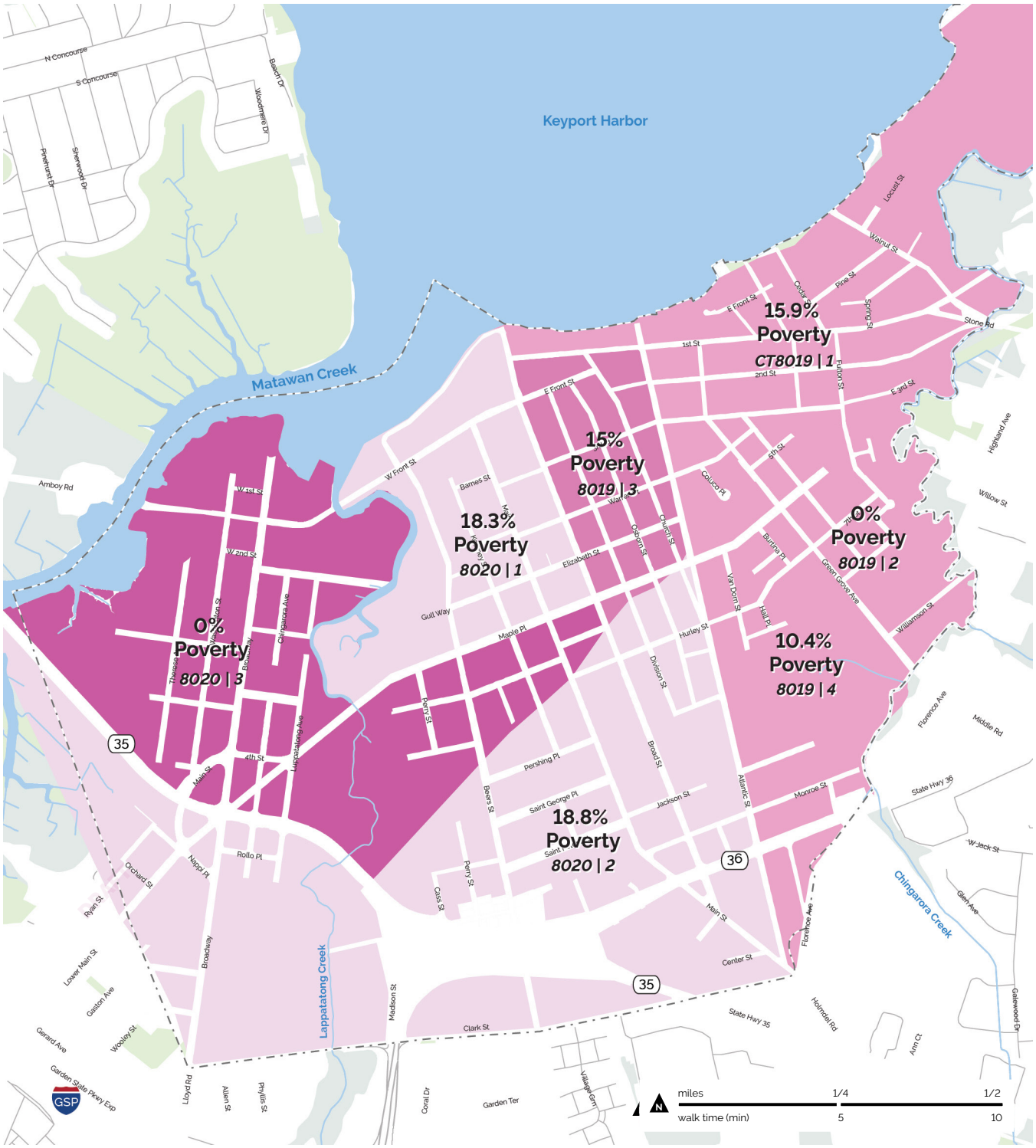


US. Census Bureau; 2018 5-Year ACS Estimates

The distribution of income and poverty in Keyport is illustrated in Figure 13. As is shown, median incomes vary significantly across the Borough's block groups, with **the highest block group having almost three times the median household income as the lowest.** Just as median incomes vary across the Borough, so do household poverty rates, with poverty rates as high as 18 percent in some Block Groups.

Households receiving public assistance by block group are shown in Figure 14. Note that in some block groups, the rate of people receiving public assistance is three to five times the amount that in Monmouth County (which has a rate of 1.5 percent).

Figure 13. Keyport: Median Income and Poverty Rates



$ 25,000 to $49,999

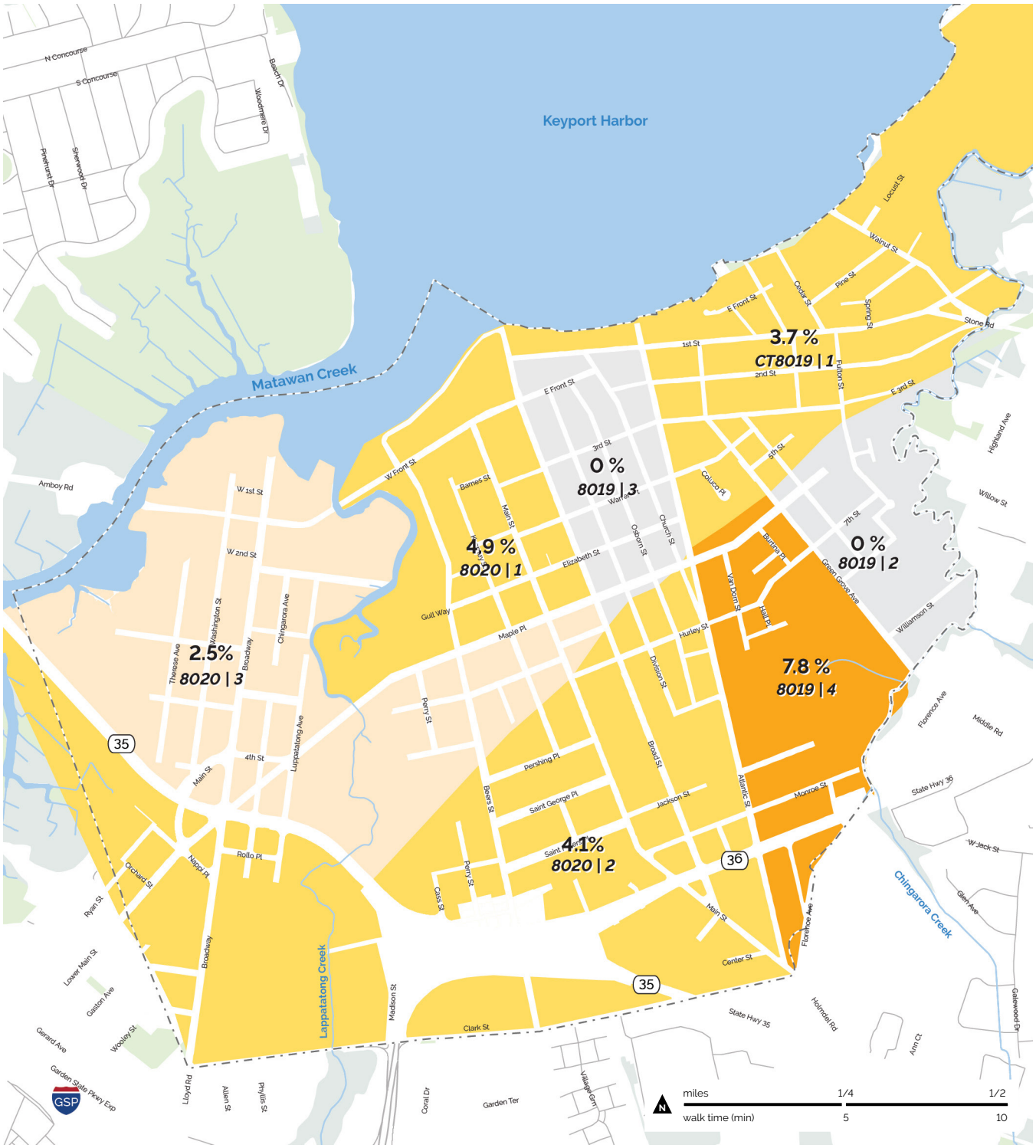
$ 50,000 to $74,999

$ 75,000 to $99,000

$ 100,000 and Above

US. Census Bureau; 2018 5-Year ACS Estimates

Figure 14. Keyport: Households Receiving Public Assistance



0%

0.01 to 2.5%

2.51% to 5%

5.1 to 7.5%

7.51% and Above

US. Census Bureau; 2018 5-Year ACS Estimates

Zero Vehicle Households

Households without vehicles are a particularly important group to focus on when undertaking complete streets planning. Not only do these households live without access to a personal vehicle, but these zero-vehicle households also must commute in an environment particularly unsuited to their travel options. This is particularly problematic when accessing employment opportunities, especially in a place like Keyport where many of the regions jobs are located outside of the Borough.

Percentages of households with zero vehicles available to householders are shown in Figure 17 along with information about the poverty rate for each block group. Block Group 8020-1 and 8020-2 are the two areas where there is a concentration of households that do not have a car. Moreover, these are areas with relatively high poverty rates as well. This indicates that addressing multi-modal issues in these areas will likely be particularly important.

Population Utilizing Multi-Modal Transportation Options

As previously discussed, a majority of Keyport's residents use personal vehicles to travel to work, typically driving alone. However, residents living in Census Tract 8020 (on the west side of the Borough) were more likely to take public transportation, walk, or bike (18 percent total). This may be the result of better access to public transportation infrastructure as well as closer proximity to the downtown.

No information is reported by the Census Bureau about modal split at the block group level.

Figure 15. Tract 8019 Modal Split in Keyport

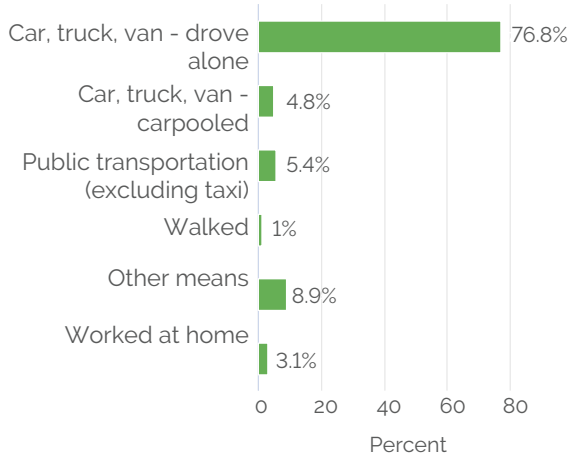
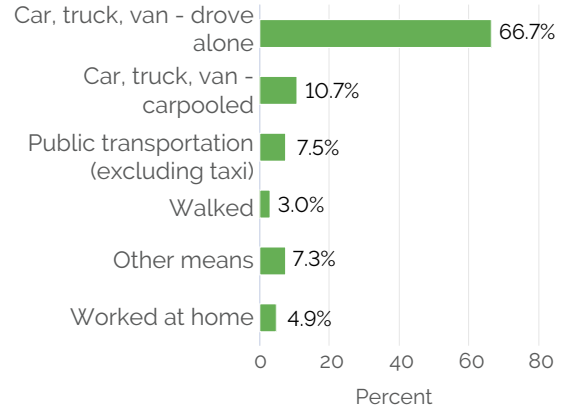


Figure 16. Tract 8020 Modal Split in Keyport



US. Census Bureau; 2018 5-Year ACS Estimates

Figure 17. Keyport: Zero Car Household by Block Group

0%

0.1% to 15%

15.1% to 30%

30.1% to 45%%

45.1% to 60%

US. Census Bureau; 2018 5-Year ACS Estimates

Those with a Disability

In Keyport, approximately 15 percent of the civilian non-institutionalized population reported a disability. The likelihood of having a disability varied by age - from almost 5 percent of people under 18 years old, to 12 percent of people 18 to 64 years old, and to 38 percent of those 65 and over. These numbers were higher than those of the County and the State.

As illustrated in Figure 21, those who have a disability are more highly concentrated in the east of the Borough as well as in the area to the west of the downtown.

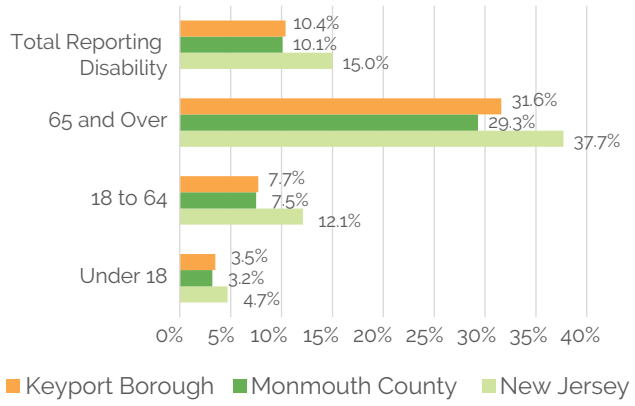
Non-white Population

Members of Keyport's population who identify as non-white make up nearly 24 percent of the total population. This is higher than the percentages from the County but lower than the State. Of this non-white population, approximately 18 percent are of Hispanic or Latino origin. This is higher than the numbers for the County (11 percent) but lower than the State (20percent).

Approximately 86 percent of Keyport's population was born in the United States. This is equal to the County, but higher than the State, who's percentages were 86 percent and 78 percent respectively. **Of the Foreign-Born population, approximately 62 percent were born in Latin America, 26 percent were born in Asia, 7 percent were born in Africa, and nearly 3 percent were born in Europe. (Figure 20).**

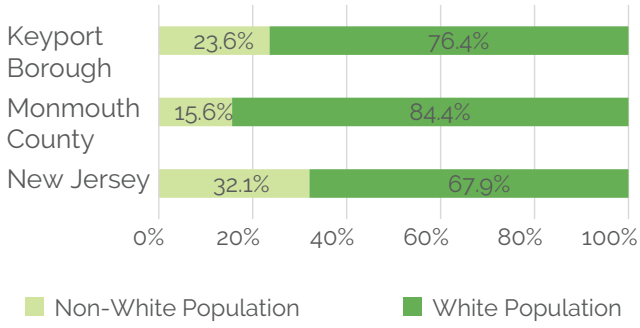
Percentage of minority households by block group are shown in Figure 22. **These percentages range from as low as 7.8 percent (Census Track 8020, Block Group 3) to as high as 48.5percent in Census Track 8019, Block Group 4).** It is worth noting that these block groups also have lower median household incomes as well as higher poverty rates than other locations in the Borough.

Figure 18. Disability Status in Keyport



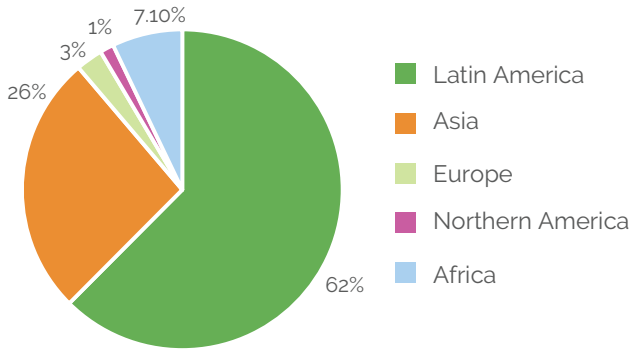
US. Census Bureau; 2018 5-Year ACS Estimates

Figure 19. Non-White Population in Keyport



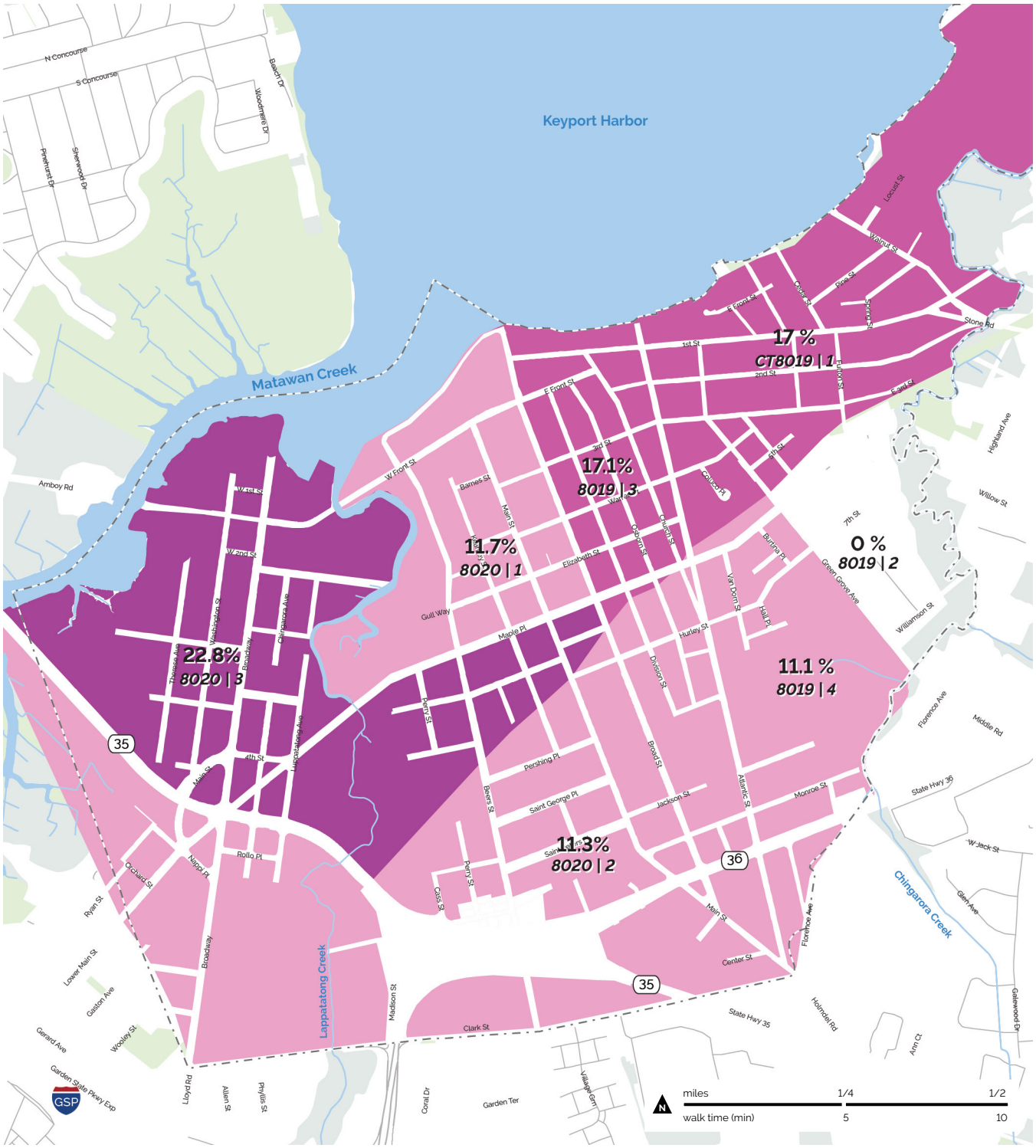
US. Census Bureau; 2018 5-Year ACS Estimates

Figure 20. Place of Birth for the Foreign Born Population in Keyport



US. Census Bureau; 2018 5-Year ACS Estimates

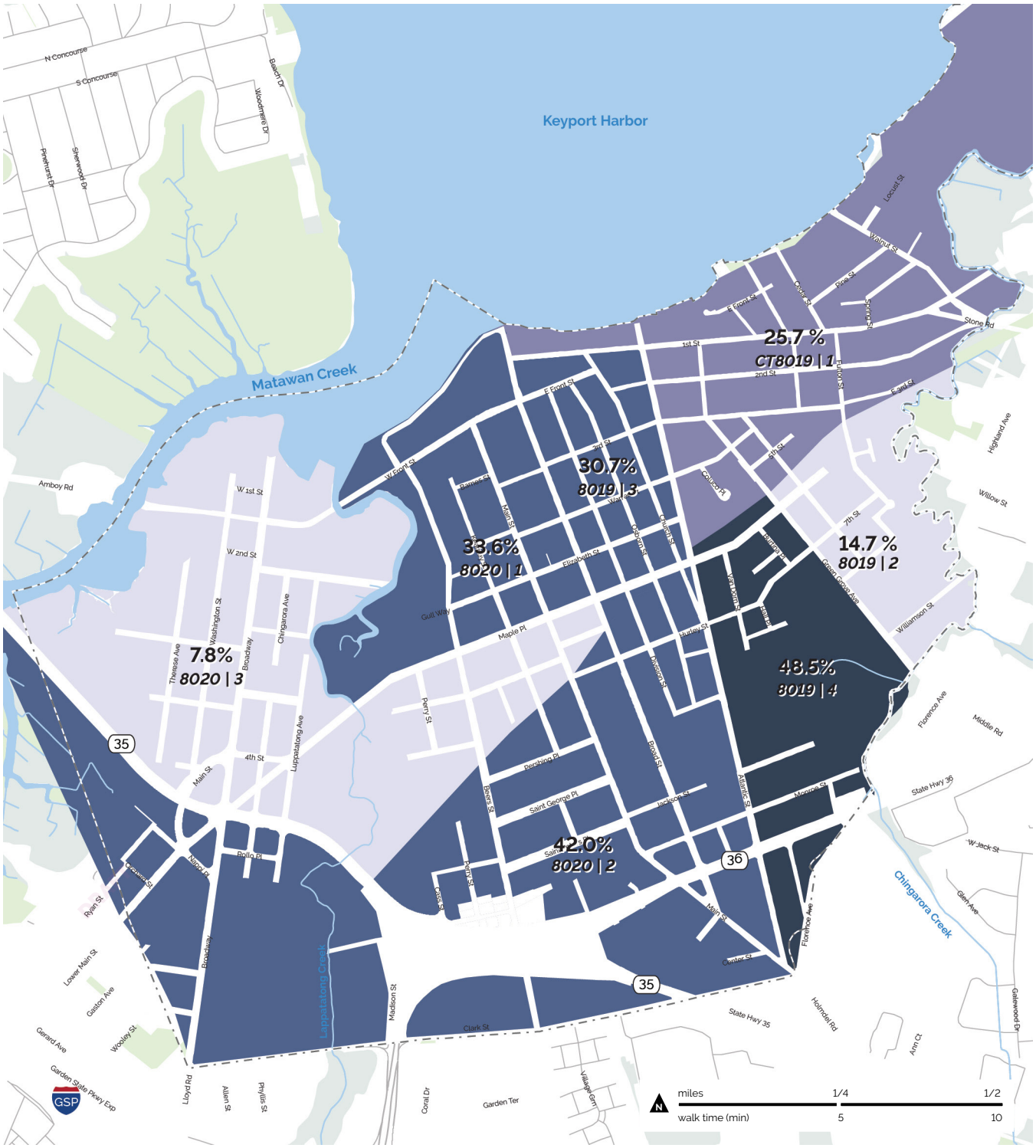
Figure 21. Keyport: Households with Disability by Block Group



0%
0.1 to 5%
5.1% to 10%
10.1 to 15%
15.1% to 20%
21.1% and Above

US. Census Bureau; 2018 5-Year ACS Estimates

Figure 22. Keyport: Minority Percentages by Block Group



0%

0.1 to 15%

15.1% to 30%

30.1% to 45%

45% to 60%

US. Census Bureau; 2018 5-Year ACS Estimates

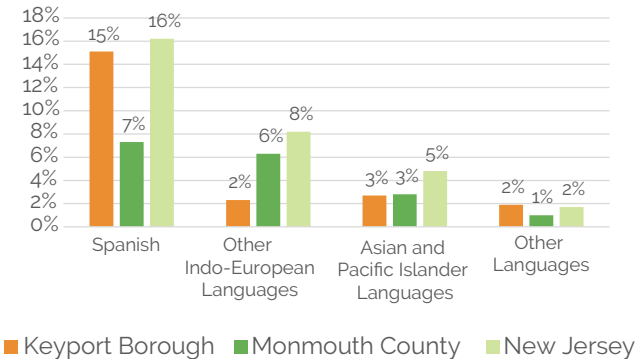
Language Spoken at Home

Approximately 22 percent of Keyport's residents spoke a language other than English at home. This is approximately 5 percent greater than the percentage for the County, but is less than that of the State. Almost 15 percent of residents speak Spanish at home (Figure 23) and almost 13 percent of Keyport's residents reported that they did not speak English "very well."

Linguistically isolated households in Keyport are shown by Block Group in Figure 24. A linguistically isolated household is one in which no member 14-years or older speaks English "very well." In other words, all members 14 years old and over have at least some difficulty with English. (U.S Census Bureau Definition).

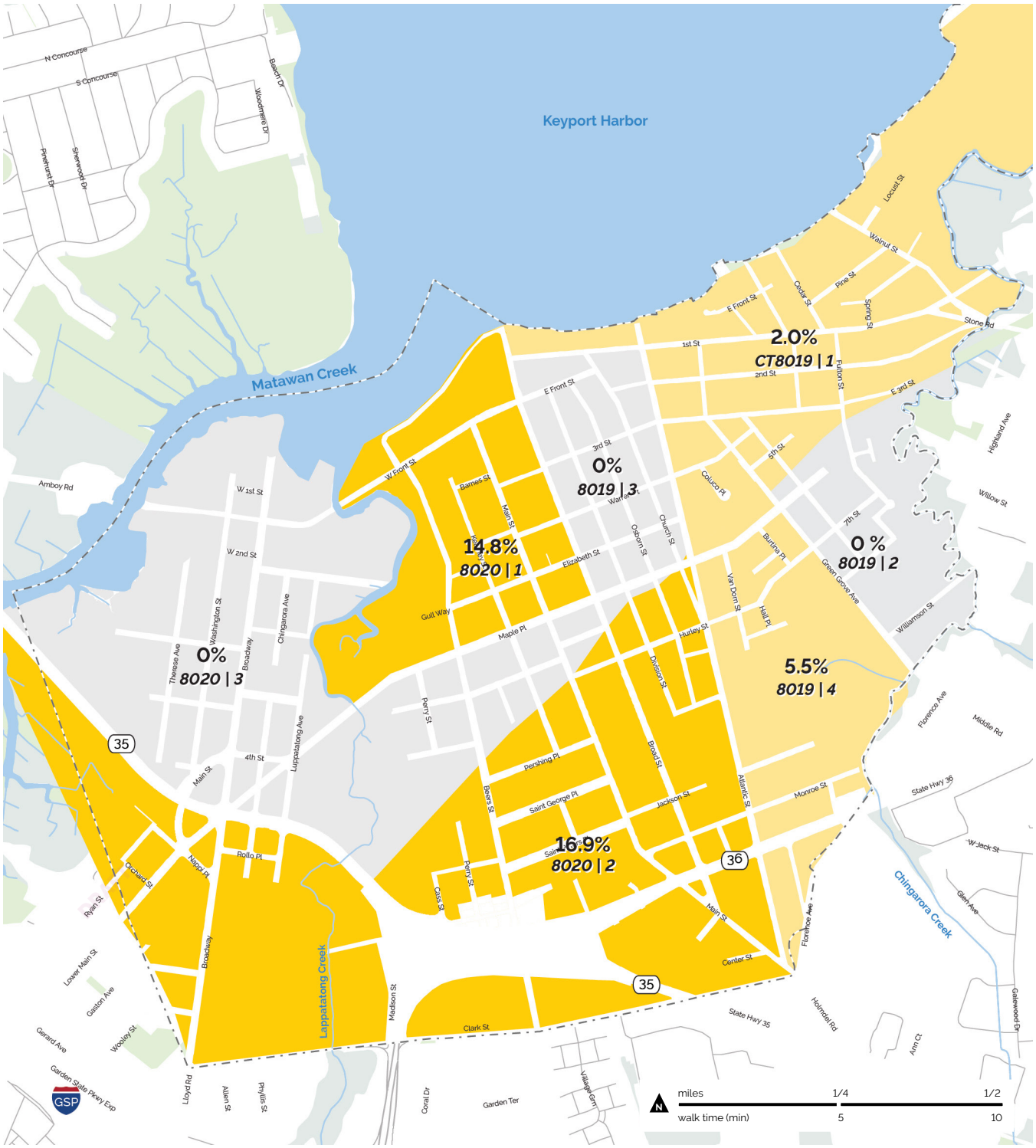
An entire household's inability to communicate in English can be a significant barrier for both participation in this planning project, but also ability to fulfill basic household needs. As shown, there are three block groups that have substantially high numbers of households that are linguistically isolated. In addition to impacting the outreach process for this project, this data raises important questions about how information about street use should be communicated to the general public.

Figure 23. Language Spoken at Home in Keyport



US. Census Bureau; 2018 5-Year ACS Estimates

Figure 24. Keyport: Linguistically Isolated households by Block Group



0%

0.01% to 6%

6.1% to 12%

12.01 to 18%

US. Census Bureau; 2018 5-Year ACS Estimates

Vulnerable Populations Summary

Figure 25 summarize the findings from the above vulnerable populations analysis. The table also includes a composite vulnerability score for each block group. This score was developed using a simple methodology: when a block group exceeded the County related to a particular metric, it was given a point. The score was based on the sum total of those points. The County was used as a reference point (rather than the median in the Borough) in acknowledgment that vulnerable populations are often more concentrated in the more urban areas of the county, and therefore it was important to acknowledge that no census track is without vulnerable groups.

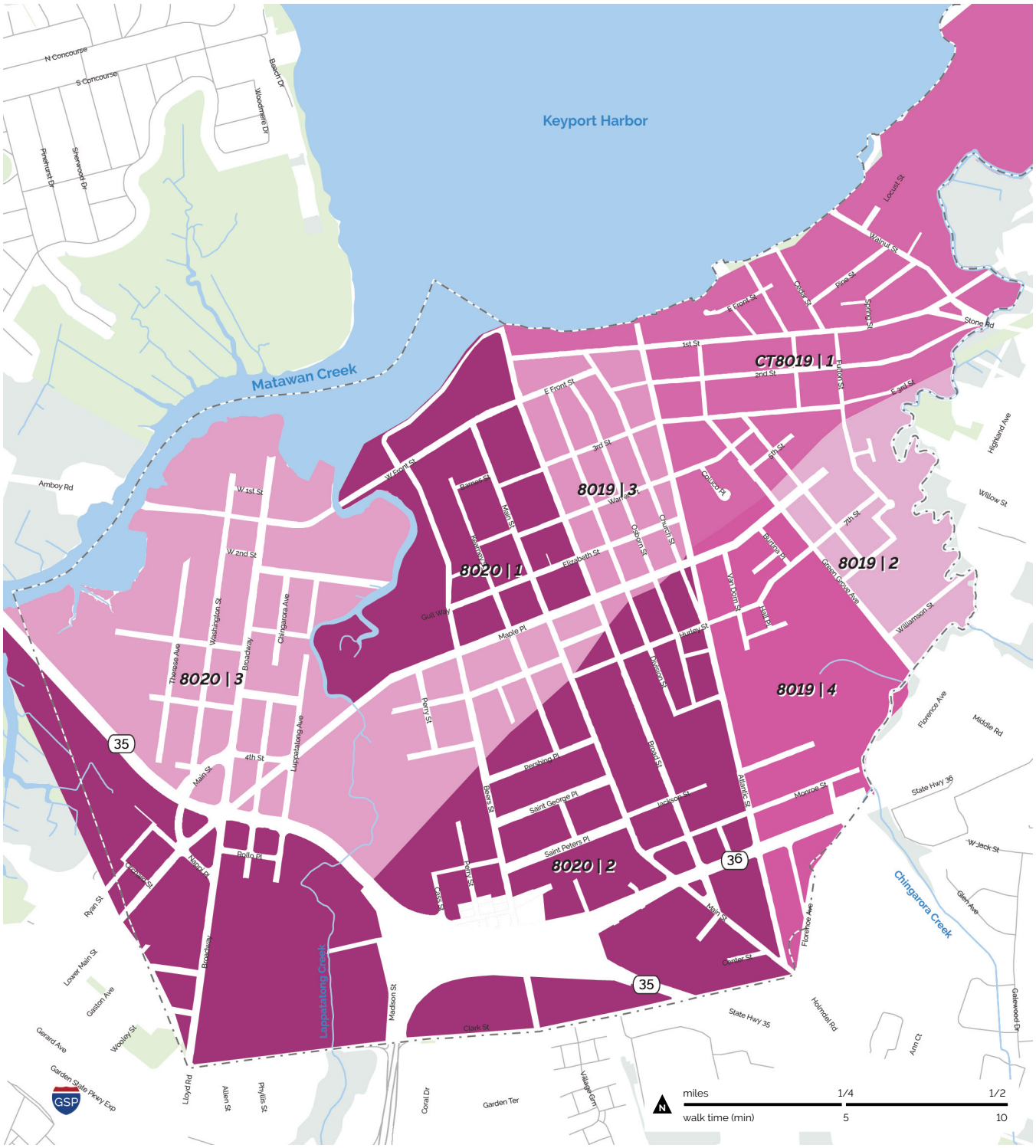
Although this scoring system does not take into account variation in the degree of difference (e.g. areas with particularly high concentrations of households in poverty), , it does provide a starting point for discussions about what complete streets elements may be particularly important in certain neighborhoods and how the Borough should go about implementing complete streets.

Figure 25. Keyport: Equity Analysis Summary

Block Group	Low Income Household	No Car Households	Public Assistance	Disability	Poverty	Minority	Over 64	Under 18	Limited English	Linguistically Isolated	Foreign Born	-
8019-1	27%	5%	3.7%	17.0%	15.9%	25.7%	9.5%	23.6%	6.7%	2.0%	15.7%	-
8019-2	15%	0%	0.0%	0.0%	0.0%	14.7%	16.5%	28.4%	0.0%	0.0%	15.7%	-
8019-3	29%	0%	0.0%	17.1%	15.0%	30.7%	15.0%	18.8%	2.1%	0.0%	15.7%	-
8019-4	18%	13%	7.8%	11.1%	10.4%	48.5%	11.3%	9.0%	18.5%	5.5%	15.7%	-
8020-1	33%	54%	4.9%	11.7%	18.3%	33.6%	25.8%	15.0%	25.6%	14.8%	13.4%	-
8020-2	46%	27%	4.1%	11.3%	18.8%	42.0%	26.2%	20.7%	15.5%	16.9%	13.4%	-
8020-3	7%	0%	2.5%	22.8%	0.0%	7.8%	8.8%	15.2%	0.0%	0.0%	13.4%	-
County	3%	7%	1.50%	10.1%	7.40%	17.60%	16.60%	21.7%	6.20%	3.50%	13.3%	-

Block Group	Low-Income	No Car	Public Assistance	Disability	Poverty	Minority	Over 64	Under 18	Limited English	Linguistically Isolated	Foreign Born	Score
8019-1	1	-	1	1	1	1	-	1	1	-	1	**8**
8019-2	1	-	-	-	-	-	-	1	-	-	1	**3**
8019-3	1	-	-	1	1	1	-	-	-	-	1	**5**
8019-4	1	1	1	1	1	1	-	-	1	1	1	**9**
8020-1	1	1	1	1	1	1	1	-	1	1	1	**10**
8020-2	1	1	1	1	1	1	1	-	1	1	1	**10**
8020-3	1	-	1	1	-	-	-	-	-	-	1	**4**

Figure 26. Keyport: Vulnerable Populations Composite



vulnerable populations

fewer more

ENDNOTES

1 Hunger and Poverty in Female-Headed Households. Bread for the World. https://www.bread.org/sites/default/files/downloads/female-headed-fact-sheet-2016.pdf

2 Smart Growth America - National Complete Streets Coalition http://old.smartgrowthamerica.org/complete-streets/complete-streets-fundamentals/factsheets/children

LAND USES & ESSENTIAL DESTINATIONS

INTRODUCTION

It is widely accepted that there is a two-way relationship between land use and transportation systems: how you use land will impact the mobility options people can use and vice-versa, the mobility options that are available and supported by the street network will impact the types of buildings and land uses that can be supported. The simple example is that the construction of a highway interchange favors the concentration of auto-oriented commercial and service activities, which will generate additional transport demand, which in turn will favor the location of new activities and a reorganization of the regional spatial structure. Likewise, the construction of better bicycle and pedestrian infrastructure in the downtown will increase the number of people who walk to the area which will reduce parking demand.

The following provides a top-level overview of land uses, both existing (Figure 27) and as proposed in the Master Plan (Figure 28). The Proposed Land Use Map and corresponding descriptions are the legal foundation for zoning and provides the clearest and best picture of how the Borough would like to see land uses evolve over the next ten years. The proposed land use will form the foundation for the inclusion of land use characteristics into the complete streets network and corresponding street typologies that will be developed as part of this planning work.

LAND USES

As illustrated in Figure 28, the proposed land use is generally consistent with the existing land uses in the Borough.

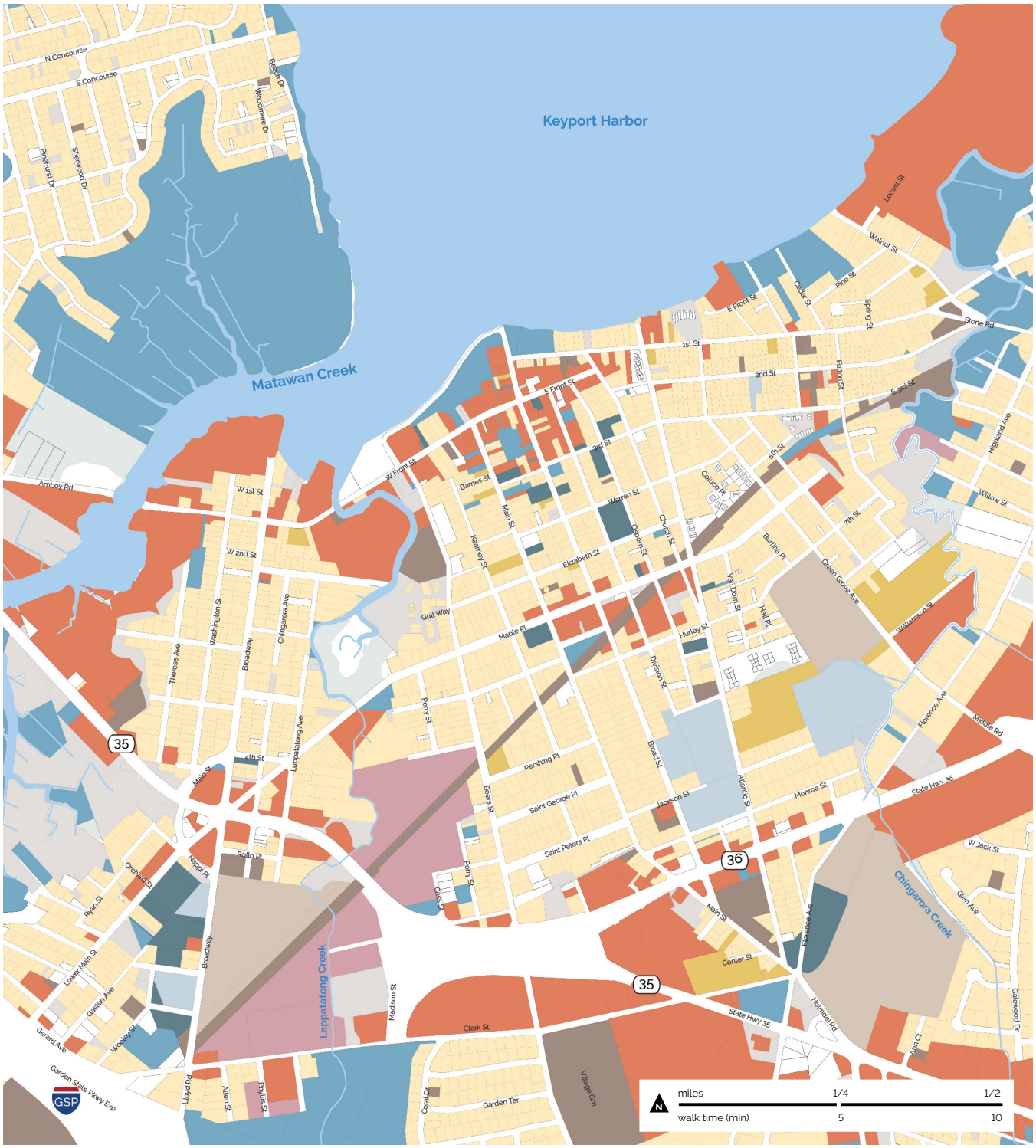
Downtown Core

The Master Plan envisions that a strong central downtown business district will continue to be anchored by an active waterfront. This commercial district is surrounded by a series of general commercial, mixed use, and higher density residential uses. As the Borough investigates how to develop a complete streets network, it will be important for the Borough to include a discussion of the various types of street elements that will be necessary to support the commercial use in this district, including sidewalk cafes, temporary signs, outdoor displays, and the like. These elements can be important for creating vibrancy within commercial and mixed-use areas but also compete for space that could be used to provide enhanced bicycle, pedestrian, and handicap facilities as well as green infrastructure.

Residential Core

The Borough is envisioned to continue to be comprised predominately of single-family detached residential neighborhoods. Homes will sit on relatively modest size lots: zoning sets minimum lot areas at between 5,000 - 7,500 square feet depending on the specific residential zone. The 20-foot setback required throughout this area is consistent with the current land use.

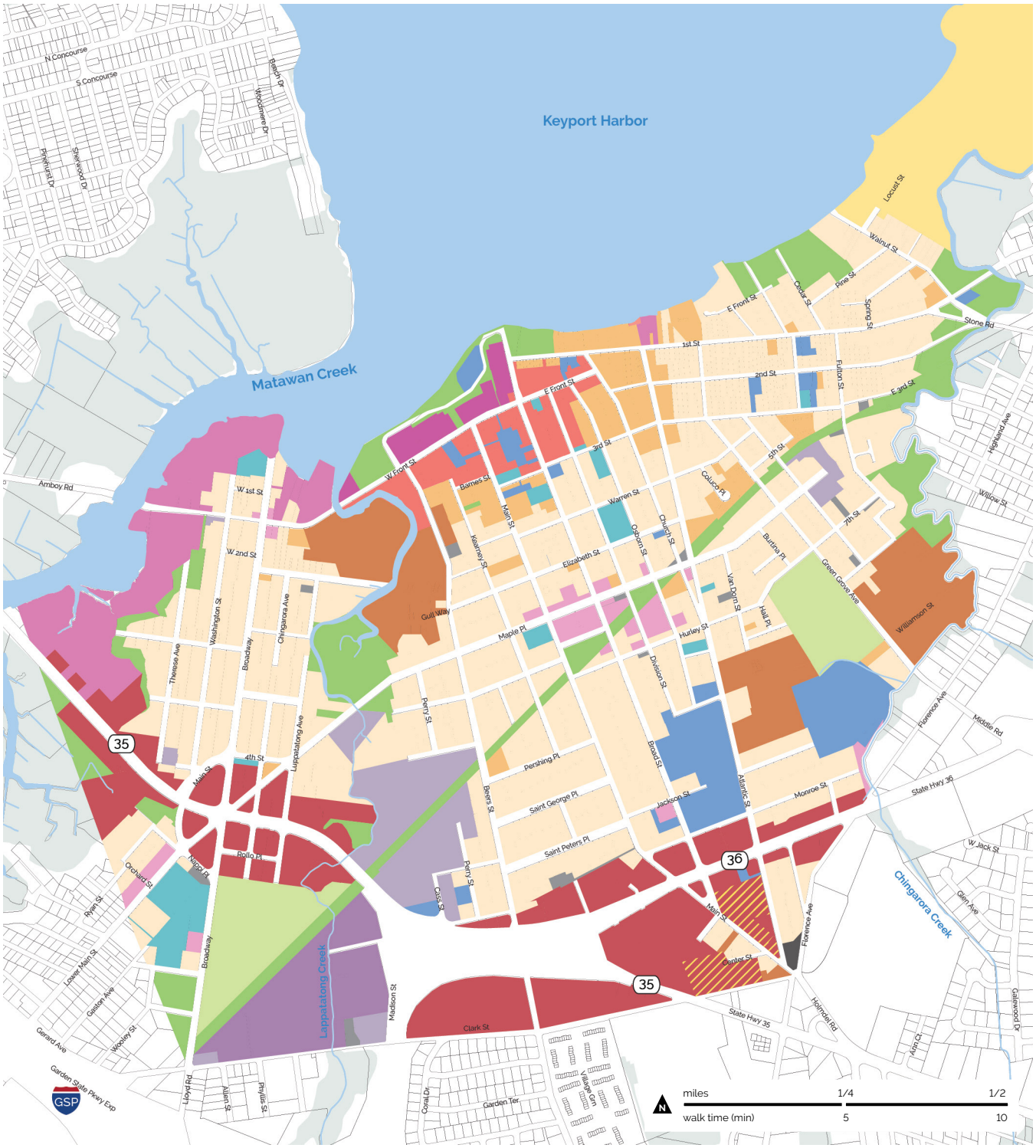
Figure 27. Existing Land Use



- Commercial
- Multi-family Residential (4+)
- Residential (1 - 4 units)
- Industrial
- Public
- Schools
- Other Exempt
- Church/Charitable
- Railroad
- Vacant

NJ MOD-IV Tax Data
2019

Figure 28. Proposed Land Uses (2017 Master Plan)



In addition to two existing multi-family developments, the Master Plan does identify a large track of land along Luppatatong Creek for redevelopment into a multi-family development, identified as the **Longview-Boatworks Redevelopment.**

Neighborhood Commercial

The Master Plan does not imagine a substantial change to the neighborhood commercial district along Maple Pl and the intersection of the Monmouth County Trail. The Neighborhood Commercial (NC) District will continue to provide low-intensity neighborhood shopping areas providing convenience goods and services for the immediate neighborhood. By continuing to support neighborhood commercial uses the Master Plan is indirectly supporting pedestrian and bicycle activity because it allows residents to access these amenities within a short walking or biking distance. Going forward, it will be key for the Borough to continue to support these areas with high quality infrastructure that reinforces that strong connection.

Route 35 and 36 Commercial Core

The Borough recommends that much of the land along Route 36 and Route 35 be regulated in a "HC Highway Commercial District which is intended to provide for the development of regional uses which are appropriate along state highways."

As it currently sits, this area is not pedestrian or bicycle friendly, either from a land use perspective or infrastructure perspective. First and foremost, there are large sections in this area that have no pedestrian infrastructure, let alone safe places to bike. Equally, the land uses are clearly designed to prioritize automobile access with large parking lots and frequent curb cuts.

As a result, the **Route 35 and 36 corridor serves as a physical barrier between the residential districts to the north in Keyport and municipalities of Matawan and Hazlet.** As will be discussed later in this report, this barrier reduces resident's access to the two key regional transit stops along with other destinations accross those corridors. In addition, it also serves to isolate residents of those communities from Keyport, which make it less likely that they will travel to Keyport to patron business and, if they do, much more likely that they will drive to do so.

Highway Commercial - Mixed Use

The Master Plan does identify a key area along the Route 35/36 corridor, near the intersection of Main Street and Florence Avenue, as an opportunity to develop a mixed-use node. The plan notes that the area 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. It was recommended that the mid- and high-rise residential uses not exceed the standards of the existing high-rise residence at Bethany Manor, located at 500 Broad Street. The master plan recommended that the permitted mixed-use should also have defined design standards.

Industrial Areas and Marine Commercial

The Borough imagines that there will be continued industrial development around the Route 35 / 36 interchange as well as marine commercial uses along the Matawan Creek. In both instances, these land uses have limited interaction with the local street network. The industrial uses have direct access onto Route 35 and 36 and the marine uses are principally oriented to the water. The key will be to ensure that traffic that uses the local network to access these areas is taken into consideration as the Borough undertakes its complete streets planning.

ESSENTIAL DESTINATIONS

The COVID-19 crisis and subsequent restrictions on essential businesses highlights the fact that there are certain key services which all people rely on to maintain a minimum quality of life.

Utilizing this framework, it is possible to think about those assets in the community and surrounding area which should be prioritized for multi-modal connectivity that is safe for people of all ages and physical abilities. The following tiers were developed after reviewing several state standards regarding businesses that may be safely open during different phases of the pandemic. Generally, Tier 1 designations are those that provide services necessary to safe and healthy living, Tier 2 destinations are those that support residents' ability to get to work and take care of their families. The final tier are those destinations which are not essential for maintaining life on a day-to-day basis but which are necessary to function in society for longer periods of time.

Tier 1

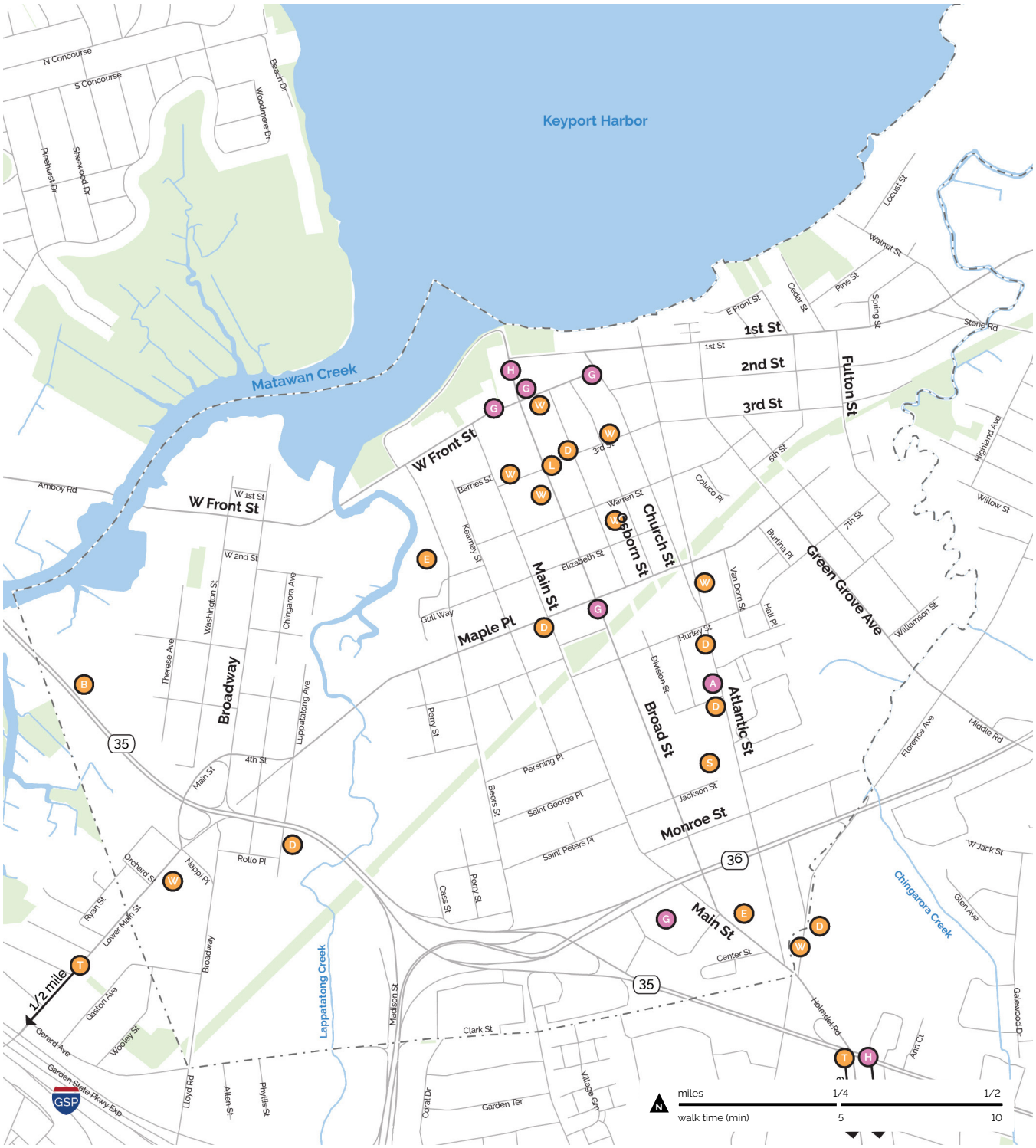
- *Hospitals*
- *Grocery Stores*
- *Pharmacies*

It is noteworthy that **Keyport residents have very limited multi-modal access to hospitals, grocery stores and pharmacies**. The Visiting Nurse Association of NJ's Community Health Center is the only health center located in the Borough. The nearest hospital is **Hackensack Meridian Health Bayshore Medical Center** located in Holmdel, NJ. Holmdel Road has sidewalks along it's entirety and is generally wide enough to support moderately comfortable bicycling, but it does not have marked bike lanes. Equally important, anyone from Keyport who wished to walk or bike to the hospital would need to cross both Route 35 and Route 36. As will be discussed in later sections, these intersections are inhospitable to pedestrians and bicyclists, resulting in a major infrastructural obstacle to accessing these services.

Although a number of smaller grocery stores, including Country Farms, Family Dollar, Mr. Lopez Mexican Grocery Store, and El Apache Food do provide food options in convenient locations in the downtown and the neighborhood commercial district, the only full-service grocery store, **Stop & Shop**, is located in-between Route 35 and Route 36. As illustrated in Figure 29, the only pedestrian access to the supermarket is along Raritan Avenue, although an additional 600-foot walk is required through the parking lot in order to access the front door.

Figure 29. Keyport: Stop and Shop Pedestrian Access

Figure 30. Essential Destinations



Tier One

- H Medical
- G Garage
- A First Aid

Tier Two

- B Bike Repair
- D Daycare
- L Library
- W Place of Worship
- S School
- E Senior Facility
- T Transit Stops

FHI Analysis of Google Maps Data

miles 1/4 1/2
walk time (min) 5 10

Tier 2:

- Schools and Libraries
- Childcare Centers
- Places of Worship
- Transit Facilities
- Bicycle Repair Shops

Unlike Tier 1 facilities, Keyport's Tier 2 facilities are relatively well situated within the borough for bicycle and pedestrian access. Stakeholders have noted that traffic around the high school is often a major problem and results in a more dangerous bicycle and pedestrian environment. This often discourages students from walking to school, which compounds the problem since they then either drive or are driven to school

Tier 3

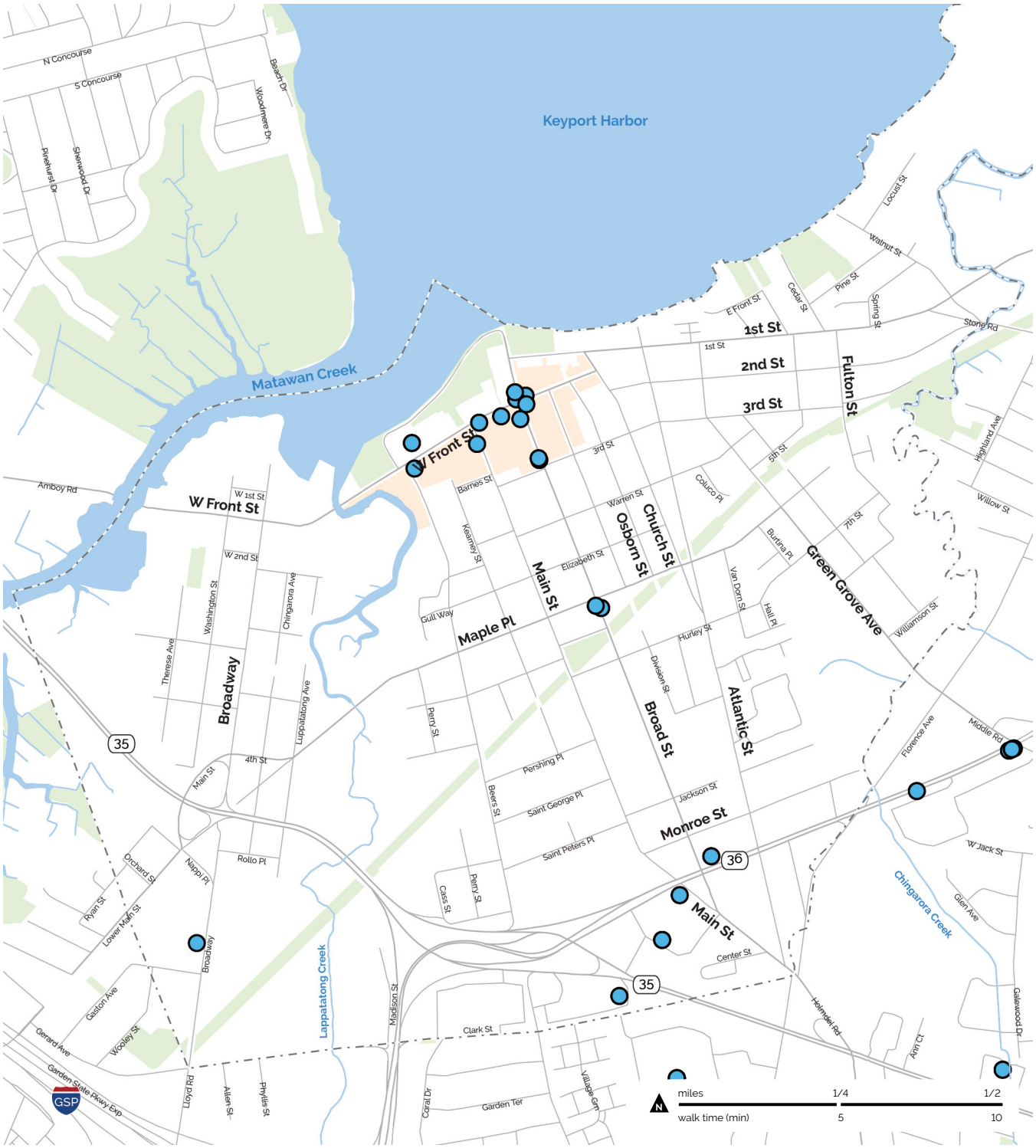
- Hardware Stores
- Banks
- Laundromats
- Pet Stores
- Office supplies
- Personal-care businesses (barbershops, hair salons, etc.)
- Cell Phone Sale / Repair
- Parks, recreation, and public spaces

As illustrated in Figure 31, Tier 3 locations are overwhelmingly located in the downtown and the neighborhood shopping district. As a result, they could be accessible by bicyclists and pedestrians who live in the core residential areas.

Because of the concentration of these types of businesses in the downtown, multi-modal improvements will have two benefits: they will increase access to amenities, such as restaurants and entertainment venues, and will also increase access to essential services.

It should be noted, however, that portions of the municipality to the west of Luppatatong Creek have longer distances to travel to access these resources. Moreover, as will be discussed in a later section, the bridges that they must cross to access these resources lack adequate bicycle and pedestrian facilities, which will make it less safe for those residents to access these key services.

Figure 31. Essential Businesses (Tier 3)



Essential Business

Downtown

ESRI Business Analyst; Accessed 6/2020

FUNCTIONAL CLASSIFICATION

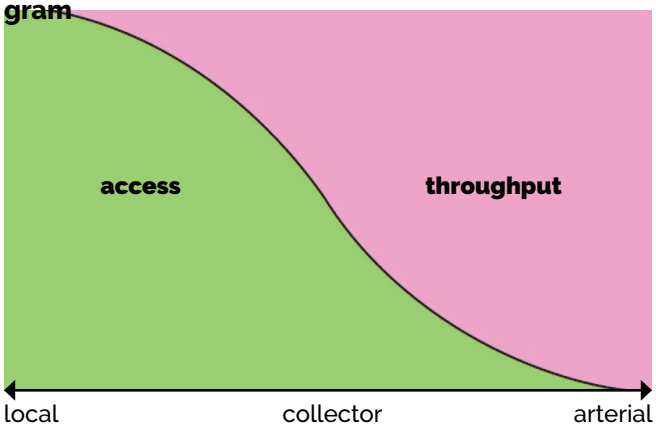
FUNCTIONAL CLASSES

Functional classification groups streets and highways into "classes" based on the level of mobility and access they are intended to provide. The New Jersey Department of Transportation (NJDOT), and as a result the County and the Borough, use these classifications to identify the appropriate design components for each road. For example, when a street is classified as a "local road" that gives engineers an idea of what volume of traffic it will carry, which will impact the design of the street.

Generally speaking, the functional classification model is intended to balance two factors: access (the ease at which you can get to and from key destinations along the road) and throughput (how much traffic you can move along the road). Figure 32 illustrates how the relationship between access and throughput changes as a road moves from local to arterial.

The Federal Highway Administration (FHWA) uses the functional classification system to determine eligibility for federal highway funds, system performance, access management, future project selection, and route planning and designations for transit and other activities. All classification systems must align or collapse into the categories outlined by FHWA so that the borough can apply for federal funding (on National Highway System roads).

Figure 32. Keyport: Functional Classification Diagram



Classifying Roads

Per the 2017 Keyport Master Plan, the Borough had identified six different types of roadway classifications that are applicable to Keyport. These classifications are consistent with FHWA standards. They are:

Freeways/Expressways are high speed, high capacity highways with limited access and are focused solely on moving automobiles quickly and efficiently from origin to destination. They are characterized by their grade separation, full access control, divided medians, and are wider than 150 feet and designed to carry upwards of 5,000 vehicles an hour. These roads are typically designed to carry interstate traffic from one region to another.

Principal Arterials serve as feeders to the freeway/expressway system, and are typically used by regional travelers within the same geographic area. Typically controlled by signalized intersections, these roadways provide access to abutting properties while providing for separated flows. Usually designed for speeds of 60 mph, principal arterials carry more than 10,000 vehicles per day.

Minor Arterials primarily serve collector and local roads, by directing large volumes of traffic to principal arterials and freeways. Minor arterials should be constructed so as maintain a wide right of way of at least 100 feet, and designed for speeds up to 60 mph, and to carry upwards of 10,000 vehicles.

Major Collector Streets combine traffic from minor collectors and local roads, and steer that traffic towards larger roads with further destinations in mind. Based on the recommendations of the Keyport Master Plan Circulation Element, these roads should be at least 80 feet wide, and designed to handle an excess of 7,500 vehicles per day at 50 mph or lower.

Minor Collectors direct residential traffic from local roads to larger roads of higher classifications. These roads should typically be at least 60 feet wide and designed for 40 mph for alignment and sight distance purposes. Minor collectors would typically carry 1,500-3,000 vehicles a day.

Local Roads provide access to local residential units and other neighborhood amenities. Typically less traveled, local roads should be designed with the needs of the neighborhood in mind, and are expected to carry less than 500 vehicles a day, with speeds ranging from 15-25 mph.

NJDOT Road Classification Map

In 2017, NJDOT published an updated functional classification map of Monmouth County. In the map, the Borough of Keyport is shown as having four primary road classifications:

- other principal arterials;
- minor arterials;
- major collectors; and
- local roads.

This information is reproduced for Keyport in Figure 33. This classification schema aligns with both the FHWA classifications discussed previously, as the categories fall within the six defined by FHWA, as well as the classifications as articulated in the Keyport Master Plan.

Complete Streets Typologies and Functional Classification

As previously mentioned, the functional classification system is primarily used in the United States to direct federal funds toward the design, construction and maintenance of roads listed on the federal-aid system. **These federal-aid roads are mostly arterials which have been established for providing a high level of mobility for moderate to long distance trips**.

Over time, these arterials have also become attractive for roadside development which added an increasingly high number of driveways to many corridors. Across the United States, many arterial roads that provide high levels of property access have become some of the nation's most dangerous and congested places. As a result, the federal-aid system encourages the continuous modification of these roads to keep pace with the demand for both vehicular mobility and access to land, often with diminishing returns.

Complete streets offers an alternative system for classifying roads, but one which can be used in conjunction with the federal-aid system to leverage available funding programs to establish streets that are more in harmony with their surrounding environment.

Rather than simply relying on geometric design standards that have for decades transformed people-friendly streets into car-clogged roads, **this alternative system provides more nuance to the federal-aid classifications of arterial, collector, and local road**. This nuance comes in the form of street typologies that encourage greater flexibility to design streets with all users in mind, and are reflective of the characteristics of the surrounding environment.

Figure 33. Functional Classification of Streets in Keyport

local roads

major collectors

minor arterials

other principal arterials

bicycle & pedestrain only

private & streets outside borough

NJDOT, 2017

OTHER CLASSIFICATIONS

Another place where roads can be regulated and defined is in the Land Use Regulations. These definitions may parallel or differ from the functional classifications. Often, municipalities will use these regulations to define streets in a way that is more appropriate for local development. In their definitions section of the Zoning Ordinance, the Borough lays out five different classifications of roadways for Keyport:

Arterial Streets, are those which are used primarily for fast or heavy traffic.

Collector Streets are streets which carry traffic from minor streets to the major systems of arterial streets, including the principal entrance streets of a residential development and streets for circulation within such a development.

Minor Streets, are used primarily for access to the abutting properties.

Marginal Access Streets, are parallel or adjacent to arterial streets and highways, and which provide access to abutting properties and protection through traffic.

Alleys, are minor ways which are used primarily for vehicular service access to the back or side of properties otherwise abutting on a street.

Comparing the FHWA classifications to Keyport's, it is evident that the three arterial functional classifications from FHWA have been combined under the broad umbrella of 'arterial streets' for local use, as there are only a few true arterials in the Borough. Most of the Borough's definitions are to differentiate the types of local roads and minor collectors that are common throughout the neighborhoods. These definitions clearly fall under the broader categories outlined by FHWA and are used solely to make land use decisions to maintain desired neighborhood characteristics in Keyport.

It is noteworthy that the definitions in the zoning ordinance are not used elsewhere in the municipality's ordinance and it is not clear why these terms were defined. Nonetheless, creating street definitions and properly using them in local land development ordinances can be an effective way of institutionalizing complete streets planning work.

MODAL ANALYSIS

This section analyzes the road network in Keyport from the perspective of different modes of transportation: pedestrians, bicyclist, transit riders, drivers, and emerging mobility options (including ride share). The section begins with an overview of the general condition of the infrastructure.

INFRASTRUCTURE

Keyport's roadway infrastructure has many advantages: a grid system with few long blocks, an off-road trail connecting the Borough to the larger region, and a significant sidewalk network covering most of the Borough. Residential roads follow a typical suburban development pattern of wide streets with ample rights-of-way and on-street parking. Most streets are two-way, two-lane roads, without striping. Figure 34 shows the width of streets and Figure 35 displays the number of lanes within the Borough.

In many places, the character of these roads does not match the land use and traffic conditions of the street. Most residential streets within the Borough have pavement widths between 28 and 34 feet, translating to 14 to 17 feet per lane on a standard two-way street, without the allowed but infrequent and unmarked on-street parking (typical lane widths are between 10 and 12 feet).

This width does not support the driving speeds which are posted in town (Figure 36): wider travel lanes are correlated with higher vehicle speeds, which in turn increase severity of crashes[1]. As a result, streets such as Chandler Avenue have similar widths as Elizabeth Street or Beers Street, and yet they do not have the same connectivity need.

However these wide rights of way provide ample space to consider treatments that could amplify the residential character of these streets and promote more complete street use. Where the street grid is broken, at dead end streets, roads are often notably wider than volumes, land use, and functional class would suggest.

Figure 34. Keyport: Roadway Width

- 12 feet
- 18 feet
- 28 feet
- 34 feet
- 38 feet

NJTPA, NJDOT, NJDEP

Figure 35. Keyport: Number of Lanes

- Four
- Three
- Two
- One

NJTPA, NJDOT, NJDEP

Figure 36. Keyport: Speed Limits

- 15 miles per hour
- 25
- 30
- 35
- 40
- 50

NJTPA, 2020

Network

Neighborhoods in Keyport are separated by wetlands, physical features, or highways. Most streets have relatively short blocks, with a few notable exceptions. On the southwest edge of the Borough, St. Joseph's Cemetery and ball fields create long blocks between the Garden State Parkway and Route 35. Approaching the downtown, Beers Street which also abuts wetlands, is characterized by long blocks. Ball fields, Green Grove Cemetery, and Keyport Village apartments on the southeastern edge of town create long blocks between Atlantic Avenue and Green Grove Avenue/Middle Road. Longer blocks exist adjacent to the Henry Hudson Trail along Main Street and Broad Street. These streets, which serve as connectors between downtown and Route 36, have heavy traffic volumes.

Island Effect

Wetlands along Lappatatong Creek divide the west side of the borough from downtown and the waterfront. Similarly, a quiet neighborhood is created due to the wetland areas near Green Grove and Eighth Street. As a result of these natural and constructed barriers, there are residential islands within the Borough which rely on key connection points to the rest of the community (Figure 37).

Within these islands, blocks are short, streets only provide local access, and traffic is relatively calm. There are also a number of dead end streets, including Third Street (East and West), Jackson Street, and Chandler Street.

In these areas, walkable connections are more limited, despite calmer streets. **Dead end streets can function like traditional suburban cul de sacs,** so a destination that is a short distance away as the crow flies may require a longer, circuitous walking route. Although the pedestrian network is disrupted by natural areas and wetlands within the floodplain, these may be areas where a potentially elevated trail connection could provide a safe, off-street connection, and greatly enhance the pedestrian and bicycling network.

Connectors

The counter effect of these isolated areas is that it forces more through traffic onto major cross-borough connections. As a result, **while the local streets remain free of through traffic, the connectors experience heavier traffic**. These connecting roads, including Maple Place and West Front Street, are also critical connections for vulnerable users using other modes of travel.

Dead End Streets

Bridges

Local bridges in Keyport, some of which have been reconstructed in recent years, have high vehicle demand and limited pedestrian access. Maple Street has one sidewalk and unmarked parking lanes. No parking regulations are in place along West Front Street. Although much of the length of these streets are comfortable for pedestrians, this disruption limits walkability and bikeability of the borough as a whole.

In 2020, the Borough applied for funding from the NJDOT through the **Safe Streets to Transit Grant Program** to support pedestrian improvements along Green Grove Avenue. The scope of work includes the continuation of the curb and sidewalk along the eastern side of Green Grove Avenue and the construction of a pedestrian bridge spanning the Chingarora Creek that is at the border with the neighboring Hazlet Township. The pedestrian bridge spanning the Chingarora Creek is adjacent to the existing culvert, where no pedestrian facilities currently exist, making pedestrian travel to and from the nearby Academy Bus Depot very unsafe for commuters.

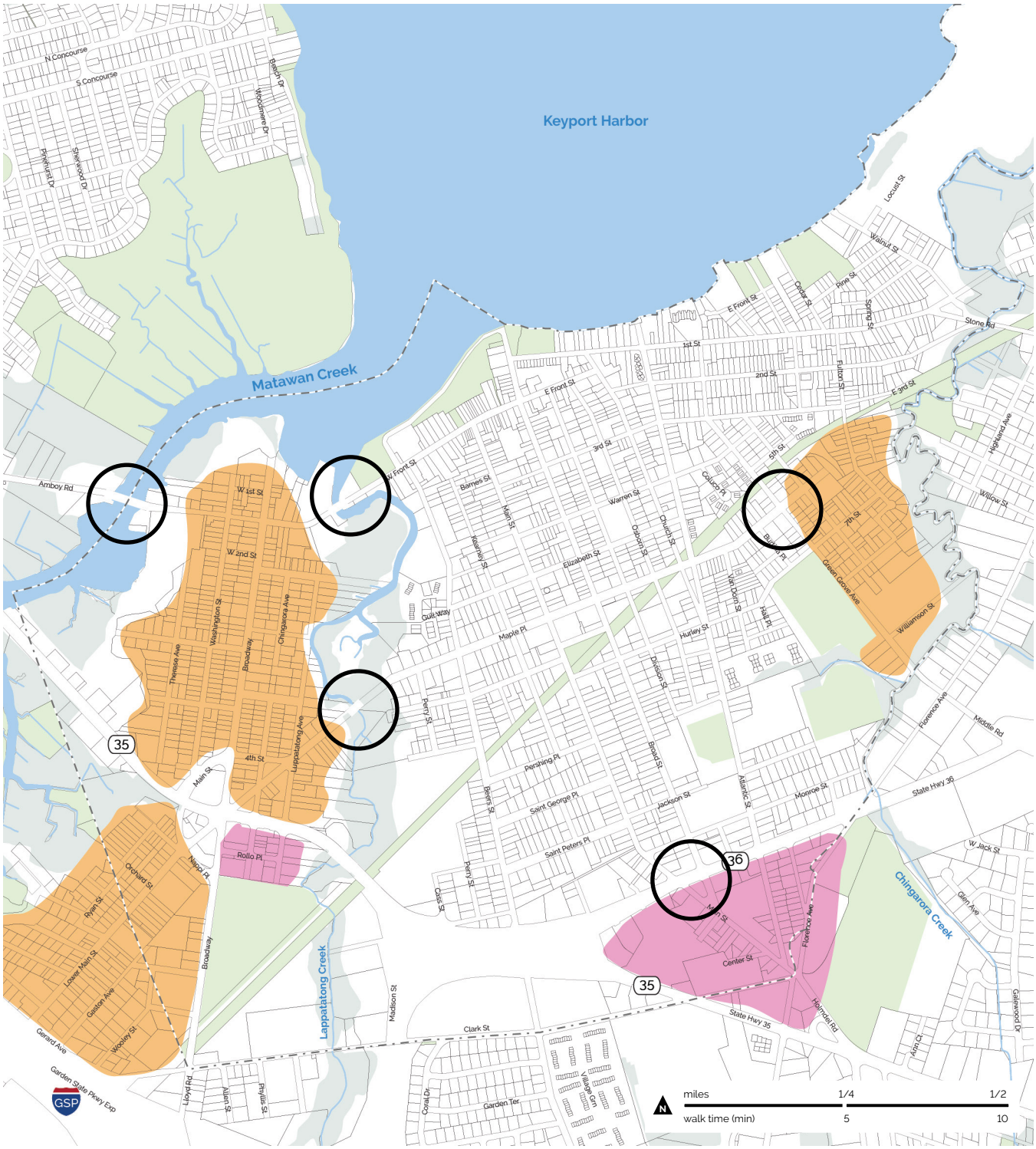
Downtown

Downtown, blocks are centered around Front Street between Beers Street and Church Street. Because of the break in the grid, as First Street ends, drivers destined for locations east of the downtown either travel down Atlantic Street, avoiding the business district, or travel up Broad Street to Front Street.

Lack of Pedestrian Connections on Bridges

Poor pedestrian conditions and high speeds characterize West Front Street and Maple Street

Figure 37. Keyport: Island Effect and Critical Connections



Critical Network Gaps

Island Effect (Residential)

Island Effect (predominantly Commercial)

NJDOT, NJDEP 2018

STREET INFRASTRUCTURE IN THE TIME OF COVID

The COVID-19 crisis is causing cities and towns across the world to re-think their transportation infrastructure. The economic impact and the need for social-distancing commerce has caused business owners and municipalities to reconsider the value of underutilized assets. **Sidewalks, alleys, parking lots, and vacant lots are increasingly being used as potential areas to do business.**

However, COVID's impact has not only been economic. With more people working from home and with fewer opportunities to gather in traditional locations, people are hungry for opportunities to socialize outside of the home. As such, **there has been increased demand for safe open spaces where people can congregate**. The social distancing requirements, however, have put a premium on space and caused governments to investigate how they can create more space for interaction.

The extensive economic disruption has produced lower levels of vehicular activity, offering opportunities to create space for foot traffic, outdoor dining, and public gathering places in communities of all sizes. Some of these opportunities are tactical and intended as interim solutions, while others may become permanent.

Examples of projects that have been undertaken in other municipalities include:

- Converting parking spaces to cafe and/or public space.
- Temporarily closing off one or more blocks of traffic for economic or social activity.
- Dedicating more roadway space to walking or biking.
- Dedicating more curb space to pick-up and drop-off space.

Resident work illustrating how parking in the downtown could potentially be re-purposed for economic activity

PEDESTRIAN CONNECTIVITY

The pedestrian network through Keyport is fair; although sidewalks connect much of the borough many are narrow or uninviting. **Much of the borough is potentially walkable within a distance of about a mile (about a 20-minute walk on average). However, due to breaks in the grid, missing sidewalks, or width of sidewalks, this distance can be difficult to travel on foot and connections are limited in some places**. A more detailed discussion of the potential critical destinations in the Borough are discussed in the Land Uses & Essential Destinations Section.

Within the downtown and near the waterfront, sidewalks are wider, with street trees and potted plants, and some businesses have taken advantage of the frontage zone to display signage. Pedestrian scale lighting and inlaid brick buffer zones characterize the downtown environment, which is generally pleasant if slightly narrow.

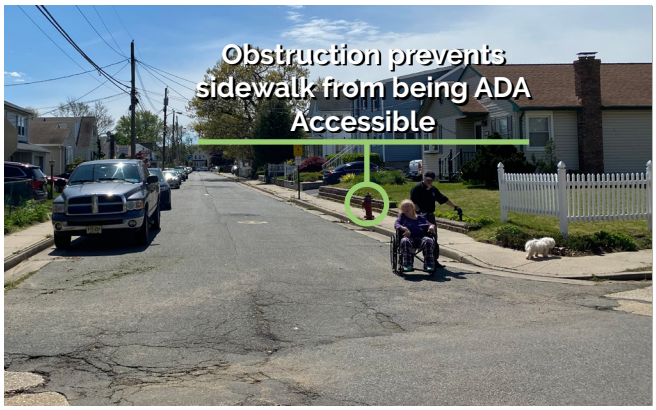
The 2017 Keyport Master Plan outlines multiple improvements for the sidewalk network within the Borough. There is a desire to improve the walkability and connectivity of the network, as there are deficiencies in pedestrian accessibility and use.

Sidewalk Condition

Sidewalks in Keyport can be broadly classified into several categories based on width and buffer type (see Existing Sidewalk Typologies on the following page). Although the minimum for sidewalk widths according to the American Association of State Highway and Transportation Officials (AASHTO) has been 4 feet for many years, the minimum width needed for a wheelchair to turn around is 5 feet. Moreover, obstructions in the sidewalk such as telephone poles are impossible for someone using a wheelchair or pushing a stroller to navigate. Temporary obstructions such as garbage cans or snow piles in winter can further reduce the walkability of neighborhoods which have narrow sidewalks. Eight feet of space is needed for two wheelchairs to pass; this is a more applicable width for neighborhood main streets which see higher pedestrian volumes. In commercial areas, even wider sidewalks are necessary to accommodate increased flows and curbside appeal.

Sidewalk Network

Although most of the streets in the Borough have sidewalks, some streets only have sidewalks on one side of the street (Figure 38). This is not necessarily due to land use considerations and leads to connectivity and accessibility challenges in some locations. Specifically, the neighborhoods west of the Lappatatong Creek are more likely to be missing sidewalks, and these sidewalks are also narrower in some places.



ADA Conditions in Keyport
Narrow sidewalks with obstructions such as fire hydrants or trees with large roots pose a challenge for neighborhood connectivity.

EXISTING SIDEWALK TYPOLOGIES

NARROW & BUFFERED

These sidewalks usually have less than a five (5) foot width, with a one to three-foot buffer between the sidewalk and the road. In residential areas, these buffer zones are grass filled. The sidewalks along Broadway are representative of narrow sidewalks.

MODERATE & UNBUFFERED

Between six to eight feet wide, these sidewalks are wide enough for passing pedestrians, but are not as comfortable for walking. Sidewalks on the east side of Broad Street exemplify this sidewalk typology.

NARROW & UNBUFFERED

These sidewalks are typically less than five (5) feet wide, and abut the adjacent roadway with no separation aside from a curb to protect users from vehicular traffic. The sidewalks along 3rd Street exemplify an unbuffered sidewalk, where only the south side of the street has a sidewalk.

DOWNTOWN COMMERCIAL

Sidewalks within Keyport's downtown are typically wider (six to eight feet wide) and are designed to accommodate bidirectional pedestrian traffic. East Front Street and the northern section of Broad Street highlight this type of sidewalk. These sidewalks often have a brick or asphalt paver buffer strip, and pedestrian scale lighting, street trees, planters, and public garbage cans have been installed.

Trail Connectivity

Sidewalks leading to key paths in the Borough do not facilitate ease of travel in some instances. **On the eastern segments of the Henry Hudson Bike Trail, abutting sidewalks are in a state of disrepair or the connections are not complete**, leading to challenging conditions for those not already on the trail. Crossing Broad Street and Church Street on the trail is challenging. The Green Grove Avenue entrances to the trail are not connected to the adjacent sidewalks. A similar situation plays out on Fulton Street, where the sidewalks abruptly end and do not connect to the trail crossing. This disconnects the trail from the neighborhood, giving the impression that the trail is not for local users. Conditions at the Henry Hudson Trail are described in further detail on page 66.

A pedestrian connection to Union Beach is possible along the Henry Hudson Bike Trail and First Street, however the bridge connecting the Keyport to Union Beach only has a sidewalk on the Union Beach side, at which point it turns into a grassy path without a connecting sidewalk until Walnut Street.

Intersections

Although much of the borough has basic crosswalks for either north/south or east west travel, these are inconsistent and residential neighborhoods farther from downtown are less likely to have them. **Neighborhoods west of the Lappatatong Creek generally do not have marked crosswalks**, and at most intersections, the dominant road is stop controlled. Crosswalks along the Henry Hudson Trail are generally marked.

Broad Street, the dominant roadway connecting to Route 36 and direct path to the nearest grocery store, has two approaches with zebra crosswalks at intersections between Route 36 and Maple Place. Farther north, no crosswalks exist at the intersections of Warren and West Third Streets, where Broad Street is not stop controlled. **The lack of consistent marked crosswalks throughout the borough, can compromise pedestrian safety and make trips by foot less attractive.** Main Street has no stop control between West Front and Elizabeth Streets.

The intersection of Maple Place, Church and Atlantic Streets, and the Henry Hudson Trail has two street crossings and incomplete sidewalk connections. Trail users must travel along Maple Street, crossing Church and Atlantic, before crossing Maple and reentering the trail. However, bicyclists must dismount (ADA ramps exist at corners rather than along crosswalks) and no guidance is provided. Moreover, neither Church Street nor Maple Street is stop controlled at this location.

Crossing Routes 35 and 36

There have been multiple crashes involving bicyclists and pedestrians at Route 36 at Main Street. The crossings of Main and Broad Streets on the south side of Route 36 have been improved to offer heightened visibility for pedestrians, and although sidewalks extend south on both those streets, sidewalks extend less than one block east and west of these locations.

No street-level pedestrian crossings of Route 35 exist west of the interchange with Route 36. The streets that cross Route 35 here do not have lane markings and the block adjacent to the north and south lack sidewalks. By default, these lanes are about 15 feet, which is significantly wider than necessary for the volume and mix of traffic using the street. The Henry Hudson Trail connection over Route 35 is therefore especially important. However, it is impractical to use this route to walk safely to access businesses in the area.

Improvements

The Borough of Keyport has applied for and has been awarded the Transportation Alternatives Program funding to improve sections of Maple, Broadway, W Front, and 1st streets. Improvements include ADA accessibility, transit wayfinding, tree replacement, and sidewalk extensions. The project also calls for street scape improvements along W. Front Street.

Figure 38. Keyport: Missing Sidewalks

No Sidewalk

Henry Hudson Trail

NJTPA 2019, Google Earth

BICYCLE NETWORK AND TRAILS

There are no on-street bicycle facilities in the Borough of Keyport; the Henry Hudson Trail is the only resource for regional rides. Creating an interconnected network of bicycling infrastructure would provide opportunities for tourists and residents to better traverse the Borough by bicycle for recreational and commute trips.

Henry Hudson Trail

The Henry Hudson Trail, which crosses through the center of Keyport, connects much of northwest Monmouth County. **The paved connection terminates along the Garden State Parkway in Aberdeen, not far from Aberdeen-Matawan Station. The 2017 Bicycle Master Plan has identified the future connection to this station as a primary concern. This connection would establish a strong and important non-motorized connection to a major transportation center.**

Although the trail offers excellent safety and comfort for riders, it does not give Keyport residents access to many critical resources, notably grocery stores and medical care available along the Route 35 and 36 corridors.

A more detailed discussion of the Henry Hudson Trail is provided in the call out on the following pages.

Local Streets

The lack of bicycle facilities through most of the Borough limits access of cyclists of all ages to the Henry Hudson Trail, downtown, and resources on the border or outside of Keyport. Near Routes 35 and 36, the trail does not provide a link between neighborhoods and key business areas.

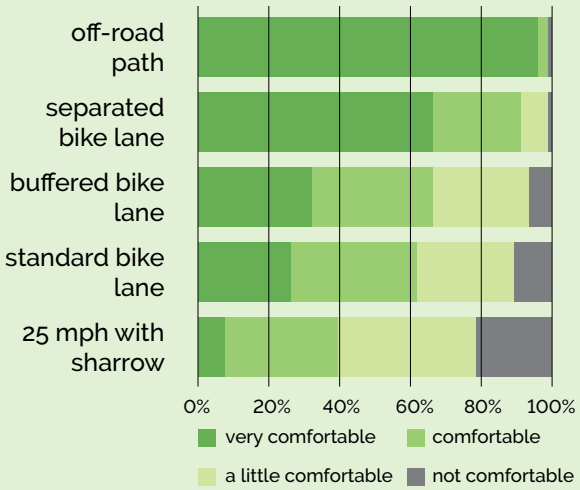
The NJTPA conducted a Bicycle Network Level of Traffic Stress and Connectivity Analysis in 2019 as part of an assessment of roadways to create a regional bicycle network (Figure 39). The map was created using data sourced from NJDOT straight line diagrams, bike path data, county data, and crowd sourced data, and roadways factors.

In some cases, shoulders, unmarked parking lanes, and extra-wide lanes provide some space for bicyclists to ride outside the standard vehicle lane. This likely only attracts confident, assertive, adult cyclists.

BICYCLE LEVEL OF COMFORT

Bicycle Level of Comfort (LOC) is a tool used to quantify a bicyclists comfort level relative to the condition of a roadway. Because different speeds and proximity of automobile traffic produces different conditions, the LOC method identifies four levels of stress. Each stress level correlates to a different type of bicyclist and ranges for a facility that is comfortable for all riders, including children (Level 1), to a facility for the most experienced, confident, and assertive vehicular bicyclists (Level 4). LTS analysis provides a framework for developing a bicycle network that is accessible to the largest number of riders, and follows the complete streets principle of accommodating all ability levels.

Level of Comfort by Facility Type



Responses by those self-identifying as not "experienced" cyclist to survey question, "Please rate how comfortable you would be using the following types of bicycle infrastructure." From NJDOT Bicycle & Pedestrian Master Plan (2016)

Figure 39. Keyport: Bicycle Level of Traffic Stress, Keyport

- 1 (highest comfort)
- 2
- 3
- 4 (lowest comfort)

NJTPA 2019 and NJDEP, 2018

HENRY HUDSON TRAIL

CONNECTIONS

The Henry Hudson Trail, part of the National Rails-to-Trails Network, is a major recreational trail and connection for the county and South Jersey overall. From its northern terminus at Popamora Point in the Highlands to the southern terminus in Freehold, it will eventually extend 24 miles through Monmouth County. A few sections are still veing designed and developed, but will provide important connections for Keyport's regional mobility and will place it as a hub for bicycle commutes.

A proposed section will connect the existing terminus at Broadway to Aberdeen-Matawan Station. In the interim, a signed on-street bicycle route now connects Church Street parking area to the Matawan Train Station. Currently, bicyclists must connect to the station via Broadway, Gerard Ave, and Lower Main Street. An additional proposed connection would connect sections of the trail in Marlboro Village and Marlboro.

Designated trail parking exists nearby in Matawan near Route 117 (at Gerard Ave/ Clark St - Lloyd Rd / Broadway Intersection, and in Union Beach).

CONDITIONS

Figure 40 shows conditions and amenities along the Henry Hudson Trail in Keyport. The trail is relatively flat, and about 10 feet wide in most areas. Bicyclists, in-line skaters, and skateboarders under age 17 are required to wear a helmet. There are public restrooms available at the Henry Hudson Train Activity Center on Route 36 and at Popamora Point. No water fountains are available along the trail.

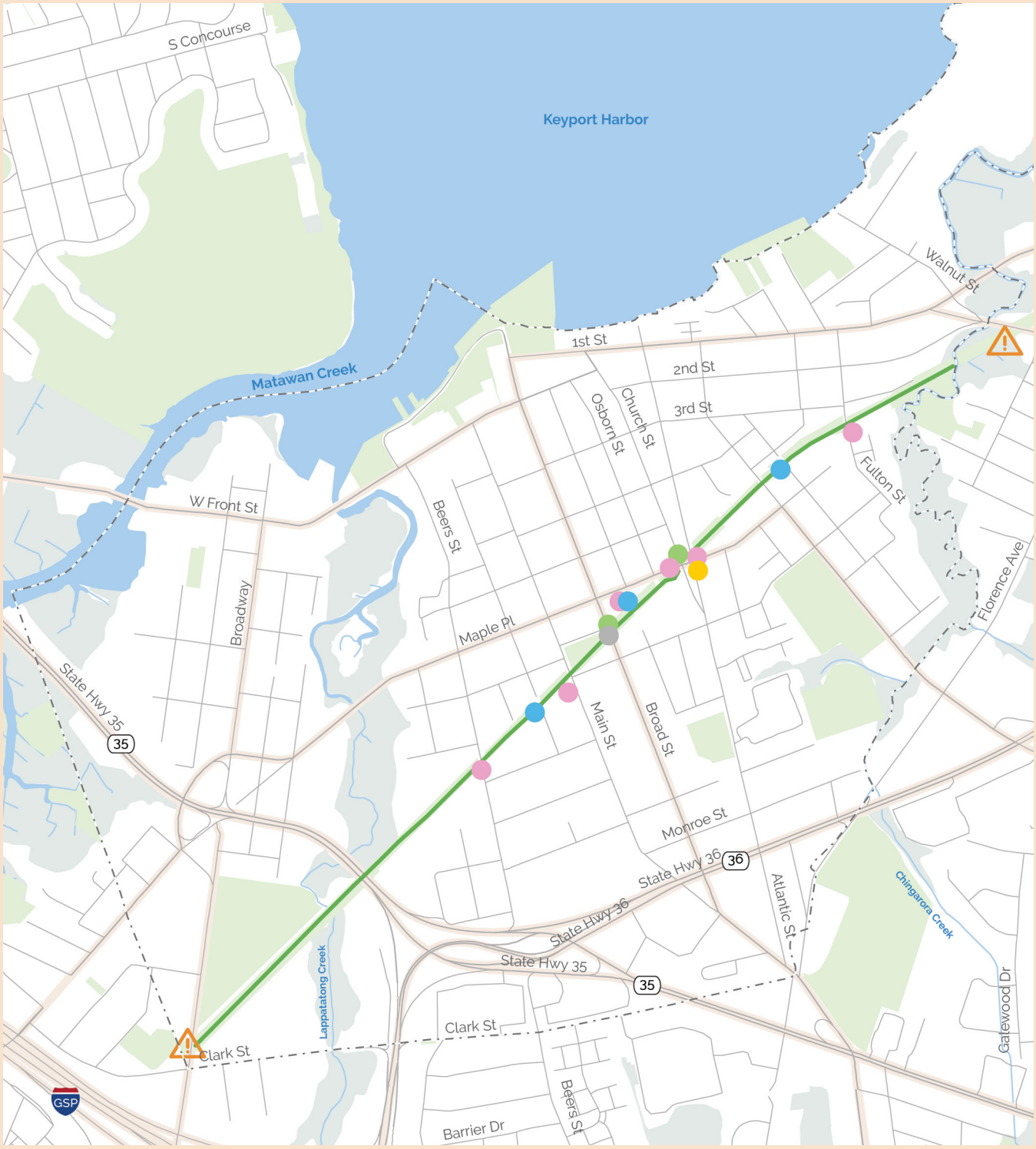
Bollards have been installed where the trail interacts with the local street network. Very few benches have been installed along the trail in town. Signage at trail entrance points is consistent, however wayfinding to the trail within the Borough is minimal. No signs encourage trail use from neighborhood streets.

Lime bike racks which accommodate approximately eight bicycles have been placed at some street entrances to the trail.

WAYFINDING

Currently, the high traffic area offers little wayfinding to guide users to nearby neighborhoods or transit. Very little traffic calming or warning signs exist to help protect crossing bicycles from vehicular traffic at street crossings. Further, no signage exists to help trail users navigate toward amenities in downtown Keyport. Conditions at the Henry Hudson Trail are described in further detail on page 66.

Figure 40. Keyport: Henry Hudson Trail Amenities



- Lime Bike Rack
- Trail Signage
- Garbage Can
- Foot Trail / Goat Trail
- Bench

⚠ Sidewalk Ends Abruptly

NJDOT 2019, NJDEP 2019, and Google Earth

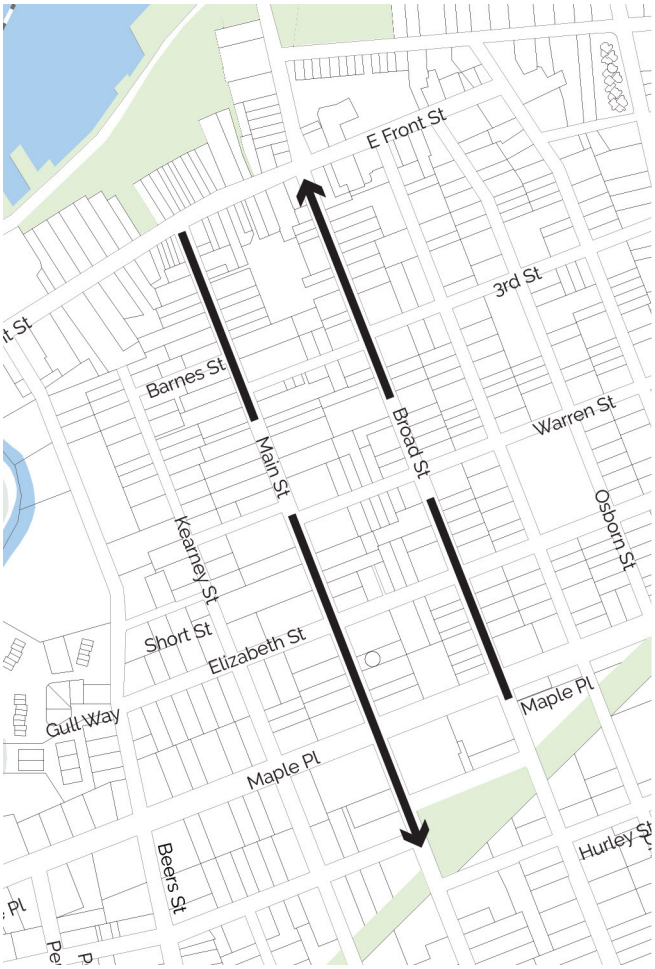
As Figure 39 illustrates, most of Keyport's residential roads would be well suited for bicycling. However, because this system is not formalized, and depending on traffic or levels of parking occupancy, it does not support or encourage biking by all users. This is not an adequate system for providing safe, comfortable facilities for bicyclists.

Moreover, facilities narrow approaching bridges or major corridors, creating an unsafe condition. It should also be noted that in the state of New Jersey, bicyclists are generally allowed to ride on sidewalks which may not be wide enough to accommodate them (described previously under Sidewalk Condition on page 60).

One-Way Pairs

In 2020, the Borough requested funding from NJDOT through the **Bikeways Grant Program** to transform Main Street and Broad Street, which are currently two-lane streets that prioritize vehicular traffic, into a one-way bike circuit in the center of the community. The one-way circulation would consist of northbound traffic on Broad Street and southbound traffic on Main Street. The project would extend from West Front Street to the Henry Hudson Trail and result in a "bicycle circuit" that would not only create a major local amenity but also connect trail users with downtown Keyport and the waterfront, connecting to major regional amenities.

One-way Pair Concept



NEW MICROMOBILITY OPTIONS

Keyport partnered with Lime to launch a dockless bike-share program in June 2018 with 50 bicycles. The program, which residents or visitors could access using the app or by SMS text messaging, costs $1 per half hour via card payment. Although Lime bikes do not need to be dropped off or picked up at any given location, they are corralled between the trail, Waterfront Park, Fireman's Park lot, and Borough Hall. Data shows the bicycles were often used along the Henry Hudson Trail. The Lime Bike Program is no longer active in Keyport.

In addition, Borough staff were also hoping for use of the bicycles to access Aberdeen-Matawan and Hazlet train stations or the nearby Academy Bus terminal.

Electric scooters and bicycles, new to the market, have expanded mobility options for a variety of uses. A recent study showed that across the United States, e-scooter rides are roughly split between work, transit, social, and recreational trips[2]; moreover, according to Lime data, 30 percent of users replaced a vehicle trip during their most recent e-scooter ride.[3] E-scooters and e-bicycles have increased speeds, compared to traditional bicycles and scooters. Moreover, this new travel option has increased the appeal of taking trips without a vehicle, increasing the demand for on-street bicycle infrastructure.

EMERGING TRENDS IN TRANSPORTATION

AUTONOMOUS & CONNECTED

Wikimedia

Newly manufactured vehicles today include a number of features that automate some aspects of driving, such as lane control, park-assist, and even driving under some conditions. Experts suggest critical mass on urban streets will be reached within 50 years. These technologies reduce driver attentiveness in the short-term, causing concern for vulnerable user mobility. In the long-term, these technologies may require reduced parking, changes in land-use in high-demand areas, and changes in commute patterns.

ELECTRIC SCOOTERS & BIKES


Wikimedia

Electric-scooter share, which has overtaken bicycle-share as the newest trend, uses electric powered scooters (privately charged) to entice users who may be less comfortable on a bike. Venture-capital backed providers such as Lime and Bird have dominated the market, and more traditional bikeshare companies have introduced electric-bicycles to their existing fleets, helping users travel faster and navigate topography. These technologies are also available for individual purchase, at a higher price point.

RIDESOURCE & RIDESHARE


geekwire.com

The ridehailing industry which has seen explosive growth over the last five years has transformed personal mobility on two fronts. Ridesourcing, allows a user to call a ride, providing increased access for areas dominated by vehicular infrastructure. Ridesharing allows companies to charge a lower price point by reserving multiple seats within a vehicle.

CARSHARE

Flickr: glokbell

Carshare services, first introduced by companies like Zipcar, provide an option comparable to traditional car rental services, designed for short trips. Some companies own a fleet of vehicles distributed within a region, while others connect people looking to rent out a vehicle with users looking for means to a destination. In some circumstances, these services have been shown to decrease vehicle ownership. [4]

TRANSIT

Transit service is a key component of any complete street network. Transit riders are hardly ever provided door-to-door service, so they can count themselves as pedestrians or cyclists at the first and last mile of their trips. Municipalities that provide meaningful transit to access employment, groceries, and social services are able to rely less on automobile traffic, and can divert transportation resources (both financial and infrastructure) - to benefit more vulnerable users, such as bicycle and pedestrian improvements.

Bus

NJ TRANSIT

The only existing bus connection to NJ TRANSIT is the 817 bus with service along the New Jersey coast from Perth Amboy to Campbells Junction. This route has six stops in the Borough (Figure 41), and primarily serves the western residential neighborhoods and downtown Keyport. There are 86 stops along the #817 route, with an estimated trip duration of 76 minutes end to end. Long travel time for residents of Keyport using NJ TRANSIT for interregional travel. The #817 bus, which has two stops on Broadway, West Front Street, and First Street, is not visible to downtown visitors nor infrequent users. There are no benches or signage are present to note the locations of these stops.

No park-and-ride facilities for buses are available near Keyport, although one is available in Aberdeen, for NJ TRANSIT routes #133 and #135, which connect to New York City.

Academy Buses

The most direct bus service to the Port Authority Bus Terminal in New York City is through Academy Bus from neighboring Hazlet's Airport Plaza (off Route 36 at the intersection of Middle Road). The route takes about 50 minutes and costs between $17 and $21. Per the Keyport Master Plan, the Borough wishes to explore additional bus service to link Keyport to neighboring train stations in Hazlet (east) and Aberdeen (west), while also improving connectivity and travel time to New York City and other regions of New Jersey. As previously mentioned, the Borough also applied for **Safe Streets to Transit Grant** to support pedestrian improvements along Green Grove Avenue that would improve connections to the Academy Bus station.

SCAT

The Monmouth County Special Citizen Area Transportation (SCAT) bus service caters to seniors, people with disabilities, 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

Academy Bus Stop

Figure 41. Keyport: Bus Routes

NJ TRANSIT Route

NJ TRANSIT Stop

NJ TRANSIT, 2018

Figure 42. Keyport: Regional Mobility

— NJ TRANSIT Rail

— Henry Hudson Trail

— NJ TRANSIT Bus Route

— Academy Bus Route

● NJ TRANSIT Bus Stop

● Academy Bus Stop

NJ TRANSIT, 2018, Academybus.com, NJDOT, NJDEP 2019

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 it, with emphasis placed on medical appointments and grocery shopping trips. Schedules and routes depend on the demand indicated in reservations.

Shared Ride & Taxi

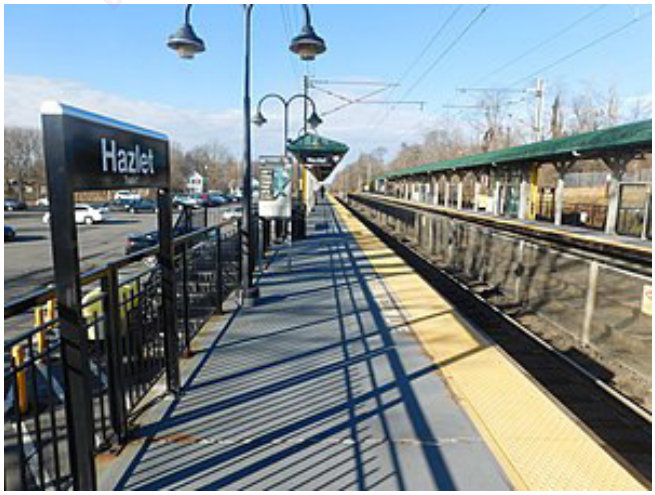
Additionally, the county maintains contracts with private van and taxi operators through the Shared Ride Taxi program to provide transport to any destination upon request. Although Monmouth County provides these services, better information should be made available on mass transit services using print and electronic media to make the public aware that they exist.

Moreover, access to critical destinations such as grocery stores, Borough hall, and regional employment centers would be better served by a transit service accessible to all residents.

Train

The nearest NJ TRANSIT Rail stations are at Hazlet (south) and Aberdeen-Matawan (west), both within two miles of the center of Keyport. The trip from Hazlet to New York Penn Station takes one hour and 15 minutes; this is reduced by a few minutes by riding from Aberdeen-Matawan Station. Trains pass through the stations about every hour. There are 417 standard parking spaces and seven handicapped accessible spaces at Aberdeen-Matawan Station at a cost of $140 per quarter or $480 per year. At Hazlet Station, 296 spaces, including six that are handicapped accessible are available for daily or permit purchase. Rates are slightly lower at $4 per day or $120 per quarter. Bicycle racks available at the station can accommodate eight bicycles.

Hazlet Station



There are no bus routes connecting to either of these stations (Figure 42). Last-mile connections to these stations are important considerations for future bus, bicycle, and walking improvements.

This is important to consider relative to the mode split for means of transportation to work in Keyport: 72 percent of residents drive alone to work, and only 6 percent use public transportation. Improving last mile connections to nearby transit stationscould encourage more Keyport residents to take advantage of these options, participarly those commuting to New York City and Newark. Most major employment centers fall along the train corridor. More information on commuting patterns in Keyport are available in the Demographics Section.

Ferry

There is no ferry service to or from the Borough of Keyport, but with easy access to water, this is a transit service that has been discussed previously (Keyport Master Plan 2017) and has potential to ease congestion and strain on the existing roadway network if trips to high demand destinations were added. No neighboring communities have ferry routes, the closest ferry stops are at Belford Harbor Docks and Atlantic Highlands, which are New York Waterways routes that connect to Brookfield Place.

AUTOMOTIVE TRAVEL

Seven arterials connect the Borough to surrounding municipalities and provide local access to residential and commercial areas. These roadways are the Garden State Parkway (north/south), Route 35 (north/south), 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 Routes 35 and 36 in the southern Keyport, and the several county routes that serve the Borough augment access to other parts of the state and county. Conditions on these county roads hinder the multimodal connectivity of the Borough as a whole.

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.

Crashes

Crash data illustrates that a lack of safe crossings, combined with vehicle volumes, is contributed to unsafe conditions and crashes. About 5,000 crashes occurred in the borough over the period of 2006 to 2017 (mapped in Figure 43). There have been pedestrian and bicycle crashes along Route 36 and First Street, and Broadway near Main Street. Crashes involving cyclists are slightly more common; these crashes have occurred on Broad Street, near the West Front Street and Maple Place Bridges, Broadway, and at the intersection of Route 36 with Main Street. Similarly, crashes involving pedestrians have occurred on these same key corridors: West Front Street, Maple Place, and Broad Street. Significantly, these are county roads, carry higher volumes, and are carriers of traffic bypassing the borough, or traveling in and out of the downtown.

There were three fatal crashes from 2006 through 2017. They all occured along Route 35. Route 36 crashes are also common; two thirds of these are rear end crashes which could indicate a problem with stop and go traffic, related to congestion or frequent access points. Forty percent of crashes in the borough have occurred on state roads. There has a high number of crashes involving struck parked vehicles, as well as rear end crashes along county roads (Broadway, West Front Street, First Street, Maple Place). **Crashes on municipal roads (only 14 percent of crashes) have involved parked vehicles at an even higher rate, as well as right angle crashes**. Right-of-way constraints, and low visibility at intersections can contribute to these types of crashes.

Traffic & Congestion

Traffic volumes remain high throughout the roadway network that connects the Borough to other parts of the state, notably during summer months with vacation traffic. Average daily traffic on Routes 35 and 36 is upwards of 35,000, furthering the need for safe crossing locations with adequate protection for people walking and cycling. Traffic congestion near the downtown and waterfront is of primary concern

Intersection Safety

Many intersections connecting to destinations such as groceries and transit lack safe crossing guidance.

Figure 43. Keyport: Crashes in Keyport, 2006 - 2017

- No Apparent Injury
- Possible Injury
- Suspected Minor Injury
- Suspected Serious Injury
- Fatal Crash

☆ Pedestrian/ Bicycle Crash

NJDOT Safety Voyager and NJDEP 2019

Figure 44. Keyport: Truck Routes

Designated Truck Route

Downtown Keyport

NJDOT YEAR, NJDEP 2019 , and LULC 2002

among local access roads. Traffic within the Borough is concentrated on the primary north/south and east/west routes; outside of these streets traffic volumes are consistent with the residential character of the streets.

Traffic signals in Keyport exist at the following locations:

- West Front Street at Broad Street
- Maple Place at Broad Street
- Broad Street at Route 36
- Atlantic Street at Route 36
- Maple Place and Broadway at May Street and Nappy Place
- Maple Place and Broadway at Fourth Street

Truck traffic is also a major consideration when identifying safe routes for vulnerable users. Route 36 through Keyport is the only designated truck route (shown on Figure 44). However streets which provide connections to commercial districts including Downtown/the Waterfront likely also see higher than average truck traffic (such as Main and Beer Streets), and may explain the wider lanes or intersections that exist along major roads through town. Additionally, travel to the maritime focused businesses along the waterfront draw can draw longer vehicles or those with trailers, which also require wider turning radii at some intersections.

Parking and Curb Use

Parking is generally unrestricted on most residential streets in Keyport (Figure 45). This being the case, many streets are paved extra wide to accommodate parked vehicles, however in many places street parking is infrequent. Within the downtown, parking spaces are striped along First Avenue/ Front Street and Broad Street. These spaces are regulated as three-hour parking, Monday through Saturday 6 a.m. to 6 p.m. This business district parking zone has resulted in more limited lane widths for vehicles and a lack of available space for bicyclists.

Downtown

Within downtown, parking spaces have been striped along First Avenue/ Front Street and Broad Street. These spaces are regulated as three hour parking, Monday through Saturday 6:00 a.m. to 6:00 p.m. This business district parking zone has resulted in more limited lane widths for vehicles and a lack of available space for bicyclists.

There are eleven off-street commercial and public parking lots available between Lappatatong Creek and Atlantic Street. Several of these lots are adjacent to and primarily serve Keyport Waterfront Park. Municipal lots are accessible from American Legion Drive, West Front Street, Broad Street, Main Street, and West Third Street. Off-street parking is available in lots for the automobile oriented business on Routes 36 and 35.

Keyport resident Andrew Kelsey analyzed parking downtown and compiled his findings in a report "Cursory Analysis of Available Parking in Downtown Keyport" which found that redesigning some of the lots downtown could potentially create 126 additional parking spaces, a 30 percent increase in capacity. Although it is not within scope of this study to evaluate this work, the parking standards he used are consistent with best practices except for the lack of parking islands and other stormwater management techniques that may be worth considering if thse lots were redesigned. Equally important, the work identified the following recommendations which should be considered as part of this study:

- Provide large and obvious signage marking the entrance to municipal lots.
- Provide a method in Broad Street lot to locate alternate lots and street parking.
- Create a parking committee.

Maple Place Bridge does not have a parking restriction though West Front Street does. No further regulations are in place in the district.

High School and Loading

Stakeholders have identified school drop-off and pick-up as a major issue. Space in front of the school on Broad Street is currently restricted to drop-off zones in the morning and evening. However, the high volume of pick-ups and drop-offs when school starts and ends results in heavy traffic congestion which also coincides with rush hour traffic. Because of the high intensity of use during this time, there is a perception that the area around the school is less safe to walk in and, as a result, more parents drive their children to school, which exacerbates the problem. The Borough has explored making Broad and Main Streets one-way in part to help address this issue.

Curb Use

Ride hailing services, which supplement transit and bicycles to increase personal mobility, have created an increased demand for curb space, particularly in commercial districts and areas with limited parking.

COMMUNITY RESILIENCE

The Borough has been planning for emergency response and environmental hazards, particularly since Superstorm Sandy devastaed the region. As a shoreline community, Keyport is especially prone to increased environmental hazards as a result of climate change. Even more than expected sea level rise, storm storm surges threaten the borough's transportation network. The State has designated Routes 35 and 36 and the Garden State Parkway as evacuation routes. In addition, the Borough's 2017 Master Plan identifies the following evacuation routes:

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

The Master Plan also recommends partnering with NJDOT and neighboring municipalities to raise Route 35 on the western side of the borough and Route 36 near the Hazlet border, which flood. It was also noted that during storm events, the Garden State Parkway also floods in the marsh area at Morgan Creek and is not passable to the north.

Flooding Issues in Keyport

Near the water's edge and wetland areas, transportation facilities require attentiveness to flooding concerns.

Figure 45. Keyport: Parking Restrictions

Unrestricted

No Stopping

Temporal Parking Restrictions

NJDOT, 2019 and NJGIN 2018

Figure 46. Keyport: Keyport Evacuation Roads

Designated Evacuation Route

NJDOT, 2019 and NJGIN 2018

ENDNOTES

Speed on Suburban Streets, 2000. Transportation Research Record1751:1B-25.

1 Fitzpatrick, Kay, Paul Carlson, Marcus Brewer, and Mark Woodridge, Design Factors That Affect Driver

2 *National Association of City Transportation Officials, Shared Micromobility in the U.S.: 2018. https://nacto.org/wp-content/uploads/2019/04/NACTO_Shared-Micromobility-in-2018_Web.pdf*

3 *Forbes, Electric Scooters And Micro-Mobility: Here's Everything You Need To Know: 2019. https://www.forbes.com/sites/adeyemiajao/2019/02/01/everything-you-want-to-know-about-scooters-and-micro-mobility/#51bec83f5de6*

4 *Innovative Mobility Research, Impacts o fCar2Go on Vehicle Ownership, Modal Shift ,Vehicle Miles Traveled, and Greenhouse Gas Emissions: An Analysis of Five North American Cities: 2016. http://innovativemobility.org/wp-content/uploads/2016/07/Impactsofcar2go_FiveCities_2016.pdf*

GREEN INFRASTRUCTURE

INTRODUCTION

In addition to complete streets mobility elements, the policy and the ordinance resulting from this project will also make recommendations on green infrastructure elements.

Why is Green Infrastructure Important

Green infrastructure can help address stormwater runoff, which is a major cause of water pollution in urban and suburban areas. As the Environmental Protection Act notes on its website,

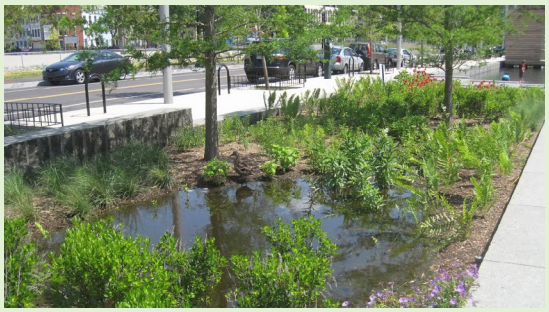
> When rain falls on our roofs, streets, and parking lots in cities and their suburbs, the water cannot soak into the ground as it should. Stormwater drains through gutters, storm sewers, and other engineered collection systems and is discharged into nearby water bodies. The stormwater runoff carries trash, bacteria, heavy metals, and other pollutants from the urban landscape. Higher flows resulting from heavy rains also can cause erosion and flooding in urban streams, damaging habitat, property, and infrastructure.

Streets have become an important place to address these issues because they channeled stormwater before it enters into gray infrastructure systems, such as sewers. Moreover, the streets themselves are impervious, thus preventing water from being absorbed into the ground where it falls.

Green Infrastructure

Green infrastructure refers to the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspirate stormwater and reduce flows to sewer systems or to surface waters. The term is often used in contrast to “gray” infrastructure, which channels untreated rainwater into nearby water bodies.

Green infrastructure is a cost-effective, resilient approach to managing wet weather impacts that provides many community benefits. While single-purpose gray stormwater infrastructure—conventional piped drainage and water treatment systems—is designed to move urban stormwater away from the built environment, green infrastructure reduces and treats stormwater at its source while delivering environmental, social, and economic benefits.



SUITABILITY ANALYSIS

When thinking about applying green infrastructure approaches to stormwater management, it is important to understand the physical characteristics that will constrain the instillation of stormwater.

Constraints Analysis

Although infiltration is not necessary for all forms of green infrastructure, **the low-impact development (LID) practices most applicable for integration into complete streets roadways require effective infiltration of stormwater into the ground to function properly.**

It's important to conduct an assessment during the planning stage to determine what green infrastructure would work best. This analysis considers: soil types, wellhead protection areas, groundwater recharge areas, contaminated sites, floodplains, and wetlands. These elements are mapped on the following pages for reference.

Wetlands and Floodplains

Green infrastructure should not be located in wetlands, floodplains, or areas with contamination. Wetlands have high water tables and drain poorly, so water cannot infiltrate effectively. Floodplains should also be avoided because infrastructure could be washed away with a storm event and they do not allow for consistent infiltration.

Contaminated Sites

Contaminated sites should not be developed with green infrastructure as the oil and hazardous materials present may migrate off-site and into surface or ground waters.

More than a dozen known contaminated sites are in Keyport (Figure 48). Although many of these sites are private property, it will be important to understand the extent to which any contamination may have impacted with adjacent public right-of-ways. This will help ensure that efforts to address pollution from stormwater do not inadvertently contaminate other areas.

Low-Impact Development

Low-impact development (LID) is the technical term to describe planning and engineering approaches to managing stormwater runoff. It includes green infrastructure but also focuses on conservation and use of on-site natural features to protect water quality.

Available Resources

In 2018, New Jersey Future, a nonprofit that supports sensible growh and infrastructure investment, published the Green Infrastructure Municipal Toolkit. The online toolkit (gitoolkit.njfuture.org), is a one-stop green infrastructure resource designed to help municipal leaders and advocates address nuisance flooding and polluted waterways.

It includes detailed information and a variety of tools that municipalities can use to plan, implement, and sustain green infrastructure in public- and private-sector development projects.

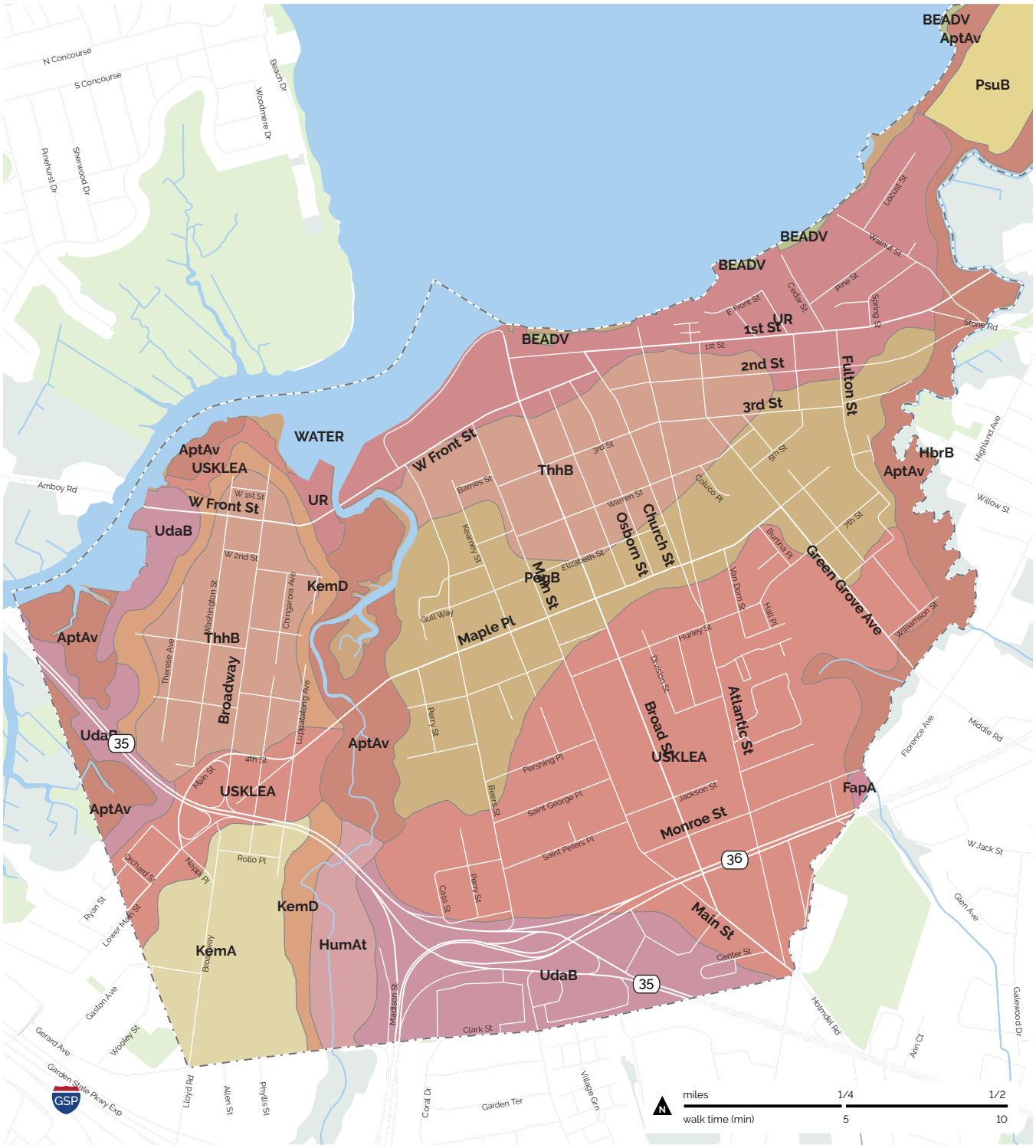
There are also resources for private property owners as well. New Jersey Future has also published an updated Developers Green Infrastructure Guide 2.0, which breaks down New Jersey's Stormwater Rule amendments and helps developers and decision-makers understand green infrastructure options (even for challenging sites), advantages, costs, and benefits.

Figure 47. Keyport: Wetlands

Wetlands

Figure 48. Keyport: Known Contaminated Sites

Figure 49. Keyport: Soils



Soils

Soil texture and drainage class should be considered when assessing whether a site is suitable for green infrastructure. **Soils classified as excessively drained or somewhat excessively drained are best since they allow for effective infiltration rates**. Soils classified as very poorly drained or poorly drained are not suitable for the installation of LID approaches, while soils classified as well drained, moderately well drained, and somewhat poorly drained are moderately suitable. The texture of the soil which is based on the percentage of sand, silt, and clay, is also an important consideration. Sand has the largest grain size, allowing the best infiltration rates and best suitability for green infrastructure of the textural classes. Clay has the smallest grain size and allows the least amount of water to pass through. Therefore, clay soils are the least suitable for the inclusion of LID elements.

Figure 50 illustrates the percentage of land area within Keyport (excluding waterbodies) that are suitable for LID approaches to stormwater management. It should be noted that this is based on a top-level analysis and that site specific conditions must be considered for each project, even in those areas where the soil has been identified as suitable for LID.

Figure 51 provides more details on the suitability of each soil type. Those soils which have been identified as case-by-case denote areas where development or other factors may have changed to the soil. Such changes could impact LID effectiveness.

Wellhead Protection Areas

Figure 52 illustrates the Well Head Protection Area (WHPA) in Keyport. The New Jersey Department of Environmental Protection publishes WHPA data, which is modeled around an unconfined Public Community Water Supply (PCWS) well in New Jersey. WHPA delineations are created in compliance with the Safe Drinking Water Act Amendments of 1986 and 1996 as part of the Source Water Area Protection Program (SWAP).

WHPAs are demarcated to protect drinking water sources, particularly groundwater aquifers. Although green infrastructure approaches may be instituted in these areas, stormwater must be intercepted and pretreated to ensure that contaminants do no enter

Figure 50. Keyport: Suitability for LID Approaches based on Soil Conditions

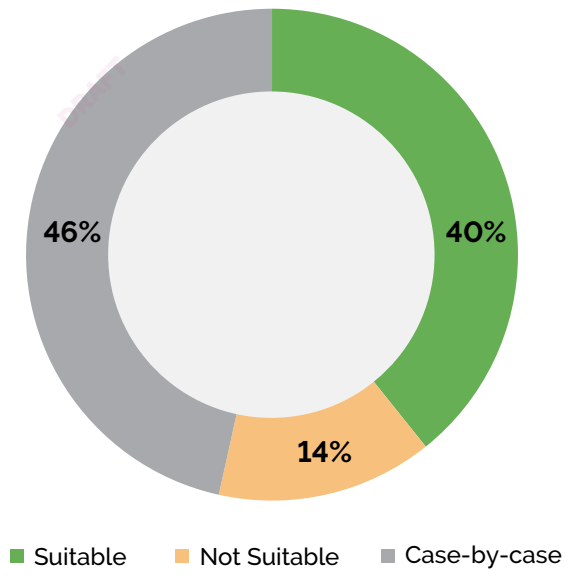
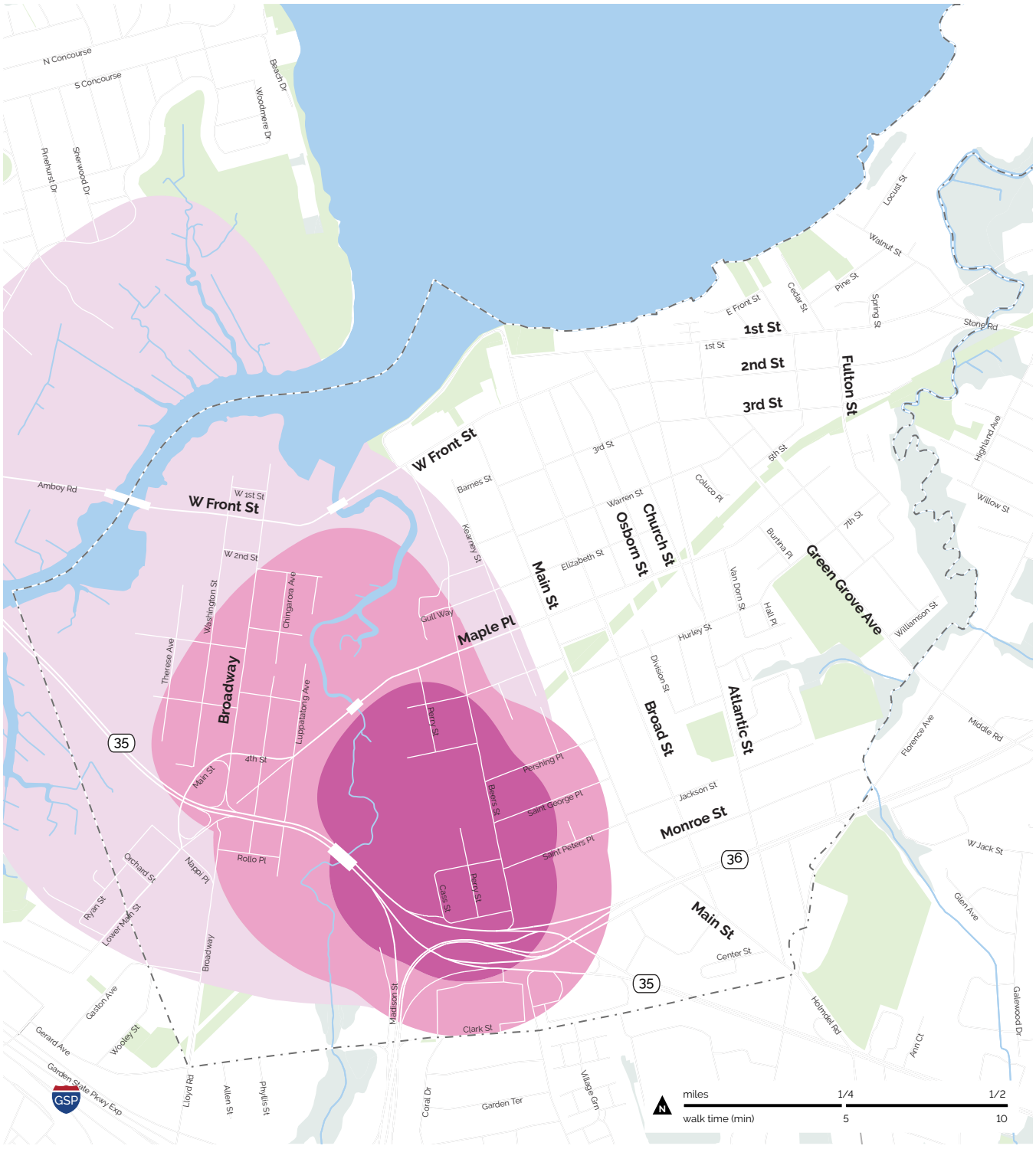


Figure 51. Keyport: Suitability for LID - Soil Type Breakdown

Soil	Suitability
AptAv	Not Suitable
BEADV	Not Suitable
BEADV	Not Suitable
FapA	Not Suitable
HbrB	Suitable
HumAt	Not Suitable
KemA	Suitable
KemD	Suitable
PegB	Suitable
PsuB	Suitable
ThhB	Suitable
UdaB	Case-by-Case
UR	Case-by-Case
USKLEA	Case-by-Case

Figure 52. Keyport: Well Head Protection Area



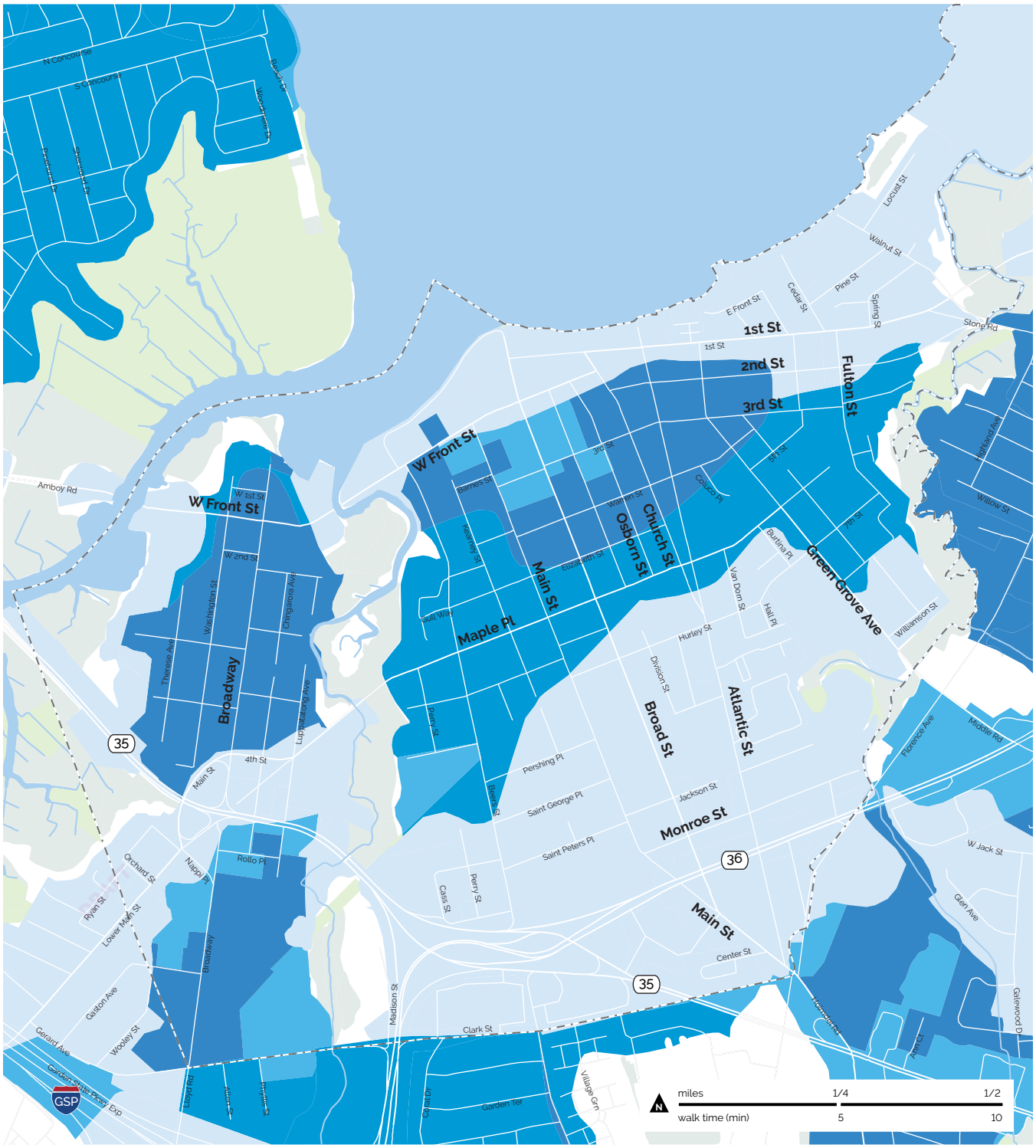
Tier One: 2 year time of travel

Tier Two: 5 year time of travel

Tier Three: 12 year time of travel

Well Head Protection Areas in New Jersey; NJDEP (2019)

Figure 53. Keyport: Ground Water Recharge Areas



0 in/yr

1 - 7 in/yr

8 - 10 in/yr

11 - 15 in/yr

NJDEP GIS Geology Open Data; 2019

groundwater. **For purposes of this assessment, WHPAs are classified as not suitable for LID approaches, although with the proper engineering, green infrastructure may be instituted on a case-by-case basis.**

Groundwater Recharge Areas

The mapped groundwater recharge areas within the Borough are typically suitable for the installation of LID practices, as they allow for stormwater infiltration of stormwater. In Keyport, **the groundwater recharge areas that overlay WHPAs should be classified as not suitable for green infrastructure to protect the drinking water supply.**

Suitability Summary

This analysis provides sufficient detail to help the Borough understand where the green infrastructure may be most effective. As the project continues, there may be opportunities to explore how the Street Typologies can be modified based on the physical conditions of the street.

LID APPROACHES

The following provides a top-level overview of the type of LID approaches most suitable for inclusion in complete streets planning and where those approach might best be included. This list is intended to be a starting point for discussion and will be refined as the project continues.

Bioretention systems (bio-swale, bioretention cell, rain garden)

- Roadway medians and along roadway setbacks
- Edges of roadways and trails
- Curb extensions on streets
- Alleys or low-traffic streets
- Open space areas or public spaces

Curb cuts/eliminations

- Edges of roadways and trails
- Median strips of roadways and trails
- Alleys or low-traffic streets

Permeable pavement/pavers

- Bike lanes on trails and local streets
- Parking lanes/bays on local streets
- Sidewalks on trails and local streets
- Roads and pathways in open space areas or public spaces

Tree box filters

- Along curbs and sidewalks on local streets and trails
- Along curbs and sidewalks in open space areas or public spaces

Site appropriate landscaping

- Roadway medians and along roadway setbacks
- Edges of roadways and trails
- Median strips of roadways and trails
- Open space areas or public spaces

Subsurface retention facilities

- Under sidewalks along local streets
- Under sidewalks and roads in open space areas or public spaces
- Under trails

CAPACITY ANALYSIS

The following is intended to be a top-level overview of the current capacity of the Borough and its partners to implement the Complete Streets Policy and Design Guidelines. The goal of this analysis is to develop an understanding of the technical, functional, and financial capacities of the municipality. This will ultimately shape the recommendations in this plan by identifying areas of strength that the Borough can leverage during implementation as well as areas where they may have to build capacity during implementation.

TECHNICAL CAPACITY

The Borough has a long history of strong technical planning and engineering leadership. The Borough retails Trevor Taylor of CME Engineering as the Borough engineer. He has shown a strong understanding of the key issues in the Borough and is well versed in the concepts of Complete Streets.

As part of the Complete Streets Policy, the Borough may wish to establish a preferred engineering standard to help support complete streets implementation, likely the National Association of City Transportation Officials (NACTO). This should be done in conjunction and with the support of Mr. Taylor.

FUNCTIONAL CAPACITY

Stakeholder interviews indicate that the Borough's public works department has considerable responsibilities and limited resources, although interviews also suggested the department is meeting the needs of the Borough. This may lead to obstacles when implementing the plan, especially if there are new or innovative approaches that are recommended. This is likely to be the biggest issue when it comes to green stormwater infrastructure, which the Borough does not currently have and which has been recommended in several planning documents.

FINANCIAL CAPACITY

The Borough currently has a capital improvement plan that provides guidance on long-term improvements, including street improvements. This is a very important foundation and the Borough will need to continue to update that plan to support complete streets implementation.

The Borough has acknowledged that it is working with limited resources to implement complete streets. To address this obstacle, it has been very successful at applying for and receiving grant funding, including a Transportation Alternatives Program (TAP) grant.

Despite these successes, the Borough currently lacks a formal process for identifying how to allocate local resources for infrastructure improvements. The ad-hoc approach has the benefit of allowing the Borough to respond to perceived needs. However, it may also lead to a situation in which the "squeaky wheel gets the grease" but long-term issues are not addressed. This ad-hoc approach also opens the project selection process to political influence which will disproportionately affect more vulnerable communities and those with less political power.

Existing Conditions Report