Borough of Bay Head Complete Streets

Bicycle & Pedestrian Plan

December 2015

This study was funded by the New Jersey Department of Transportation under the Office of Bicycle and Pedestrian Programs, Local Technical Assistance Program.

Local Bicycle and Pedestrian Planning Assistance Program

The NJDOT Local Bicycle and Pedestrian Planning Assistance Program is a program that provides consultant services to the applicant for the purposes of producing a planning study only. The purpose of the program is to offer technical assistance to a community which, based on engineering judgment makes recommendations to improve bicycle/pedestrian safety and access within the study area.

The applicant understands that the New Jersey Department of Transportation (NJDOT) acts as the facilitator, and is not the author of the aforementioned study. No promises, express or implicit, are made as to future study, funding or construction of any of the recommendations contained therein. There is no exchange of funds; rather the NJDOT assigns an on-call consultant to the applicant to perform the work. The NJDOT assigned a Project Manager to the study and had full oversight of the work until its completion.

The applicant is aware that they are ultimately responsible for initiating the implementation of any future improvements that are recommended as part of the study. In the case of roadways under State jurisdiction, NJDOT policy dictates that it is the responsibility of the applicant to complete a Problem Statement, and submit it to NJDOT Capital Investment Planning and Development. NJDOT makes no guarantee of any kind that recommendations will be advanced for further study.

The applicant agrees to document, and report back to NJDOT upon request, any and all improvements made based upon report recommendations. NJDOT requests a progress report one year after completion of the study.

The applicant acknowledges and accepts the terms of the Local Bicycle and Pedestrian Planning Assistance Program as outlined above and takes full responsibility for seeking both the funding and implementation of any and all of the recommendations included in the report produced by the assigned consultant at the direction of the applicant.

ACKNOWLEDGMENTS

The project team would like to recognize and express appreciation to the numerous individuals who contributed information, attended a meeting or workshop, sent in a comment, or otherwise participated in the development of The Borough of Bay Head Complete Streets Bicycle and Pedestrian Plan. Special thanks to the members of the Steering Committee for their time and on-going commitment to making Bay Head a safe and enjoyable place for walking and biking.

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CHAPTER 1 - INTRODUCTION

Overview and Purpose

Walking and bicycling are important elements to the culture and way of life in Bay Head. Many residents and visitors walk or bicycle around town, especially during the summer season. The Borough of Bay Head Complete Streets Bicycle and Pedestrian Plan ('the Plan') presents a vision and implementation strategy to provide for a safer, stronger, and more efficient bicycle and pedestrian network. When implemented, this Plan will advance Bay Head's vision of an active-friendly community and establish a bicycle and pedestrian network, linking together key destinations that will encourage more people – of all ages and abilities – to choose healthy transportation. The Plan's approach incorporates engineering, enforcement, education, encouragement, and evaluation recommendations.

The Plan is organized into the following chapters:

- *Chapter 1 – Introduction* explains the Plan's purpose, the benefits of walking and bicycling as well as the planning approach and public participation process.
- *Chapter 2 – Vision, Goals and Objectives* describes the preferred future of walking and bicycling in Bay Head and the ways to achieve it, providing the foundation for all Plan recommendations.
- *Chapter 3 – Evaluation and Analysis* offers an assessment of current bicycle and pedestrian conditions, an analysis of crashes involving pedestrians and bicyclists, an overview of existing programs, plans and policies, and a summary of opportunities and constraints.
- *Chapter 4 – Recommendations* identifies network recommendations, concepts for key corridors and intersections and non-infrastructure recommendations.
- *Chapter 5 – Implementation and Funding* includes an implementation matrix and a list of potential funding sources.
- *Appendices* include design guidelines (Appendix A), further details on funding programs and sources (Appendix B), more detailed synthesis of the ordinance review (Appendix C), the environmental constraints tech memo (Appendix D), and the meeting summaries (Appendix E).

The Plan was prepared through the New Jersey Department of Transportation's (NJDOT) Local Bicycle and Pedestrian Planning Assistance Program. The purpose of the program is to foster the development of active transportation by providing technical planning assistance and professional services to municipalities.

Benefits of Walking and Bicycling

Walking is the most fundamental of all transportation modes and part of nearly every trip we make. Planning for pedestrians is planning for everyone. Bicycling holds tremendous potential to increase mobility options for the relatively short trips that make up the majority of our daily travel by providing a quick and convenient way to access many destinations.

In addition to increasing mobility options, walking and bicycling generate a range of health, safety, economic development, and environmental benefits. Some of the benefits of walking and bicycling accrue directly to the individuals who choose to walk or bike. Walking or bicycling for transportation and recreation:

- Improves personal health
- Increases mobility and access, particularly for youth, older adults, the financially constrained
- Saves money on transportation
- Increases opportunities for social interactions
- Provides enjoyment

At the community level, enabling people to substitute active transportation trips for automobile trips has the potential to realize multiple public benefits such as:

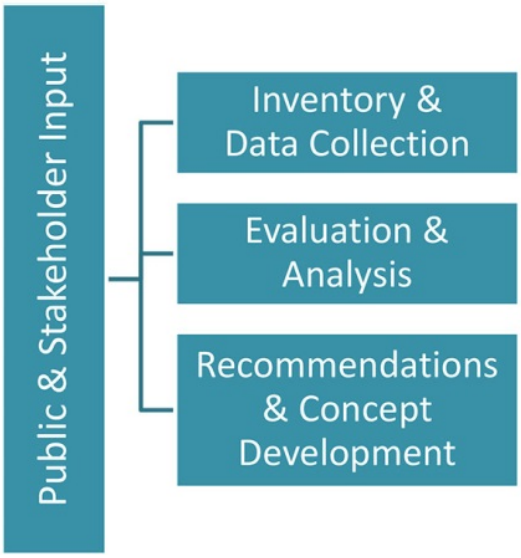
- Increased transportation options
- Improved safety for all road users
- Reduced traffic congestion
- Improved access to public transit
- Decreased air, water, and noise pollution
- Support of climate change goals through reduction of CO_2 emissions
- Stimulation of the local economy
- Increased opportunities for tourism
- Revitalization of urban areas
- Decreased road maintenance costs
- Avoidance of the high costs of roadway and/or transit capacity expansions

Widespread acknowledgment of these benefits has generated increased interest in and demands for better walking and bicycling conditions.

Source: Initiative for Bicycle and Pedestrian Innovation. *Creating Walkable and Bikeable Communities: A user guide to developing pedestrian and bicycle master plans.* July 2012.

Planning Process and Community Outreach

The Borough of Bay Head initiated this planning effort because of its interest in improving the transportation network for pedestrians and bicyclists. Recognizing the need for a comprehensive plan that can be used to make Bay Head more pedestrian and bicycling friendly, the Borough applied for, and was selected to receive, bicycle and pedestrian planning assistance from the New Jersey Department of Transportation's Local Technical Assistance (LTA) Program. The RBA Group (Parsippany, NJ) with assistance from Stokes Creative Group (Vincentown, NJ) was selected to develop this Bicycle and Pedestrian Plan for the Borough of Bay Head.



The planning process included an evaluation of the transportation network, utilizing existing data to establish a baseline of current bicycle and pedestrian accommodations and activity. A needs assessment of the transportation network was conducted by reviewing the existing conditions and identifying opportunities and constraints for future improvements. This evaluation and analysis identified barriers, gaps in connectivity, and assessed the overall suitability of the existing infrastructure for bicycling and walking. Existing conditions, opportunities and constraints are discussed in detail in *Chapter 3 – Evaluation and Analysis*.

Public participation provided the foundation to prepare this Plan. Stakeholder and community outreach was accomplished through several avenues throughout the development of the Plan. This included a steering committee, public meetings, a project website with an interactive online map (WikiMap), and surveys. Community engagement efforts are described below.

Steering Committee

The first step in the planning process was to establish a Steering Committee to guide the development of the Plan. The Steering Committee was comprised of the Mayor, representatives of the Council, Police Department, Public Works Department, Planning Board, School Association, School Foundation, Bay Head Improvement Authority, representatives of the local pedestrian and bicycling community (GO Bay Head!, The Seaweeders, Bay Head Momentum), the Greater Mercer Transportation Management Association (TMA), Ocean County Departments of Planning and Engineering, NJ TRANSIT, and NJDOT.

The Steering Committee was instrumental in guiding project development. In addition to attending a kick-off meeting and a wrap-up meeting, committee members provided direction on key destinations, opportunities and constraints to walking and bicycling, outreach, and final document review. A summary of both steering committee meetings is included in *Appendix E – Meeting Summaries*.

Pre-Workshop Bicycle Ride

Prior to the first public meeting, the RBA Group led a bicycle ride around town with members of the Steering Committee. The purpose of the ride was to gain insight from the Steering Committee on issues related to bicycling and to demonstrate the efficacy of potential design treatments along selected corridors. Duct tape was used to simulate temporary roadway striping. The tape was removed after the field test.

Public Meetings

Two public meetings were held during plan development, one near the beginning of the project and another after draft recommendations were developed. Both meetings were "open house" format and held at the Fire House. Summaries of the meetings are included in *Appendix E – Meeting Summaries*.

Public Meeting #1 - Visioning Workshop

A public Visioning Workshop was held in early June to introduce the plan to the public and to provide an opportunity for public input on visioning, goals, and priorities for addressing bicycle and pedestrian travel needs in Bay Head.

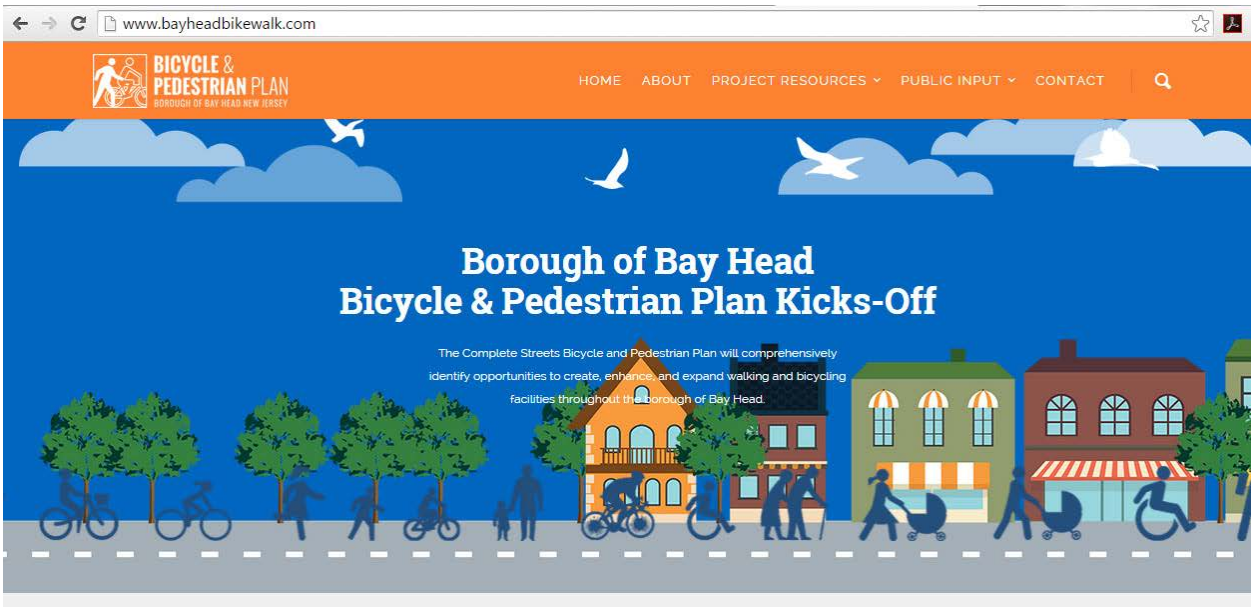
Poster boards and other materials explaining the project purpose, existing conditions, design treatments and Complete Streets were set up around the room. Attendees circulated at their own pace and the Project Team and Steering Committee members were available to answer questions and discuss issues. In addition, the public was asked to mark-up maps with destinations, opportunities and constraints and provide ideas for the vision and goals. Two short presentations provided an overview of the project. Feedback received at this workshop was used to draft the vision, goals, and objectives and inform the existing conditions technical memorandum.

Public Meeting #2 – Public Information Center (PIC)

A second open house was held in late August to present the infrastructure and programmatic recommendations to the public and to get the public's feedback on the proposed concepts. Approximately 70 people attended the PIC. Based on comments received at the meeting, additional concepts were developed for the area around Clayton Avenue, Johnson Street, and Lake Avenue. It should be noted that Clayton Avenue was the site of a serious bike accident involving a 10-year-old girl two weeks prior to the PIC and was a focus of the meeting.

Project Website

The website www.bayheadbikewalk.com was developed to provide a location for the public to stay informed about the project, review documents, and to provide input on bicycling and walking routes, opportunities and constraints. The project website hosted an electronic survey designed to assess community preferences for infrastructure improvements and an interactive map (WikiMap) that allowed visitors to indicate problem locations and propose facilities. The materials presented at the Visioning Workshop, including a video of the presentation, and the Public Information Center were posted on the project website.



Surveys

Development of the Plan was also guided by responses to three different surveys developed by the project team – a student survey, an online survey and an intercept survey.

Student Survey

A student survey was distributed to students in Grades 4 through 8 to gain insight on favorite walking and bicycling destinations, problem streets and intersections, and what they think would make bicycling and walking safer and easier. The surveys were handed out during the school's annual Bike Week in May and were filled out by 75 students. Some responses from the survey include:

- Almost all of the students (95%) ride a bike. 93% say they ride because it is fun. 57% said it's the easiest way to get around.
- Most (72%) of the students reported that they ride in the streets. Only 28% say they ride on the sidewalk.
- The top destinations for both walking and bicycling were the beach, Mueller's Bakery, and their friend's house.
- The students indicated that the following improvements would make bicycling safer and easier: bike lanes (74%); less traffic (60%); more paths and trails (53%)
- The students indicated that the following improvements would make walking safer and easier: more paths and trails (55%); less traffic (55%); more benches and places to hang out (51%); and more crosswalks (51%).

Online Survey

An online survey hosted on the project website was developed early in the planning process as a way for the general public to submit comments about the existing conditions and to suggest improvements. There were 38 submissions. Results from the survey include:

- In order to improve bicycling, 70% of respondents indicated that the Borough should spend money on creating an on-street bicycle network within the Borough. This was closely followed by increasing the safety at key intersections.
- In order to improve walking, almost 60% of people would like the Borough to spend money to increase the safety at key intersections. This was followed by providing safe walking routes to the beach.

Intercept Survey

An intercept survey was conducted concurrent with the Public Information Center. The purpose of the intercept survey is to gain insight into the perspectives of residents and seasonal visitors regarding bicycling and walking in Bay Head, both current conditions and a future vision. There were 27 respondents to the survey. Key findings from the survey include:

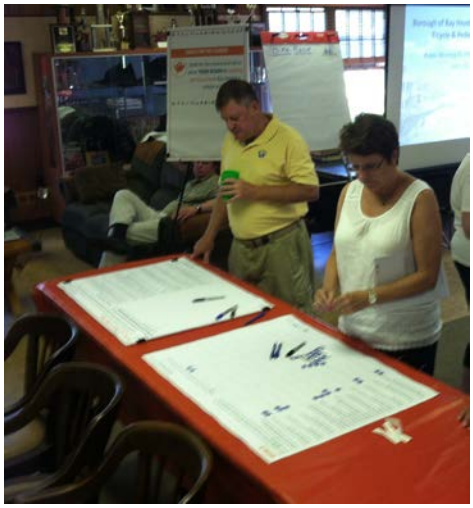
- Almost 90% of respondents said that improving walking and bicycling in Bay Head is very important.
- While almost 60% of people felt that walking conditions in Bay Head are good, only 28% thought bicycling conditions were good.

CHAPTER 2 - VISION, GOALS AND OBJECTIVES

This chapter presents the *Borough of Bay Head Bicycle and Pedestrian Plan's* vision statement, goals and objectives. The vision statement expresses the community's aspirations and future intentions regarding walking and bicycling. The goals provide general directives and the objectives are specific measurable actions that can be taken to achieve Bay Head's bicycling and pedestrian vision.

During the public visioning workshop in June, attendees were asked to vote for their favorites among a list of goals, write key words related to their vision for walking and bicycling in Bay Head, and provide a video testimonial related to their vision. Some key themes that emerged at the workshop included:

- Community/Small town feel/Heritage
- Safety
- Connectivity
- Fun/All ages
- Economic vitality
- Ecology/Environment



The vision, goals, and objectives were crafted based on the key themes listed above and the ideas about bicycling and walking that were articulated in the Borough's LTA application to NJDOT. The vision, goals and objectives were also written to be consistent with Borough plans and programs.

Vision Statement

The Borough of Bay Head Bicycle and Pedestrian Plan is guided by the following vision statement:

> *"Bay Head is a community where walking and bicycling is safe, convenient and enjoyable for residents and visitors of all ages and abilities. The Borough's transportation network connects people to places, supports the local economy, enhances the wellness of its residents, benefits the environment, and preserves its identity as a quiet and charming, seaside town."*

Goals and Objectives

Goals and objectives were established to help the Borough accomplish its vision.

Goal #1 - Develop a safe and continuous bicycle and pedestrian network.

Objectives

- Implement a bicycle network that supports a range of bicycling abilities and interests.
- Close gaps in the sidewalk network.

- Improve the safety of pedestrian crossings.
- Ensure all new pedestrian facilities are ADA compliant.
- Establish and integrate maintenance procedures for bicycle and pedestrian facilities to ensure their long-term safety and effectiveness.
- Improve access to the train station for pedestrians and bicyclists.
- Provide wayfinding tools for pedestrians and bicyclists.
- Investigate the feasibility of off-street shared use paths.
- Coordinate bicycle and pedestrian accommodations with neighboring municipalities and the County.

Goal #2: Educate all users on their rights and responsibilities.

Objectives

- Work with the police department and community partners to encourage and enforce safe driving and bicyclist and pedestrian traffic behaviors.
- Initiate targeted outreach to summer residents and visitors to educate and encourage safe walking and bicycling with an emphasis on increasing youth awareness of their safety, rights, and responsibilities.
- Continue teaching students at the Bay Head School important lifelong bicycling and walking safety skills through education programs including Bike Safety Week.
- Decrease the number of crashes involving bicyclists and pedestrians.

Goal #3: Foster a culture that values walking and bicycling for fitness and transportation.

Objectives

- Host local walking and bicycling events.
- Encourage walking and bicycling to community events.
- Provide easily accessible information about walking and bicycling in Bay Head.
- Continue to support GO Bay Head!
- Incentivize people to walk and bike to local shops by offering discounts or other rewards.
- Support the Safe Routes to School Program at Bay Head School including “Walking Wednesdays.

Goal #4: Integrate bicycle and pedestrian planning into Bay Head’s planning process.

Objectives

- Incorporate and adopt the Bicycle and Pedestrian Plan into the Municipal Master Plan.
- Adopt and implement a Complete Streets Policy.
- Ensure all new development and redevelopment projects include bicycle and pedestrian considerations.
- Work with the Ocean County Department of Engineering and the New Jersey Department of Transportation to ensure all street design, construction, and maintenance projects within the Borough advance the vision and goals of the Bicycle and Pedestrian Plan.

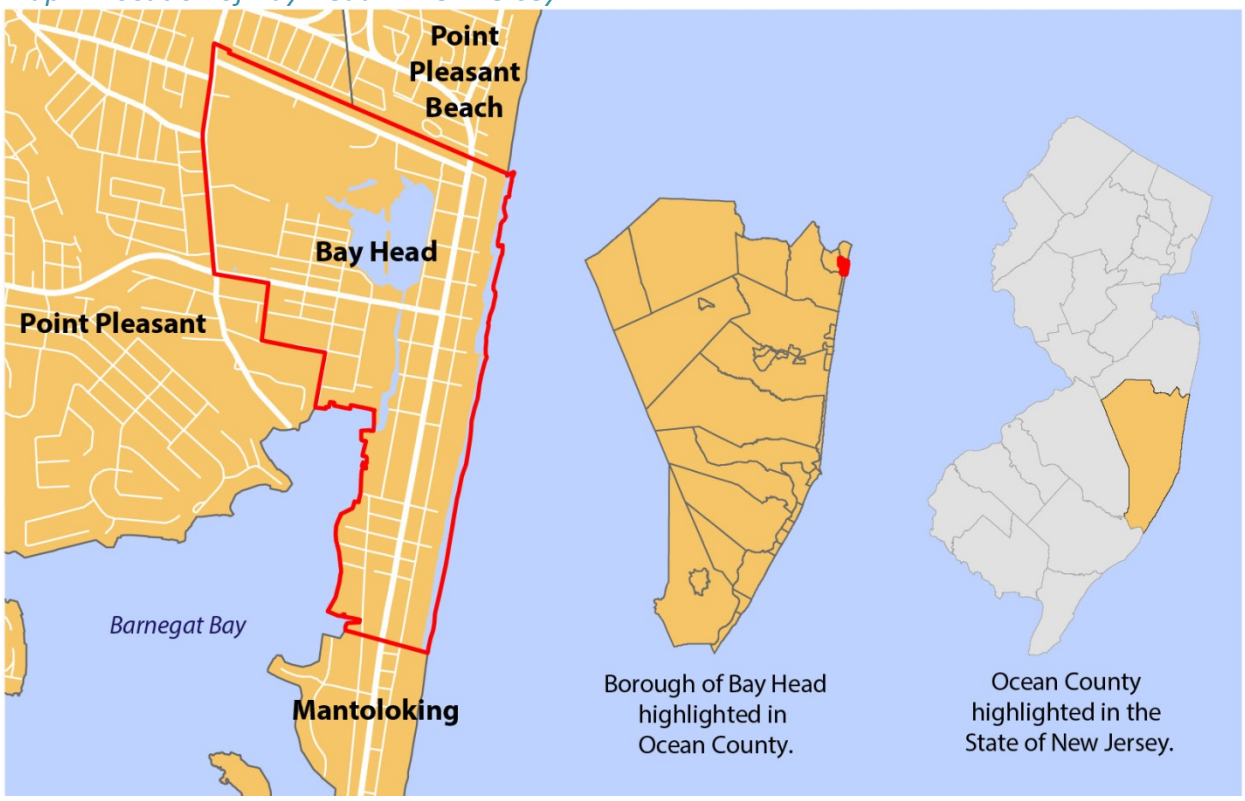
CHAPTER 3 – EVALUATION AND ANALYSIS

This chapter summarizes the existing conditions and presents opportunities and challenges for pedestrians and bicyclists. It includes background information about the Borough and its residents as well as the condition of the transportation network. The evaluation included data collection and a review of plans, ordinances, and programs related to bicycling and walking; a summary of the existing bicycle and pedestrian facilities; analysis of bicycle and pedestrian crash data; and field visits to observe the pedestrian and bicyclist environment.

Setting and Context

The Borough of Bay Head is a *traditional coastal community* located on the Barnegat Peninsula, a long, narrow barrier island that separates Barnegat Bay from the Atlantic Ocean, in Ocean County along the New Jersey shore. It shares its municipal borders with Point Pleasant Beach and Point Pleasant to the north; Mantoloking to the south; and Point Pleasant to the west.

Map 1: Location of Bay Head in New Jersey



Walking and bicycling are popular activities in Bay Head, and there are many initiatives and programs that support pedestrians and bicyclists. Foremost is GO Bay Head!, an initiative to encourage residents to remain physically active every day and to make healthy food choices. GO Bay Head! publishes walking and bicycling tour maps and since 2011, the Mayor has led weekly "Walk with the Mayor" events as part of the effort. In addition, the school has an active Safe Routes to School Program which includes "Walking Wednesday's" and bike safety education each year during May.

Land Use

Bay Head's *compact size (0.7 square miles), flat terrain, historic buildings and grid street network are ideally suited for walking and bicycling*. The primary land use in the Borough is single-unit, medium density, residential. Bridge Avenue serves as the Town Center and is the main commercial street in Bay Head with retail shops, restaurants, the Fire House, and Town Clock. A new Borough Hall is currently under construction in the Town Center. Commercial activity is also located on Mount Street and along Route 35 (Main Avenue).

Open space and recreational uses are clustered in the center of town along the Bay and Scow Ditch, the narrow waterway connecting Twilight Lake to Barnegat Bay. Twilight Lake, wetlands and NJ TRANSIT's rail yard and reversing loop take up most of the land use in the northern part of town.

The Bay Head Chapel

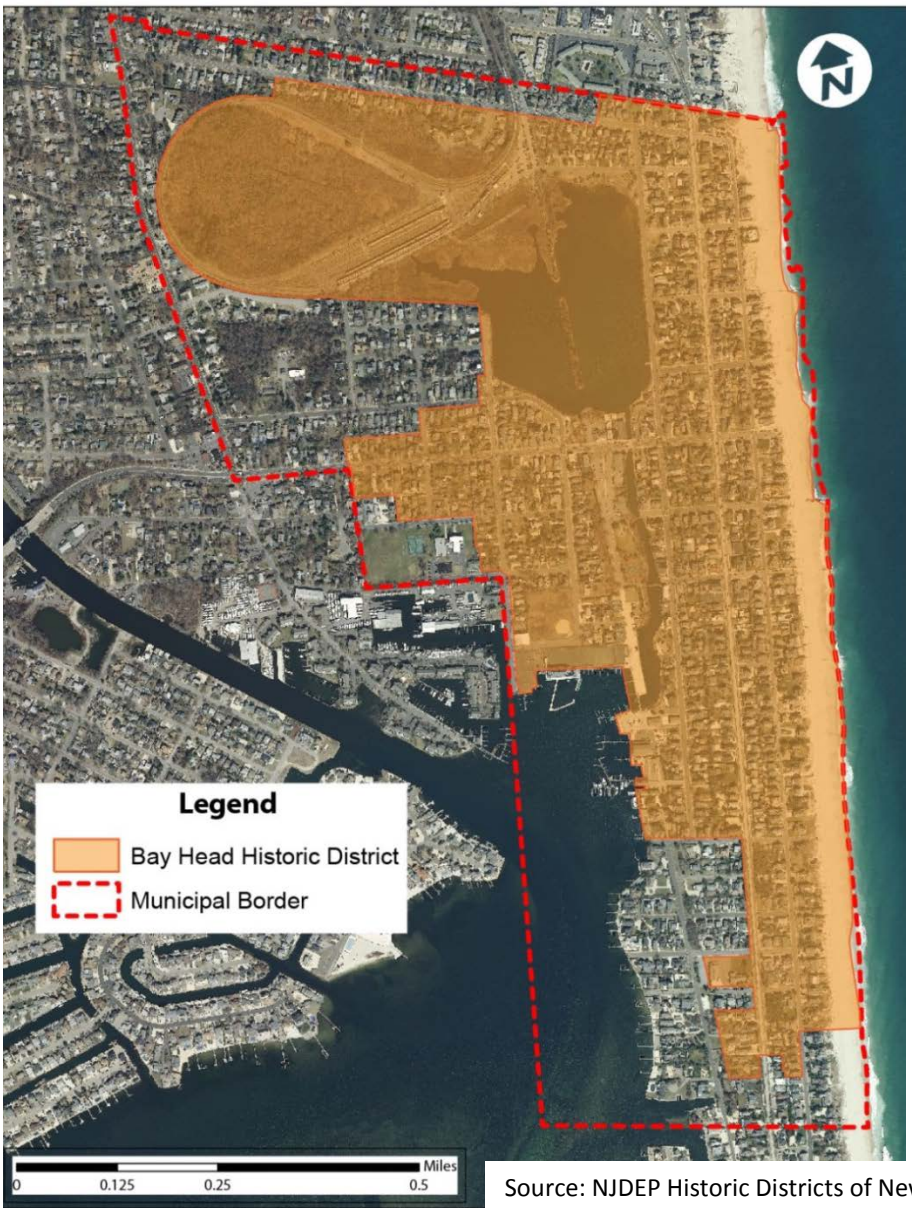
Example of a Residential Home

Looking north along Scow Ditch

Historic District

The Bay Head Historic District, listed in the New Jersey and the National Registers of Historic places in 2005, includes most of the land area within the municipality. *Bay Head's walkability is partially a result of the guidelines enacted be the Bay Head Land Company at the time of its development* including small, uniform lots with minimal setbacks at the sides and fronts, larger setbacks on corner lots to protect the viewshed, buildings with porches and balconies, and a landscaped street grid.

Map 2: Bay Head, NJ Historic District



Source: NJDEP Historic Districts of New Jersey (Edition 2011)

Street design impacts walkability. Both the physical connectivity (the density of intersections) and the visual connectivity (the number of destinations that can be seen) of the street have a significant impact on pedestrian volume. Streets that create longer vistas attract more pedestrians.

Key Bicycle and Pedestrian Destinations

Current travel patterns provide the context for evaluating the type of improvements that may be most effective in making Bay Head more pedestrian and bicycle friendly. Activity generators are listed below.

- Town Center (shops, fire station, municipal building, and parking lot along Bridge Avenue)
- Train Station
- Twilight Lake
- Centennial Park
- Mount Street shopping
- Bay Head School
- Beaches
- Post Office
- Library
- Tennis Courts
- Bed & Breakfasts (4)
- Yacht Club
- Churches (4)
- Recycling Center and Evergreen Park
- Bay Head Historical Society and the NJ Boating Museum (both are located just over the border in Point Pleasant)

Beach

Centennial Park

Train Station

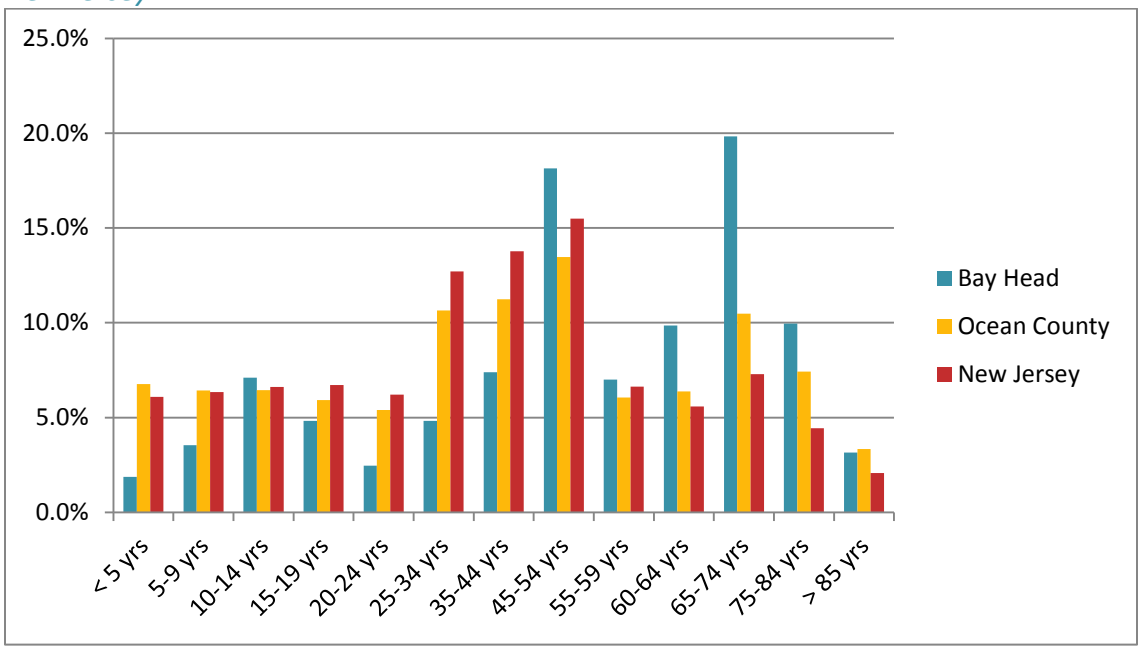
Town Center

Population Data

The year-round population of the Borough was estimated to be 1,014 by the U.S. Census Bureau's 2013 American Community Survey (ACS). Of the year-round residents, *Bay Head has a greater share of residents aged 65 or older (33%) than does the County (21.2%) or the State (13.8%) and the number of residents aged 65 and older is growing at a faster rate than the County or State.*

Bay Head's year-round population is approximately 1,000 but swells to over 10,000 during the summer months.

Figure 1: Age Distribution in Bay Head, Ocean County and New Jersey.



Source: U.S. Census Bureau 2009-2013 American Community Survey 5-Year Estimates

In 2010, *half of Bay Head's 1,023 housing units were categorized for seasonal or occasional use*. Combining the year-round and seasonal populations with the substantial influx of day visitors attracted to the community's beaches and shops can yield a summer population of over 10,000. This exceeds the year-round population by a factor of ten.

Commuting Characteristics

The U.S. Census collects information about the primary mode that residents use when commuting to work. While this provides important data about commute trips, it only tells us about those residents who are employed. This does not capture the many walking and bicycling trips that residents take to school, shopping or for recreation.

As *Table 1* shows, most Bay Head residents drive alone to work at the same rate as the state but lower than the county or national figures. *A slightly larger share of residents reported bicycling to work in Bay Head than the county, state or nation, but a smaller share walk to work*. However, Bay Head has a larger percentage of workers who commute by transit. NJ TRANSIT's North Jersey Coast Line terminates at the Bay Head station and provides service to Penn Station

Newark, Hoboken Terminal and Penn Station New York in Midtown Manhattan as well as Monmouth, Middlesex and Union Counties. There is no bus service (NJ TRANSIT or Ocean Ride) in Bay Head so it can be assumed that the 13.3% of residents using transit are commuting by rail. Walking and transit are complementary modes – all transit passengers are also pedestrians at some point on their journey, whether it is walking from their home or parked car to the transit station.

Table 1: Work Commute Trip Mode Share

Location	Bike	Walk	Drove Alone	Carpooled	Transit	Work from home
Bay Head	0.8%	0.8%	71.9%	5.6%	13.3%	6.6%
Ocean County	0.5%	1.5%	82.1%	8.3%	2.1%	4.5%
New Jersey	0.4%	3.1%	71.9%	8.4%	10.8%	3.9%
United States	0.6%	2.8%	76.3%	9.8%	5.0%	4.3%

Source: U.S. Census Bureau 2009-2013 American Community Survey 5-Year Estimates

Street Network

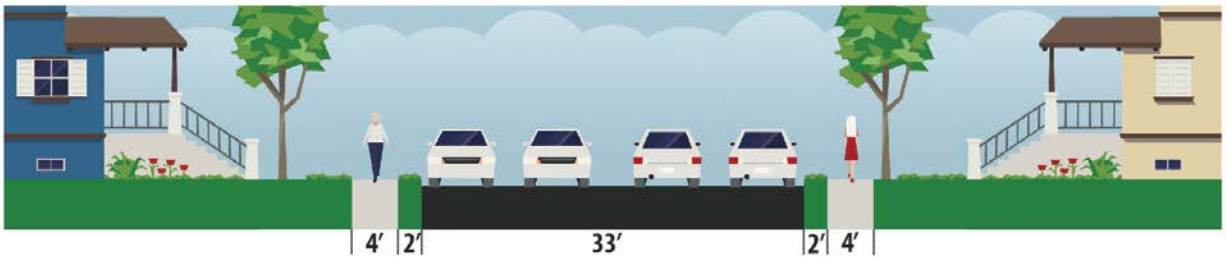
Bay Head benefits from having a grid-like network of streets with sidewalks along both sides of most streets. The grid allows pedestrians and bicyclists to travel between destinations along a choice of routes. The grid features mostly two-way streets that are mainly stop controlled. There are six traffic signals in town, four of which are along Route 35. Streets can be divided into three categories: Major Roadways (or State Highway), Collector Streets (or County Routes) and Neighborhood Streets (or Local Streets). See *Map 3: Street Map*.

Map 3: Street Network

Neighborhood Streets

The majority, 7.87 of the 11 miles or 71%, of the street network is composed of Neighborhood or Local Streets with 25 mph speed limits. Most of these streets are 33-34' wide, do not have centerline striping, typically permit on-street parking, and have sidewalks with small planting strips on both sides of the street.

Typical Cross Section of a Neighborhood or Local Street



Typical Image of a Neighborhood or Local Street

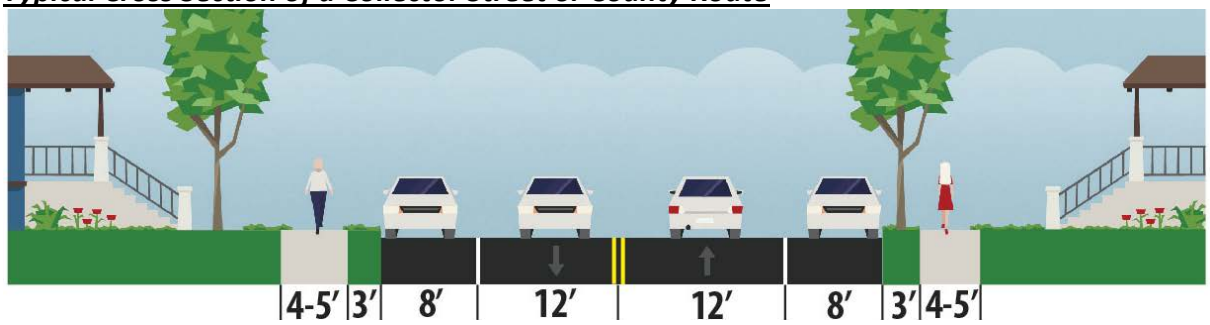
Image: Google Streetview of Club Drive

East Avenue, located adjacent to the beach, differs from the typical neighborhood street. The one way, southbound street is 28' wide and restricts parking on the east side of the road.

Collector Streets

The Collector Streets are Bridge Avenue (County Route 632/State Route 13), Bay Avenue (County Route 604), and Osborne Avenue (County Route 2). All three of these County Routes have two 12' travel lanes, one in each direction. Parking is permitted. Together they represent 16% of the roadway mileage in the borough.

Typical Cross Section of a Collector Street or County Route



Typical Image of a Collector Street or County Route

Image: Google Streetview

Major Roadways

Route 35 (Main Avenue) is the only Major Roadway in town. The state highway connects Bay Head to destinations north and south along the shore. It was just reconstructed by NJDOT and is not a focus of this effort. The 1.25 mile segment in Bay Head has:

- Two 10' travel lanes and two 10' shoulders (on-street parking permitted)
- Sidewalks on both sides of the street
- Four signalized intersections with diagonal curb ramps (a single curb ramp that is located at the apex of the corner at an intersection) and standard crosswalks across all four legs
- Ten unsignalized intersections with curb ramps and standard crosswalks for crossing the side streets only. There are no striped crosswalks or ADA accommodation across Route 35 at the unsignalized intersections.
- Shared lane markings (sharrows) and Share the Road signs

NJDOT plans to upgrade the existing signals as part of a future project. There are buffered bike lanes along Route 35 to the south in Mantoloking.

Bicycle Accommodations

Separated bicycle facilities, such as bike lanes or off-street paths, are limited in Bay Head. There is one designated bike route in town. Built in 2001, the 9' wide path connects the municipal buildings to Club Drive. The path goes along Centennial Park and is a popular route for students traveling to and from school and for members traveling to the yacht club. However, the pavement markings are faded and outdated. The diamond symbol is no longer used to indicate a path for non-motorized travel.

A bike route connects Club Drive, Centennial Park, Lake Avenue, and the municipal complex.

Shared lane markings or sharrows and "Share the Road" sign assemblies are located along Route 35. Shared lanes markings provide a degree of guidance to bicyclists and motorists. They reinforce the legitimacy of bicycle riding on the street and alert motorists to the presence of bicycle traffic. Shared lane markings reduce the incidence of wrong-way bicycling and provide a visual reference for bicyclists to position themselves appropriately within the travel lane, reducing the chance of conflict with traffic or impact with open doors from parked cars.

On most streets in the Borough, bicyclists and motor vehicles share the same travel lane. With their low traffic volumes and speeds, *they are generally suitable for bicycling*. Other design features that make some of these shared lanes more compatible with bicycling include good pavement quality, adequate sight distances, and bicycle-compatible drainage gates. In addition, the grid street network offers good connectivity which allows bicyclists to avoid higher volume streets. For example, East Avenue, Lake Avenue and Clayton Avenue provide an alternative to Route 35 and are popular routes for bicyclists.

Bicyclist Level of Traffic Stress

As noted above, most neighborhood streets in the Borough are generally suitable for bicycling. This is compatible with the rating criteria of Bicycle Level of Traffic Stress (LTS), which measures the amount of stress, or discomfort, a bicyclist is expected to feel while riding.[1]

Levels of traffic stress range from 1 to 4 as follows:

- LTS 1: A level that most children can tolerate.
- LTS 2: A level of traffic stress that most adults can tolerate, particularly those sometimes classified as "interested in bicycling but concerned."
- LTS 3: The level tolerated by American cyclists who are "enthused and confident" but still prefer their own dedicated space for riding.
- LTS 4: A level tolerated only by those characterized as "strong and fearless."

The LTS when riding in mixed traffic depends on traffic speed and street width (number of lanes).

Table 2: Level of Traffic Stress in Mixed Traffic

Speed Limit	Street Width		
	2-3 lanes	4-5 lanes	6+ lanes
≤ 25 MPH	LTS 1* or 2*	LTS 3	LTS 4
30 MPH	LTS 2* or 3*	LTS 4	LTS 4
≥ 35 MPH	LTS 4	LTS 4	LTS 4

* Use lower value for streets without marked centerlines and with ADT ≤ 3,000; use higher value otherwise.

Shared streets (streets without a marked centerline) are considered less stressful than shared lanes, because a marked centerline gives the appearance of reserving space for motor traffic; by contrast, *the lack of a centerline guides motorists to keep to the center (effectively reserving the margins for bikes) and emphasizes that road space is meant to be shared*. [2] None of the neighborhood streets/local roads have centerline markings and all have a posted speed limit of 25 MPH. The fact that almost 75% of students in the survey reported that they ride in the street and not on the sidewalk is evidence of a low-stress environment.

If traffic volumes on streets without a marked centerline are above 4,000 vehicles per day, traffic tends to divide into two lanes even if a centerline isn't marked and start to encroach on the margin for bikes. Traffic volumes increase during the summer months and this can affect the level of stress, particularly on Lake Avenue, Clayton Avenue, Osborne Avenue, and East Avenue. As the volume of all users increases, maintaining a low level of stress requires enhancements. Accommodating this influx of seasonal visitors safely and conveniently is a priority of this Plan and is discussed in *Chapter 4 – Recommendations*.

[1] Mineta Transportation Institute. *Low-Stress Bicycling and Network Connectivity*, May 2012.
[2] Furth, Peter G, Northeastern University and Maaza C. Mekuria, Axum Design Inc. *Network Connectivity and Low-Stress Bicycling*, Submitted to TRB for the 2013 Annual Meeting and publication in Transportation Research Record

Bicycle Parking

People must have a secure and convenient place to park their bikes once they reach their destination. Bicycle parking needs to be readily visible and self-explanatory, allow both the frame and at least one wheel of the bike to be secured with a u-style lock, and the rack should make at least two points of contact with the bike. Not having a well-planned bicycle parking option can discourage bicycling and lead to theft, damage, and locked bikes becoming an obstacle to pedestrians or damaging trees.

Bicycle racks are available at the train station, school, library, Centennial Park, and at the beach access streets during the warmer weather. A few business owners provide bike racks including Dune Grass Café, Theresa's South, and ReFind. There is also bike parking at the Bay Head Yacht Club.

The trash can is located too close to the "ribbon/wave" rack in Centennial Park.

Temporary "toast" racks are provided at the beach access locations during the summer season.

"Inverted U" racks like these at the train station are the preferred style of racks for safety and ease of use.

This custom rack at ReFind on Mount Street is fun and creative. However, it does not allow locking of the frame.

The Association of Pedestrian and Bicycle Professionals (APBP) recommends “inverted U,” “post and ring,” and “wheelwell secure” because they support the bicycle upright by its frame and enable the frame and one or both wheels to be secured. Older style racks, such as the “comb”/ “schoolyard”, “bollard”, and “ribbon /wave” are not recommended because they do not properly support the bicycle frame, generally do not facilitate locking of the frame to the rack, and frequently cause interference between the handlebars of adjacent bikes when the rack is near capacity.

Racks for All Applications

Inverted U

Post & Ring

Wheelwell-Secure

Racks to Avoid

Wave

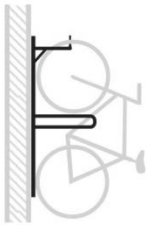
Schoolyard (comb, grid)

Coathanger

High-Density Racks

Staggered Wheelwell-Secure

Vertical



Two-Tier

Wheelwell

Bollard

Spiral

Pedestrian Accommodations

Sidewalks

The presence of a sidewalk network is an important component for a walkable environment and sidewalk completion is one way of measuring the walkability of a community. The majority of Bay Head has a connected network with sidewalks on both sides of the street and relatively few gaps. However, sidewalks are not a necessary component of every street. For example, Willow Drive and Maple Drive are low volume, low speed streets where pedestrians can safely share the roadway with motor vehicles and bicyclists. The same is true for Cranberry Avenue, Woodland Avenue, Oak Drive, Western Avenue, and Holly Avenue north of Park Avenue.

Major sidewalk gaps include:

- West side of Lake Avenue along Twilight Lake
- North side of Park avenue along Twilight Lake
- Both sides of Clayton Avenue
- Both sides of the western end of Osborne Avenue
- West side of Bay Avenue (located in Point Pleasant)

Sidewalks are not necessary on low volume, low speed streets like Maple Drive.

Crosswalks

While the ability to travel safely along the street is important, the ability to safely cross streets is as equally important. Most of the crosswalks along the Neighborhood Streets are unmarked. Most of the marked crosswalks in the Borough have standard ladder striping. High visibility crosswalks are striped at four intersections along Bridge Avenue and at the mid-block crossing of Bridge Avenue in the Town Center.

Benches along Scow Ditch offer an opportunity for people to relax and enjoy the water.

Amenities

Lighting, landscaping, trash cans, and wayfinding can also enhance the pedestrian realm. Throughout the Borough, various pedestrian amenities, such as benches, can be found in the commercial areas, along Scow Ditch and Twilight Lake and near or in parks. The need for additional trash cans along Twilight Lake was raised during the public visioning workshop, especially by dog walkers. Half of the students that took the survey indicated that more benches would make walking easier.

Crash Analysis

Crash data from Plan4Safety[3] was used to determine the frequency and location of crashes involving bicyclists and pedestrians from 2004-2014 (inclusive). During this period, 26 crashes occurred of which 19 (73%) involved bicyclists and 7 (27%) involved pedestrians. None of the crashes were fatal. The following is a summary of the key findings. See *Map 4: Bicycle and Pedestrian Crash Locations (2004-2014)* on the following page. It is important to note that only accidents involving motor vehicles are included in the Plan4Safety database. So some crashes, like bicycle crashes from falls or collisions between bicyclists are not included. The crash involving the 10-year-old bicyclist that occurred on Clayton Avenue in August of 2015 is not included in the data set used in this analysis. However, this crash was considered and had great influence on the plan development and outcomes.

Key Findings

- Locations with multiple crashes include:
  - 5 bicyclist crashes occurred at the intersection of Bay Avenue (CR 604) and Osborne Avenue (CR 2)
  - 3 bicyclist crashes occurred near the intersection of Bay Avenue (CR 604) and Bridge Avenue (SR 13)
  - 3 bicyclist crashes occurred at Mount Street and Route 35
  - 3 crashes (one pedestrian and two involving bicyclists) occurred at Bridge Avenue (CR 632) and Route 35
  - 2 pedestrian crashes occurred at Forsyth Street and Route 35
  - 2 pedestrian crashes occurred in the Town Center on Bridge Avenue (CR 632)
- About 60% of crashes occurred during the summer months (Jun-Aug). August had the highest number of crashes (23%).
- Crashes occurred equally on weekdays (13) and weekends (13).
- More than 80% of crashes occurred in daylight.
- Seniors (65+) were involved in 43% of the pedestrian crashes and the remaining pedestrian crashes (57%) were between the ages of 25-64. While Bay Head has a greater share of residents aged 65 or older (33%) than does the County (21.2%) or the State (13.8%), they are still over-represented.
- Middle-school aged children (10-14) were involved in 21% of the bicyclist crashes.
- More than two-thirds of the victims in both pedestrian and bicyclist crashes were male.
- None of the crash victims were incapacitated in any of the crashes.
- About 70% of the cyclists were “going straight ahead” before the crash.

[3] Plan4Safety is a web-based platform for querying, analyzing, and displaying results from NJDOT’s crash database. It is hosted by the Center for Advanced Infrastructure and Transportation (CAIT) at Rutgers University.

Map 4: Bicycle and Pedestrian Crash Locations (2004-2014)

Environmental Conditions

Part of this planning effort included assessing the potential for developing a walking and biking path along the alignment of a former rail line between the train station and Clayton Avenue and considering the possibility of a pedestrian bridge over Twilight Lake. A preliminary, in-house environmental GIS data review was conducted to screen for endangered species, hazardous materials and open space around Twilight Lake and 200' from either side along the abandoned rail bed from the train station to the border of Mantoloking. See *Appendix D: Existing Conditions Tech Memo* for details of the computer based environmental assessment.

Findings from this desktop review provide preliminary insight into environmental permitting that may be required to advance the concept of a pedestrian bridge and perimeter path across or around Twilight Lake. Specific conclusions on the potential environmental impacts or permitting issues cannot be drawn without definitive design concepts (materials, width, height, etc.). However, a list of potential permits is provided.

Table 3: Potential Permits for a Path across Twilight Lake

Permit	Agency
1. Coastal Wetlands Permit	NJDEP
2. Freshwater Wetlands Permit (see *Table 4*)	NJDEP
3. CAFRA Permit	NJDEP
4. Waterfront Development Permit	NJDEP
5. Tidelands Conveyance	NJDEP
6. 401 Water Quality Certification	NJDEP
7. Stormwater Approval	NJDEP
8. Federal Consistency Determination	NJDEP
9. Cultural Study	SHPO
10. Section 9 Permit	U.S. Coast Guard
11. Section 404 Permit / Section 10 Permit	Army Corp of Engineers
12. NEPA Compliance Document (if federal funds are used) and Section 4(f) statement	FHWA (or lead federal agency but 4(f) only applies if FHWA or FTA)

Table 4: NJDEP Freshwater Wetlands Permits

	Path Width	Amount of Wetlands Impacted	NJDEP Freshwater Wetlands Permit Required	Overview
Shared Use	> 10’	> 0.25 acres	Individual Permit	Individual permits require an extensive alternatives analysis, are less common than general permits, and require mandatory compensatory wetland mitigation
Shared Use	> 10’	< 0.25 acres	General Permit 17a (GP17a) / Non-motorized, multiple-use paths	The width of the path is not directly specified but it must meet AASHTO requirements; makes no distinction for a publicly owned site
Pedestrian Only	≤ 6’	No disturbance limit if the site is publicly owned	General Permit 17 (GP17) / Trails and boardwalks	The width of a trail/boardwalk under a GP17 is limited to 6 feet; GP17 requires that educational features are incorporated along the trail/boardwalk

The federal and state processes for advancing projects from concept to construction are similar. Advancing a concept requires the development of alternative designs to the extent that detailed technical studies can be done to determine specific impacts and their extent. At that time, the feasibility and the permitting processes that would be necessary can be definitively determined. Unless and until intentions and concepts are developed to the extent that alternative designs can be proposed and explored, conjecture cannot lead to valid determinations of viability or cost.

Next Steps

The Borough of Bay Head is working with NJDOT and the RBA Group on the next steps to advance a path across Twilight Lake along the alignment of the former rail line. This effort will include:

- A limited field assessment of the wetland conditions along the proposed path alignment across Twilight Lake in order to determine more accurate wetland boundaries.
- Preliminary project-specific cultural resource research for the proposed path across Twilight Lake.
- A draft alignment-specific Purpose and Need statement for the proposed Twilight Lake path.
- Identification of potential funding sources and associated Environmental Compliance documents and environmental permits necessary.

This work is occurring separately from the development of this Plan and will not be completed before this Plan is finalized.

Opportunities and Constraints

Opportunities

Bicycling and walking are currently popular activities in Bay Head, and there are many opportunities to enhance these modes within the Borough. The Borough's street grid system, itself, naturally produces an environment conducive to walking and biking with alternatives for direct connections along existing streets. The opportunities listed below are evidence that this is a thriving bicycle/pedestrian activity center which has a good foundation to build upon:

- Compact size and flat terrain.
- Existing sidewalk network is largely continuous.
- Existing on-street parking provides a buffer to pedestrians on sidewalk and slows traffic
- With their low traffic volumes and speeds, most local streets are generally suitable for bicycling.
- Active local group (GO Bay Head!) concerned about public health including bicyclist and pedestrian safety issues.
- Strong community identity.
- Three commercial districts including an active Town Center.
- East Avenue is wide enough to accommodate a dedicated bicycle facility.
- Scenic waterfront along Twilight Lake.
- Substantial portion of the Borough is included on the State and National Historic Register.
- Where buildings have been elevated, grading and landscaping or adding stoops and porches can create visual interest for pedestrians and enliven the sidewalk.
- Potential for a walking path over Twilight Lake between the train station and Town Center along the former rail line.

Constraints

Another component to improving conditions is identifying constraints, or barriers, that limit bicycle and pedestrian travel. Physical barriers can be infrastructure or land use in nature. Infrastructure barriers include major roadways, like Route 35. Land use barriers in Bay Head include Twilight Lake and wetlands. Resident's perceived bicycle and pedestrian barriers, such as speeding, also influence bicycle and pedestrian travel.

Some of the challenges and constraints identified in Bay Head include:

- Gaps in the sidewalk network especially along Twilight Lake and Clayton Avenue.
- Indirect connection between the Town Center and the train station.
- Congestion during the summer months (both on the roads and sidewalks).
- Pedestrians walking in the street; bicyclists riding on the sidewalk.
- Unmarked crosswalks.
- Missing curb ramps and detectable warning surfaces.
- Signalized intersections without pedestrian countdown signals.
- Motorists failing to stop for pedestrians in crosswalks.
- Wrong-way bicycle riding.
- Limited bicycle parking.

- Constrained roadway widths.
- On-street parking spaces are in high demand and a long standing issue for the Borough. This Plan assumes no parking spaces will be eliminated.
- Sidewalks not cleared of snow in the winter.
- Perceived speeding along Bridge Avenue, Osborne Avenue, Bay Avenue, Lake Avenue and Clayton Avenue.
- Difficulty crossing conditions especially at:
    - Bay Avenue and Bridge Avenue,
    - Bay Avenue and Park Avenue,
    - Bay Avenue and Osborne Avenue,
    - Bridge Avenue and Lake Avenue,
    - Clayton Avenue, Johnson Street and Lake Avenue,
    - At the mid-block crossing on Bridge Avenue in the Town Center, and
    - The unsignalized intersections of Route 35.
- Lack of pedestrian and bicyclist-oriented wayfinding.
- Sign clutter.
- Seniors (65+) are over represented in the number of pedestrian crashes.
- Motorists making illegal right turns on red.
- The abandoned rail line goes through wetlands, endangered species habitats, and a municipal established wildlife sanctuary known as Kellogg Memorial Island.
- Queuing around the school before dismissal.
- Limited sight distance (curve in road) when making a left turn from Osborne Avenue onto Bay Avenue. This intersection has the highest number (5) of crashes involving bicyclists.

Based on the resources provided by the Steering Committee, information collected through the field investigation and community input obtained during the Visioning Workshop, an Existing Conditions, Opportunities and Constraints Map was prepared. *Map 5: Existing Conditions, Opportunities and Constraints* on the following page highlights landmarks, gaps in connectivity, barriers and conflict locations, desired connections and potential for enhancements.

Map 5: Existing Conditions, Opportunities and Constraints

CHAPTER 4: RECOMMENDATIONS

Recommendations Overview

Recommendations are categorized into five categories known as the 5E's (engineering, education, encouragement, enforcement, and evaluation & planning).

1. *Education* – Teaching people the skills to walk and ride safely and providing opportunities to inform Borough staff about walking and bicycling safety and design.
2. *Encouragement* - Programs, events, and policies that create a culture that welcomes and celebrates walking and bicycling.
3. *Enforcement* - Opportunities to improve compliance with walking and bicycling laws and policies.
4. *Engineering* – Creating safe and convenient places to walk and bike.
5. *Evaluation & Planning* - Ways to assess the impact of policies and measure progress and integrating pedestrians and bicyclists into planning.

The League of American Bicyclists, the Pedestrian and Bicycle Information Center, and Safe Routes to School Program promote use of all E's to foster a walk- and bike-friendly community. These programs and policies build on each other to approach walking and bicycling improvements in a holistic way.

The next two chapters of this Plan present the recommendations for the Borough of Bay Head. Recommendations are based on public input, contributions from the Steering Committee, the latest guidelines in facility planning and design, and field evaluation and analysis.

Chapter 4 identifies a priority bicycle and pedestrian network, details specific conceptual design recommendations for nine key locations, includes a map summary of the engineering recommendations, and describes programmatic (education, encouragement, enforcements, and evaluation and planning) recommendations.

Chapter 5 presents the implementation matrix and potential funding sources. The implementation matrix identifies responsible parties, timeframe for implementation, and the relative cost for each recommendation.

It is important to note that the following recommendations are considered planning-level, meaning that they should be used as a guide. Prior to advancing the physical recommendations, further data collection, analysis and survey should be completed to fully assess the impacts of the proposed recommendations. In addition, the proposed network reflects the long-term vision. Implementation will not happen overnight.

Proposed Neighborhood Greenway Network

Complete Streets are designed and operated to enable safe access for all users – pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete Streets is also an approach to transportation that ensures all future street projects will take into account the needs of all travelers, regardless of age, ability, or mode of transportation. Complete Streets does not mean that every street in every community should have sidewalks, bike lanes, and transit. There is no universal, prescriptive design. Instead design is driven by local context and demand.

Image: VTC

Image: RBA

A complete street in Madison, NJ (left) is different from a complete street in Newark, NJ (right).

By applying Complete Streets as a core, guiding principle, this Plan identifies a priority network for focusing bicycle and pedestrian improvements. The Plan refers to this priority network as the neighborhood greenway. Sometimes referred to as bicycle boulevards or neighborhood byways, this Plan chose to use neighborhood greenway to reflect enhanced conditions for both bicyclists and pedestrians.

Routes were selected for the neighborhood greenway because they are mostly low volume, low speed streets and they provide access to key destinations. However, bicyclist and pedestrian comfort and safety can be enhanced through a combination of signs and pavement markings, traffic calming strategies, and crossing and intersection treatments. These minor, cost-effective treatments not only benefit pedestrians and bicyclists, but also help create and maintain "quiet" streets that benefit residents and improve safety for all road users.

See *Map 6: Proposed Neighborhood Greenway Network* on the following page. The labels on the map correspond with typical greenway design elements described in the next section.

A growing concept in the transportation field is the idea of "8 to 80" places – if you create a place that's good for an 8 year old and good for an 80 year old, you will create a successful city for everyone. Neighborhood greenways are intended to appeal to casual, inexperienced and younger bicyclists who would not otherwise be willing to ride with motor vehicle traffic.

Map 6: Proposed Neighborhood Greenway Network

Design Elements

Neighborhood greenways use signs, pavement markings, and speed and volume management measures to discourage through trips by motor vehicles and create safe, convenient crossings of busy streets. The type of treatment depends on the corridor. Some streets in Bay Head already have conditions optimal for a neighborhood greenway and require little more than signage and pavement markings. Other streets will require design treatments that reduce traffic speeds or volumes.

The following section describes common design elements that should be implemented along the entire neighborhood greenway as well as recommendations for specific intersections and corridors.

Benefits of Neighborhood Greenways

- Improve safety
- Effective at increasing bicycling levels
- Can be implemented with minor changes to street configurations
- Slower vehicle speeds reduce risk of serious collisions
- Since they are shared facilities, no additional street width is needed
- Can be combined with greening efforts (trees and landscaping)
- Help people walking and bicycling cross streets more easily
- Tend to increase property values along the network
- Discourage cut-through traffic
- Protect the residential character of neighborhoods
- Minimal, if any, on-street parking impacts

Coordination with Neighboring Jurisdictions and Other Agencies

As bicyclists and pedestrians leave Bay Head, they should be able to ride or walk on similar facilities, rather than having a sidewalk or traffic calming treatment end at the border. Routes within the proposed greenway network that require coordination with adjacent jurisdictions and other agencies are listed below.

Street	*Coordinating Municipality / Agency*
Bridge Avenue	Point Pleasant / Ocean County
Bay Avenue	Point Pleasant / Ocean County
East Avenue	Mantoloking
Clayton Avenue	Mantoloking

Signs and Pavement Markings

Signs and pavement markings are the basic elements of a neighborhood greenway. The purpose of signs and pavement markings is to identify the network to bicyclists, pedestrians, and motorists and reinforce the intention of priority for bicyclists and pedestrians. Distinctive signs also help "brand" the greenway network.

Identification Signs

Image: NACTO

Description

Custom colors, designs and graphics can be used along the neighborhood greenway without creating sign clutter.

Proposed Location

- Entire Network

Pavement Markings

Image: City of Minneapolis

Description

Large bicycle pavement markings alert motorists to the likely presence of bicyclists on the street.

Proposed Location

- Entire Network

Painted Intersections

Image: Laura Torchio

Description

Painted intersections, or street quilts, improve road safety, bring communities together, and are an opportunity for branding.

Proposed Location

- Mount Street & Lake Avenue
- Club Drive & Grove Street

Pedestrian Accommodations

Streets that are part of the neighborhood greenway network should have smooth, well-maintained sidewalks with curb ramps, high-visibility crosswalks, and should be enhanced with street furniture, street trees, and landscaping. Elimination of gaps in the sidewalk network along the proposed greenway should be prioritized.

Sidewalks

Image: RBA

Description

Sidewalks should be a minimum 5' wide in residential areas and 8' wide in commercial areas.

Proposed Location

- Entire Network

High-Visibility Crosswalks

Image: RBA

Description

High-visibility crosswalks are more easily detected by motorists and have been shown to lead to a reduction in pedestrian-vehicle crashes.

Proposed Location

- Entire Network

Streetscape Enhancements

Image: NACTO

Description

Landscaping provides a more pleasant environment for bicycling, walking and driving and can provide habitat connectivity by increasing green space.

Proposed Location

- Entire Network

Crossings and Intersections

Neighborhood greenways should have right-of-way priority (where practical) and minimize delay by limiting the number of stop signs along the route.

Neighborhood Traffic Circle

Image: Chicago47.org

Description

Neighborhood traffic circles reduces speeds and user conflicts. They can also be an opportunity for landscaping.

Proposed Location

- Park Avenue and Holly Avenue

Curb Extension with Bicycle Forward Stop Bar

Image: RBA

Description

Curb extensions visually narrow the street, reduce the crossing distance and can increase the amount of space for street furniture and landscaping.

Proposed Location

The following intersections with Bridge Avenue:

- Holly Avenue
- West Lake Avenue
- Park Avenue/Club Drive

Bicycle Forward Stop Bar

Image: NACTO

Description

A bicycle forward stop bar improves bicyclist's view of cross traffic.

Proposed Location

- Osborne Avenue at Bay Street
- Park Avenue at Bay Street

Traffic Calming (speed and volume management)

Neighborhood greenways should have a maximum posted speed of 25 mph. However, a 15 or 20 mph speed limit is preferred. Lower speeds reduce the likelihood that crashes will occur, by increasing drivers' response time, and if they do occur, lower speeds decrease the likelihood of a serious injury resulting from a crash. Volume management treatments are typically used on streets that exceed 3,000-4,000 vehicles per day.

Lower Speed Limit

Image: RBA

Description

Ocean City, NJ has set a 15 mph speed limit on the Haven Avenue Bicycle Boulevard.

Proposed Location

- Entire Network

Partial Closure

Image: NACTO

Description

Partial closures reduce traffic volumes by restricting vehicle access while allowing bicyclists full passage. Closures can be temporary and can be designed to allow emergency vehicle access.

Proposed Location

- To restrict motor vehicles from traveling northbound on Lake Avenue from Johnson Street

Speed Humps

Image: NACTO

Description

Speed humps prevent motor vehicles from speeding through neighborhoods and generally have a negligible impact on the amount of time it takes for residents to access their property.

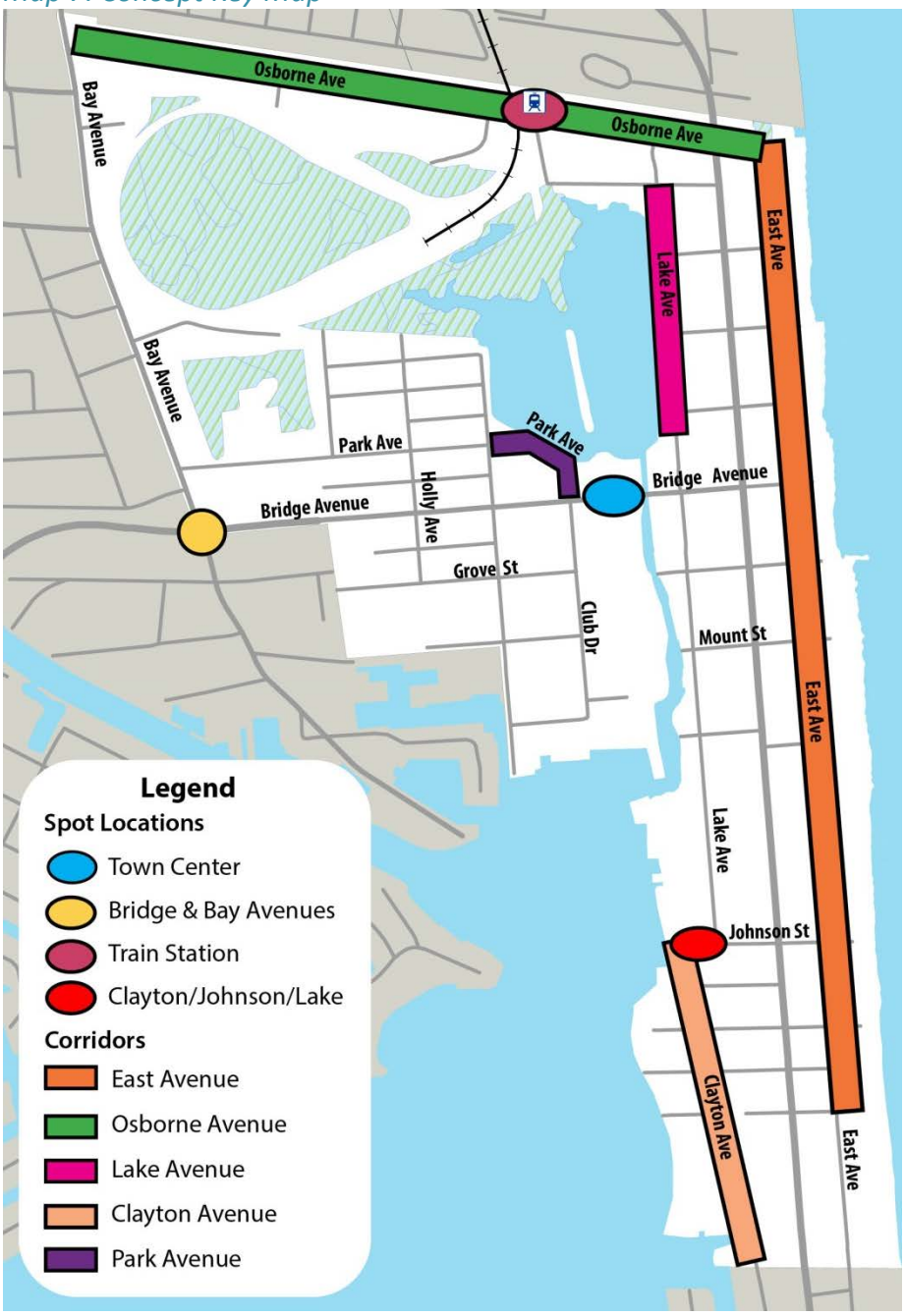
Proposed Location

- Clayton Avenue
- Lake Avenue

Concepts

In addition to the neighborhood greenway recommendations, concept level plans were developed for nine locations and corridors of significant bicycle and pedestrian concern within the Borough. The locations were chosen based on stakeholder and public input and network analysis. The concept plans illustrate the existing issues and highlight the proposed conceptual solutions and ideas that would improve bicycle and pedestrian safety and accessibility. The key map below shows the nine concept areas. The conceptual design recommendations follow. Order does not reflect priority.

Map 7: Concept Key Map



Concept 1: Town Center Mid-Block Crossing Enhancements

Existing Conditions

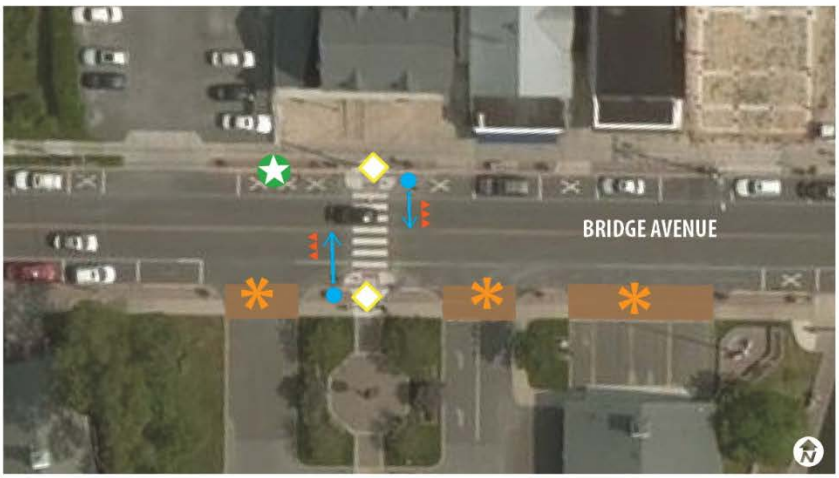
Description & Issues

- High pedestrian, bicyclist and motorist activity.
- Two crashes involving pedestrians have occurred at the mid-block crossing.
- Bicycle parking is limited.
- Motorists often fail to stop for pedestrians waiting to cross at the mid-block crossing. The In-Street Pedestrian Signs are mounted on the side of the road.
- The sidewalk does not contine across the driveways to the municipal lot and fire station.

Aerial

Proposed Improvements

Conceptual Plan



- Move the In-Street Pedestrian Crossing signs to the roadway centerline at the crosswalk location (see MUTCD Section 2B.12)
- Supplement the Pedestrian Crossing Warning signs with Rectangular Rapid Flashing Beacons (RRFB). RRFBs increase driver stopping behavior at crosswalks.
- Add a bike corral along the north side of Bridge Avenue to the west of the mid-block crossing to increase bicycle parking without losing car parking or sidewalk space
- Continue the sidewalk across the driveway aprons to the municipal lot and fire station. Designing driveway crossings for pedestrians reduces conflicts with cars by reminding motorists that they are crossing the pedestrian realm. Consider narrowing the driveway entrance and exit to one lane.
- Add yield lines at the mid-block crosswalk to reinforce priority for pedestrians at that location and reduce conflicts between motor vehicles and pedestrians.

Paint "Walk Bikes" and "Look" sidewalk markings.

Example of a Bike Corral

Source: HobokenNJ.org

Example of an In-Street Pedestrian Crossing Sign placed on the Center Line

Source: RBA

Example of Sidewalk Markings

Source: RBA Group

Source: FHWA

Example of RRFB

Source: LincolnNE.gov

Concept 2: Bridge Avenue and Bay Avenue Intersection Improvements

EXISTING CONDITIONS

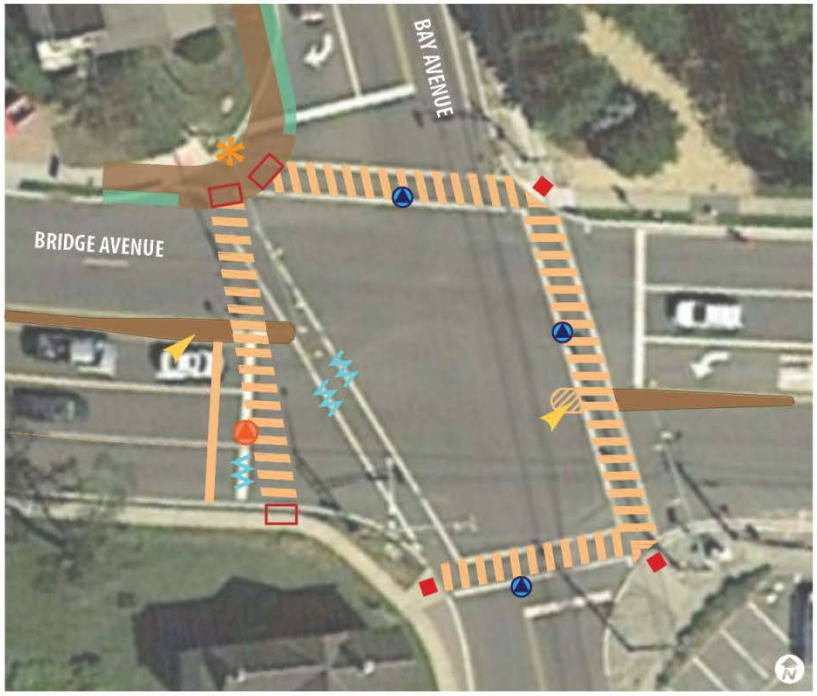
Description & Issues

- Long pedestrian crossing distance across Bridge Avenue increases pedestrian exposure to conflicts.
- Missing detectable warning surfaces at curb ramps.
- Missing sidewalk and large turning radius at the northwest corner of the intersection.
- Standard crosswalks are not as visible to approaching vehicles as continental or ladder style crosswalks.

Existing Intersection

PROPOSED IMPROVEMENTS

Conceptual Plan

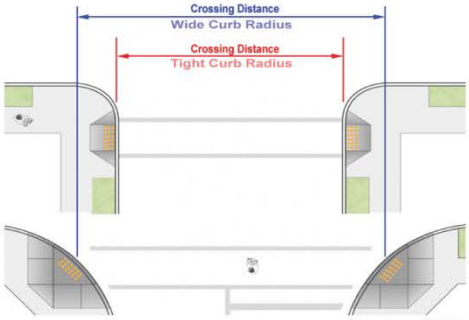


- Redesign crosswalk to shorten the crossing distance and move stop bar at least 8' behind the crosswalk.
- Add detectable warning surfaces as required by the Americans with Disabilities Act (ADA).
- Restripe as high visibility crosswalks to improve visibility and increase motorist yielding.
- Add 6' median refuge. NJDOT Pedestrian Planning and Design Guidelines call for a refuge for any crossing longer than 60'.
- Add new curb ramps with detectable warning surfaces
- Complete sidewalk and reduce curb radius to limit turning speeds, shorten the crossing distance, and increase pedestrian visibility.
- Remove / relocate striping.

Example of Median Refuge

Source: NACTO.org

Crossing Distance - Wider vs. Tighter Curb Radii



Source: RBA

High Visibility Crosswalks Increase Motorist Yielding

Source: RBA

Additional Recommendations

- Add pedestrian countdown signal heads to all legs of the intersection.
- Consider prohibiting right turns on red.

Concept 3: Train Station Enhancements

Existing Conditions

Description & Issues

- The crosswalk across Osborne Avenue from the parking lot to the train station is not located along the pedestrian desire line.
- Bicycle parking is limited to10 bicycles.
- Some of the curb ramps are missing detectable warning surfaces.
- Standard crosswalks are not as visible to approaching vehicles as continental or ladder style crosswalks.

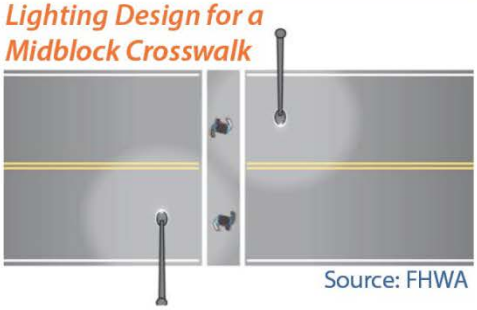
Existing Intersection

Proposed Improvements

Conceptual Plan

- Relocate the crosswalk across Osborne Avenue to match the pedestrian desire line; restripe with high-visibility continental markings; move the stop bar back. Add pedestrian-scale lighting at the crossing.
- Add detectable warning surfaces to existing curb ramps and to where the sidewalk crosses the railroad
- Restripe all crosswalks with continental style markings to increase the visibility of the crosswalks.
- Add more bicycle parking (short- and long-term).
- Remove/relocate striping.

Lighting Design for a Midblock Crosswalk

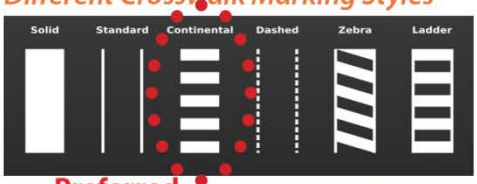


Source: FHWA

Example of a Wayfinding Map

Source: RBA

Different Crosswalk Marking Styles



Source: SFBetterStreets.org

Additional Recommendation

- Work with NJ TRANSIT to install a wayfinding map at the station to help transit riders orient themselves to the Borough.

Concept 4: Intersection Improvements to Clayton Avenue, Johnson Street and Lake Avenue

EXISTING CONDITIONS

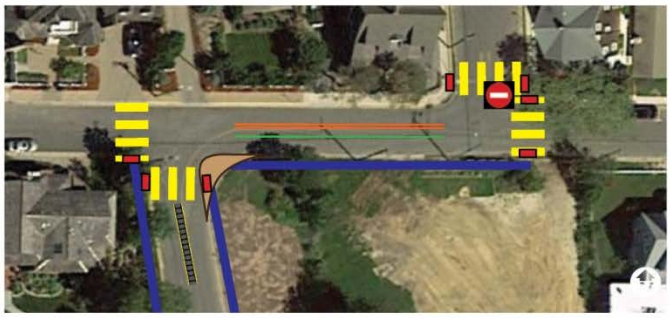
Description & Issues

- The only STOP sign is for southbound motorists on Lake Avenue. Residents report speeding by motorists through the curve.
- Because the intersections are off-set there are conflicts between turning motorists and through-moving bicyclists.
- There are no marked crosswalks. Only Lake Avenue has curb ramps and they don't have detectable warning surfaces. Pedestrians are unsure where to cross.
- There is no sidewalk on either side of Clayton Avenue between Egbert Street and Johnson Street or on the south side of Johnson Street.

Aerial

PROPOSED IMPROVEMENTS

Conceptual Plan



Stripe high-visibility crosswalks and install pedestrian warning signs to enhance pedestrian safety and convenience by clarifying the right-of-way.

Install ADA compliant curb ramps.

Utilize a partial closure to restrict motor vehicles from traveling northbound on Lake Avenue from Johnson Street while allowing full bicycle passage. This can be installed temporarily using bollards, planters or other removable barriers. A partial closure reduces motor vehicle volumes on Lake Avenue by restricting left turn movements from Johnson Street. Northbound motorists would have to continue to Route 35.

Install a center bicycle left-turn lane on Johnson Street to provide a protected space for bicyclists continuing north on Lake Avenue.

Install a brick centerline on Clayton Avenue for 60' from Johnson Street to calm traffic by physically narrowing the roadway.

Reduce turning radius at Clayton Avenue to decrease turning speed and increase pedestrian visibility.

Complete the sidewalk network.

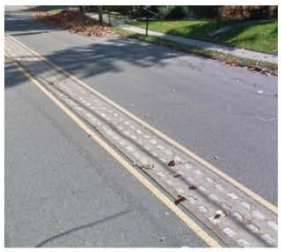
Example of a Temporary Partial Closure

Source: NACTO.org

Example of a Center Bicycle Left-Turn Lane

Source: NACTO.org

Example of a Brick Centerline Treatment



Source: Google

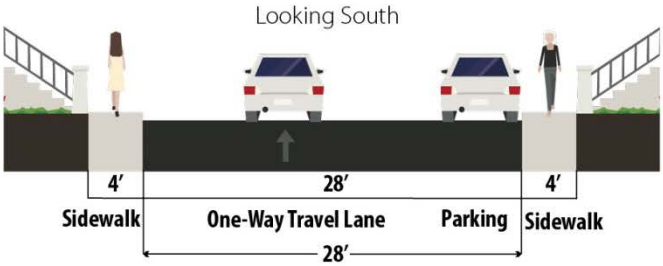
Additional Recommendation

Conduct a study of Lake Avenue to investigate the feasibility of either removing on-street parking from one side of the street or converting the street into one-way northbound between Johnson Street and Bridge Avenue.

Concept 5: East Avenue Contraflow Bike Lane

Existing Conditions

Cross Section

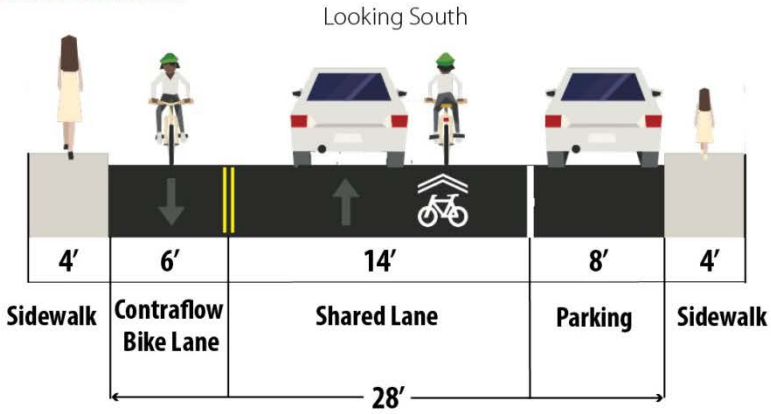


Description & Issues

East Avenue is a one-way, southbound street between Route 35 and the ocean. It is a popular route for both pedestrians and bicyclists, including bicyclists riding in the wrong direction and pedestrians walking in the street. The 25 mph, 28′ wide street has no striping and permits on-street parking only on the west side.

Proposed Improvements

Cross Section



- Install a contraflow bicycle lane from Strickland Street to Osborne Avenue to allow bicyclists to ride in the opposite direction of motor vehicle travel. A contraflow bike lane would provide a safer, less trafficked alternative for northbound bicyclists while eliminating dangerous wrong-way riding and reducing sidewalk riding.
- Extend the contraflow bicycle lane across intersections to alert cross street traffic to look for contra-flow bicyclists (optional).
- Install parking edge line stripes to delineate the parking and travel lane.
- Place shared lane markings in the travel lane so that the center of the markings are at least 11′ from the edge of the curb to guide bicyclists traveling southbound to stay to the right side of the road and out of the door zone of parked cars.
- Complete gaps in the sidewalk on the eastern side of the street north of Karge Street.
- Work with Mantoloking to extend the contraflow lane south.

Example of a Contraflow Bike Lane

Source: NACTO.org

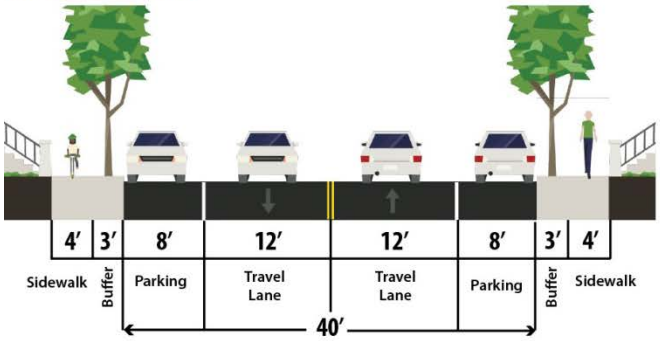
Contraflow Bike Lane Related Signs

- Small versions of "STOP" signs (18 x 18 inches) oriented toward bicyclists in the contraflow lane must be installed.
- A "One Way" sign (MUTCD R6-1, R6-2) with "Except Bikes" plaque shall be posted along the facility and at intersecting streets and driveways informing motorists to expect two-way traffic.
- A "DO NOT ENTER" sign (MUTCD R5-1) with "EXCEPT BIKES" plaque should be posted along the facility to only permit use by bicycles.

Concept 6: Shared Lane Markings or Advisory Bike Lanes on Osborne Avenue (CR2)

Existing Conditions

Cross Section

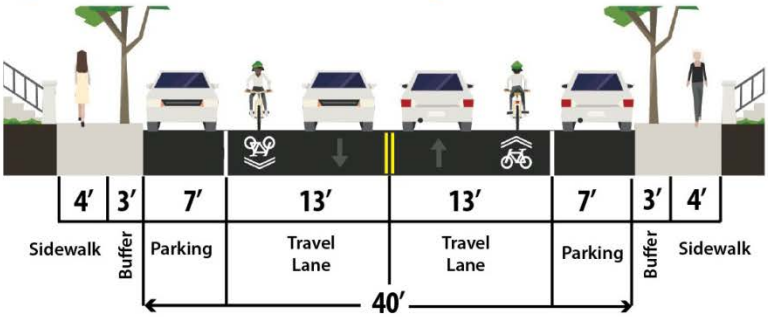


Description & Issues

Osborne Avenue is heavily utilized by pedestrians and bicyclists accessing the train station. It is also part of GO Bay Head's Princeton Avenue Bike Tour. The 25 mph, low motor vehicle volume road (<1,000 adt) is 40′ wide and permits on-street parking on both sides of the street. Speeding was identified as an issue by the Steering Committee.

Proposed Improvements

Option A: Shared Lane Markings

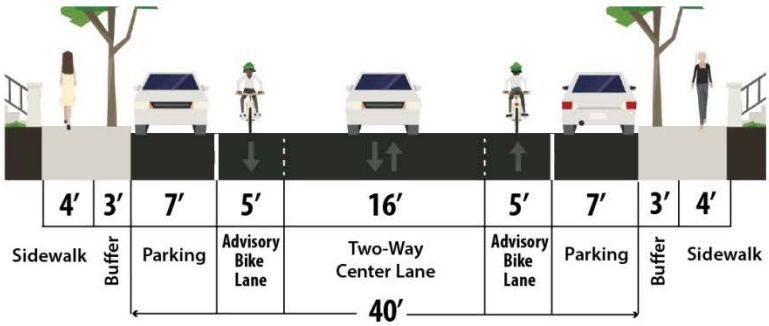


Example of Shared Lane Markings

Source: NACTO

- Install shared lane markings so that the centers of the markings are at least 11′ from the face of the curb in both directions of the street.

Option B: Advisory Bike Lanes



Example of Advisory Bike Lanes

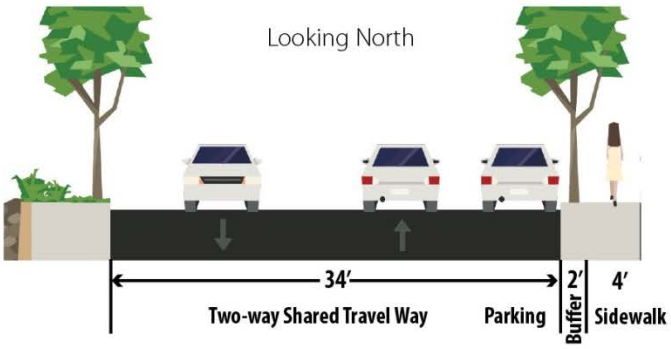
Source: BikeWalkTwinCities.org

- Remove the yellow center line and add advisory bike lanes, a dashed white line 5′ from the parking edge line with Bicycle Lane pavement markings and Bike Lane signs (R3-17).
  - Advisory bike lanes, also know as dashed bicycle lanes, are a viable option when the roadway is too narrow for conventional bike lanes.
  - Striping offers visual separation; defines a lane where bicycles are expected to operate.
  - Motorists tend to travel slower due to friction created with oncoming vehicles; advisory bike lanes have an excellent safety record.
- This treatment is currently experimental in the 2009 version of the MUTCD. Active official experiments include Minneapolis, Edina, and Richfield, MN; Columbia, MO; and Alexandria, VA.

Concept 7: Pedestrian Walkway and Sharrows on Lake Avenue between Bridge Avenue & Twilight Road

Existing Conditions

Cross Section

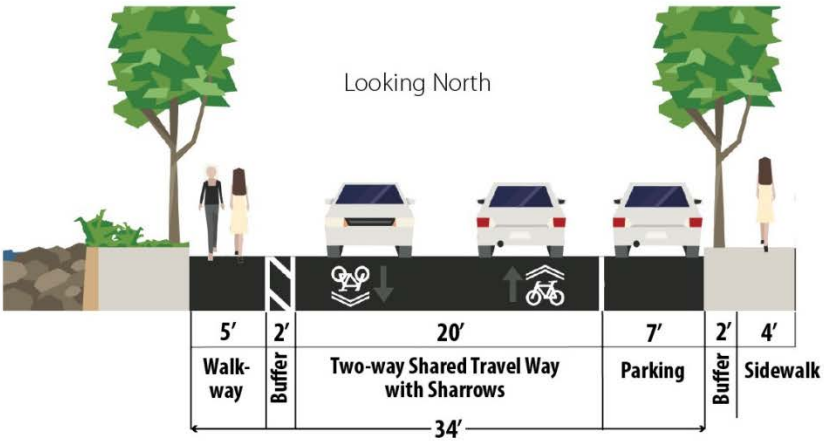


Description & Issues

Lake Avenue is a main north-south route. It provides the most direct connection between the train station and Town Center. The section of Lake Avenue along Twilight Lake is popular for walking however, there are no pedestrian accommodations along this segment. On-street parking is not permitted along the western side of the street along the lake. Speeding was identified as an issue north of Bridge Avenue.

Proposed Improvements

Cross Section between Harris Street & Twilight Road



- Add pedestrian accommodations along Twilight Lake by striping a 5′ walkway with a 2′ buffer from Harris Street to Twilight Road. Providing a defined space for pedestrians increases pedestrian safety, comfort, and accessibility.
- Narrowing the travel lanes can have a traffic calming effect that makes it safer for all roadway users.
- Add shared lane markings in both directions to identify Lake Avenue as a priority bicycling route and to encourage bicyclists to position themselves safely in the roadway.
- Stripe a parking edge line along the eastern side of the street to delineate the parking and travel lane.
- Stripe crosswalks across Lake Avenue to the pedestrian walkway at Harris Street, Karge Street, and North Street.
- In the long-term, consider constructing a sidewalk or path along the lake to further separate pedestrians from motor vehicle traffic.

Example of a Buffered Pedestrian Walkway

Source: rebuildingtherustbelt.com

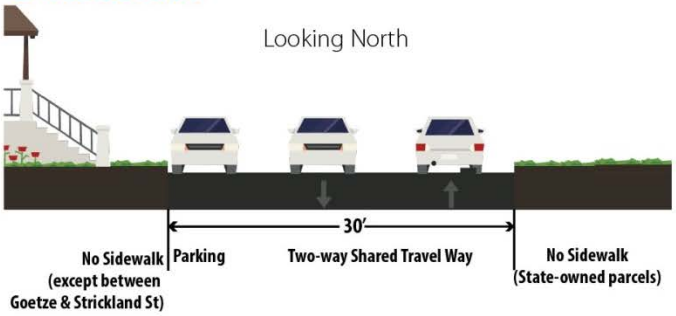
Additional Recommendations

- Signs prohibiting parking and bicyclists should be installed.
- Consider painting the pedestrian walkway a different color to enhance the visual contrast with the adjacent roadway.
- Consider using collapsible bollards to further delineate the pedestrian and vehicular realms.

Concept 8: Traffic Calming on Clayton Avenue

Existing Conditions

Cross Section

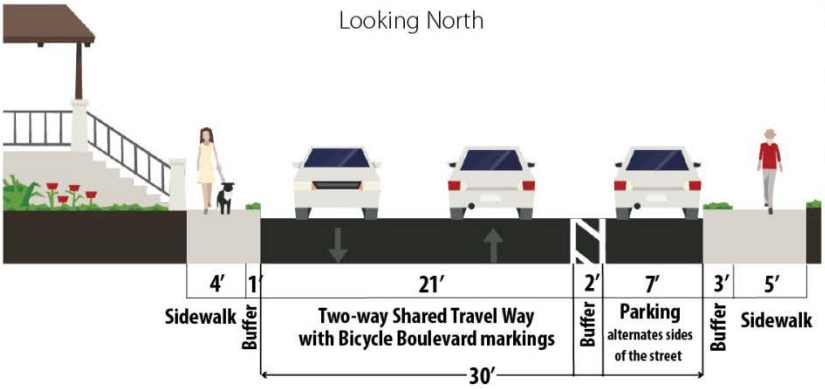


Description & Issues

Clayton Avenue is a 30′ wide, two-way, north-south residential street with on-street parking on the west side. There are almost no pedestrian accommodations along this entire segment. It is a through street which leads to speeding. Visibilty is limited when turning onto Johnson Street. Additionally, it appears that there is property encroachment into several areas of the state-owned parcel along the eastern edge of the street.

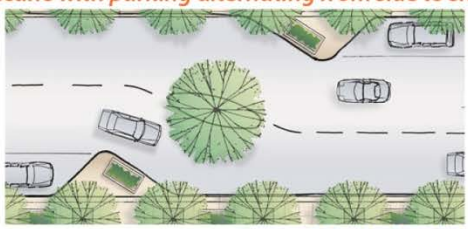
Proposed Improvements

Cross Section



Example of a Speed Hump

Chicane with parking alternating from side to side



Source: SFBetterStreets.org

- Make the intersection at Clayton Avenue & Goetze Street a four-way stop by adding stop signs to Clayton Avenue. Add high-visibility crosswalks at the intersection. Remove Clayton Avenue from the Through Street list in the Zoning Code.
- Create a chicane effect by alternating on-street parking between the east side and the west side of the street. Chicanes force drivers to shift laterally and reduce speed. A chicane design may warrant additional signing and striping to ensure drivers are aware of a slight bend in the roadway. Can be implemented temporarily.
- Add speed humps at mid-block locations to reduce speed to 15-20 mph.
- Add sidewalks to both sides of the street. Research the status and potential for converting the abandoned right-of-way along Clayton Avenue to a shared use path.

Concept 9: Pedestrian Walkway and Bike Lanes on Park Avenue between Bridge Avenue and West Lake Drive

Existing Conditions - Park Avenue Between Bridge & West Lake Avenues

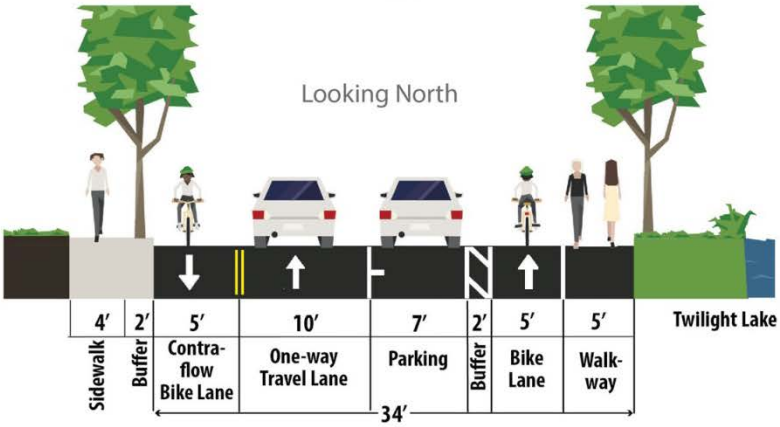
Existing Streetview

Description & Issues

This block of Park Avenue adjacent to Twilight Lake is one-way north- and west-bound. On-street parking alternates between sides of the street. There is a 400' gap in the sidewalk along Twilight Lake. Park Avenue is a popular route for bicyclists, including bicyclists riding in the wrong direction.

Proposed Improvements

Cross Section between Bridge & West Lake Avenues



- Install a contraflow bicycle lane between West Lake Avenue and Bridge Avenue to allow bicyclists to ride in the opposite direction of motor vehicle travel.
- Consolidate all on-street parking to the north/east side of the street.
- Provide continuous pedestrian accommodation along the north/east side of the street by striping a 5' walking between West Lake Avenue and Bridge Avenue. Providing a defined space for pedestrians increases pedestrian safety, comfort, and accessibility.
- Stripe a 5' bike lane next to the walkway. Stripe a 2' buffer between the parallel parking and the bike lane.
- Narrowing the travel lane can have a traffic calming effect that makes it safer for all roadway users.

Example of a One-Way Street with a Walk-way, Bike Lane and Contraflow Lane

Lake Shore Drive in McCanless, PA
Source: rebuildingtherustbelt.com

Contraflow Bike Lane Related Signs

- Small versions of "STOP" signs (18" x 18") oritented toward bicyclists in the contraflow lane must be installed.
- A "One Way" sign (MUTCD R6-1,R6-2) with "Except Bikes" plaque shall be posted along the facility and at intersecting streets and driveways informing motorists to expect two-way traffic.
- A "DO NOT ENTER" sign (MUTCD R5-1) with "EXCEPT BIKES" plaque should be posted along the facility to only permit use by bicycles.
- Consider painting either the pedestrian walkway or bike lane a different color to clarify the right-of-way.

Recommendations Map

The map on the following page (*Map 8: Recommendations*) is a summary of the infrastructure (or engineering) recommendations and includes the neighborhood greenway and concept locations. Additional information including responsible party, timeframe and cost estimate for each recommendation is included in *Chapter 5 – Implementation and Funding*.

Map 8: Recommendations

Programmatic Recommendations

A safe and welcoming walking and bicycling environment requires more than just the presence of facilities and amenities. Education, encouragement, enforcement, and evaluation and planning measures are needed to support and complement the engineering recommendations presented earlier in this chapter. These programmatic, also known as non-infrastructure, recommendations address unsafe behaviors, the development of bicycling skills, and general awareness and support for walking and bicycling.

This section highlights some of the programmatic recommendations needed to foster a culture that values walking and bicycling, with a focus on meeting Plan goals and objectives. Additional programmatic recommendations are included in the implementation matrix found in *Chapter 5*.

Education

The need to educate all users on their rights and responsibilities was identified as a key issue by the steering committee, public, and Borough officials. The programs and efforts discussed below focus on educating residents and visitors on safe walking, bicycling, and driving.

Street Smart NJ

The Borough should implement the Street Smart NJ pedestrian safety campaign. The Street Smart NJ campaign urges motorists and pedestrians to "check their vital signs" to improve safety on the road. Materials from the campaign are available on the campaign website and may be reproduced and used without permission. Logos and local sponsorship information may be added to all artwork. http://bestreetsmartnj.org/

Source: www.bestreetsmartnj.org

Community-Oriented Traffic Calming

A community-oriented traffic calming campaign should be implemented in Bay Head to inform drivers that they are travelling on neighborhood streets and remind drivers to slow down. Yard signs are designed to be placed on private property, within front and side yards, and act as an educational and awareness tool. Another example of a community oriented program is the "20 is Plenty" campaign. "20 is Plenty" encourages drivers to consider driving no faster than 20 mph despite the 25 mph speed limit. At 20 mph the risk of pedestrian fatality drops to just 5% compared to 45% at 30 mph.

Source: www.nypost.com

Traffic Safety Curriculum

An excellent way to encourage traffic safety from an early age is to implement K-8 traffic safety curriculum at the Bay Head School. The New Jersey Safe Routes to School Resource Center has compiled lesson plans and supporting pieces of information to enhance pedestrian and bicycle safety in schools.
www.saferoutesnj.org/resources/education/

Source: RBA Group

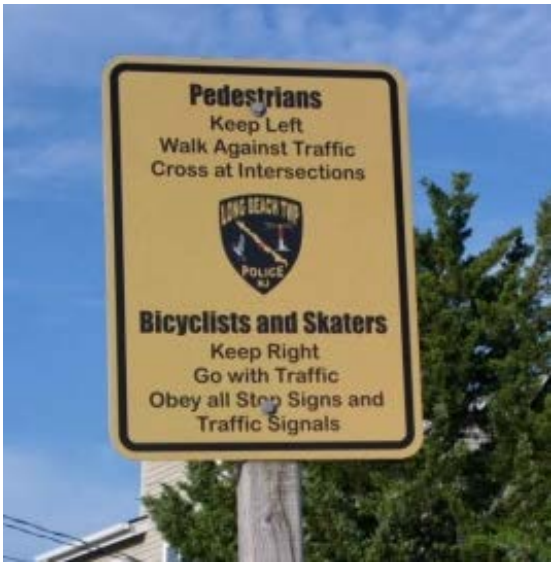
League of American Bicyclist's League Cycling Instruction (LCI) program

The Borough should sponsor a member of the Police Department to go through the League of American Bicyclist's League Cycling Instruction (LCI) program. LCIs are certified to teach the Leagues' Smart Cycling classes to children as well adults. Their goal is to help people feel more secure about getting on a bike, to create a mindset that bikes are treated as a vehicle, and to ensure that people on bikes know how to ride safely and legally.

Source: The League of American Bicyclists

Signs

Signs that encourage pedestrian and bicyclist safety should be installed. Examples of such signs are 'Pedestrians Use Sidewalks and Cross at Intersections and Bicyclists and Skaters Keep Right, Go with Traffic, Obey all Stop Signs and Traffic Signals' signs similar to Long Beach Twp., NJ.



Source: Jerry Foster, GMTMA

Encouragement

Bay Head is fortunate to have multiple existing initiatives and programs that support walking and bicycling, including GO Bay Head!, an active Safe Routes to School program, an annual Bike Safety Week, and an annual 5K memorial run. The programs listed below can help supplement and enhance the Borough's current activities.

Bicycle Mentor Program

The Borough should support and coordinate a bicycle mentor program where experienced bicyclists are matched with less confident bicyclists. This would encourage new/less confident bicyclists to bicycle more frequently in the community and support the development of safe cycling skills. An example is Culture Link in Toronto, Canada that has a program called Bike Host which matches amateur bicyclists with experience mentors who ride regularly.

Toronto, CA *Source:www.culturelink.ca*

Social Bicycle Rides

The Borough can support and host monthly social rides which can target groups of people and cover various themes. For example, Kidical Massive is a global family bike ride that takes place in September - www.kidicalmass.org. The main goal of Kidical Massive is to teach kids and parents safety skills and to encourage bicycling as a means of transportation.

Source: www.kidicalmass.org

Safe Routes to School

Bay Head has an active Safe Routes to School (SRTS) program including "Walking Wednesdays," a recurring bike train, and annual Bike Week in May. The SRTS program can be expanded to include other activities such as completing a School Travel Plan and implementing a tracking system to monitor use.

Kick-off meeting for the development of a School Travel Plan. Image: RBA

A School Travel Plan "maps out" how to improve pedestrian and bicycle travel to and from school. Municipalities registered to Sustainable Jersey and Sustainable Jersey for Schools can include School Travel Plans as part of the submission requirements to receive certification. When future NJDOT grants are announced, municipalities/schools will be eligible for extra points for submitting your School Travel Plan in the application for SRTS infrastructure grant funding.

Montclair, NJ
Image: Joy Glenn Photography

Another example of encouraging walking and biking to school in a fun and educational way is to consider using a tracking system to monitor use. Montclair's Edgemont Elementary School's "Boltage at Edgmont" program is an example. The students attach a radio frequency identification tag to their backpacks which tracks their trips to school. A solar-powered Boltage "Zap" machine records the information which can be accessed online. Students can also track their miles traveled, number of calories burned and pounds of CO2 saved by replacing a car or bus trip with walking or biking. The students are further encouraged to bike or walk to school by rewards for more trips and recognition for exceptional student achievement in the school's PTA newsletter.

Bay Head should try to achieve Gold Level in NJ Safe Routes to School Recognition Program. Municipalities and schools can either be nominated by their Safe Routes Regional Coordinator from the Greater Mercer TMA or can self-nominate for recognition as a result of involvement and commitment to Safe Routes programs in their community or schools. Recipients will be presented with a certificate or award depending on which level they are recognized, and they will also be listed and promoted on the NJ SRTS website and possibly other local media and newsletters facilitated by your respective Regional Coordinator.

NJ SRTS Recognition Program

Bike Rodeo

The Borough should work with the Ocean County Security Department Bike Patrol to host a Bike Rodeo at the Bay Head School. A Bike Rodeo is a bicycling skills event which provides an opportunity for bicyclists to practice and develop skills to ride safely and avoid accidents. www.co.ocean.nj.us/SecurityDept/BikePatrol.aspx

Source: http://www.co.ocean.nj.us/

Open Streets Event

An Open Streets event can be hosted in Bay Head by temporarily closing streets to motor vehicles and focusing on activities such as a bike rodeo, fitness activities, bicycle maintenance education, and rules of the road education. An example of such an event is the Ciclovia event in New Brunswick, NJ. In New Brunswick, the Ciclovia event is hosted 3-4 times a year during which certain streets are temporarily car-free for 5 hours for families to enjoy activities along the route and to walk, bike, run, skate, play etc.

New Brunswick, NJ Source: www.newbrunswickciclovia.com

Annual Park(ING) Day

The Borough should encourage participation in the annual PARK(ing) Day which is held worldwide on the third Friday in September. During this event, artists, designers and citizens transform parking spaces into temporary public parks. Bay Head can temporarily convert one or more parking space in the Town Center into a parklet.

Seattle, WA
Source: HBB Landscape Architecture

Bike Sharing Programs

A bike sharing program in Bay Head will encourage more residents and visitors to bike in the borough. The Borough should conduct a pilot evaluation of bicycle sharing program. Collingswood Bike Share is a good example of a small scale bike share. For a small fee and a signature on an agreement and a liability waiver, the program operates like a library, in which residents borrow a bike and return it when done using it.

Collingswood NJ
Source: www.collingswood.com

Bicycle to School and Walk to School Policies

The Borough should work with the Board of Education to adopt Bicycle to School and Walk to School ordinances. Adopting such policies can encourage children to walk and bike to school and build a culture of health and wellness in schools and municipalities. The NJ SRTS Resource Center has model policies that can be modified.
www.saferoutesnj.org/resources/tips-tools-and-more/

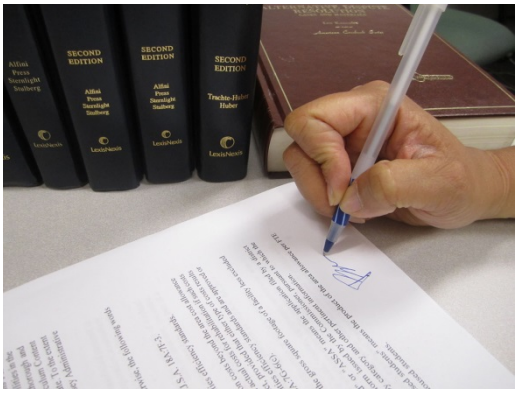


Image: VTC

Enforcement

Consistent enforcement of traffic laws is one of the most important steps a municipality can take to keep pedestrians, bicyclists and drivers safe. This includes enforcing crosswalks laws, speed limits and distracted driving laws, and issuing citations to pedestrians and bicyclists who engage in illegal risk-taking behaviors.

Pedestrian Safety Enforcement Program

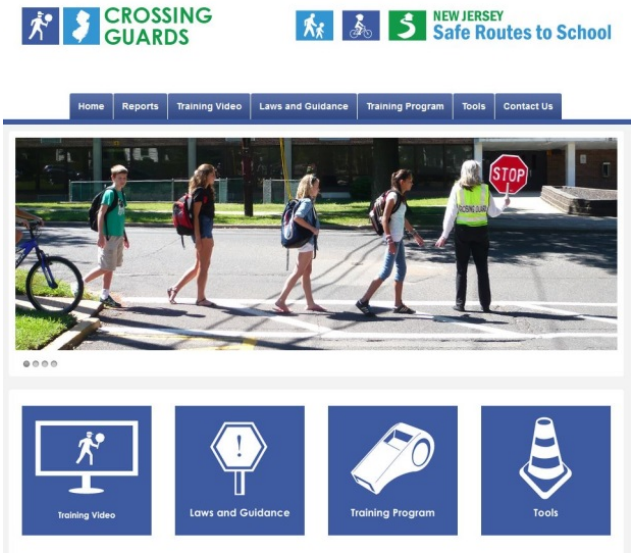
The Borough should utilize the Pedestrian Safety Enforcement (PSE) program sponsored by the NJ Division of Highway Traffic Safety (DHTS) with support from NJDOT to increase driver knowledge of the "Stop and Stay Stopped for Pedestrians" law and increase stopping behavior. DHTS and NJDOT offer trainings on PSE to local police departments. It addresses two important contributing factors to pedestrian crashes: driver knowledge of the law and driver yielding behavior.

Source: Ranjit Walia

New Jersey Crossing Guard Training Program

The Borough's crossing guard supervisor should attend a New Jersey Crossing Guard Training Program workshop hosted by the NJ Safe Routes to School Resource Center. These workshops are intended to assist school crossing guard supervisors with extensive training to help crossing guards perform their duties more effectively and safely. The training will include crossing guard positioning and procedures, state and federal law and regulations, and hands-on practice to set up similar training for crossing guards in communities statewide. The Model Municipal Crossing Guard Policy should be adopted by the Borough.

http://www.njcrossingguards.org/



Source: www.njcrossingguards.org

Feedback Signs

The Borough should continue to utilize temporary feedback signs along streets with high incidents of speeding and regularly enforce the speed limit along these corridors. These signs are interactive signs that draw the motorist's attention to their speed limit and the road's legal speed limit. They can be permanently mounted on signposts or temporary installed using self-contained trailers. They have proven to slow down traffic over the years.

Source: RBA Group

Police Bike Patrol

The Borough should support and encourage police to use bicycles for patrol work. Police on bicycles are excellent role models, especially for children. By patrolling on bicycle, officers understand firsthand the challenges faces by bicyclists and road users and allow them to easily educate riders and enforce rules for safety. Neighboring Point Pleasant Beach has a bicycle patrol unit.

Hoboken, NJ *Source: www.hobokennj.org*

Evaluation and Planning

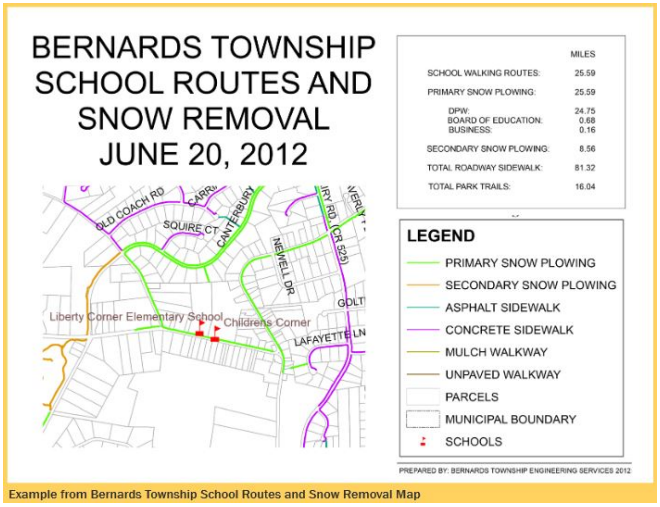
Evaluation and planning includes adopting plans, policies, and measures, including assignment of staff responsibilities, necessary for implementation and prioritization of projects. The policy recommendations below are based on a review and assessment of the Borough's ordinance and best practices from around the country. A full review of Bay Head's ordinance is found in *Appendix C: Ordinance Review*.

Complete Streets Policy and Checklist

Bay Head should adopt a Complete Streets Policy to ensure that each street is planned, designed, and operated to provide safe access for all users. The Policy should also include a checklist to ensure the Policy is implemented. NJDOT's "New Jersey's Guide to Creating a Complete Streets Implementation Plan" provides further discussion on implementing a Complete Streets Policy. www.state.nj.us/transportation/eng/completestreets/pdf/cscreateimplementationplan.pdf

Snow Removal & Winter Maintenance Policy

While snow and ice removal is typically the responsibility of the abutting property owner in New Jersey, Bay Head should consider taking on snow removal responsibility along identified bicycle and pedestrian routes. An excellent local example of such a policy is Bernards Township, NJ. In August 2012, the township committee adopted a resolution delineating and formalizing the Township's policy on Walking Routes to School, as well as setting primary and secondary priority status to the various routes to be cleared of snow and ice by the Township's Department of Public Works (DPW).

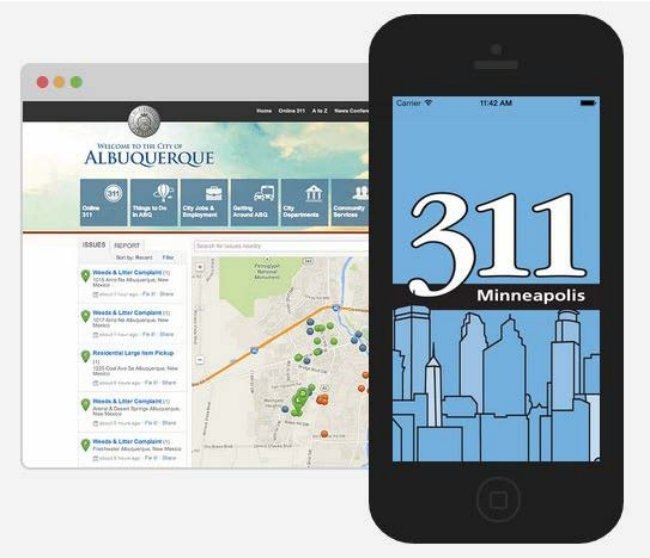


Example from Bernards Township School Routes and Snow Removal Map

Source: Bernards Township, NJ

Interactive Maintenance Reporting

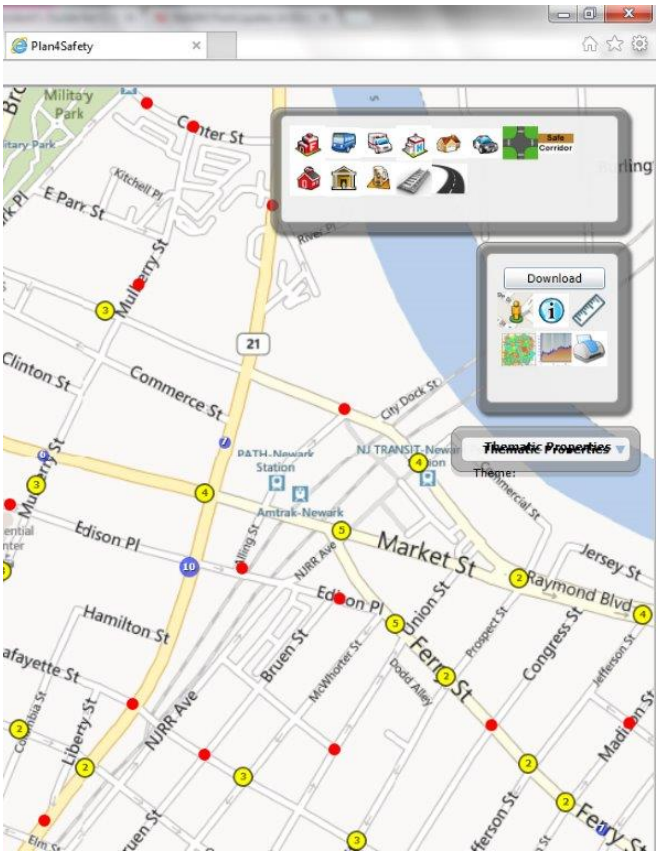
The Borough should consider making it easier for residents to report maintenance issues through an online form or an interactive public platform such as SeeClickFix. SeeClickFix allows anyone to file a report online via a mobile phone. The issue is then available for public view, comment and governments to take care of and improve their neighborhoods. Government entities responsible for the public space become more accountable to the public by acknowledging problems and providing effective communication about solutions.



Source: en.seeclickfix.com

Plan4Safety

The Borough should annually evaluate crash locations using Plan4Safety. Plan4Safety is an online decision support tool created for the NJDOT by the Rutgers Center for Advanced Infrastructure and Transportation (CAIT). The web-based platform integrates statewide crash data from January 1, 2003, to the latest released with roadway characteristic data, calculates statistical analyses, incorporates network screening layers and models, and includes visual analytical tools (GIS). It is available for free to public agency planners, engineers, police officers and researchers. Training and support is also part of the services offered for free. Plan4Safety will assist the Borough's staff to identify problem areas on an on-going basis and help in prioritizing engineering improvements and enforcement efforts. http://cait.rutgers.edu/tsrc/plan4safety.



Source: http://cait.rutgers.edu/tsrc/plan4safety

NACTO and ITE Guidance

The Borough should use the National Association of City Transportation Officials (NACTO) *Urban Bikeway Design Guide* and *Urban Street Design Guide* and the Institute of Traffic Engineers (ITE) *Designing Urban Walkable Thoroughfares* when planning and designing facilities for pedestrians and bicyclists. These guides offer communities the state-of-the-practice tools for designing safer, more attractive, and sustainable streets. FHWA supports the use of these resources. Municipalities in New Jersey that have adopted NACTO Guides include Camden, Hoboken, Metuchen, Newark, and Trenton.

Crosswalk and Stop Sign Policy

The Borough should develop a policy describing the process to review requests for new crosswalks and stop signs based on traffic speeds and volumes, pedestrian travel, sight lines, stopping distances, and other traffic engineering considerations. "Unwarranted" stop signs can lead to accidents if they are in unexpected locations and can result in unnecessary delays. "Unwarranted" crosswalks can give pedestrians a false sense of security.

Source: The RBA Group

CHAPTER 5: IMPLEMENTATION AND FUNDING

Implementation Matrix

The following implementation matrix provides the full list of recommended physical and programmatic actions that, when implemented, will position the Borough to achieve its vision and become a bicycle and walk friendly community. The tables are categorized by the 5E comprehensive approach for increasing bicycling and walking (engineering, education, encouragement, enforcement, and evaluation and planning).

Each action is supplemented by four factors: Responsibility, Timeframe, Cost Estimate, and Focus. *Responsibility* identifies the agency charged with the responsibility for leading implementation of the proposed action item. *Timeframe* identifies the required amount of time to capture the full benefit of the recommendation, including development and implementation. *Cost* identifies an order of magnitude, qualitative estimate. *Focus* identifies whether the action primarily benefits pedestrians, bicyclists, or both.

Timeframe	*Cost*	*Focus*
Short-term: Less than 2 years	Low: less than $1,000	Pedestrian
Mid-term: 2 to 5 years	Medium: $1,000 to $5,000	Bicyclists
Long-term: 5+ years	High: $5,000+	Both

The recommendations in *Table 5: Engineering* have been subcategorized into Borough-wide actions, neighborhood greenway actions, recommendations from the concepts, and recommendations for other spot improvements. These recommended solutions are supplemented by a set of design guidelines containing descriptions and illustrations of all the recommended design treatments and is included in *Appendix A: Design Guidelines*.

It is important to note that the following recommendations are considered planning-level, meaning that they should be used as a guide. Prior to advancing the physical recommendations, further data collection, analysis, and survey should be completed to fully assess the impacts of the proposed recommendations. In addition, the proposed network reflects the long-term vision. Implementation will not happen overnight.

Furthermore, Ocean County requires notification if a municipality desires to implement a bike path or bike lane in a County right-of-way. Municipalities must submit a plan to the County Engineer for review and approval. Upon approval, municipalities must adopt an ordinance to create the bike path or lane, including applicable penalties, and a maintenance provision. The municipality is also responsible for the expense of installing pavement markings and regulatory signs. See *Appendix F: Ocean County Multi-Modal Transportation Policy Guidelines.*

TABLE 5: ENGINEERING RECOMMENDATIONS

	Borough-Wide Actions	Responsibility	Timeframe	Cost	Type
1	Maintain an up-to-date inventory sidewalks, sidewalk gaps, curb ramps, and crosswalks.	Bay Head	Less than 2 years	Medium	Pedestrians
2	Complete gaps in sidewalk network. Prioritize the neighborhood greenway network.	Bay Head	Less than 2 years	High	Pedestrians
3	Add pedestrian countdown signal heads and curb ramps to all legs of every signalized intersection.	NJDOT/Ocean County	Less than 2 years	High	Pedestrians
4	Equip all signalized intersections with bicycle detection.	NJDOT/Ocean County	2 to 5 years	High	Bicyclists
5	Enhance gateway treatments at all entrances into the Borough with landscaping and signs.	NJDOT/Ocean County/Bay Head	2 to 5 years	Medium-High	Both
6	Review on-street parking to ensure parking is restricted within 25' of the nearest crosswalk or intersection; within 50' of a "stop" sign; within 10' of a fire hydrant.	Bay Head/Ocean County/NJDOT	Less than 2 years	Medium	Both
7	Install bicycle parking at all municipal buildings and facilities, including the recycling center, parks and school. The Association of Pedestrian and Bicycle Professionals (APBP) recommends "inverted U," "A," and "post and loop" style racks.	Bay Head	2 to 5 years	Medium-High	Bicyclists
8	Plan and implement a pedestrian and bicycle wayfinding system that will direct users to popular destinations.	Bay Head/Ocean County	2 to 5 years	Medium-High	Both
9	Pursue Path over Twilight Lake (research on this concept is ongoing).	Bay Head/NJDOT	5+ years	High	Both

	Neighborhood Greenway Actions	Responsibility	Timeframe	Cost	Type
10	Adopt the proposed neighborhood greenway network.	Bay Head	Less than 2 years	Medium	Both
11	Install identification signs and pavement markings along the proposed neighborhood greenway network.	Ocean County/Bay Head	Less than 2 years	High	Both
12	Enhance/stripe all crosswalks with high visibility "continental" striping.	NJDOT/Ocean County/Bay Head	Less than 2 years	Medium	Pedestrians
13	Consider lowering the speed limit on the neighborhood greenway network to 15 or 20 mph.	Bay Head	Less than 2 years	Low	Both
14	Prioritize the neighborhood greenway for streetscape enhancements including street trees and landscaping.	Bay Head	Less than 2 years	Medium	Both
15	Work with the school and business community to design a painted intersection. Recommended locations include Grove Street & Club Drive and Lake Avenue & Mount Street.	Bay Head	Less than 2 years	Medium	Both

TABLE 5: ENGINEERING RECOMMENDATIONS (cont'd)

	Neighborhood Greenway Actions (cont'd)	Responsibility	Timeframe	Cost	Type
16	Install speed humps along Lake Avenue and Clayton Avenue.	Bay Head	Less than 2 years	High	Both
17	Consider installing a neighborhood (mini) traffic circle at Park Avenue and Holly Avenue.	Bay Head	2 to 5 years	High	Both
18	Install curb extensions (temporary or permanent) and bicycle forward stop bars at the following intersections with Bridge Avenue – Holly Avenue, West Lake Drive, and Club Drive.	Ocean County	2 to 5 years	Medium-High	Both
19	Stripe a bicycle forward stop bar on Osborne Avenue at Bay Street and on Park Avenue at Bay Street.	Bay Head / Ocean County	Less than 2 years	Low	Bicyclists
20	Implement a partial closure (temporary or permanent) to restrict motor vehicles from traveling northbound on Lake Avenue from Johnson Street while allowing full bicycle passage.	Bay Head	Less than 2 years	Low	Bicyclists

	Green Street Actions	Responsibility	Timeframe	Cost	Type
21	Work with the Ocean County Shade Tree Commission to plan and oversee the installation and care of trees.	Ocean County/Bay Head	2 to 5 years	Medium-High	Pedestrians
22	Increase plant diversity by encouraging homeowners to plant a variety of shrubs, groundcovers, and grasses.	Bay Head	2 to 5 years	Medium	Both
23	Consider gravel paving systems as a permeable alternative for residential applications, including driveways, walkways, and outdoor spaces.	Bay Head	2 to 5 years	Medium-High	Pedestrians

	Actions from the Concepts	Responsibility	Timeframe	Cost	Type
24	**Concept 1: Town Center**	**Responsibility**	**Timeframe**	**Cost**	**Type**
a.	Move the In-Street Pedestrian Crossing signs to the roadway centerline at the crosswalk location (see MUTCD Section 2B.12).	Ocean County/Bay Head	Less than 2 years	Low	Pedestrians
b.	Supplement the Pedestrian Crossing Warning signs with Rectangular Rapid Flashing Beacons (RRFB).	Ocean County	Less than 2 years	Low/ Medium	Pedestrians
c.	Add a bike corral along the north side of Bridge Avenue to the west of the mid-block crossing.	Ocean County/Bay Head	Less than 2 years	Medium	Bicyclists
d.	Continue the sidewalk across the driveway aprons to the municipal lot and fire station. Consider narrowing the driveways to one lane.	Ocean County/Bay Head	Less than 2 years	Medium	Pedestrians
e.	Add yield lines at the mid-block crosswalk.	Ocean County	Less than 2 years	Low	Pedestrians
f.	Paint "Walk Bike" and "Look" sidewalk markings on sidewalks in Town Center.	Bay Head	Less than 2 years	Low	Bicyclists

TABLE 5: ENGINEERING RECOMMENDATIONS (cont'd)

25	Concept 2: Bridge Avenue & Bay Avenue Intersection	Responsibility	Timeframe	Cost	Type
a.	Redesign the western crosswalk and median across Bridge Avenue to shorten the crossing distance. Move the stop bar at least 8' behind the crosswalk.	NJDOT	Less than 2 years	Medium	Pedestrians
b.	Restripe crosswalks with high visibility continental striping to improve visibility.	NJDOT	Less than 2 years	Low	Pedestrians
c.	Add a 6' median refuge to both crossings of Bridge Avenue. NJDOT Pedestrian Planning and Design Guidelines calls for a refuge for any crossing longer than 60'.	NJDOT	Less than 2 years	Medium	Pedestrians
d.	Add new curb ramps with detectable warning surfaces.	NJDOT	Less than 2 years	High	Pedestrians
e.	Complete sidewalk and reduce curb radius of the northwest corner of the intersection.	NJDOT	Less than 2 years	Medium/ High	Pedestrians

26	Concept 3: Train Station	Responsibility	Timeframe	Cost	Type
a.	Relocate the crosswalk and stop bar across Osborne Avenue to match the pedestrian desire line; restripe with high-visibility continental markings; move the stop bar back.	Ocean County/NJ TRANSIT	Less than 2 years	Low	Pedestrians
b.	Add detectable warning surfaces to existing curb ramps and to where the sidewalk crosses the railroad.	Ocean County/NJ TRANSIT	Less than 2 years	Medium	Pedestrians
c.	Restripe all crosswalks with continental style markings.	Ocean County	Less than 2 years	Low	Pedestrians
d.	Add more bicycle parking (short- and long-term).	NJ TRANSIT	2 to 5 years	Medium	Bicyclists
e.	Add pedestrian-scale lighting at the crossing.	Bay Head	Less than 2 years	Medium/ High	Pedestrians
f.	Work with NJ TRANSIT to install a wayfinding map at the station to help transit riders orient themselves to their location in the Borough.	Bay Head / NJ TRANSIT	Less than 2 years	Low	Pedestrians

TABLE 5: ENGINEERING RECOMMENDATIONS (cont'd)

27	Concept 4: Intersection of Lake Avenue/Clayton Avenue/ and Johnson Street	Responsibility	Timeframe	Cost	Type
a.	Stripe high-visibility crosswalks and install pedestrian warning signs.	Bay Head	Less than 2 years	Low/Medium	Pedestrians
b.	Install ADA compliant curb ramps.	Bay Head	Less than 2 years	High	Pedestrians
c.	Utilize a partial closure to restrict motor vehicles from traveling northbound on Lake Avenue from Johnson Street while allowing full bicycle passage. This can be installed temporarily using bollards, planters or other removable barriers.	Bay Head	Less than 2 years	Medium-High	Both
d.	Install a center bicycle left-turn lane on Johnson Street for eastbound bicyclists continuing north on Lake Avenue.	Bay Head	Less than 2 years	Low	Bicyclists
e.	Install a flush granite or brick centerline on Clayton Avenue for 60' between Johnson Street and Clayton Avenue.	Bay Head	Less than 2 years	Medium	Pedestrians
f.	Reduce turning radius at Clayton Avenue and Johnson Street.	Bay Head	Less than 2 years	Low	Pedestrians
g.	Complete the sidewalk network on both sides of Clayton Avenue and the south side of Johnson Street.	Bay Head	2 to 5 years	Medium/ High	Pedestrians
h.	Conduct a study of Lake Avenue to investigate the feasibility of either removing on-street parking from one side of the street or converting the street into one-way northbound between Johnson Street and Bridge Avenue, and replace with bicycle facilities in accordance with the goals and objectives of this Plan.	Bay Head	2 to 5 years	Low/Medium	Both

28	Concept 5: East Avenue	Responsibility	Timeframe	Cost	Type
a.	Install a contraflow bicycle lane signs and pavement striping from Strickland Street to Osborne Avenue along the eastern side of the street to allow bicyclists to travel northbound.	Bay Head	Less than 2 years	Medium	Bicyclists
b.	Extend the contraflow bicycle lane striping across intersections. (Optional enhancement)	Bay Head	Less than 2 years	Medium	Bicyclists
c.	Install parking edge line stripes on the western side of the street.	Bay Head	Less than 2 years	Low	Bicyclists
d.	Place shared lane markings or "sharrows" 11' from the southbound curb line.	Bay Head	Less than 2 years	Medium	Bicyclists
e.	Complete gaps in the sidewalk on the eastern side of the street north of Karge Street.	Bay Head	Less than 2 years	High	Pedestrians
F.	Work with Mantoloking to extend the contraflow lane south.	Bay Head / Mantoloking	2 to 5 years	Medium	Bicyclists

TABLE 5: ENGINEERING RECOMMENDATIONS (cont'd)

29	Concept 6: Osborne Avenue (CR 2)	Responsibility	Timeframe	Cost	Type
a.	Install shared lane markings so that the centers of the markings are at least 11' from the face of the curb in both directions of the street.	Ocean County / Bay Head	Less than 2 years	Low/ Medium	Bicyclists
b.	An alternative concept to recommendation 29a. is to remove the yellow center line and install advisory bike lanes, a dashed white line 5' from the parking edge line with bicycle lane pavement markings and bike lane signs (R3-17).	Ocean County / Bay Head	Less than 2 years	Medium	Bicyclists

30	Concept 7: Lake Avenue between Bridge Avenue and Twilight Road	Responsibility	Timeframe	Cost	Type
a.	Add pedestrian accommodations along Twilight Lake by striping a 5' walkway with a 2' buffer from Harris Street to Twilight Road.	Bay Head	Less than 2 years	Medium	Pedestrians
b.	Add shared lane markings in both directions.	Bay Head	Less than 2 years	Low	Bicyclists
c.	Stripe a parking edge line along the eastern side of the street.	Bay Head	Less than 2 years	Low	Bicyclists
d.	Stripe crosswalks across Lake Avenue to the pedestrian walkway at Harris Street, Karge Street, and North Street.	Bay Head	Less than 2 years	Low	Pedestrians
e.	Consider constructing a sidewalk or path along the lake to further separate pedestrians from motor vehicle traffic.	Bay Head	5+ years	Medium/ High	Pedestrians

31	Concept 8: Clayton Avenue	Responsibility	Timeframe	Cost	Type
a.	Make the intersection at Clayton Avenue & Egbert Street a four-way stop by adding stop signs to Clayton Avenue. Add high-visibility crosswalks at the intersection.	Bay Head	Less than 2 years	Low	Both
b.	Remove Clayton Avenue from the Through Street list in the Zoning Code.	Bay Head	Less than 2 years	Low	Both
c.	Create a chicane effect by alternating on-street parking between the east side and the west side of the street. Chicanes force drivers to shift laterally and reduce speed. A chicane design may warrant additional signing and striping to ensure drivers are aware of a slight ben in the roadway. Can be implemented temporarily.	Bay Head	Less than 2 years	Low	Both
d.	Add speed humps at mid-block locations to reduce speed to 15-20 mph.	Bay Head	Less than 2 years	Medium	Both
e.	Add sidewalks to both sides of the street.	Bay Head	2 to 5 years	Medium-High	Pedestrians
f.	Research the status and potential for converting the abandoned right-of-way along Clayton Avenue to a shared use path.	Bay Head / NJDOT	5+ years	High	Both

TABLE 5: ENGINEERING RECOMMENDATIONS (cont'd)

32	Concept 9: Park Avenue between Bridge Avenue and West Lake Drive	Responsibility	Timeframe	Cost	Type
a.	Install a contraflow bicycle lane on the south/west side of the street.	Bay Head	Less than 2 years	Medium	Bicyclists
b.	Consolidate all on-street parking to the north/east side of the street.	Bay Head	Less than 2 years	Low	Both
c.	Provide continuous pedestrian accommodation along the north/east side of the street by striping a 5' walkway.	Bay Head	Less than 2 years	Low	Pedestrians
d	Stripe a 5' bike lane next to the pedestrian walkway with a 2' buffer between the bike lane and on-street parking.	Bay Head	Less than 2 years	Low	Bicyclists

	Other Spot Improvements	Responsibility	Timeframe	Cost	Type
33	Intersection of Bay Avenue & Osborne Avenue	Responsibility	Timeframe	Cost	Type
a.	Stripe a high visibility crosswalk along Bay Avenue/across Osborne Avenue.	Ocean County	Less than 2 years	Low	Pedestrians
b.	Conduct an intersection sight distance study to determine if the sight triangles are large enough that drivers can see approaching vehicles, bicyclists, and pedestrians.	Ocean County	2 to 5 years	Medium/ High	Both
c.	Install a bicycle forward stop bar on Osborne Avenue.	Ocean County	Less than 2 years	Low	Pedestrians

34	Intersection of Bay Avenue & Park Avenue	Responsibility	Timeframe	Cost	Type
a.	Add a high visibility crosswalk along Bay Avenue and across the southern leg of the intersection with Park Avenue.	Ocean County / Bay Head	Less than 2 years	Low	Pedestrians
b.	Add curb ramps, advanced stop lines, and pedestrian crossing warning signs.	Ocean County/ Bay Head	Less than 2 years	High	Pedestrians

35	Bridge Avenue (Rt 13 & CR 632)	Responsibility	Timeframe	Cost	Type
a.	Narrow travel lanes to 10' from 12' by adjusting the edge striping.	NJDOT / Ocean County	Less than 2 years	Medium	Both

36	Bay Avenue (CR 604)	Responsibility	Timeframe	Cost	Type
a.	Narrow travel lanes to 10' from 12' by adjusting the edge striping.	Ocean County	Less than 2 years	Low	Both
b.	Reduce speed limit from 35 to 30 mph to match the speed of the road to the north.	Ocean County	Less than 2 years	Low	Both
c.	Provide consistent bicycle-compatible shoulder width along both sides of the road (will require segments of roadway widening on the west/southbound side).	Ocean County	5+ years	High	Bicyclists
d.	Work with Point Pleasant to complete the sidewalk network on the western side of the street.	Ocean County/ Bay Head/ Point Pleasant	5+ years	Medium/ High	Pedestrians

TABLE 6: EDUCATION RECOMMENDATIONS

	ACTION	Responsibility	Timeframe	Cost	Type
1	Implement the Street Smart NJ pedestrian safety campaign. Materials from the campaign are available on the campaign website and may be reproduced and used without permission, and logos and local sponsorship information may be added to all artwork. http://bestreetsmartnj.org/	Bay Head / NJTPA / Greater Mercer TMA	Less than 2 years	Low	Both
2	Work with the Bay Head Yacht Club to host bicycle and pedestrian safety classes for members during the summer.	Bay Head / Bay Head Yacht Club / Greater Mercer TMA	Less than 2 years	Medium	Both
3	Include educational materials on the "Rules of the Road" at the Bay Head Improvement Association (point of distribution for beach badges).	Bay Head / Bay Head Improvement Association	Less than 2 years	Low	Both
4	Implement a K-8 traffic safety education curriculum. The New Jersey Safe Routes to School Resource Center has compiled a list of available lesson plans - http://www.saferoutesnj.org/resources/education/	Bay Head Board of Education	Less than 2 years	Low	Both
5	Implement a Community Oriented Traffic Calming Campaign to inform drivers that they are traveling on a neighborhood street and need to slow down. Examples include "Keep Kids Alive-Drive 25" yard sign campaign and the "20 is Plenty" campaign.	Bay Head Police Department	Less than 2 years	Low	Both
6	Sponsor a member of the Police Department to go through the League of American Bicyclist's League Cycling Instruction (LCI) program. LCIs are certified to teach the Leagues' Smart Cycling classes.	Bay Head Police Department	Less than 2 years	Medium	Both
7	Provide Complete Streets and pedestrian and bicycle related professional development training and courses to municipal staff (elected officials, public works staff, engineer).	Bay Head	Less than 2 years	Medium	Both
8	Install 'Pedestrians Use Sidewalks and Cross at Intersections and Bicyclists and Skaters Keep Right, Go with Traffic, Obey all Stop Signs and Traffic Signals' signs similar to Long Beach Twp., NJ.	Bay Head	2 to 5 years	Medium	Both

TABLE 7: ENCOURAGEMENT RECOMMENDATIONS

	ACTION	Responsibility	Timeframe	Cost	Type
1	Coordinate a bicycle mentor program where experienced bicyclists are matched with less confident bicyclists.	Bay Head/Go Bay Head	Less than 2 years	Low	Bicyclists
2	Host monthly social rides. Rides can target groups of people and cover various themes. Kidical Massive is a global family bike ride that takes place in September - www.kidicalmass.org	Bay Head/Go Bay Head	Less than 2 years	Low	Bicyclists
3	Continue the weekly "Walk with the Mayor" events. Consider hosting a "Ride with the Mayor" event.	Bay Head	Less than 2 years	Low	Both
4	Celebrate Bike Month (May) and Walk Month (October) and pass a resolution declaring these designations.	Bay Head	Less than 2 years	Low	Both
5	Participate in International Walk to School Day, typically held in October, and Bike to School Day, typically held in May.	Bay Head Board of Education/PTA	Less than 2 years	Low	Both
6	Expand Safe Routes to School Efforts - Complete a School Travel Plan; Consider using a tracking system to monitor and encourage use (see Montclair's "Boltage at Edgemont Program"); Apply for and achieve Gold Level in NJ Safe Routes to School Recognition Program.	Bay Head Board of Education/ PTA / Greater Mercer TMA	Less than 2 years	Low	Both
7	Work with the Ocean County Security Department Bike Patrol to host a bike rodeo at the Bay Head School. http://www.co.ocean.nj.us/SecurityDept/BikePatrol.aspx	Bay Head Board of Education / Ocean County	Less than 2 years	Low	Bicyclists
8	Host an Open Streets event – temporarily close streets to motor vehicles, activities could include a bike rodeo, fitness activities, bicycle maintenance education, and rules of the road education.	Bay Head/Ocean County/Go Bay Head	Less than 2 years	Medium	Both
9	Have an annual bicycle tour around Bay Head and surrounding areas that promotes participation by residents and visitors.	Bay Head/Go Bay Head / Neighboring Municipalities	Less than 2 years	Low	Bicyclists
10	Participate in Park(ing) Day held on the third Friday in September. Consider converting a parking space into a parklet in the Town Center. Coordinate with Ocean County if location is within a County roadway.	Bay Head/Go Bay Head/Ocean County	Less than 2 years	Low	Pedestrians
11	Launch a bicycle friendly business program to incentivize biking to retail establishments (i.e. show your helmet and get 3% off).	Bay Head	Less than 2 years	Low	Bicyclists

TABLE 7: ENCOURAGEMENT RECOMMENDATIONS (cont'd)

	ACTION	Responsibility	Timeframe	Cost	Type
12	Pilot a bicycle sharing program. Collingswood Bike Share is a good example of a small scale bike share. http://www.collingswood.com/bikeshare	Bay Head	2 to 5 years	High	Bicyclists
13	Work with the Board of Education to adopt Bicycle to School and Walk to School ordinances. Adopting policies can encourage children to walk and bike to school and build a culture of health and wellness in schools and municipalities. The NJ SRTS Resource Center has model policies that can be modified. http://www.saferoutesnj.org/resources/tips-tools-and-more/	Bay Head Board of Education/ PTA	Less than 2 years	Low	Both
14	Become a League of American Bicyclists Bicycle Friendly Community (BFC). Applicants to the program receive customized feedback and technical assistance. http://www.bikeleague.org/community	Bay Head	Less than 2 years	Low	Bicyclists
15	Apply for recognition as a Walk Friendly Community. Walk Friendly Communities receive specific suggestions and resources on how to make needed changes for pedestrian safety as well as national recognition for their efforts. http://www.walkfriendly.org/	Bay Head	Less than 2 years	Low	Pedestrians
16	Create a safe cycling pledge and offer a reward to anyone who takes the pledge.	Bay Head Police Department	Less than 2 years	Low	Bicyclists

Table 8: Enforcement Recommendations

	ACTION	Responsibility	Timeframe	Cost	Type
1	Utilize the Pedestrian Safety Enforcement (PSE) program sponsored by the NJ Division of Highway Traffic Safety (DHTS) with support from NJDOT to increase driver knowledge of the "Stop and Stay Stopped for Pedestrians" law and increase stopping behavior. DHTS and NJDOT offer trainings on PSE to local police departments.	Bay Head Police Department	Less than 2 years	Low	Pedestrians
2	Have the Borough's crossing guard supervisor attend the New Jersey Crossing Guard Training Program workshop hosted by the NJ Safe Routes to School Resource Center. Consider adopting the Model Municipal Crossing Guard Policy. http://www.njcrossingguards.org/	Bay Head Police Department	Less than 2 years	Medium	Pedestrians
3	Continue to install temporary feedback signs in corridors with high incidents of speeding and regularly enforce the speed limit along these corridors.	Ocean County/Bay Head	Less than 2 years	Medium	Both
4	Encourage police to use bicycles for patrol work. Police on bicycles are excellent role models, especially for children.	Bay Head Police Department	Less than 2 years	Medium	Bicyclists
5	Adopt a local ordinance regarding the legality of bicyclists riding on sidewalks.	Bay Head	Less than 2 years	Low	Bicyclists
6	Enforce helmet use for bicyclists less than 17 years of age.	Bay Head Police Department	Less than 2 years	Low	Bicyclists
7	Consistently enforce local parking regulations to prevent encroachment of parked cars in crosswalks or intersections.	Bay Head Police Department	Less than 2 years	Medium	Pedestrians

TABLE 9: EVALUATION & PLANNING RECOMMENDATIONS

	ACTION	Responsibility	Timeframe	Cost	Type
1	Adopt the Borough of Bay Head Bicycle and Pedestrian Plan as part of the municipality's Master Plan.	Bay Head	Less than 2 years	Low	Both
2	Set up a Bicycle and Pedestrian Task Force or Advisory Committee to implement the Plan.	Bay Head	Less than 2 years	Low	Both
3	Adopt a Complete Streets Policy and Checklist.	Bay Head	Less than 2 years	Low	Both
4	Establish and share roadway maintenance policies related to bicycle facilities (striping, clearing debris, filling potholes) and pedestrian facilities (crosswalks, sidewalks and curb ramps).	Bay Head	2 to 5 years	High	Both
5	Adopt a snow removal and winter maintenance policy that incorporates bicycle and pedestrian facilities to encourage landowners to maintain their sidewalks for the public's safety.	Bay Head	Less than 2 years	Low	Both
6	Increase street sweeping frequency on the neighborhood greenway, as needed.	Bay Head	Less than 2 years	Medium	Both
7	Develop an ADA Transition Plan.	Bay Head	2 to 5 years	Medium	Pedestrians
8	Consider making it easier for residents to report maintenance issues through an online form or an interactive public platform such as SeeClickFix.	Bay Head	2 to 5 years	Medium	Both
9	Work with NJTPA to conduct regular pedestrian and bicycle counts along key corridors and routes.	Bay Head / NJTPA	2 to 5 years	Low	Both
10	Annually evaluate crash locations using the Plan4Safety online tool. http://cait.rutgers.edu/tsrc/plan4safety	Bay Head	2 to 5 years	Low	Both
11	Use the National Association of City Transportation Officials (NACTO) *Urban Bikeway Design Guide* and *Urban Street Design Guide* and ITE *Designing Urban Thoroughfares* for planning and designing bicycle and pedestrian facilities.	Bay Head	Less than 2 years	Low	Both
12	Modify the Borough ordinance to allow for shared parking and increase flexibility for parking requirements to be met through on-street parking or off-site facilities.	Bay Head	Less than 2 years	Low	Both
13	Adopt bicycle parking standards.	Bay Head	Less than 2 years	Low	Bicyclists
14	Specify minimum sidewalk widths in the Borough's ordinance (5' in residential zones and 8' in commercial zones).	Bay Head	Less than 2 years	Low	Pedestrians
15	Modify bulk regulations in the Borough's ordinance to include maximum front yard setbacks so buildings are not placed too far back from the street.	Bay Head	Less than 2 years	Low	Both
16	Modify the Borough ordinance to restrict parking in front yards.	Bay Head	Less than 2 years	Low	Both

TABLE 9: EVALUATION & PLANNING RECOMMENDATIONS (cont'd)

	ACTION	Responsibility	Timeframe	Cost	Type
17	Develop a policy describing the process to review requests for new crosswalks and stop signs based on traffic speeds and volumes, pedestrian travel, sight lines, stopping distances, and other traffic engineering considerations. "Unwarranted" stop signs can lead to accidents if they are in unexpected locations and can also result in unnecessary delays. "Unwarranted" crosswalks can give pedestrians a false sense of security.	Bay Head	Less than 2 years	Low	Both
18	Consider adding a maximum driveway width restriction (20' in commercial zones and 12' in residential zones).	Bay Head	Less than 2 years	Low	Both
19	Consider changing the sidewalk maintenance program to one where costs are shared by the Borough and property owners or is the full responsibility of the Borough for some locations, such as downtown.	Bay Head	2 to 5 years	High	Pedestrians

Funding

There are a variety of funding sources available for the development of bicycle and pedestrian facilities including: federal, state and local government, capital funding from the municipality, private and non-profit grants.

The following is a compilation of funding sources that have been, or could be used to fund pedestrian and bicycle improvements. It is important to note that federal funding available for bicycle and pedestrian related projects is in a state of flux until a new federal transportation bill is updated. The current Federal Transportation Bill —known as Moving Ahead for People in the 21st Century (MAP-21) — was passed in 2012. Federal funding is set to expire on October 29, 2015. As new federal transportation legislation is adopted, the Borough of Bay Head should work closely with NJTPA, Ocean County, and NJDOT to monitor and take advantage of the new funding opportunities.

Federal

- Transportation Alternatives Program (TAP)
- Safe Routes to School Programs (SRTS)
- Local Safety Program
- Recreational Trails Program (RTP)

State

- NJDOT Municipal Aid
- NJDOT Bikeway Grant Program
- NJDOT Safe Streets to Transit
- NJ Division of Highway Traffic Safety Grants
- New Jersey Healthy Communities Network Grants

Private and Non-Profit

- Sustainable Jersey
- People for Bikes Community Grants
- The Robert Wood Johnson Foundation

Other Sources

- Municipal Allocations
- Impact Fees
- Local Private-Sector Funding
- Adopt-A-Trail Programs
- Membership Campaigns
- Local Improvement Districts

See *Appendix B: Funding Programs and Sources* for descriptions of the funding sources.