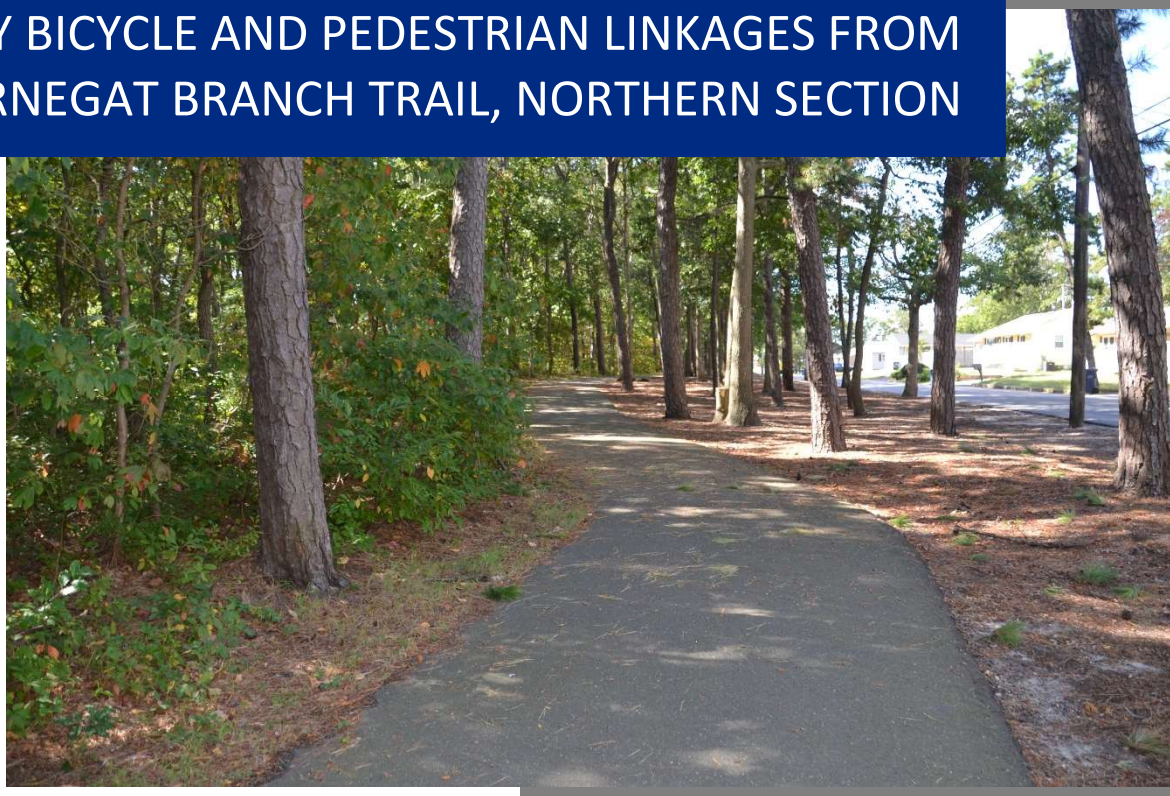
FINAL REPORT

OCEAN COUNTY BICYCLE AND PEDESTRIAN LINKAGES FROM THE BARNEGAT BRANCH TRAIL, NORTHERN SECTION



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Prepared for Ocean County

Funded by North Jersey Transportation Planning Authority, Inc.

Abstract:

The purpose of this study is to provide recommendations on safe pedestrian and bicycle linkages to the Barnegat Branch Trail in the northern portion of Ocean County. This study has produced a series of recommendations at targeted locations within the study area. These recommendations emphasize bicycle and pedestrian improvements and provides an action plan for implementation. The action plan offers guidance to assist the County and municipalities in prioritizing the recommended improvements. Information about funding opportunities is also included.

The findings of this study have been discussed and reviewed with local municipal officials and have been presented for public comments. This input has helped shape the study recommendations.

TABLE OF CONTENTS

APPENDICES

Appendix A – Implementation Plan Supplements
Appendix B – Existing Conditions Documents
Appendix C – Public Outreach Documents
Appendix D – Recommended Improvements Supplements

EXECUTIVE SUMMARY

Ocean County is primarily a suburban and rural county with a burgeoning residential population, particularly in the northern and central portions of the County. The Barnegat Branch Trail (BBT) was developed as a multimodal transportation corridor to serve the needs of County residents and visitors. The BBT is a rail-to-trail project under development, which, when complete, will be a 15.6-mile bike and pedestrian corridor from Barnegat Township to downtown Toms River. Currently, there are 10.75 miles constructed by Ocean County, in addition to a 1.3-mile municipal section of the trail constructed by Beachwood Borough.

The goal of this study is to determine potential walking and bicycling connections to the existing and proposed sections of the BBT and to recommend bicycle and pedestrian facility improvements in the surrounding municipalities. Ocean County and its municipalities have a large inventory of parks and desirable destinations; however, adequate pedestrian and bicycle access to those points and the residential areas are lacking, particularly in the more densely developed northern municipalities.

Coordination with the communities, local officials, and other key stakeholders was a vital component of this study. Partnerships with representatives of each of the municipalities, NJ TRANSIT, NJDOT, and others provided valuable insight into the communities in the study area and their needs.

The recommendations in this report are the result of data collection, research, and input from the public and a Technical Advisory Committee, which was comprised of representatives from each of the municipalities within the study area, NJ TRANSIT, NJDOT, and other local organizations. Data collected included road widths, speed limits, and pedestrian and bicycle crash histories. Public outreach included a website, a survey, a short video about the trail and the study, and several meetings. The resulting set of recommendations will help to develop linkages connecting the BBT to points of interest in surrounding communities and to advance the goal of the BBT serving as a spine for the regional active transportation network.

Recommendations vary by municipality and represent a comprehensive examination of the unique transportation needs of each community. They include:

- Within Beachwood Borough, the recommended improvements focus on providing safe points to cross US Route 9 and the Garden State Parkway.
- In Berkeley Township, high-speed and high-volume roads are more common, therefore recommendations focus on providing off-street trails and shared use paths as well as bike lanes and paved shoulders.
- In Pine Beach Borough, recommendations focus on improving safe routes that are currently used frequently by bicyclists such as Riverside Drive and Motor Road.
- Within South Toms River Borough, which is divided by several large high-speed roads, including US Route 9 and Dover Road, recommendations focus on providing off-street connections and using existing trail networks.
- In Toms River Township, recommendations focus on providing connections to the many destinations near the Business Improvement District, residential developments to the east, and the Toms River Park & Ride. Recommended improvements include shared use paths, bike lanes, signed bicycle routes, paved shoulders with bicycle route signage, and intersection improvements.

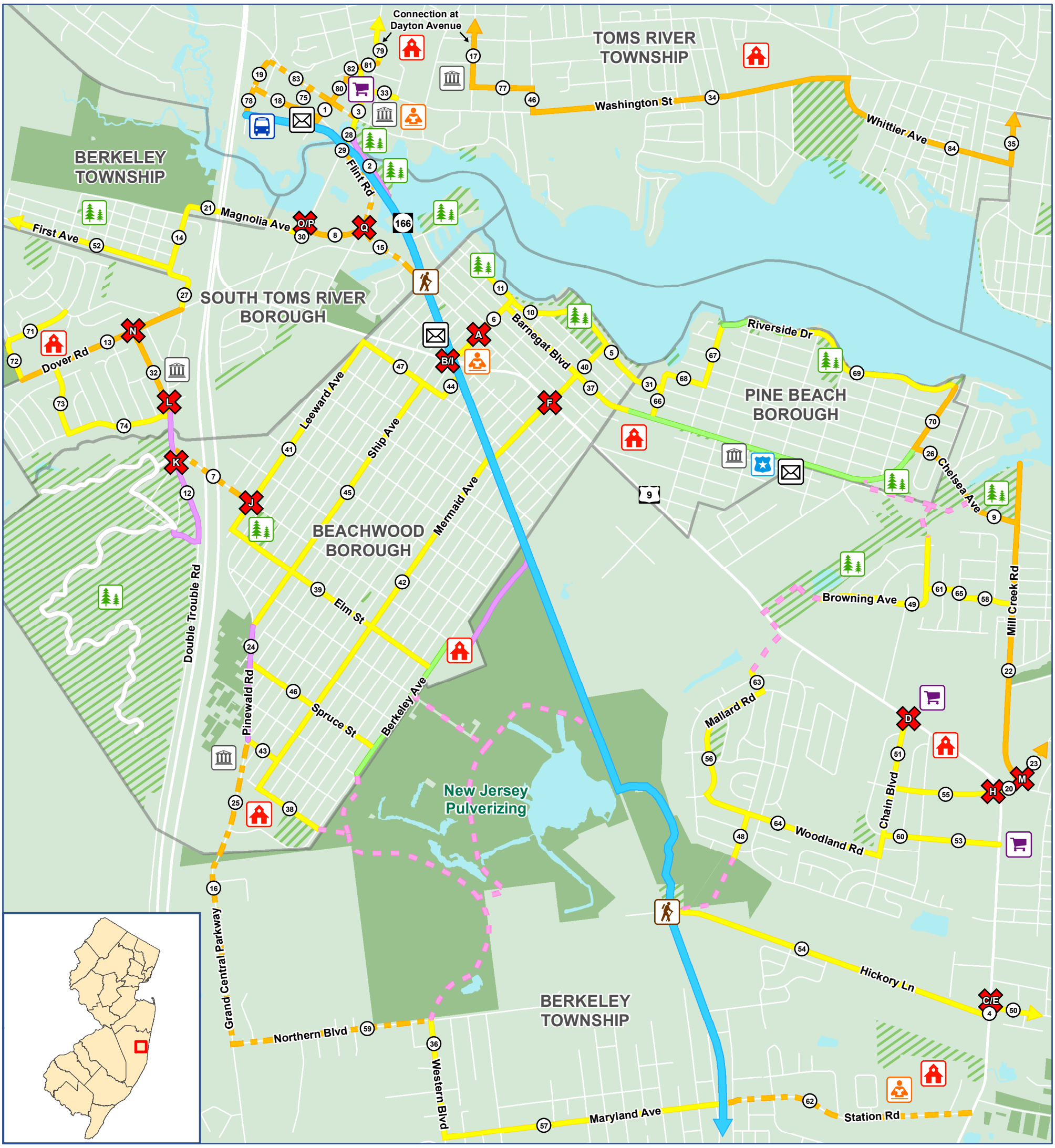
The Recommended Improvements Map is shown in Figure I.

The Implementation Plan provides guidance for the County and municipalities for designing and installing the recommended improvements. Additionally, it has suggestions for funding opportunities.

Michael Baker INTERNATIONAL

Barnegat Branch Trail

Northern Section: Potential Facility Improvements and Best Routes



Proposed

- Intersection Improvements
- Shared Use Path
- Signed Bicycle Route
- Paved Shoulder with Signed Bicycle Route
- Two 5' Bike Lanes
- Other Trails

Current

- Barnegat Branch Trail
- Municipal/County Trail
- Shared Use Path

- Municipal Boundary
- Recreational Area
- County Natural Lands
- Park
- School
- Library
- Trailhead
- Post Office
- Shopping Center
- Municipal Building
- Toms River Park & Ride
- Police Department

0 0.25 0.5 Miles

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

Figure I

INTRODUCTION

Ocean County is primarily a suburban/rural County with a burgeoning residential population, particularly in the northern and central portions of the County. The Barnegat Branch Trail (BBT) was developed as a multimodal transportation corridor to serve the needs of County residents and visitors. The BBT is a rail-to-trail project under development, which, when complete, will be a 15.6-mile bike and pedestrian trail from Barnegat Township to downtown Toms River. Currently, there are 10.75 miles constructed by Ocean County, in addition to the 1.3-mile municipal section of the trail constructed by Beachwood Borough.

The goal of this study is to determine potential walking and bicycling connections to the existing and proposed sections of the BBT and to recommend bicycle and pedestrian facility improvements in the surrounding municipalities. Ocean County and its municipalities have a large inventory of parks and desirable destinations; however, adequate pedestrian and bicycle access to those points and the residential areas are lacking, particularly in the more densely developed northern municipalities.

The northern section of the BBT is part of a walking and bicycling corridor that will eventually connect destinations in the study area from Hickory Lane in Berkeley Township to the Toms River Park & Ride, following the alignment of the former Barnegat Branch of the Central New Jersey Railroad. The Study Area includes the municipalities of Beachwood Borough, Berkeley Township, Pine Beach Borough, South Toms River Borough, and Toms River Township. The study area is shown in Figure 1.

Coordination with the communities, local officials, and other key stakeholders was a vital component of the study. Partnerships with representatives of each of the municipalities, NJ TRANSIT, NJDOT, and others provided valuable insight into the communities in the study area and their needs. To solicit feedback and advice from these groups the Technical Advisory Committee (TAC) was developed. The TAC included representatives from each of the municipalities within the study area, NJ TRANSIT, NJDOT, and other local organizations. The TAC met four times to discuss the study and provide insight into the communities in the project area and their respective needs.

This study, funded through the North Jersey Transportation Planning Authority's (NJTPA) Subregional Studies Program, determines the linkages that could be developed between the BBT and local residential areas, schools, public and community buildings, parks, recreation, public spaces, employment, and transportation centers, such as the NJ TRANSIT Park & Ride in Toms River and bus stops. These recommended linkages would help connect multiple walkable town centers with the BBT, and encourage biking and walking as a safe, accessible, and desirable mode of transportation.

The recommendations in this report are the result of data collection, research, and input from the public and a TAC. Data collected included road widths, speed limits, and pedestrian and bicycle crash histories. Public outreach included a website, a survey, a short video about the trail and the study, and several meetings. A list of recommended improvements was developed based on this analysis. Improvements include bicycle facilities, bicycle parking, and intersection improvements throughout the study area. These recommendations are intended to improve the safety for all road users, calm traffic, improve pedestrian and bicycle access and mobility, and promote a more livable, active community in the northern portion of Ocean County.

This document serves as a framework to assess the street network in the study area, assigns responsible parties, and sets priorities and action items. The implementation of the recommendations in this study will be at the discretion of each municipality within the study area, as well as the County. This plan will be

a tool for communities to discuss the possibilities with local leaders, residents, and other agencies. Additionally, it will assist in the application process for funding opportunities.

Barnegat Branch Trail

Northern Section: Project Area

LEGEND

- Barnegat Branch Trail
- Garden State Parkway
- County Road
- State Road
- Municipal Boundary
- Recreational Area
- County Natural Lands

0 0.25 0.5
Miles

N

EXISTING CONDITIONS

LOCAL & REGIONAL DESTINATIONS

A key component of this study is to provide safe bicycle and pedestrian access from the BBT to community destinations using intermodal linkages. This requires identifying and understanding the proximity of transit facilities, recreational facilities, schools, and other community services.

The Toms River Park & Ride facility, located at the northern terminus of the BBT, provides express bus service to Midtown Manhattan, as well as local and regional NJ TRANSIT service to Lakewood, Atlantic City, and Cape May County. The facility is also a stop for Ocean Ride bus service, which provides local service to surrounding towns including Manchester, Berkeley, and neighborhoods in Toms River. NJ TRANSIT also operates local bus service along US Route 9, NJ Route 166, NJ Route 37, and Hooper Avenue in Toms River.

There are a variety of community destinations with opportunities to connect to the BBT for diverse recreational and leisure activities, including:

- Beaches
- Libraries
- Parks
- Historic Sites

Beachwood Borough, Berkeley Township, Pine Beach Borough, South Toms River Borough, and Toms River Township have several municipal parks located within two miles of the BBT. These parks contain soccer fields, softball/baseball fields, marinas, piers, and conservation areas. Jakes Branch County Park in Beachwood, west of the Garden State Parkway, is a popular County Park that contains a Nature Center, hiking and walking trails, interpretive nature trails, softball/baseball fields, basketball courts and playgrounds. The Garden State Parkway is a barrier for pedestrians and bicyclists trying to access Jakes Branch County Park from the BBT, as Birch Street in Beachwood and Double Trouble Road in Beachwood and South Toms River are the only roads that provide access to the park. Mill Creek Park is a County Park located approximately 1.75 miles northeast from the BBT in Berkeley Township and includes a conservation area, pavilion, picnic area, grills, playgrounds, and trails. This park can be accessed from the BBT by using residential streets and requires pedestrians and bicyclists to cross US Route 9.

There are also various community facilities and gathering spaces located within two miles of the BBT, including the Beachwood Community Center, Beachwood Beach, and several branches of the Ocean County Library within one mile of the trail. Many historic properties are also within two miles of the BBT, such as homes, churches, and museums in Beachwood Borough, Berkeley Township, Pine Beach Borough, South Toms River Borough, and Toms River Township.

Municipal government facilities such as Town Halls, Police Stations, and Post Offices in Beachwood, Berkeley, Pine Beach, South Toms River and Toms River are also located near the trail. The Ocean County Government complex is in Toms River on Washington Street and Hooper Avenue, approximately ¼ mile from where the BBT will run along NJ Route 166. A list of many of the major destinations within the study area can be found in Table 1 as well as Figure 2.

Table 1: Destinations by Municipality

Municipality	Destination
Beachwood Borough	Beachwood Beach
	Ocean County Library- Beachwood Branch
	Beachwood Community Center
	Beachwood Elementary School
	Beachwood Municipal Offices and Court
	Beachwood Trail Head (future)
	Birch & Surf Park
	Jakes Branch County Park
	Mayo Park
	Toms River Intermediate School
	United States Post Office
Berkeley Township	Bayville Elementary School
	Baywick Plaza
	Berkeley Plaza
	Berkeley Township Elementary School
	Florence T. Allen Conservation Area
	Hickory Lane Trailhead (future)
	Mill Creek County Park
	Ocean County Library - Berkeley Branch
Pine Beach Borough	Pine Beach Elementary School
	Pine Beach Police Department
	United States Post Office
	Vista Park
	Walling Field
South Toms River Borough	Cedar Point Park
	Mathis Plaza
	South Toms River Elementary
	Manitou Park Recreation Facilities
	South Toms River Municipal Offices and Court
Toms River Township	Huddy Park
	Ocean County Clerk's Office
	Ocean County Library- Toms River Branch
	Downtown Toms River Business Improvement District
	Toms River High School South
	Toms River Municipal Bus Terminal and Park & Ride
	Toms River Municipal Offices and Court
	United States Post Office
	Washington Street Elementary

Barnegat Branch Trail

Northern Section: Destinations

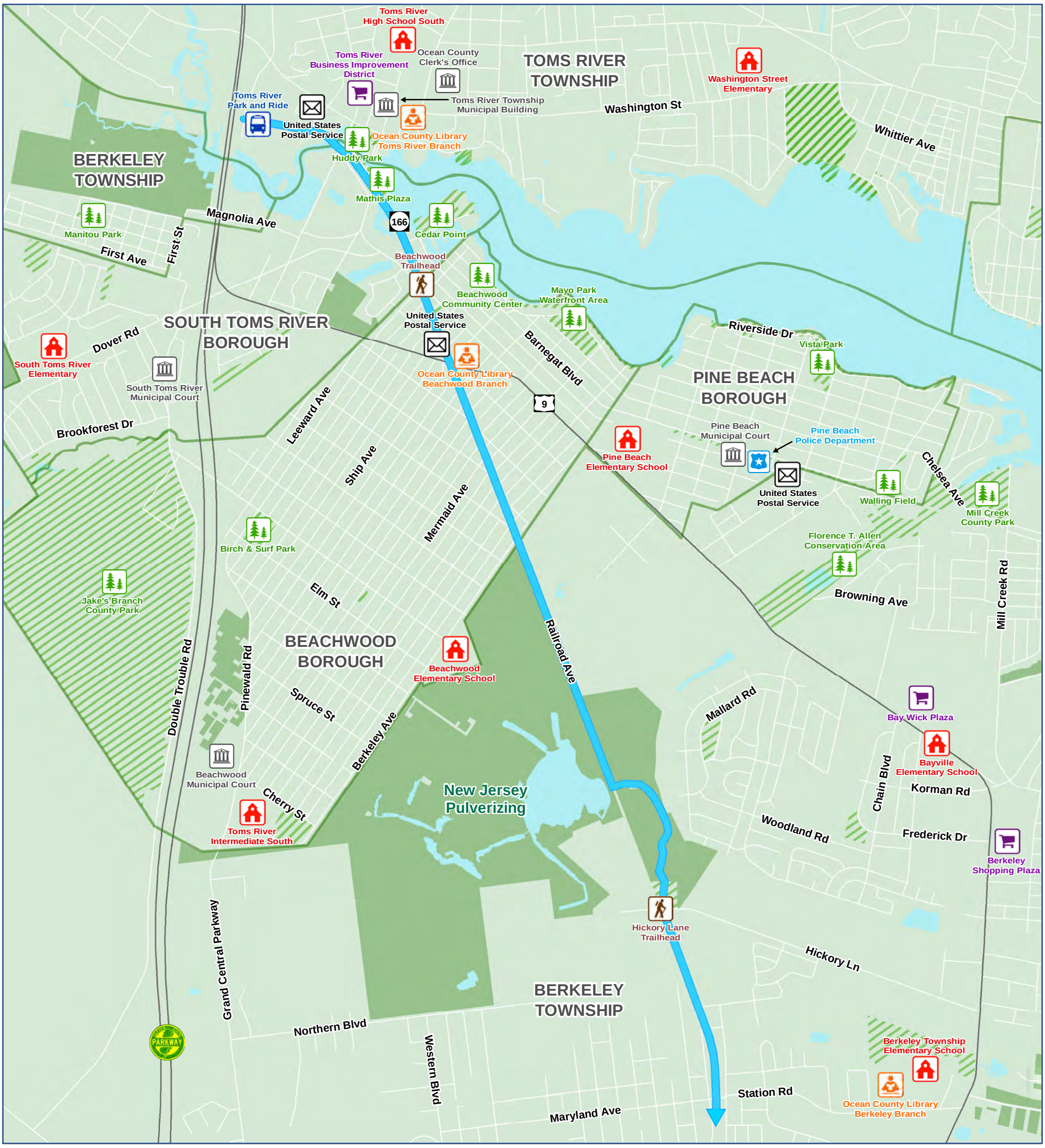


Figure 2

POTENTIAL FUTURE DESTINATIONS

Several destinations were identified that have yet to be constructed and should be considered in future updates of the regional transportation network. One potential destination is the proposed Berkeley Town Center. The Town Center is expected to be a mixed-use development; providing residential, retail, recreation, and civic space. The Town Center would be located adjacent to the northeast border of the former NJ Pulverizing Site, along its northeast border. The western border of the Berkeley Town Center would lie along the BBT. Due to the proximity of the proposed Town Center to the BBT, a direct connection between the trail and the town center is recommended. As the proposed Town Center has not advanced past conceptual development, a connection to the future location was not included as part of the recommendations made in this study.

A passive recreation facility is proposed south of Merion Avenue, east of Pine Beach Elementary School. Any formal development of the proposed facility should incorporate future bicycle and pedestrian connections.

ENVIRONMENTAL JUSTICE DEMOGRAPHIC REVIEW

DEFINITION

On February 16, 1994, President Clinton issued Executive Order 12898 entitled, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.” The order directed federal agencies to identify and address the negative effects their actions may have on minority and low-income populations. Additionally, in 2015, the Federal Highway Administration (FHWA) issued an Environmental Justice Reference Guide, which outlines its goal of identifying, minimizing, and mitigating adverse effects on minority and low-income populations.

THE PROCESS

The project team analyzed the five-year American Community Survey (ACS) data for the 2012-2016 period for all block groups in Toms River Township, South Toms River Borough, Beachwood Borough, Pine Beach Borough, and Berkeley Township. This analysis was conducted to compare the characteristics of individual block groups to the Ocean County average in six different categories: minority population, senior population, low-income population, limited English proficiency population, disabled population, and zero vehicle households. This goes beyond the limited scope of Environmental Justice analysis described above. These municipalities all have a portion of their land area located within two miles of the BBT route.

Table 2 shows the percentage of individuals or households that have been identified for Environmental Justice concerns.

Table 2: Ocean County Profile

Populations Identified for Environmental Justice Concerns		
Underserved Population Signifier	**Count**	**Percentage**
Data Universe: Total Population	586,166	
Minority Population	87,309	14.9%
Senior Population	128,446	21.9%
Data Universe: Total Population Age 5 or Older	546,201	
Limited English Proficiency	24,439	4.5%
Data Universe: Total Civilian Non-Institutionalized Population	580,846	
Disabled Population	78,100	13.4%
Total Households	222,609	
Households with Income below Poverty Level	20,543	9.2%
Zero Vehicle Households	15,062	6.8%

Source: US Census Bureau ACS 2012-2016 5-Year Estimates
Minority Population - Table DP-5 (Total Population - Not Hispanic or Latino, White)
Senior Population - Table DP-5 (Total Population Age 65 and Over)
Low-Income Population - Table B17017 (Poverty Status in the Past 12 Months by Household)
Limited English Proficiency - Table S1601 (Speak English less than 'Very Well')
Disabled Population - Table S1810 - (Civilian Non-Institutionalized Population with Disability)
Zero Vehicle Households - Table B08201 (Households with No Vehicle Available)

For some of the indicators analyzed, the five-year estimates at the block group level are found in different sets of tables and have a substantial margin of error. In some instances, the margin of error is greater than the estimate. While this data may not be statistically significant for many types of analysis, it provides a baseline for consideration.

Table 3 shows the results at the municipal level for each of the five municipalities within the study area. Municipal values that are higher than the Ocean County average are bold.

Table 3: Environmental Justice Populations

Environmental Justice Population Signifier	Ocean County		Beachwood Borough	Berkeley Township	Pine Beach Borough	South Toms River Borough	Toms River Township
Data Universe: Total Population							
Minority Population	87,309	14.9%	10.5%	10.6%	5.9%	**47.8%**	**16.2%**
Senior Population	128,446	21.9%	10.8%	**41.6%**	21.6%	8.0%	19.2%
Data Universe: Total Population Age 5 or Older							
Limited English Proficiency	24,439	4.5%	1.8%	3.3%	1.8%	**6.0%**	3.6%
Data Universe: Total Civilian Non-Institutionalized Population							
Disabled Population	78,100	13.4%	11.6%	**22.1%**	12.3%	11.9%	12.4%
Data Universe: Total Households							
Households with Income below Poverty Level	20,543	9.2%	8.4%	8.7%	4.6%	**15.6%**	7.0%
Zero Vehicle Households	15,062	6.8%	2.2%	**7.5%**	0.7%	4.5%	6.5%

Sources: US Census Bureau ACS 2012-2016 5-Year Estimates.
Minority Population - Table DP-5 (Total Population - Not Hispanic or Latino, White).
Senior Population - Table DP-5 (Total Population Age 65 and Over).
Low-Income Population - Table B1701 7(Households Below Poverty Level).
Limited English Proficiency - Table S1601 (Speak English less than 'Very Well').
Disabled Population - Table S1810 - (Civilian Non-Institutionalized Population with Disability).
Zero Vehicle Households - Table B08201 (Households with No Vehicle Available)

RECOMMENDATIONS AND ENVIRONMENTAL JUSTICE POPULATIONS

The purpose of the environmental justice review is to ensure that benefits and burdens associated with transportation projects are allocated equitably, and that low-income and minority populations are given an opportunity to participate in the planning and decision-making process. The public outreach process was fair, open, and provided opportunities for participation. During the process, there were discussions with the Ocean County Board of Health and the Board of Social Services, Latino Family Connections, and local officials to ensure that the community was involved in the process.

Ultimately, the recommended improvements and connections are distributed throughout the study area. Each municipality analyzed within two miles of the BBT alignment has at least one proposed improvement within its bounds. These include shared use paths, bicycle lanes, paved shoulders with signed bicycle routes, signed bicycle routes, and intersection improvements.

Each of the 10 block groups identified with the greatest concentration of environmental justice factors are served by the proposed recommendations. In South Toms River Borough, the BBT alignment, bicycle lanes, paved shoulders with signed bicycle lanes, and other trails are proposed within the two census block groups with the highest concentrations of environmental justice communities. In Toms River Township, the BBT alignment, signed bicycle routes, and connections to the NJ TRANSIT Park & Ride lot are proposed within the block groups with the highest concentration to environmental justice populations, which are clustered around the downtown area. In Berkeley Township, three of the census block groups most impacted by environmental justice factors are located east of the BBT. The proposed connections within these block groups include signed bicycle routes, paved shoulders, and other trails to provide connections to the New Jersey Pulverizing property and the BBT. The two block groups west of the trail that have the highest concentrations of environmental justice populations are proposed to

include signed bicycle routes that will connect to facilities within South Toms River Borough and ultimately to the BBT.

The project outreach and recommendations have considered the potential impacts associated with the environmental justice demographic categories. The benefits of the proposed recommendations are equitably distributed throughout the study area and provide strong links between the geographic areas with the highest concentrations of environmental justice populations and the BBT. For a more detailed analysis, see Appendix B.

BICYCLE COMPATIBILITY

The New Jersey Department of Transportation (NJDOT) Bicycle Compatibility Rating Criteria Tables were used to inventory roads that could serve as potential linkages to the BBT and determine their compatibility for bicycle use. The Bicycle Compatibility Rating Criteria Tables consider road geometry, speed limits, annual average daily traffic (AADT), and the presence of shoulders to determine if a road is most suitable, moderately suitable or least suitable for bicycles. The Bicycle Compatibility Rating Criteria Tables are included in Appendix B. The Bicycle Compatibility categories are defined as:

Value	Description
Most Suitable	Most suitable for on-road cycling for users of all skill levels. Most cyclists would find conditions favorable
Moderately Suitable	Moderately suitable for on-road cycling. Cyclists of lesser skill and experience may find conditions unfavorable
Least Suitable	Least suitable for on-road cycling. Cyclists of advance skill and experience riding in traffic may find conditions unfavorable

Using these criteria, a map depicting the bicycle compatibility of the existing road network was produced. Roads that perform well in this analysis are likely candidates for further improvement. The map also presents where challenges may exist as it identifies roads that are the least suitable. The roads that are least suitable will not be recommended unless facility improvements are made to increase the suitability. Figure 3 shows the Bicycle Compatibility in the study area.

BICYCLE AND PEDESTRIAN CRASH ANALYSIS

Crash data for the most recent 10-year period available (2007-2016) was obtained from the NJDOT Safety Voyager application. During this period, there were 370 crashes involving pedestrians or bicycles within a two-mile radius of the BBT between Hickory Lane in Berkeley Township and the Toms River Park & Ride. Of the 370 crashes, 214 (58 percent) involved pedestrians, 142 (38 percent) involved bicycles, and 14 (4 percent) involved either pedestrian or bicyclist.

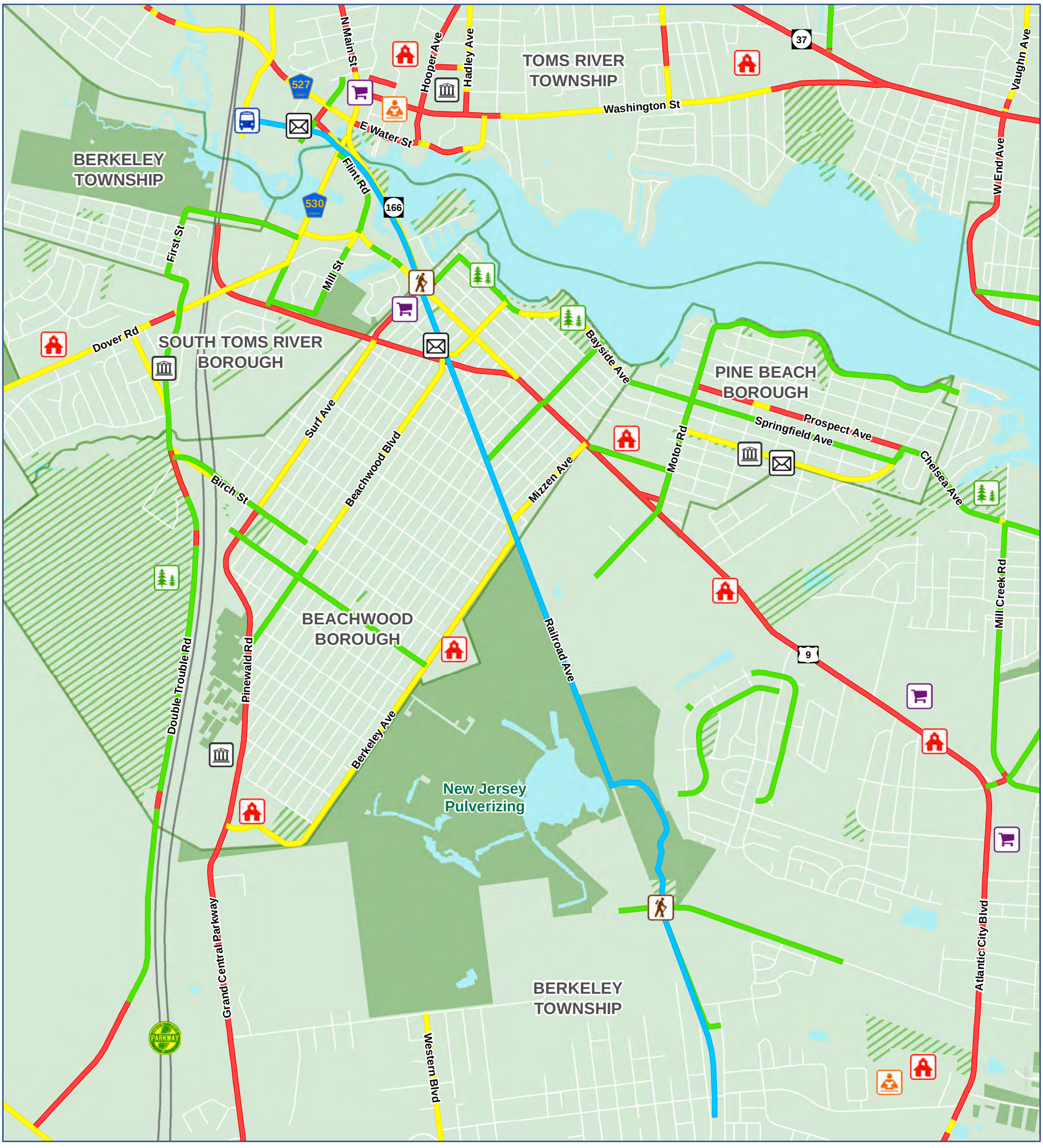
The largest concentration of crashes occurred on US Route 9, with a total of 73 crashes, representing 20 percent of total crashes on all roads. The top five roads, in terms of the total number of pedestrian and bicyclist crashes within two miles of the BBT were:

- US Route 9 (Atlantic City Boulevard) – 73 crashes (20 percent)
- NJ Route 37 – 47 crashes (13 percent)
- County Route 549 (Hooper Avenue) – 36 crashes (10 percent)
- NJ Route 166 (Main Street/ Atlantic City Boulevard/ Herflicker Boulevard) – 33 crashes (9 percent)
- County Route 527 (Water Street) – 17 crashes (5 percent)

The remaining 164 crashes were split among 84 other roads.

Barnegat Branch Trail

Northern Section: Bicycle Compatibility of Roadways



LEGEND

- Least Suitable
- Moderately Suitable
- Most Suitable
- Barnegat Branch Trail
- Municipal Boundary
- Recreational Area
- County Natural Lands
- School
- Library
- Park
- Post Office
- Shopping Center
- Municipal Building
- Tom's River Park & Ride
- Trailhead

0 0.25 0.5
Miles

N

Figure 3

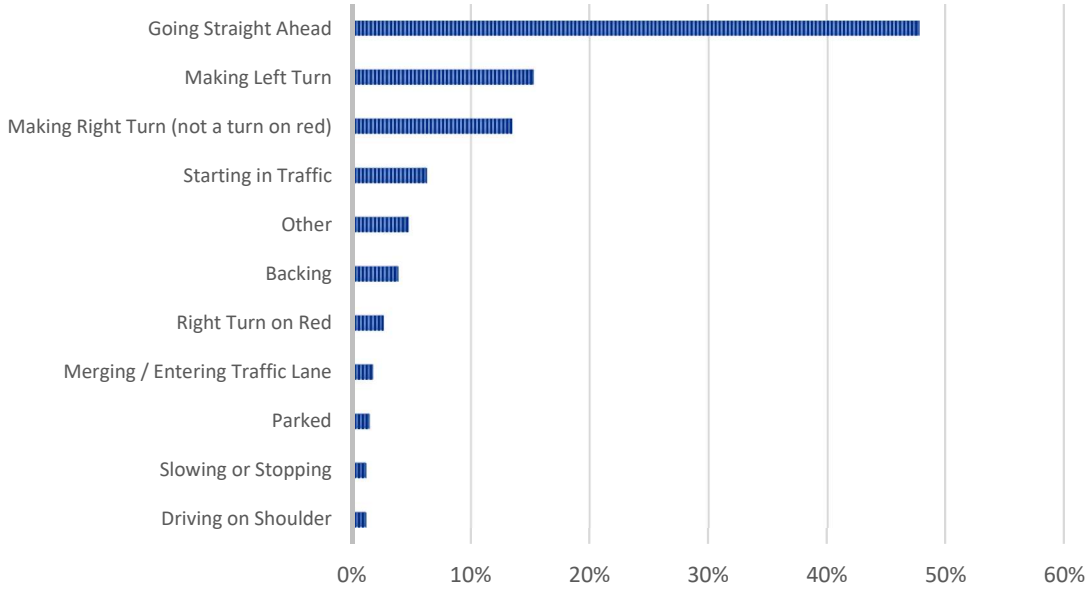
The crash locations varied by roadway type. The largest portion of pedestrian and bicyclist crashes occurred along state highways, with 144 total crashes, representing 39 percent of the total crashes on all roads. The number of crashes by roadway type are shown below:

- State highways – 144 crashes (39 percent)
- County roads – 119 crashes (32 percent)
- Municipal roads – 74 crashes (20 percent)
- Private property – 23 crashes (6 percent)
- Roads operated by a state/interstate authority – 8 crashes (2 percent)
- Municipal authority park or institution roads – 2 crashes (1 percent)

This coincides with trends reported by Alan M. Voorhees Transportation Center at Rutgers University on statewide pedestrian and bicyclist fatal crash data from 2003-2011. In the historical data, approximately 38 percent of crashes occurred on state highways, 27 percent occurred on county roads, and 25 percent occurred on municipal roadways.

Pre-crash actions were listed for 333 of the 370 crashes. The known action of motor vehicles prior to each crash are shown in Figure 4.

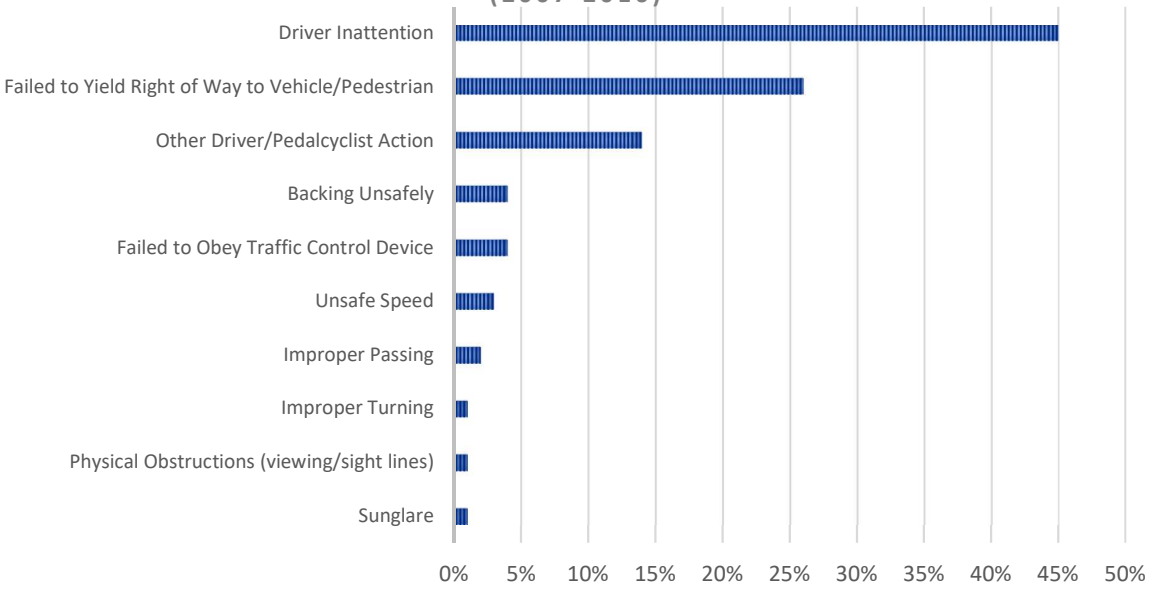
FIGURE 4
CRASH TOTAL BY PRE-CRASH ACTIONS (2007-2016)



The motor vehicle operator was going straight ahead in 159 (48 percent) of pedestrian and bicycle crashes. The “other” category represents the combination of pre-crash actions listed in less than 1 percent of the known instances, including passing, changing lanes, parking, or being stopped in traffic.

A total of 170 (46 percent) crashes had a known contributing circumstance, while 144 (39 percent) listed “none (driver/bicyclist)” as the contributing circumstance. The percentage of the total known contributing circumstances are shown in Figure 5.

FIGURE 5
CRASH TOTAL BY KNOWN CONTRIBUTING CIRCUMSTANCES
(2007-2016)



Of the known contributing circumstances, 45 percent involved driver inattention, and 26 percent resulted from a failure to yield by either the motor vehicle operator, pedestrian, or bicyclist (listed as "pedalcyclist" in New Jersey police crash reports). The "other driver/pedalcyclist action" represents a combination of the remaining contributing circumstances, including improper lane changes, following too closely, improper parking, and other roadway factors where crashes represent less than 1 percent of the total.

The majority of crashes occurred during the day, in dry conditions. The surface condition during the crashes is summarized below:

- Dry surface condition – 314 crashes (85 percent)
- Wet Condition – 50 crashes (14 percent)
- Covered in snow – 4 crashes (1 percent)
- No road surface condition listed – 2 crashes (<1 percent)

Light conditions during the crashes are summarized below:

- Day – 222 crashes (60 percent)
- Dark, street lights on – 110 crashes (30 percent)
- Dark, no street lights – 14 crashes (4 percent)
- Dusk – 12 crashes (3 percent)
- Dawn – 7 crashes (2 percent)
- Dark, street lights off – 3 crashes (1 percent)
- No lighting condition listed – 2 crashes (1 percent)

In terms of severity, 16 (4 percent) of the 370 crashes resulted in the death of a pedestrian or bicyclist, 25 crashes (7 percent) resulted in incapacitating injuries, 120 crashes (32 percent) resulted in moderate injuries, 148 crashes (40 percent) resulted in complaint of pain from a pedestrian or bicyclist, and 61 crashes (17 percent) resulted in property damage only.

Table 4: Pedestrian and Bicycle Crashes by Crash Severity (2007-2016)

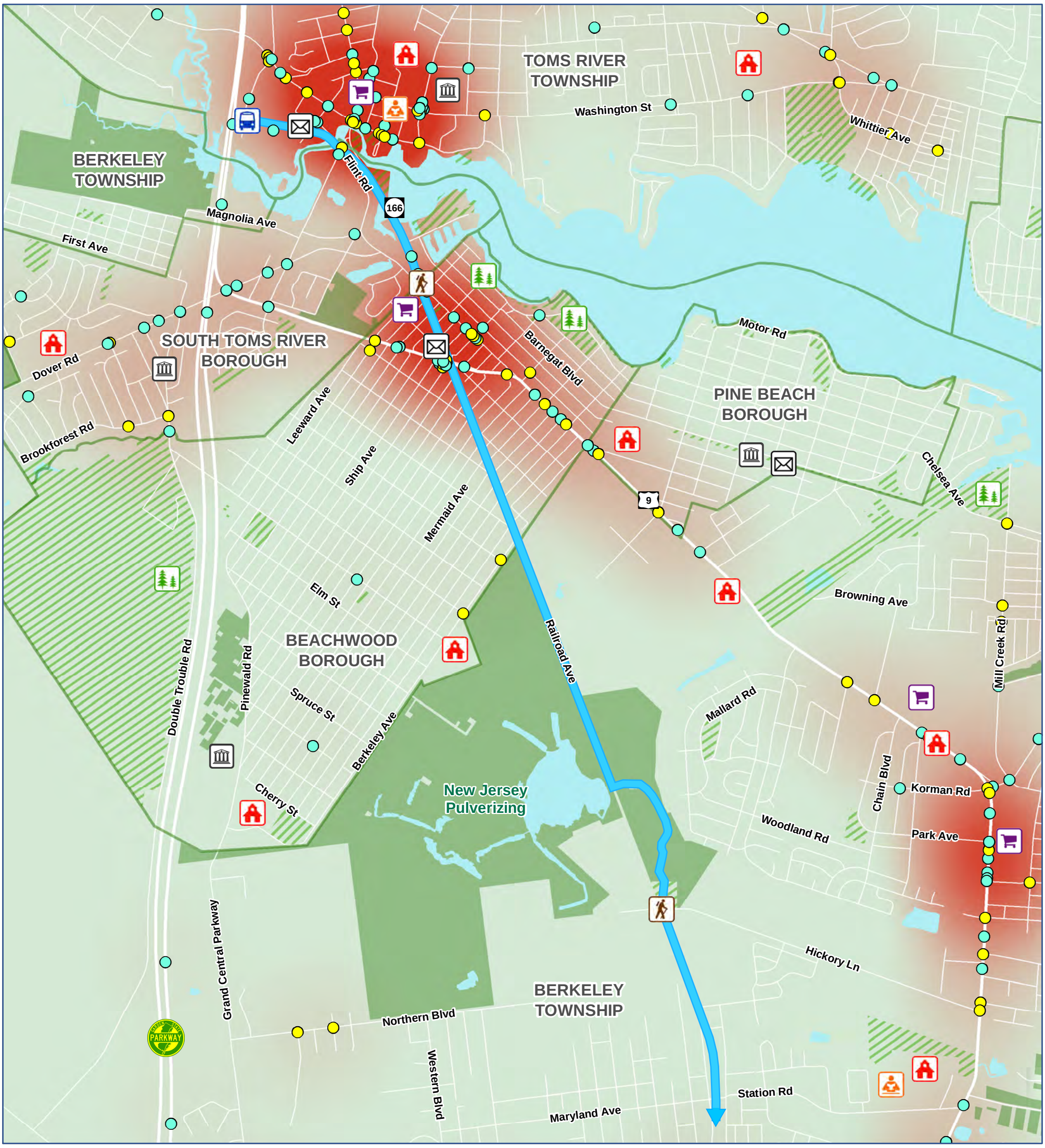
Crash Severity	Pedestrian Crashes	Bicycle Crashes	Unknown Pedestrian or Bicycle Crashes	Total Pedestrian and Bicycle Crashes
Killed	14	2	0	16
Incapacitated	20	3	2	25
Moderate Injury	73	44	2	120
Complaint of Pain	73	68	7	148
Property Damage Only	34	25	2	61
Total	**214**	**142**	**14**	**370**

Evaluating crash data is important to this study because an understanding of the data can lead to more effective design countermeasures and programs to improve pedestrian and bicycle safety. Design recommendations for the study are guided by analysis of crash hot spots, including the understanding of the causes of crashes.

The maps of the crash locations are shown in Figure 6.

Barnegat Branch Trail

Northern Section: Pedestrian and Bicycle Crashes (2007-2016)



LEGEND

- Barnegat Branch Trail
- Municipal Boundary
- Recreational Area
- County Natural Lands
- School
- Library
- Park
- Post Office
- Shopping Center
- Municipal Building
- Tom's River Park & Ride
- Trailhead

Motor Vehicle Crash Density: High / Low

- Pedestrian Crash
- Bicycle Crash

0 0.25 0.5 Miles

Figure 6

PUBLIC OUTREACH

TECHNICAL ADVISORY COMMITTEE

The TAC was formed to provide input and expertise, and provide guidance for the decision making process. It included representatives from the County, study area municipalities, and transportation entities. Members of the TAC provided input on the goals and objectives of this study, as well as feedback on materials used in outreach and reporting. The TAC met four times, with each meeting covering a different portion of the study process. Throughout these meetings, TAC members provided comments on the recommendations, both in their areas of interest and the entire study area. Additionally, they provided feedback on the final report.

MEETING #1

At the first TAC meeting, the Purpose and Need of the study was presented to the members of the committee. Meeting materials included the Project Fact Sheet, review of existing studies and plans, mapping of destinations, and thematic environmental justice mapping. The materials were provided in advance of the meeting to help familiarize committee members with the study area.

Figure 7: Technical Advisory Committee Meeting #1

MEETING #2

During this meeting, feedback provided in the focus group sessions and the first public meeting was presented to the TAC, as well as summarized results of the bicycle compatibility assessment, crash analysis, and environmental justice assessment.

MEETING #3

Recommended facility improvements, routes, and an implementation matrix were presented to solicit feedback from the TAC. The TAC was also provided maps and details regarding cost, implementation barriers, responsible agencies, and benefits in a format where potential treatments can be compared and prioritized.

MEETING #4

The draft final report was summarized and presented to the TAC. Input from the TAC was solicited for this final report. Meetings with representatives from each of the municipalities within the study area were held to determine if the recommendations within the draft final report were acceptable.

PUBLIC MEETINGS

Two public meetings were held to present information about the project and to solicit comments. The first meeting was organized to provide general information regarding the project background and explain

all the methods that interested parties could use to submit feedback. It was also an opportunity to record public priorities, frequent destinations, and specific facility concerns in person. Maps were provided for the public to record location specific comments. Surveys, maps, project fact sheets, and bookmarks with links to the public feedback page of the project website were made available at this public meeting.

The meeting took place in the Berkeley Township branch of the Ocean County Library from 5:30 to 8:00 p.m. on September 26, 2018. The location was identified as having an environmental justice population, access to public transit, and an Americans with Disabilities Act (ADA) accessible facility. Local attendees provided feedback to the project team that intersections in the study area were unsafe and uncomfortable for pedestrians and cyclists and that existing bicycle routes felt unsafe to less experienced riders. Participants recommended several potential linkages to the BBT.

The second public meeting took place at the visitor center meeting room at Jakes Branch County Park. As with the first meeting, the second public meeting was held central to the project area, with an identified environmental justice population, access to public transit, and an ADA accessible facility. The draft final report was presented at this public meeting, including analyses and results from the completed data collection phase and recommended improvements.

STAKEHOLDERS MEETING

One in-person meeting with officials and stakeholders from the municipalities in the study area was held on October 16, 2018. The meeting followed an open forum format. Focus points of the meeting included improving bicycle facilities and connections to the Downtown Toms River Business Improvement District, improving wayfinding leading to the BBT, improving accessibility of the trail to seniors and individuals with disabilities, and identifying connections to the trail in the southern portions of the study area.

DIGITAL PRESENCE

WEBSITE

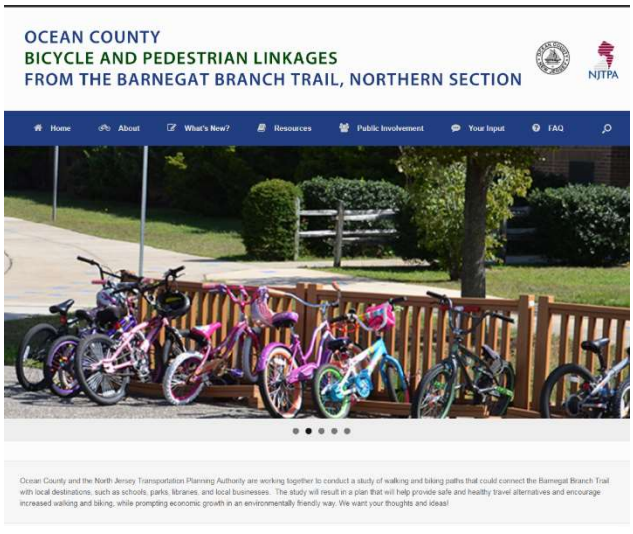


Figure 8: The study website.

A project website was created to facilitate outreach and document sharing. The website address was displayed on handouts, at public events, on surveys, and on the County website. The website was updated once materials and information were approved by Ocean County and NJTPA and, when appropriate, the TAC. The website was maintained by Michael Baker until the conclusion of the project on June 30, 2019, when the website was turned over to Ocean County. As the study progressed, the website was updated with proposed recommendations and facility improvements, and at the conclusion of the study the final report was added.

Multiple options were provided for public users to leave comments or information, including an online survey, a crowdsource mapping tool, and a contact form to provide public input. The public provided feedback on locations where bicyclists feel

unsafe while riding, recommended improvements, desired destinations, and they identified barriers for pedestrians.

VIDEO

One narrated video was produced for public outreach purposes that included interviews with County representatives, fly-over video obtained from drone footage, and videos of the BBT and area destinations. This video was short, succinct and graphically engaging in order to illustrate both the issues and the opportunities for connections to the BBT. The video also served as an educational tool for the public, which helped to answer questions such as:

- What is the Barnegat Branch Trail?
- Where are the connections to the trail?
- What barriers exist to accessing the trail?

A link to the video was available on the study and County websites, as well as social media. The video was also shown at public meetings and can be found at: https://bbtconnections.com/about/

ONLINE SURVEY

A public outreach survey was conducted to determine local walking and bicycling usage. Travel patterns, frequency, destinations, and concerns were collected. The survey was available from June 2018 through September 2018. It was promoted on the project website and in flyers distributed to Ocean County Library branches and to points of interest in the project area. In addition, Michael Baker staff attended the Ocean County Fair to conduct and advertise the survey. There were 55 survey respondents.

SURVEY HIGHLIGHTS

- 80 percent of respondents have used an existing section of the BBT.
- 59 percent of respondents claim there are zero barriers to walking and biking in the area.
- Respondents mentioned Beachwood Borough, Downtown Toms River Township, and Bayville Township as accessible for pedestrians and bicyclists.
- The majority of respondents chose off-street path as their preferred pedestrian and bicycle facility.

Figure 9: Pedestrian Path along Riverside Drive in Pine Beach.

ACTIVITIES IN THE PROJECT AREA

The graphs below compare activities that occur in the project area and activities that occur using the BBT.

As shown in Figure 10, 81 percent of those respondents who said that they use an existing section of the BBT use it for exercise and recreational purposes and of those, 52 percent of people responded that they do this often. The majority of respondents never use the existing section for errands, going to school or work, visiting friends, going out to eat/drink, or going to a transit stop. For individuals going to a park, 21 percent use the trail often, 36 percent use it sometimes, and 43 percent never use the trail to go to a park.

FIGURE 10
HOW OFTEN DO YOU WALK OR BIKE TO THE FOLLOWING ACTIVITIES ON THE BARNEGAT BRANCH TRAIL?

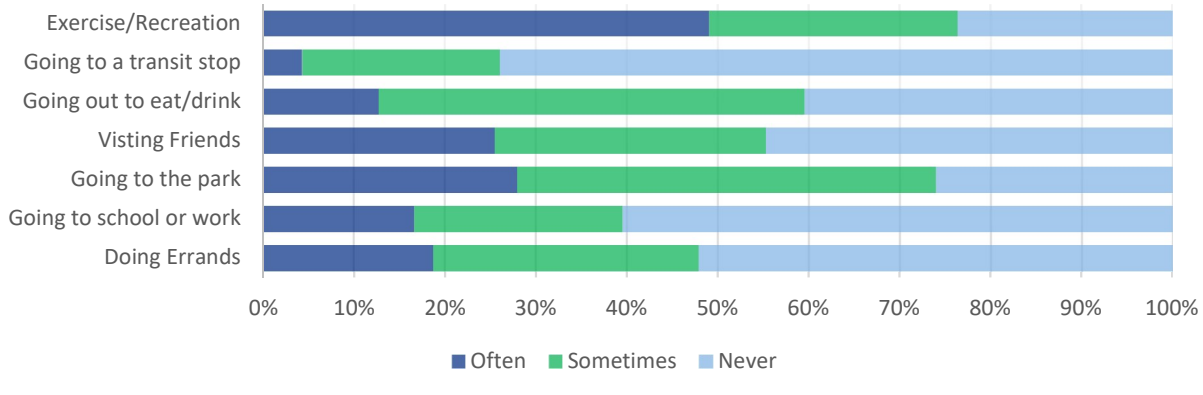
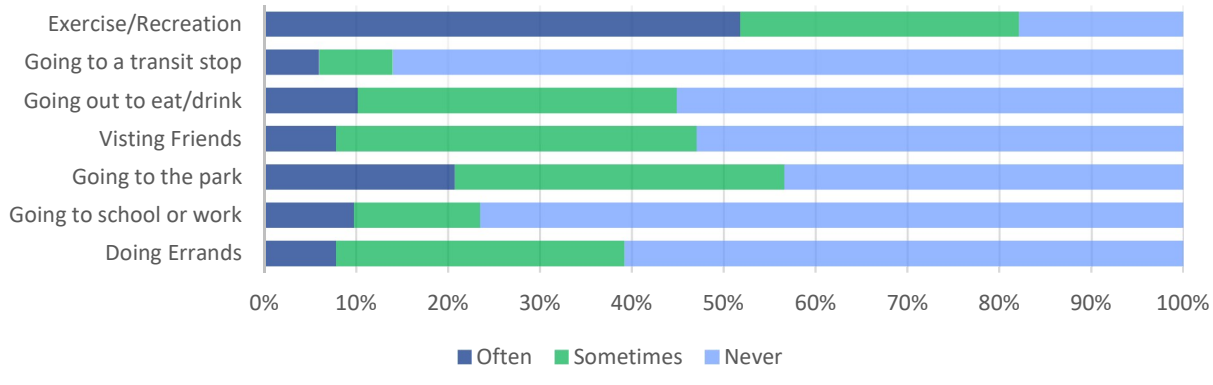


Figure 11 shows how often survey participants walked or biked to various activities or destinations. In total, 49 percent of respondents walk or bike often for exercise and recreational purposes. The majority of respondents never walk or bike in the study area in order to do errands, go to school or work, or to go to a transit stop. These responses show that the majority of respondents use other forms of transportation, besides walking and biking, to complete their day-to-day activities in addition to exercise and recreation.

FIGURE 11
HOW OFTEN DO YOU WALK OR BIKE TO THE FOLLOWING ACTIVITIES IN GENERAL?



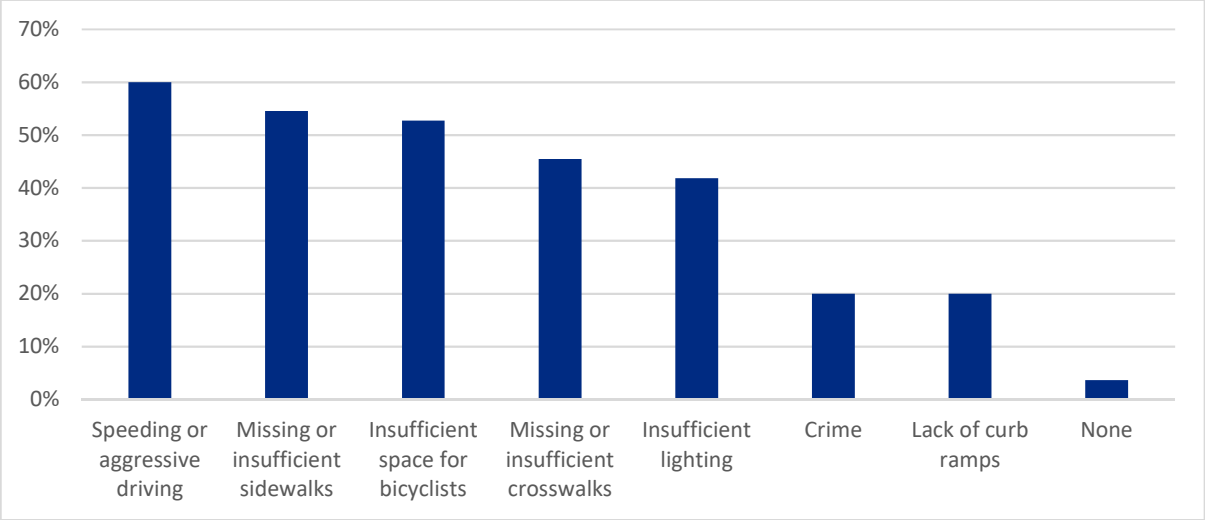
SAFETY CONCERNS

Survey respondents identified the following safety concerns about walking/biking to and from destinations in the project area:

- 60 percent of respondents chose “speeding or aggressive driving” as a safety concern
- 55 percent of respondents chose “missing or insufficient sidewalks” as a safety concern
- 53 percent of respondents chose “insufficient space for bicyclists” as a safety concern
- 45 percent of respondents chose “missing or insufficient crosswalks” as a safety concern

As shown in Figure 12, the majority of survey respondents (60 percent) believe that a major safety concern when biking and walking around the study area is speeding and aggressive driving, 55 percent believe a major concern is missing or insufficient sidewalks, and 53 percent believe a major safety concern is insufficient space for bicyclists. While 42 percent believed that insufficient lighting is a major concern, 20 percent stated that crime is a major concern, 20 percent stated the lack of curb ramps is a major concern and 4 percent of respondents believe there to be no concerns.

FIGURE 12
WHAT ARE YOUR SAFETY CONCERNS ABOUT WALKING/BIKING?



Survey respondents identified several streets and paths as locations where they feel unsafe walking or biking. The streets and paths identified are listed in Table 5.

Table 5: Unsafe Roads as Identified by Online Survey Respondents

Municipality	Destination
Beachwood Borough	Admiral Avenue
	Barnegat Boulevard
	Bayside Avenue
	Berkeley Avenue
	NJ Route 166
	Railroad Avenue
	US Route 9
Berkeley Township	US Route 9
	NJ Route 166
Pine Beach Borough	Motor Road
South Toms River Borough	Admiral Avenue
	Flint Road
	NJ Route 166
	US Route 9
Toms River Township	Hooper Avenue
	NJ Route 166
	US Route 9
	Water Street

In addition to individual roads, survey respondents also listed three areas as locations where they feel unsafe walking or biking: South Toms River Borough, Beachwood Borough, and Downtown Toms River Township.

IMPROVEMENTS

Respondents believe that the following could be improved or implemented for access to and from the BBT:

TOMS RIVER PARK & RIDE SURVEY

A survey of bus riders at the Toms River Park & Ride in Toms River was conducted on August 9, 2018 from 5:30 a.m. to 9 a.m. The Toms River Park & Ride serves four NJ TRANSIT bus routes and five Ocean Ride shuttle routes. There are 524 parking spaces, and one bicycle rack for approximately six to eight bicycles. The majority of NJ TRANSIT buses that pick-up passengers at this Park & Ride head northbound on the Garden State Parkway and terminate at Port Authority Bus Terminal in New York City (Manhattan). Other NJ TRANSIT buses travel to Newark, Jersey City, Atlantic City, Wildwood, Cape May, and Lakewood. Ocean Ride destinations from the Toms River Park & Ride include Manchester, Lakehurst, Berkeley, Seaside Heights, and neighborhoods within Toms River. Most individuals surveyed while waiting at the Park & Ride were taking NJ TRANSIT buses to New York City for work.

Figure 13: Passenger queue at Park & Ride facility

On the north side of the Park & Ride the abandoned railroad Right of Way (ROW) is still owned by Conrail. A large hole in a chain link fence reveals that people may be using it to access the northwest side of the Park & Ride from the ROW (Figures 14, 15, and 16).

Figure 14: Hole in fence between Park & Ride and BBT

Figure 15: ROW adjacent to Park & Ride

Figure 16: Bike rack at Park & Ride facility

SUMMARY OF RESULTS

A survey was performed on Thursday, August 9, 2018 from 5:30 to 9:00 a.m. at the Toms River Park & Ride. The survey received a total of 60 responses during this period. Highlights of the survey include:

- 90 percent of respondents' trips originated at their home.
- 85 percent of respondents' were traveling to Manhattan.
- The Park & Ride facility primarily serves individuals commuting to and from work, with approximately 75 percent of trips being made to work.
- Only 2 percent of individuals surveyed arrived at the Park & Ride on foot or by bike.
- 43 percent of respondents live in communities within the study area.
- Almost 50 percent of respondents use the Park & Ride every day. Approximately 70 percent of respondents use the Park & Ride multiple times each week.

The results of the survey help to highlight how the Toms River Park & Ride is an important destination in the regional transportation network. While it serves a variety of individuals and trips, access to the Park & Ride could be improved for the surrounding communities. Based on the results of the survey, there is a lack of adequate pedestrian and bicycle access to the Park & Ride, highlighted by the low percentage of respondents who arrived at the Park & Ride via non-motorized forms of transportation. The planned route of the BBT connects directly to the Toms River Park & Ride, providing an opportunity to improve

pedestrian and bicycle access to the facility. To capitalize on this opportunity, linkages from the BBT to the residential neighborhoods that use the Park & Ride are prioritized in this study. For further information on the results of the Toms River Park & Ride Survey, see the Existing Conditions Memorandum in Appendix B.

IMPROVEMENTS

The recommended improvements vary by municipality. A brief discussion of the recommended improvement types, as well as the recommended improvement locations for each municipality within the study area are included in this section. The improvements identified by this study are recommendations and are provided as a guide for the responsible agencies.

BICYCLE FACILITIES

The implementation of bicycle facilities is a critical step towards encouraging cycling in an area as an alternative form of transportation. However, it is important that bicycle facilities are properly designed to ensure that they are safe, comfortable and useful to most people. According to the New Jersey Complete Streets Guidelines, there are five guiding principles to achieve effective implementation:

- **Continuous:** many bicycle facilities disappear at intersections and other stressful locations. To be successful, bicycle facilities must be continuous through these locations.
- **Connected:** Gaps in a bicycle network can discourage potential riders. Bicycle routes should be interconnected to create a robust network that connects where people live and where they want to go.
- **Convenient:** Bicycle networks must conveniently and directly connect cyclists to key destinations to encourage higher rates of cycling.
- **Complete:** A successful network considers what happens when a bicycle ride ends. This means considering how complete a street is, including the presence of sidewalks, bicycle parking, and access to transit.
- **Comfortable:** A bicycle network should be comfortable and inviting for riders of all ages and abilities providing the sense that cycling is a safe and convenient activity.

RECOMMENDED BICYCLE FACILITIES

The recommended bicycle facilities are proposed to improve bicycle compatibility and accessibility to the BBT from the surrounding municipalities. They include a variety of bicycle facility treatments, such as shared use paths, bicycle lanes, buffered bicycle lanes, and signed bicycle routes. For any recommended bicycle facility that is within the roadway width, parking can be placed between the facility and the travel lane if the width allows. If the ROW is not wide enough parking is not recommended. The recommendations are intended to be implemented within the existing cross-section of the roadway as part of re-surfacing, restriping, or other roadway construction projects.

BICYCLE ROUTE SIGNAGE

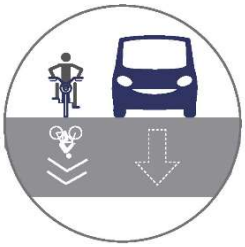
Bicycle wayfinding systems consist of comprehensive signing to guide bicyclists to their destinations along preferred bicycle routes. Signs typically are placed at decision points along bicycle routes – intersections and other key locations leading to or from bicycle routes. There are three general types of wayfinding signs. **Confirmation signs** indicate to bicyclists that they are on a designated bikeway and make motorists aware of the bicycle route. These signs can include destinations and distance/time but will not include arrows. **Turn signs** indicate where a bikeway turns from one street onto another. They can be used with pavement markings. These signs can include destinations and arrows. **Decision signs** mark the junction of two or more bikeways. They inform bicyclists of the designated bike route to access key destinations.

BICYCLE MAY USE FULL LANE SIGNAGE

Bicycle May Use Full Lane signs indicate to motorists that bicyclists have a right to be in the road. These signs can be used in addition to bicycle route signs as a means of further improving the planned bicycle routes. Bicycle May Use Full Lane is sign R4-11 in the Manual on Uniform Traffic Control Devices (MUTCD).

SHARED LANE MARKING

Shared lane markings or sharrows are used when dedicated bicycle facilities are not feasible. Shared lane markings indicate that the roadway is to be shared between motor vehicles and bicycles. Additionally, shared lane markings guide bicycles on what space they should occupy within the travel lane. While shared lane markings have not been recommended for any location as part of this study, they are appropriate on any street marked as a signed bicycle route. For more information on shared lane markings visit Section 9C.07 of the MUTCD.



PAVED SHOULDER WITH BICYCLE ROUTE SIGNAGE

Paved shoulders are similar to bike lanes as a facility choice. The shoulder provides separated space for the bicyclist much like a bike lane. Depending on the roadway, the width of the shoulders varies; however, they should be a minimum of 4 feet wide. A description of signage that should be used with the paved shoulder is discussed in the Bicycle Route Signage section.

SHARED USE PATH

Shared use paths are similar to bike lanes; however, they can be used by other modes of non-motorized transportation. They are also more distinctly separated from the road. Shared use paths should be separated from the paved roadway by either open space or a barrier. Unlike bike lanes, shared use paths are designed for two-way travel.

BIKE BOXES

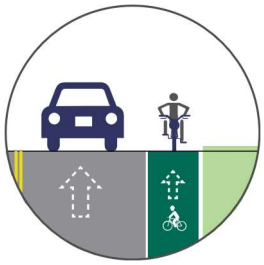
Bike boxes are designated spaces for bicyclists at the head of an approach to a signalized intersection, typically situated between the vehicle stop bar and the crosswalk, directly in front of queued vehicles. Bike boxes are used by bicyclists when their approach has a red signal phase. During this time, bicyclists can maneuver into the bike box ahead of queued vehicles. By doing so, bicyclists enhance their visibility and reinforce their priority at the intersection. Other benefits of bike boxes include:

- Reduced delays for bicyclists
- Reduced right-turn vehicle/bicycle crashes
- Added buffer between the crosswalk and queued vehicles at intersections


NACTO Urban Bikeway Design Guide

Bike boxes are appropriate at signalized intersections with high volumes of bicyclists or motor vehicles, high vehicle turning movement volumes, a history of bicycle crashes, or where enhanced safety for bicyclist left turn movements is desirable. For further information on bike boxes see NACTO's Urban Bikeway Design Guide.

BICYCLE LANE



Bicycle lanes provide an exclusive space for bicyclists using pavement markings and signage. Bicycle lanes are typically 5 feet wide and painted green. Painting the lanes green increases visibility and awareness of the bike lanes; however, if preferred, the bicycle lane can remain unpainted. If painted, the bike lanes should receive maintenance approximately every five years. Bicycle lanes are meant for one-way travel and typically are located on the right side in both directions of travel along two-way streets and the right side of one-way streets. Bicycle lanes allow bicyclists to ride at their preferred speed, without interference from motorists.

BICYCLE FACILITY REQUIREMENTS

Locations where sufficient roadway width exists, a buffer could be included between the bike lane and the parking lane or between the bike lane and the travel lane. A buffer is preferred when high traffic volumes and high posted speed limits are present. These buffers can be physical bollards or painted hash marks on the roadway without a physical bollard.

In locations where space is constrained, and bike lanes cannot be accommodated, paved shoulders with bike route signage or bike route signage alone are proposed. The bike route signage would indicate a shared environment for bicycles and automobiles.

Table 6 outlines the recommended bicycle facilities and roadway conditions necessary for their recommendation.

Table 6: Bicycle Facility Requirements

Facility Type	Facility Width	Roadway Speed Limit (MPH)	Average Daily Traffic (ADT)
Bicycle Lane	5 feet	25-35	< 10,000
Shared Lane Markings	----------	≤ 35	< 10,000
Bike Route Signage	----------	≤ 25	< 10,000
Shared use Path	10-14 feet	Any	Any

INTERSECTION IMPROVEMENTS

Intersections are one of the most critical parts of any transportation network. They are key points for all users as they travel through a street network and can act as important nodes of activity. While they can have positive impacts, they also account for the most serious and frequent conflicts among all travel modes. If an intersection is not functioning properly, it can dramatically reduce mobility and safety for all modes. Pedestrians, in particular, are affected by unsafe intersections as they are exposed to significantly more risk when crossing the street than at any other point during their journey. As such, improving intersection safety, while beneficial to all road users, has the most dramatic impact on the safety of pedestrians. Intersection design should allow the street space to be effectively shared by pedestrians, bicyclists, and drivers. There are several different strategies that can be used to achieve this goal.

To improve the safety of all road users, it is essential that vehicle speeds are reduced to appropriate levels. To achieve this goal and to improve safety, traffic calming should be employed. Traffic calming consists of three main components: engineering, education, and enforcement. The engineering component of traffic calming consists of physical changes to a road's design that encourage lower speeds. This can include crosswalks, curb extensions and pedestrian refuge islands, which are detailed in this section. The education and enforcement components of traffic calming typically refer to community and police efforts to reduce inappropriate driver or pedestrian behavior. Education and enforcement efforts are discussed in the Implementation Plan. According to the FHWA, the benefits of traffic calming include:

- Reduced crash frequency and severity
- Enhanced aesthetic value
- Equitable balance among transportation modes
- Improved air quality and noise levels
- Improved fuel economy

The measures described herein represent a cross section of potential traffic calming measures.

HIGH VISIBILITY CROSSWALKS

A crosswalk is a portion of a road designated for pedestrians to cross streets. The striping of crosswalks is important as it creates a high level of visual contrast with the surface of the road to draw both pedestrian and driver attention. Some striping styles are more visible than others. It is recommended that a ladder style striping is used in the study area, as it has been shown to be the most visible.

CURB RAMPS

NJ Complete Streets Design Guide

ADA guidelines require appropriately designed curb ramps at all pedestrian crossings, to provide easy access for people of all ages and abilities. Curb ramps assist in providing a smooth transition from sidewalks, trails, and other pedestrian walkways to the street level and back again. In addition to curb ramps, detectable warning surfaces (a tactile surface used to assist people with visual impairments determine safe crossing locations), should also be included.

CURB EXTENSIONS

Curb extensions, which are also referred to as bulb-outs or bump-outs, extends the curb line and sidewalk into the road. Curb extensions expand the available pedestrian realm, but offer many other benefits including:

- Increased visibility for pedestrians and drivers
- Reduction of pedestrian crossing distance
- Traffic calming
- Shields on-street parking from intersection

http://www.whiteflint.org/tag/curb-extensions/

PEDESTRIAN REFUGE ISLANDS

Also referred to as crossing islands, pedestrian refuge islands provide traffic calming benefits and increase pedestrian safety at intersections. Pedestrian refuge islands allow pedestrians to cross one direction of travel at a time, giving them the ability to stop in the middle when crossing the whole road is not possible. Additionally, because pedestrians need shorter gaps to cross one direction of travel, safe gaps in traffic occur more frequently.

RECTANGULAR RAPID-FLASHING BEACON (RRFB)

RRFBs are pedestrian-actuated enhancements, which allow pedestrians to push a button to turn on the warning lights. They are used in combination with a pedestrian or trail crossing warning sign to improve safety at uncontrolled, marked crosswalks. RRFBs are particularly effective at multilane crossings with speed limits less than 40 mph and should be placed on both sides of a crosswalk below the pedestrian crossing sign and above the arrow indication pointing at the crossing. The flashing pattern can be activated with push buttons or automated pedestrian detection and remains unlit when not activated.

HIGH-INTENSITY ACTIVATED CROSSWALK (HAWK) BEACON

A pedestrian hybrid beacon or HAWK consists of a signal-head with two red lights over a single yellow light on the major street, and pedestrian and/or bicycle signal heads at a crossing. HAWK signals are most appropriate at mid-block crossings. The red light is used to stop traffic while pedestrians are given the walk signal to cross. HAWK beacons were developed specifically to enhance pedestrian crossing of major streets. However, several cities have installed modified HAWK signals that explicitly incorporate bicycle movements.

HAWK signals should be used to improve non-motorized crossings of major streets at uncontrolled intersections and mid-block locations where side street volumes do not support installation of a convention traffic signal. Signal heads are generally not provided for the minor street approach at intersection locations. HAWK signals are usually implemented at locations that do not allow left turns from the minor street, if it is implemented at an intersection. An engineering study is required where a HAWK signal is recommended to confirm that side street volumes are low enough to warrant the signal. If a HAWK is recommended on a state road, NJDOT requires that a formal written request be submitted to the Executive Manager of the Traffic Engineering Department justifying the need for the signal at the proposed location. This request must include a 25 percent cost commitment by the municipality for costs associated with the potential electrical construction work as per NJDOT Policy 346. For more information on HAWK signals visit the National Association of City Transportation Officials (NACTO) website.

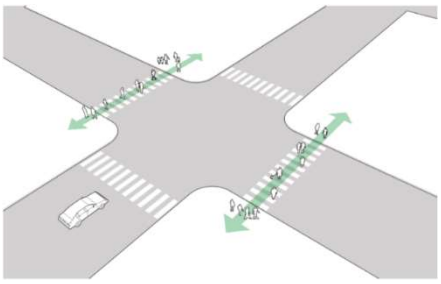
PEDESTRIAN SIGNAL HEADS

Pedestrian signal heads are a special type of traffic signal specifically intended for controlling pedestrian traffic. These signals consist of the illuminated symbols of a walking person that indicates pedestrians can cross, and an upraised hand, that directs pedestrians to stop. According to the MUTCD, pedestrian signal heads should be used under any of the following conditions:

1. If it is necessary to assist pedestrians in making a safe crossing.

2. If pedestrians are permitted to cross a portion of a street, to or from a median of sufficient width for pedestrians to wait, during a particular interval but are not permitted to cross the remainder of the street during the same interval.
3. If no vehicular signal indications are visible to pedestrians, or if the vehicular signal indications that are visible to pedestrians starting or continuing a crossing provide insufficient guidance for them to decide when it is safe to cross, such as on one-way streets, at T-intersections, or at multiphase signal operations.

LEADING PEDESTRIAN INTERVAL (LPI)



A leading pedestrian interval allows pedestrians a 3 to 7 second head start when entering an intersection with a corresponding green signal in the same direction of travel. LPIs enhance the visibility of pedestrians in the intersection and reinforce their right-of-way over turning vehicles. LPIs are applicable at locations with a history of conflict between turning vehicle and pedestrian movements. According to NACTO, LPIs have been shown to reduce pedestrian vehicle collisions by as much as 60 percent at treated intersections. LPIs are best when used at intersections where heavy turning traffic comes into conflict with crossing pedestrians during the permissive phase of the signal cycle.

RECOMMENDATIONS BY MUNICIPALITY

The recommendations for each municipality are summarized in Table 7. Improvements were recommended following a "good, better, best" format, where potential improvements that were less feasible but offered additional protection for pedestrians and cyclists were listed. The improvements recommended were chosen because they balanced improved safety and utility with feasibility. Table 7 includes the full list of recommendations for road segments. For a full list of recommended improvements and the organization responsible see the Implementation Matrix (Table 11 & Table 12).

Additionally, to provide a safe, efficient, accessible and attractive network for all users, improvements at intersections throughout the study area are recommended. The recommended improvements vary by type due to the locations as well as the existing conditions of the intersection. A list of the intersections and recommended improvements within the study area are listed in each municipal section. Additional information about these intersection improvements can be found in Appendix A. All improvements recommended within the study area are shown in Figure 17. The maps within this section are labeled with a number that corresponds to a description of the roadway segment improvement in Table 11; recommended intersection improvements are labeled with letters that correspond to a description in Table 12.

Table 7: Recommended Improvements

Responsible Agency	#	Location	Good Alternative	Better Alternative	Best Alternative
New Jersey Department of Transportation	1	Iron Street (Herflicker Boulevard to W Water Street) [Toms River]	**Signed Bicycle Route**	Paved Shoulder*	Bike Lanes
	2	NJ-166 (S Mathis Plaza Entrance to Huddy Park) [South Toms River, Toms River]	Bike Lanes	Buffered Bike Lanes	**Shared Use Path**
	3	NJ-166 (Legion Court to S Main Street) [Toms River]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	4	US-9 (Buckley Lane to Hickory Lane) [Berkeley]	**Paved Shoulder***	Bike Lanes	Buffered Bike Lanes
Ocean County	5	Bayside Avenue [Beachwood, Pine Beach]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	6	Beachwood Boulevard [Beachwood]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	7	Birch Street [Beachwood]	Paved Shoulder	**Bike Lanes**	Buffered Bike Lanes
	8	Center Street [South Toms River]	Signed Bicycle Route	**Paved Shoulder**	Bike Lanes
	9	Chelsea Avenue [Berkeley, Pine Beach]	**Paved Shoulder**	Bike Lanes	Shared Use Path
	10	Club House Drive [Beachwood]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	11	Compass Avenue [Beachwood]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	12	Double Trouble Road [Beachwood, South Toms River]	Paved Shoulder	Bike Lanes	**Shared Use Path**
	13	Dover Road [South Toms River]	**Paved Shoulder**	Bike Lanes	Buffered Bike Lanes
	14	First Street [South Toms River]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	15	Flint Road [South Toms River]	Signed Bicycle Route	Paved Shoulder	**Bike Lanes**
	16	Grand Central Parkway [Berkeley]	**Bike Lanes**	Buffered Bike Lanes	Shared Use Path
	17	Hadley Avenue [Toms River]	Signed Bicycle Route	**Paved Shoulder**	Bike Lanes
	18	Herflicker Boulevard [Toms River]	Signed Bicycle Route	Paved Shoulder	**Bike Lanes**
	19	Highland Parkway South [Toms River]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	20	Korman Road [Berkeley]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	21	Magnolia Avenue [Berkeley, South Toms River]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	22	Mill Creek Road [Berkeley]	Signed Bicycle Route	**Paved Shoulder**	Bike Lanes
	23	Ocean Gate Drive [Berkeley]	Signed Bicycle Route	Paved Shoulder	**Bike Lanes**
	24	Pinewald Road (Chestnut Street to Poplar Street) [Beachwood]	Paved Shoulder	Bike Lanes	**Shared Use Path**
	25	Pinewald Road (Poplar Street to Continental Avenue) [Beachwood]	**Bike Lanes**	Buffered Bike Lanes	Shared Use Path
	26	Prospect Avenue (Tutor Avenue to Station Avenue) [Pine Beach]	Signed Bicycle Route	**Paved Shoulder**	Bike Lanes
	27	Railroad Avenue [South Toms River]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	28	South Main Street (Atlantic City Blvd to NJ-166) [South Toms River, Toms River]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	29	South Main Street (NJ-166 to Flint Road) [South Toms River]	**Bike Lanes**	Buffered Bike Lanes	Shared Use Path
	30	South Main Street (Center Street to Magnolia Avenue) [South Toms River]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	31	Springfield Avenue [Pine Beach]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	32	Tilton Avenue [South Toms River]	Signed Bicycle Route	**Paved Shoulder**	Bike Lanes
	33	Washington Street (Main Street to Courthouse Lane) [Toms River]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	34	Washington Street (Central Avenue to Whittier Avenue) [Toms River]	**Paved Shoulder**	Bike Lanes	Buffered Bike Lanes
	35	West End Ave [Toms River]	Signed Bicycle Route	**Paved Shoulder**	Bike Lanes
	36	Western Boulevard [Berkeley]	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
Beachwood Borough	37	Barnegat Boulevard	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	38	Cherry Street	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	39	Elm Street	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	40	Harpoon Street	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	41	Leeward Avenue	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	42	Mermaid Avenue	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	43	Poplar Street	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	44	Seaman Avenue	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	45	Ship Avenue	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	46	Spruce Street	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	47	Wave Street	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes

***Locations with Paved Shoulder as a recommendation should also be a Signed Bicycle Route**

Note: Recommended Alternative highlighted in Green

Table 7: Recommended Improvements Continued

Responsible Agency	#	Location	Good Alternative	Better Alternative	Best Alternative
Berkeley Township	48	Bittern Lane	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	49	Browning Avenue	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	50	Buckley Lane	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	51	Chain Boulevard	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	52	First Avenue	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	53	Frederick Drive	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	54	Hickory Lane	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	55	Korman Road	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	56	Mallard Road	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	57	Maryland Avenue	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	58	Michelle Lane	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	59	Northern Boulevard	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	60	Park Avenue	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	61	Poe Drive	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	62	Station Road	Signed Bicycle Route	Paved Shoulder	**Bike Lanes**
	63	Tern Court	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	64	Woodland Road	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	65	Yaffa Road	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
Pine Beach Borough	66	Monument Road	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	67	Motor Road	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	68	Prospect Avenue (Monument Road to Motor Road)	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	69	Riverside Drive	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	70	Station Avenue	Signed Bicycle Route	**Paved Shoulder**	Bike Lanes
South Toms River Borough	71	Applegate Avenue	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	72	Attison Avenue	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	73	Brandies Road	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	74	Brookforest Drive	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
Toms River Township	75	Adafre Avenue	Signed Bicycle Route	Paved Shoulder	**Bike Lanes**
	76	Central Avenue	Signed Bicycle Route	**Paved Shoulder**	Bike Lanes
	77	Clinton Avenue	Signed Bicycle Route	**Paved Shoulder**	Bike Lanes
	78	Highland Parkway South	Signed Bicycle Route	Paved Shoulder	**Bike Lanes**
	79	Hyers Street	**Signed Bicycle Route**	Paved Shoulder	Bike Lanes
	80	Irons Street	Signed Bicycle Route	Paved Shoulder	**Bike Lanes**
	81	Legion Court (Iron Street to NJ 166)	Signed Bicycle Route	Paved Shoulder	**Bike Lanes**
	82	Legion Court (NJ 166 to Hyers Street)	Signed Bicycle Route	**Paved Shoulder**	Bike Lanes
	83	West Water Street	Signed Bicycle Route	Paved Shoulder	**Bike Lanes**
	84	Whittier Avenue	Signed Bicycle Route	**Paved Shoulder**	Bike Lanes

***Locations with Paved Shoulder as a recommendation should also be a Signed Bicycle Route**

Note: Recommended Alternative highlighted in Green

Michael Baker INTERNATIONAL

Barnegat Branch Trail

Northern Section: Potential Facility Improvements and Best Routes

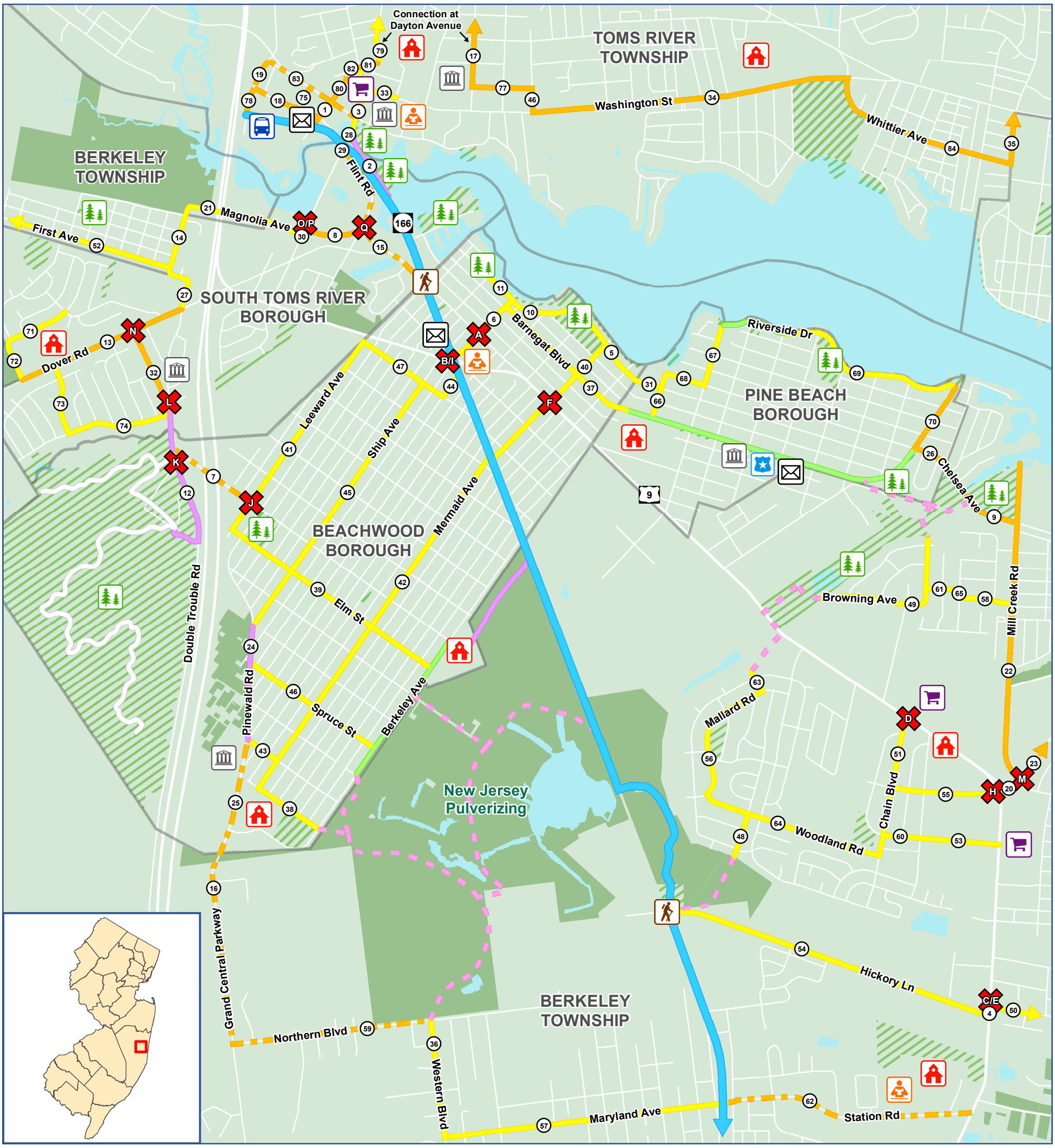


Figure 17

BEACHWOOD BOROUGH

Beachwood Borough is primarily a residential municipality with population of approximately 11,000. The road network within Beachwood Borough includes a system of dense residential streets and US Route 9, which bisects the community. Because of this, the recommended improvements within Beachwood Borough focus on implementing a system of minimally invasive signed bicycle routes on the residential streets and identifying points at which individuals can safely cross US Route 9. The recommended improvements in Beachwood Borough include:

- Signed Bicycle Routes
  - Barnegat Boulevard
  - Bayside Avenue (County Road)
  - Beachwood Boulevard (County Road)
  - Cherry Street
  - Club House Road (County Road)
  - Compass Avenue (County Road)
  - Elm Street
  - Harpoon Street
  - Leeward Avenue
  - Mermaid Avenue
  - Poplar Street
  - Seaman Avenue
  - Ship Avenue
  - Spruce Street
  - Wave Street
- 5-foot Bicycle Lanes
  - Birch Street (County Road)
  - Pinewald Road (County Road)
- Shared Use Path
  - Pinewald Road (County Road)

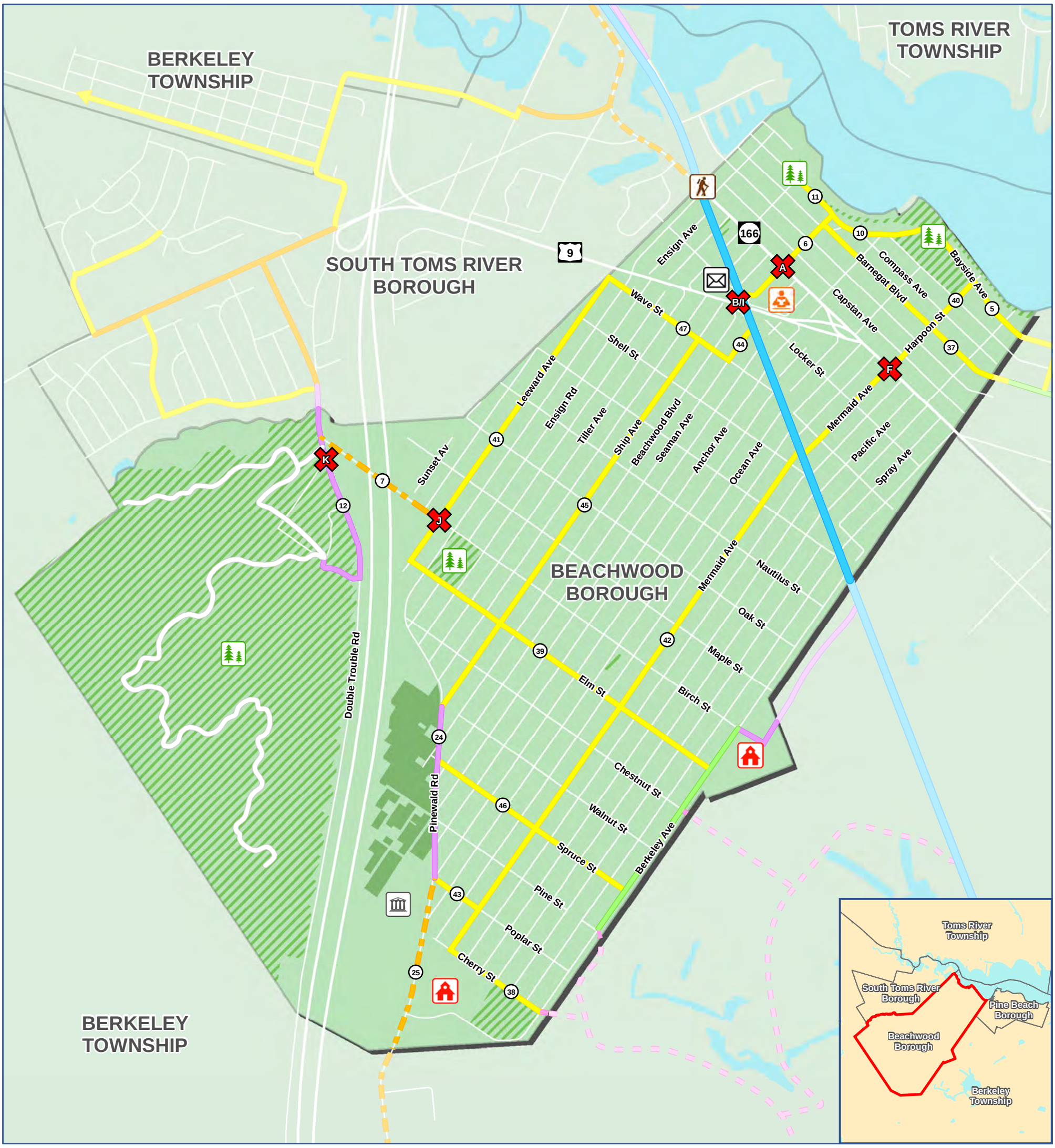
Table 8 shows the recommended intersection improvements and jurisdiction at each intersection for Beachwood Borough. Figure 18 shows the recommended improvements for Beachwood Borough.

Table 8: Recommended Intersection Improvements for Beachwood Borough

Intersection	Letter	Recommended Improvements	Jurisdiction
NJ Route 166 & Beachwood Boulevard	A	ADA Curb Ramps, Curb Extensions, High Visibility Crosswalks, LPI, Pedestrian Signal Heads	NJDOT
US Route 9 & Beachwood Boulevard	B	High Visibility Crosswalks, LPI, No Turn on Red for all approaches, Pedestrian Signal Heads, Retroreflective Backplates for Signal Heads	NJDOT
US Route 9 & Mermaid Avenue & Harpoon Street	F	ADA Curb Ramps, HAWK Signal, High Visibility Crosswalks	NJDOT
Beachwood Boulevard & Central Way	I	ADA Curb Ramps, Curb Extensions, High Visibility Crosswalks, RRFB	Ocean County
Birch Street & Leeward Avenue	J	High Visibility Crosswalks, RRFB	Ocean County
Double Trouble Road & Birch Street	K	ADA Curb Ramps, Bike Boxes, Retroreflective backplates for signal heads	Ocean County

Barnegat Branch Trail

Beachwood Borough: Potential Facility Improvements and Best Routes



Proposed

- Intersection Improvements
- Shared Use Path
- Signed Bicycle Route
- Paved Shoulder with Signed Bicycle Route
- Two 5' Bike Lanes
- Other Trails

Current

- Barnegat Branch Trail
- Municipal/County Trail
- Shared Use Path

- Municipal Boundary
- Recreational Area
- County Natural Lands
- Park
- School
- Library
- Trailhead
- Post Office
- Shopping Center
- Municipal Building
- Tom's River Park & Ride
- Police Department

0 0.1 0.2 0.3 Miles

Figure 18

BERKELEY TOWNSHIP

Berkeley Township has a population of approximately 42,000 and makes up the largest portion of land in the study area. The primary land uses within Berkeley Township are residential and commercial. The main transportation facilities within Berkeley Township are local residential streets, US Route 9, the Garden State Parkway, several County Routes, and the BBT. Because of this, recommended improvements are focused on providing signed bicycle routes on residential streets, paved shoulders with bicycle route signage and 5-foot bike lanes on County Routes, and other paths where off-street trails are feasible. The recommended improvements within Berkeley Township include:

- Signed Bicycle Routes
  - Bittern Lane
  - Browning Avenue
  - Buckley Lane
  - Chain Boulevard
  - First Avenue
  - Frederick Drive
  - Hickory Lane
  - Korman Road (County/Municipal Road)
  - Mallard Road
  - Maryland Avenue
  - Magnolia Avenue (County Road)
  - Michelle Lane
  - Park Avenue
  - Poe Drive
  - Tern Court
  - Western Boulevard (County Road)
  - Woodland Road
  - Yaffa Road
- Paved Shoulder with Signed Bicycle Route
  - Chelsea Avenue (County Road)
  - Mill Creek Road (County Road)
  - US Route 9 (State Road)
- 5-foot Bike Lanes
  - Grand Central Parkway (County Road)
  - Ocean Gate Drive (County Road)
  - Northern Boulevard
  - Station Road

Table 9 shows the recommended intersection improvements and jurisdiction at each intersection for Berkeley Township. Figure 19 shows the recommended improvements for Berkeley Township.

Table 9: Recommended Intersection Improvements at Berkeley Township

Intersection	Letter	Recommended Improvements	Jurisdiction
US Route 9 & Buckley Lane	C	High Visibility Crosswalks, RRFB	NJDOT
US Route 9 & Chain Boulevard	D	Bike Boxes, High Visibility Crosswalks, Pedestrian signal heads	NJDOT
US Route 9 & Hickory Lane	E	High Visibility Crosswalks, RRFB	NJDOT
US Route 9 & Korman Road	H	Bike Boxes, High Visibility Crosswalks, LPI, Retroreflective backplates for signal heads.	NJDOT/ Ocean County
Mill Creek Road & Ocean Gate Drive	M	ADA Curb Ramps, High Visibility Crosswalks, Pedestrian Refuge Island	Ocean County

Barnegat Branch Trail

Berkeley Township: Potential Facility Improvements and Best Routes

Proposed

- Intersection Improvements
- Shared Use Path
- Signed Bicycle Route
- Paved Shoulder with Signed Bicycle Route
- Two 5' Bike Lanes
- Other Trails

Current

- Barnegat Branch Trail
- Municipal/County Trail
- Shared Use Path

- Municipal Boundary
- Recreational Area
- County Natural Lands
- Park
- School
- Library
- Trailhead
- Post Office
- Shopping Center
- Municipal Building
- Toms River Park & Ride
- Police Department

0 0.25 0.5 Miles

Figure 19

PINE BEACH BOROUGH

Pine Beach Borough is a small, primarily residential, municipality with a population of approximately 2,000 residents. The road network within Pine Beach Borough includes a system of residential streets and Springfield Avenue, a county road, which is the main connector to other municipalities. Due to the size and makeup of the Pine Beach Borough's transportation network, recommendations focused on connecting to the existing shared use paths within the municipality. The full list of recommended improvements within Pine Beach Borough includes:

- Signed Bicycle Route
  - Bayside Avenue (County Road)
  - Monument Road
  - Motor Road (County/Municipal Road)
  - Prospect Avenue
  - Riverside Drive
  - Springfield Avenue (County Road)
- Paved Shoulder with Signed Bicycle Route
  - Chelsea Avenue (County Road)
  - Prospect Avenue
  - Station Avenue (County/Municipal Road)

Figure 20 shows the recommended improvements for Pine Beach Borough.

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Barnegat Branch Trail

Pine Beach Borough: Potential Facility Improvements and Best Routes

Figure 20

SOUTH TOMS RIVER BOROUGH

South Toms River Borough is a small municipality with a population of approximately 3,000 residents. The road network within South Toms River Borough includes a system of residential streets, US Route 9, Dover Road (County Route 530), NJ Route 166, and the Garden State Parkway. These large, high-speed roads bisect the community and reduce connectivity for cyclists and pedestrians. In response to this, the recommended improvements focus on providing connectivity using off street facilities where possible and improving on street facilities where needed. The recommended improvements within South Toms River Borough includes:

- Signed Bicycle Routes
  - Applegate Avenue
  - Attison Avenue
  - Brandies Road
  - Brookforest Drive
  - First Street (County Road)
  - Magnolia Avenue (County Road)
  - Railroad Avenue (County Road)
  - South Main Street (County Road)
- Paved Shoulder with Signed Bicycle Route
  - Center Street
  - Dover Road (County Road)
  - Tilton Avenue (County Road)
- 5-foot Bike Lanes
  - Flint Road
  - South Main Street (County Road)
- Shared Use Path
  - Double Trouble Road (County Road)
  - NJ Route 166 (State Road)

Table 10 shows the recommended intersection improvements and jurisdiction at each intersection for South Toms River Borough. Figure 21 shows the recommended improvements for South Toms River Borough.

Table 10: Recommended Intersection Improvements at South Toms River Borough

Intersection	Letter	Recommended Improvements	Jurisdiction
NJ 166, south of Mathis Plaza south entrance	G	HAWK Signal	NJDOT
Double Trouble Road & Tilton Avenue & Garden Court	L	ADA Curb Ramps, HAWK Signal, High Visibility Crosswalk	Ocean County
Dover Road & Tilton Avenue	N	ADA Curb Ramps, HAWK Signal, High Visibility Crosswalks	Ocean County
South Main Street & Center Street	O	ADA Curb Ramps, High Visibility Crosswalks, RRFB	Ocean County
South Main Street & Magnolia Avenue	P	ADA Curb Ramps, High Visibility Crosswalks, RRFB	Ocean County
Flint Road, Center Street & Mill Street	Q	ADA Curb Ramps, High Visibility Crosswalks, RRFB	South Toms River

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Barnegat Branch Trail

South Toms River Borough: Potential Facility Improvements and Best Routes

Proposed

- Intersection Improvements
- Paved Shoulder with Signed Bicycle Route
- Shared Use Path
- Two 5' Bike Lanes
- Signed Bicycle Route
- Other Trails

Current

- Barnegat Branch Trail
- Municipal/County Trail
- Shared Use Path

- Municipal Boundary
- Recreational Area
- County Natural Lands
- Park
- School
- Library
- Trailhead
- Post Office
- Shopping Center
- Municipal Building
- Toms River Park & Ride
- Police Department

0 0.125 0.25
Miles

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

Figure 21

TOMS RIVER TOWNSHIP

Toms River Township has the largest population of the municipalities in the study area with approximately 93,000 residents. Land use within the study area in Toms River Township includes commercial, residential, and municipal. The primary roads within Toms River are NJ Route 166, which runs through the Toms River Business Improvement District (BID); Water Street, a county road, which also runs through the business district; Washington Street, a county road, which connects Downtown Toms River to the residential neighborhoods to the east; and the Garden State Parkway. Recommendations within Toms River Township focus on providing access to the Downtown Toms River BID and connecting to the BBT. Largely, residential streets were not impacted by the recommended improvements.

A key recommendation is reducing the speed limit to 25 mph throughout the Toms River BID, to further enhance the safety of pedestrians and bicyclists travelling through the downtown. The intersection of Main Street and Water Street should also be studied further to determine if additional pedestrian safety improvements could be implemented. Additionally, as the BID contains state, county and municipal roads, a coordinated effort to reduce speed limits will be needed. Local Technical Assistance (LTA) funding can be requested through NJDOT for this effort.

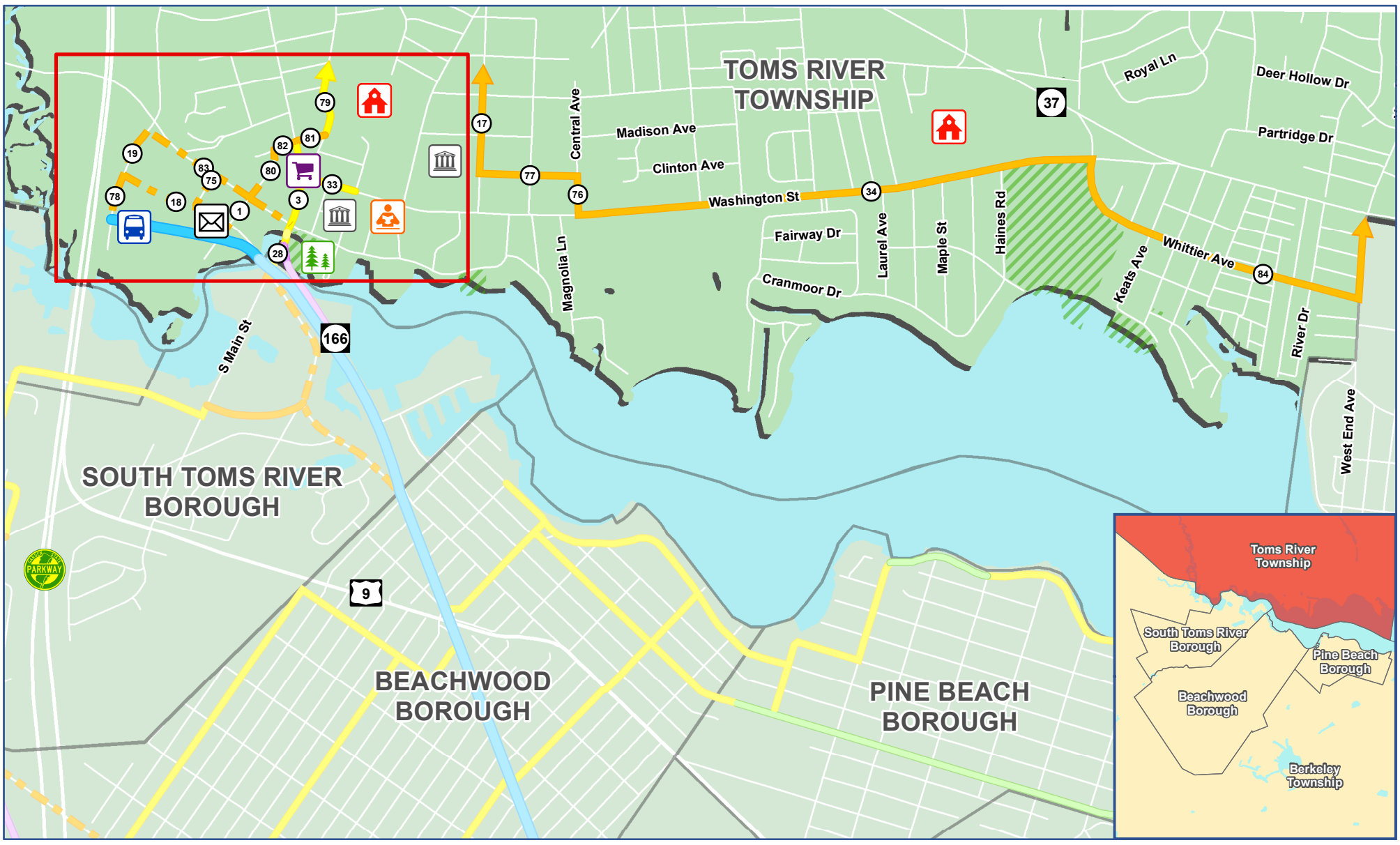
Recommended improvements within Toms River include:

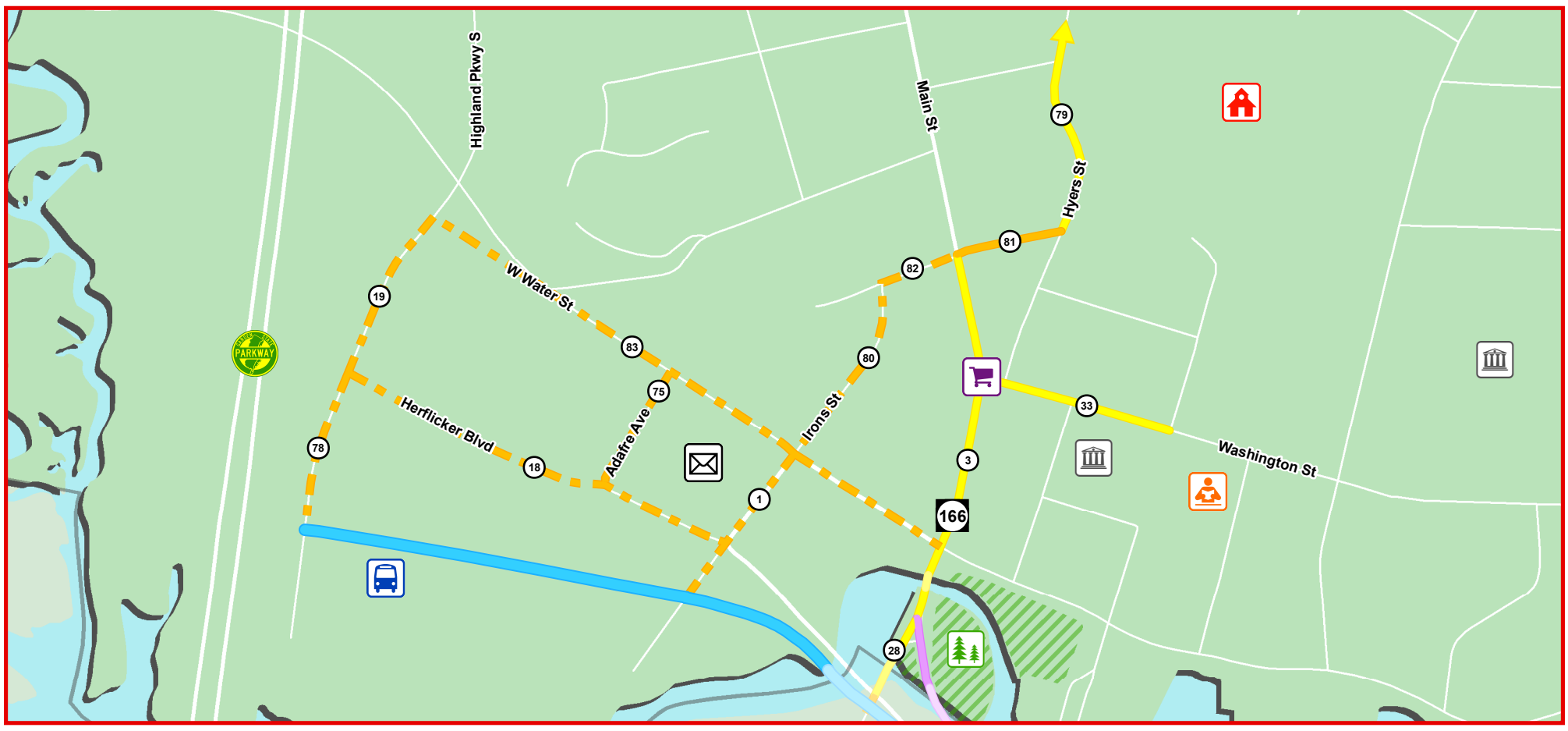
- Signed Bicycle Routes
  - Hyers Street
  - NJ Route 166 (State Road)
  - South Main Street (County Road)
  - Washington Street (County Road)
- Paved Shoulder with Signed Bicycle Route
  - Central Avenue
  - Clinton Avenue
  - Hadley Avenue (County Road)
  - Legion Court
  - Washington Street (County Road)
  - West End Avenue (County Road)
  - Whittier Avenue
- 5-foot Bike Lanes
  - Adafre Avenue
  - Herflicker Boulevard
  - Highland Parkway South (County/Municipal Road)
  - Irons Street (State/Municipal Road)
  - West Water Street
- Shared Use Path
  - NJ Route 166 (State Road) - extend through Huddy Park to Robbins Parkway

Figure 22 shows the Recommended Improvements for Toms River Township.

Barnegat Branch Trail

Toms River Township: Potential Facility Improvements and Best Routes





Proposed

- Intersection Improvements
- Paved Shoulder with Signed Bicycle Route
- Shared Use Path
- Two 5' Bike Lanes
- Signed Bicycle Route
- Other Trails

Current

- Barnegat Branch Trail
- Municipal/County Trail
- Shared Use Path

- Municipal Boundary
- Recreational Area
- County Natural Lands
- Park
- School
- Library
- Trailhead
- Post Office
- Shopping Center
- Municipal Building
- Toms River Park & Ride
- Police Department

0 0.2 0.4
Miles

N

ADDITIONAL RECOMMENDATIONS: MULTIPLE MUNICIPALITIES AND COUNTY-WIDE

BICYCLE PARKING

Bicycle parking is necessary to encourage bicycle transportation in Ocean County. There are two main factors that need to be considered when installing bicycle parking: proximity to a destination and ease of use. Bicycle parking should be visible from and close to the entrance it serves, a good benchmark measurement is 50 feet or less. Additionally, if the parking is weather protected, it is more viable for daily and year-round use. Bicycle parking is recommended at all destinations shown in Table 1.


Bike racks in Davis, CA.

There are three recommended bicycle racks: the inverted U, post & ring, and wheel well-secure. The inverted U is a common style that is appropriate for many uses; it has two points of ground contact. The post & ring is also a common style that is appropriate for many uses with one point of ground contact. When compared to the inverted U racks, these are less prone to unintended perpendicular parking. The wheel well-secure racks include an element that cradles one wheel, this style accommodates fewer bicycle types and attachments. Essentials of Bike Parking produced by the Association of Pedestrian and Bicycle Professionals provides further information on bicycle parking.

BICYCLE SHARE

Bike share programs can increase accessibility for residents and visitors, while encouraging them to use the BBT and its surrounding bicycle facilities. There are five main goals when determining bike share station locations:

- **Accessible and Convenient –** stations should be conveniently located and easy for pedestrians and cyclists to find and use, at any time, in any season.
- **Designed for Safety –** stations should be considered as part of a city's traffic calming toolkit and located in areas with relatively high volumes of pedestrian traffic and good lighting.
- **Operationally Feasible –** station locations should be easy to reach and service. They should have adequate sun exposure, if using solar power, and be accessible to rebalancing and maintenance vehicles.
- **Enhance the Pedestrian Realm –** stations should be placed in ways that enhance the quality of the surrounding pedestrian environment.
- **Part of the Streetscape Hierarchy –** stations share space in a crowded streetscape. Stations should take precedence over moveable objects such as drive rails and standard bike racks. Stations should not impede major, permanent streetscape elements such as hydrants, bus/transit stops, and loading docks. While the station plate should not cover utility access points, bikes can overlap utility points.

For more information on the implementation of a bike share program: NACTO Bike Share Station Siting Guide.

IMPLEMENTATION PLAN

COORDINATION

Municipalities should coordinate with neighboring communities to advance recommended bicycle and pedestrian improvements on roads linking to the BBT. A potential next step could be the formation of a working group or task force to spearhead a public information campaign and pursue opportunities and resources to support the design and implementation of facilities. The proposed improvements could also be implemented as tasks of an existing group within the study area. Municipal coordination will be a key factor in advancing the recommended improvements. In addition, municipalities could use this report as a guide to install recommended improvements within their jurisdictions on their municipal roads.

EDUCATIONAL PROGRAMMING

Educational programs can be used to highlight best practices for safely using existing and proposed facilities. These programs can also help promote walking and biking as a means of transportation, recreation and physical activity. Education programs are recommended for all types of users of all ages. Efforts should be made to educate bicyclists, pedestrians and motorists on the rules of the road and how to safely share the road. Widespread education efforts can contribute to safer roads for all.

Safe Routes to School (SRTS) is a federally funded program with the goal of making it safer for students, including those with disabilities, to walk and bike to school. NJDOT provides funding to schools and communities to improve walking and bicycling conditions to schools through its SRTS Infrastructure Grant Program. The New Jersey SRTS Resource Centers and the state's eight Transportation Management Associations also provide assistance to schools and communities with non-infrastructure programs, including educational activities.

The Greater Mercer Transportation Management Association (GMTMA) provides free Safe Routes to School (SRTS) programming to its service area, which includes Ocean County. GMTMA advocates for safe walking and biking to school for students K-12 with educational programs, such as Walk to School events, bike and pedestrian safety presentations, bicycle rodeos and skills clinics, Walking School Bus, Frequent Walker Programs and in-class activities. GMTMA also provides evaluation programs such as walkability audits and the development of school travel plans. SRTS and GMTMA can provide an educational component to students in Ocean County schools. To set up programming, municipalities within Ocean County are encouraged to contact the Safe Routes to School Coordinator at GMTMA. Additional SRTS resources can be found on the New Jersey SRTS Resource Center website and the National Center for Safe Routes to School website.

In addition to SRTS, GMTMA also provides pedestrian safety programming through the Street Smart NJ program. Street Smart NJ is a public education, awareness and behavioral change campaign coordinated by the North Jersey Transportation Planning Authority (NJTPA). The program uses high visibility enforcement, education, and public awareness to address pedestrian safety issues. The goals of this initiative are to:

- Change pedestrian and motorist behavior to reduce pedestrian crashes, injuries and fatalities in New Jersey.
- Educate motorists and pedestrians about their roles and responsibilities in safely sharing the road.
- Increase enforcement of pedestrian safety laws.

For more information visit the GMTMA website or www.BeStreetSmartNJ.org.

ENFORCEMENT

Enforcement of traffic regulations is an important component of a safe and well-traveled transportation system. Enforcement should include each type of roadway user — motorists, bicyclists, and pedestrians — and can help improve travel habits and behaviors. This process should include reviewing current ordinances and traffic regulations to identify elements that may unnecessarily affect certain roadway users, such as bicyclists.

As bicycle facilities are installed, it is recommended that local ordinances and regulations be developed or revised to clarify items such as: application of vehicle laws to bicyclists, permitted movements on and across bicycle facilities (e.g., permitted motor vehicle movements across bicycle lanes), bicycling on sidewalks, and bicycle parking requirements. In addition, a review of enforcement regulations and practices may assist in identifying opportunities to partner with community, county, or state organizations to inform users about safe bicycle travel behavior, such as the required use of helmets by bicyclists under the age of 17 (N.J.S.A 39:4-10.1), the state law that requires motorists to stop for pedestrians in the crosswalk (N.J.S.A 39: 4-36), or the requirement that bicyclists ride in single file (N.J.S.A 39:4-14.2). For more information on bicycle regulations in New Jersey, visit:

http://www.state.nj.us/transportation/commuter/bike/regulations.shtm

Outreach and promotion through community channels and events is a critical piece in reminding motorists, bicyclists, and pedestrians of applicable laws and recommended travel practices. The Street Smart NJ campaign is one method that could be used to accomplish this.

FUNDING

There are several ways to fund infrastructure and non-infrastructure projects and programs to increase walking and biking. The following is a list of common grant programs available to New Jersey communities. All grants listed are very competitive and requirements should be read carefully. The best applications tell the story of which populations are in most need of improvements; detail the problems and concerns using compelling pictures, data and other documentation; and indicate how and why improvements are prioritized.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

NJDOT's Division of Local Aid and Economic Development provides funds to local public agencies, such as municipal governments, for construction projects to improve the state's transportation system. The state's Transportation Trust Fund and the federal Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) legislation provide the opportunity for funding assistance to local governments for road, bridge and other transportation projects. NJDOT and the three Metropolitan Planning Organizations that cover New Jersey administer the federal aid programs. NJDOT administers state aid programs. Below are some options for funding infrastructure projects through NJDOT.

STATE AID INFRASTRUCTURE GRANT PROGRAMS

MUNICIPAL AID

This program assists municipalities in funding local transportation projects and all municipalities in New Jersey are eligible to apply. NJDOT specifically encourages applications for pedestrian safety improvements, bikeways, and streetscapes, encouraging at least 10 percent of all municipal aid funds for these projects specifically.

COUNTY AID

County aid funds are used for the improvement of public roads and bridges under county jurisdiction. Public transportation and other transportation projects are also included.

BIKEWAYS

This program funds bicycle projects that create new bike path mileage, working towards the NJDOT goal of 1,000 miles of dedicated bikeways in New Jersey. Special consideration will be given to bikeways physically separated from vehicle traffic, but on-road bike lanes or other bike routes are also eligible for funding.

SAFE STREETS TO TRANSIT

This program encourages counties and municipalities to construct safe and accessible pedestrian linkages to all types of transit facilities and stations, to promote increased usage of transit by all segments of the population and decrease private vehicle use.

TRANSIT VILLAGE

This program awards grants for transportation projects that enhance walking, biking, and/or transit ridership within ½ mile of the transit facility. Municipalities must already be designated as Transit Villages by the Commissioner of Transportation and the Inter-agency Transit Village Task Force to apply.

OTHER NJDOT ASSISTANCE

BICYCLE AND PEDESTRIAN PLANNING ASSISTANCE

NJDOT offers Local Technical Assistance (LTA) funding through its Office of Bicycle and Pedestrian Programs. Under this program, on-call consultants are paired with communities to complete a variety of projects including bicycle and pedestrian circulation and master plan studies, safety assessments, trail feasibility studies, bikeway plans, and improvement plans for traffic calming projects.

FEDERAL AID INFRASTRUCTURE GRANT PROGRAMS

SAFE ROUTES TO SCHOOL

The Safe Routes to School Program provides federal-aid highway funds for infrastructure projects that enable and encourage children in grades K-8, including those with disabilities, to safely walk and bicycle to school. Bonus points on the grant are given to applicants with School Travel Plans, a Complete Street Policy and Transit Village Designation.

TRANSPORTATION ALTERNATIVES PROGRAM

The Transportation Alternatives Program provides federal funds for community based non-traditional transportation projects designed to strengthen the cultural, aesthetic and environmental aspects of the nation's intermodal system. Bonus points on the grant are given to municipalities that have an adopted Complete Street Policy and Transit Village Designation.

NJDEP RECREATIONAL TRAILS GRANT PROGRAM

The Recreational Trails Program is administered by the New Jersey Department of Environmental Protection (NJDEP) Green Acres Program with federal funds for developing new trails and maintaining and restoring existing trails and trail facilities including trails for non-motorized, multi-use (including land and water) and motorized purposes.

CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM

The Congestion Mitigation and Air Quality Improvement (CMAQ) program provides a flexible funding source for state and local governments to fund transportation projects and programs to help meet the requirements of the Clean Air Act (CAA) and its amendments in nonattainment or maintenance areas

HEALTH AND ENVIRONMENT FUNDING

SUSTAINABLE JERSEY

The Sustainable Jersey Small Grants program provide capacity building awards to municipalities to support local green teams and their programs and is not project specific.

SUSTAINABLE JERSEY FOR SCHOOLS

Sustainable Jersey for Schools grants are intended to help districts and schools progress toward Sustainable Jersey for Schools certification.

NEW JERSEY HEALTHY COMMUNITIES NETWORK

The New Jersey Healthy Communities Network is a partnership of grantees, funders, and advocate organizations that seek collective impact on community well-being to support healthy eating and active living. The Community Grant Program provides opportunities to develop healthy environments in which people may live, work, learn and play by funding policies, projects and programs that support walking and bicycling.

TRANSPORTATION INFRASTRUCTURE BANK

The New Jersey Transportation Infrastructure Bank (NJTIB) is the result of a unique partnership between the New Jersey Infrastructure Bank (I-Bank) and the NJDOT. With a mission of reducing the cost of financing for New Jersey counties and municipalities, the NJTIB was established by the New Jersey Infrastructure Trust Act N.J.S.A 58:11B-1 et seq., to make low interest loans for local transportation infrastructure projects.

NJTIB loans are available for a variety of capital projects for public highways, bridges, approach roadways and other necessary land-side improvements, ramps and grade crossings, signal systems, roadbeds, transit lanes or rights of way, pedestrian walkways and bridge connecting to passenger stations and servicing facilities, bridge, and grade crossing. Projects and programs designed to increase the movement of passengers and goods, and that may provide a safety and/or infrastructure preservation benefit with a goal of improving quality of life, can also be funded through the NJTIB.

IMPLEMENTATION MATRIX

An implementation matrix for the proposed improvements is included. The matrix is intended to assist in prioritizing the recommendations for a phased implementation, as well as identifying costs. The two matrixes, one for the road improvements and another for intersections in the study area, are shown in Table 11 and Table 12, respectively. In the road matrix, the recommended improvement was selected in an attempt to balance the need for bicycle/pedestrian facility and safety upgrades with the feasibility of construction. Recommended improvements in Table 11 and Table 12 are labeled with a letter or number that can be used to locate the recommended improvement on the maps in this report.

Table 11: Implementation Matrix - Roadways

Responsible Agency	#	Location	Timeframe	Cost	Priority	Recommended Improvement
New Jersey Department of Transportation	1	Iron Street (Herflicker Boulevard to W Water Street) [Toms River]	Short	Low	High	Signed Bicycle Route
	2	NJ-166 (S Mathis Plaza Entrance to Huddy Park) [South Toms River, Toms River]	Long	High	Medium	Shared Use Path
	3	NJ-166 (Legion Court to S Main Street) [Toms River]	Short	Low	High	Signed Bicycle Route
	4	US-9 (Buckley Lane to Hickory Lane) [Berkeley]	Short	Low	High	Paved Shoulder with Signed Bicycle Route
Ocean County	5	Bayside Avenue [Beachwood, Pine Beach]	Medium	Low	Low	Signed Bicycle Route
	6	Beachwood Boulevard [Beachwood]	Short	Low	High	Signed Bicycle Route
	7	Birch Street [Beachwood]	Medium	Medium	Medium	Bike Lanes
	8	Center Street [South Toms River]	Short	Low	High	Paved Shoulder with Signed Bicycle Route
	9	Chelsea Avenue [Berkeley, Pine Beach]	Short	Low	High	Paved Shoulder with Signed Bicycle Route
	10	Club House Road [Beachwood]	Short	Low	High	Signed Bicycle Route
	11	Compass Avenue [Beachwood]	Medium	Low	Low	Signed Bicycle Route
	12	Double Trouble Road [Berkeley, South Toms River]	Long	High	Medium	Shared Use Path
	13	Dover Road [South Toms River]	Short	Low	High	Paved Shoulder with Signed Bicycle Route
	14	First Street [South Toms River]	Short	Low	High	Signed Bicycle Route
	15	Flint Road [South Toms River]	Medium	Medium	Medium	Bike Lanes
	16	Grand Central Parkway [Berkeley]	Long	Medium	Low	Bike Lanes
	17	Hadley Avenue [Toms River]	Short	Low	High	Paved Shoulder with Signed Bicycle Route
	18	Herflicker Boulevard [Toms River]	Short	Low	High	Bike Lanes
	19	Highland Parkway South [Toms River]	Short	Low	High	Signed Bicycle Route
	20	Korman Road [Berkeley]	Short	Low	High	Signed Bicycle Route
	21	Magnolia Avenue [Berkeley, South Toms River]	Short	Low	High	Signed Bicycle Route
	22	Mill Creek Road [Berkeley]	Short	Low	High	Paved Shoulder with Signed Bicycle Route
	23	Ocean Gate Drive [Berkeley]	Medium	Medium	Medium	Bike Lanes
	24	Pinewald Road (Chestnut Street to Poplar Street) [Beachwood]	Long	High	Low	Shared Use Path
	25	Pinewald Road (Poplar Street to Continental Avenue) [Beachwood]	Long	Medium	Low	Bike Lanes
	26	Prospect Avenue (Tutor Avenue to Station Avenue)	Short	Low	High	Paved Shoulder with Signed Bicycle Route
	27	Railroad Avenue [South Toms River]	Short	Low	High	Signed Bicycle Route
	28	South Main Street (Atlantic City Blvd to NJ-166) [South Toms River, Toms River]	Short	Low	High	Signed Bicycle Route
	29	South Main Street (NJ-166 to Flint Road) [South Toms River]	Medium	Medium	Medium	Bike Lanes
	30	South Main Street (Center Street to Magnolia Avenue) [South Toms River]	Short	Low	High	Signed Bicycle Route
	31	Springfield Avenue [Pine Beach]	Short	Low	High	Signed Bicycle Route
	32	Tilton Avenue [South Toms River]	Short	Low	High	Paved Shoulder with Signed Bicycle Route
	33	Washington Street (Main Street to Courthouse Lane) [Toms River]	Short	Low	High	Signed Bicycle Route
	34	Washington Street (Central Avenue to Whittier Avenue) [Toms River]	Short	Low	High	Paved Shoulder with Signed Bicycle Route
	35	West End Ave [Toms River]	Short	Low	High	Paved Shoulder with Signed Bicycle Route
	36	Western Boulevard [Berkeley]	Short	Low	High	Signed Bicycle Route
Beachwood Borough	37	Barnegat Boulevard	Short	Low	High	Signed Bicycle Route
	38	Cherry Street	Short	Low	Medium	Signed Bicycle Route
	39	Elm Street	Short	Low	High	Signed Bicycle Route
	40	Harpoon Street	Short	Low	High	Signed Bicycle Route
	41	Leeward Avenue	Medium	Low	Low	Signed Bicycle Route
	42	Mermaid Avenue	Short	Low	High	Signed Bicycle Route
	43	Poplar Street	Medium	Low	Low	Signed Bicycle Route
	44	Seaman Avenue	Short	Low	High	Signed Bicycle Route
	45	Ship Avenue	Short	Low	High	Signed Bicycle Route
	46	Spruce Street	Medium	Low	Low	Signed Bicycle Route
	47	Wave Street	Short	Low	High	Signed Bicycle Route

Timeframe for Implementation:	**Cost:**	**Priority Range:**
Short = 1-2 years	Low = <$10,000	Low
Medium = 3-4 years	Medium = $10,000-$250,000	Medium
Long = 5+ years	High = $250,000+	High

Table 11: Implementation Matrix - Roadways Continued

Responsible Agency	#	Location	Timeframe	Cost	Priority	Recommended Improvement
Berkeley Township	48	Bittern Lane	Short	Low	High	Signed Bicycle Route
	49	Browning Avenue	Short	Low	Low	Signed Bicycle Route
	50	Buckley Lane	Short	Low	High	Signed Bicycle Route
	51	Chain Boulevard	Short	Low	High	Signed Bicycle Route
	52	First Avenue	Short	Low	High	Signed Bicycle Route
	53	Frederick Drive	Short	Low	High	Signed Bicycle Route
	54	Hickory Lane	Short	Low	High	Signed Bicycle Route
	55	Korman Road	Short	Low	High	Signed Bicycle Route
	56	Mallard Road	Short	Low	High	Signed Bicycle Route
	57	Maryland Avenue	Short	Low	High	Signed Bicycle Route
	58	Michelle Lane	Short	Low	High	Signed Bicycle Route
	59	Northern Boulevard	Long	Medium	Low	Bike Lanes
	60	Park Avenue	Short	Low	High	Signed Bicycle Route
	61	Poe Drive	Short	Low	High	Signed Bicycle Route
	62	Station Road	Medium	Medium	Medium	Bike Lanes
	63	Tern Court	Short	Low	High	Signed Bicycle Route
	64	Woodland Road	Short	Low	High	Signed Bicycle Route
	65	Yaffa Road	Short	Low	High	Signed Bicycle Route
Pine Beach Borough	66	Monument Road	Short	Low	Medium	Signed Bicycle Route
	67	Motor Road	Short	Low	High	Signed Bicycle Route
	68	Prospect Avenue (Monument Road to Motor Road)	Short	Low	Medium	Signed Bicycle Route
	69	Riverside Drive	Short	Low	High	Signed Bicycle Route
	70	Station Avenue	Short	Low	High	Paved Shoulder with Signed Bicycle Route
South Toms River Borough	71	Applegate Avenue	Short	Low	High	Signed Bicycle Route
	72	Attison Avenue	Short	Low	High	Signed Bicycle Route
	73	Brandies Road	Short	Low	High	Signed Bicycle Route
	74	Brookforest Drive	Short	Low	High	Signed Bicycle Route
Toms River Township	75	Adafre Avenue	Short	Low	High	Bike Lanes
	76	Central Avenue	Short	Low	High	Paved Shoulder with Signed Bicycle Route
	77	Clinton Avenue	Short	Low	High	Paved Shoulder with Signed Bicycle Route
	78	Highland Parkway South	Short	Low	High	Bike Lanes
	79	Hyers Street	Short	Low	High	Signed Bicycle Route
	80	Irons Street	Short	Low	High	Bike Lanes
	81	Legion Court (Iron Street to NJ 166)	Short	Low	High	Paved Shoulder with Signed Bicycle Route
	82	Legion Court (NJ 166 to Hyers Street)	Short	Low	High	Signed Bicycle Route
	83	West Water Street	Short	Low	High	Bike Lanes
	84	Whittier Avenue	Short	Low	High	Paved Shoulder with Signed Bicycle Route

Timeframe for Implementation:	**Cost:**	**Priority Range:**
Short = 1-2 years	Low = <$10,000	Low
Medium = 3-4 years	Medium = $10,000-$250,000	Medium
Long = 5+ years	High = $250,000+	High

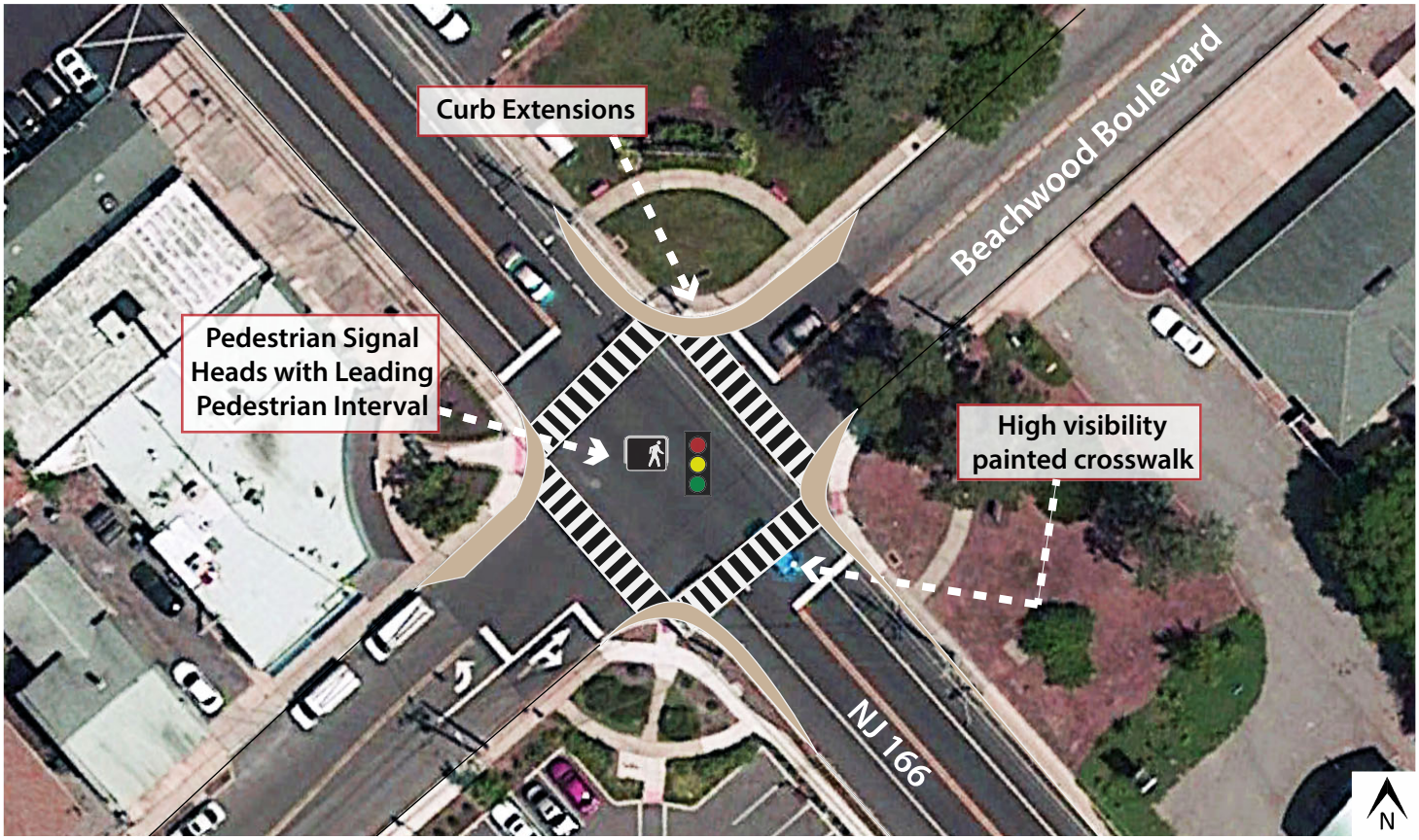
Table 12: Implementation Matrix - Intersections

Responsible Agency	Letter	Location	Timeframe	Cost	Priority	Specific Improvements
NJDOT	A	NJ 166 & Beachwood Boulevard	Medium	Medium	High	ADA Curb Ramps, Curb Extensions, High visibility crosswalks, Leading Pedestrian Interval, Pedestrian Signal Heads
NJDOT	B	Route 9 & Beachwood Boulevard	Medium	Medium	High	High Visibility Crosswalks, Leading Pedestrian Interval, No Turn on Red for All Approaches, Pedestrian Signal Heads, Retrorefelctive Backplates for Signal Heads
NJDOT	C	Route 9 & Buckley Lane	Medium	Medium	High	High Visibility Crosswalks, Rectangular Rapid Flashing Beacon
NJDOT	D	Route 9 & Chain Boulevard	Medium	Medium	High	Bike Boxes, High Visibility Crosswalks, Pedestrian Signal Heads
NJDOT	E	Route 9 & Hickory Lane	Medium	Medium	High	High Visibility Crosswalks, Rectangular Rapid Flashing Beacon
NJDOT	F	Route 9 & Mermaid Avenue & Harpoon Street	Medium	Medium	High	ADA Curb Ramps, HAWK Signal, High Visibility Crosswalks
NJDOT	G	NJ 166, south of Mathis Plaza south entrance	Long	Medium	High	HAWK Signal
NJDOT/Ocean County	H	Route 9 & Korman Road	Medium	Medium	High	Bike Boxes, High Visibility Crosswalks, Leading Pedestrian Intervals, Retroreflective Backplates for Signal Heads
Ocean County	I	Beachwood Boulevard & Central Way	Medium	Medium	High	ADA Curb Ramps, Curb Extensions, High Visibility Crosswalks, Rectangular Rapid Flashing Beacon
Ocean County	J	Birch Street & Leeward Avenue	Medium	Medium	High	High Visibility Crosswalks, Rectangular Rapid Flashing Beacon
Ocean County	K	Double Trouble Road & Birch Street	Medium	Medium	High	ADA Curb Ramps, Bike Boxes, Retroreflective Backplates for Signal Heads
Ocean County	L	Double Trouble Road & Tilton Avenue & Garden Court	Medium	Medium	Medium	ADA Curb Ramps, HAWK Signal, High Visibility Crosswalk
Ocean County	N	Dover Road & Tilton Avenue	Medium	Medium	Medium	ADA Curb Ramps, HAWK Signal, High Visibility Crosswalks
Ocean County	M	Mill Creek Road & Ocean Gate Drive	Medium	Medium	Medium	ADA Curb Ramps, High Visibility Crosswalks, Pedestrian Refuge Island
Ocean County	O	South Main Street & Center Street	Medium	Medium	Medium	ADA Curb Ramps, High Visiblity Crosswalks, Rectangular Rapid Flashing Beacon
Ocean County	P	South Main Street & Magnolia Avenue	Medium	Medium	Medium	ADA Curb Ramps, High Visiblity Crosswalks, Rectangular Rapid Flashing Beacon
South Toms River	Q	Flint Road & Center Street	Medium	Medium	Medium	ADA Curb Ramps, High Visiblity Crosswalks, Rectangular Rapid Flashing Beacon

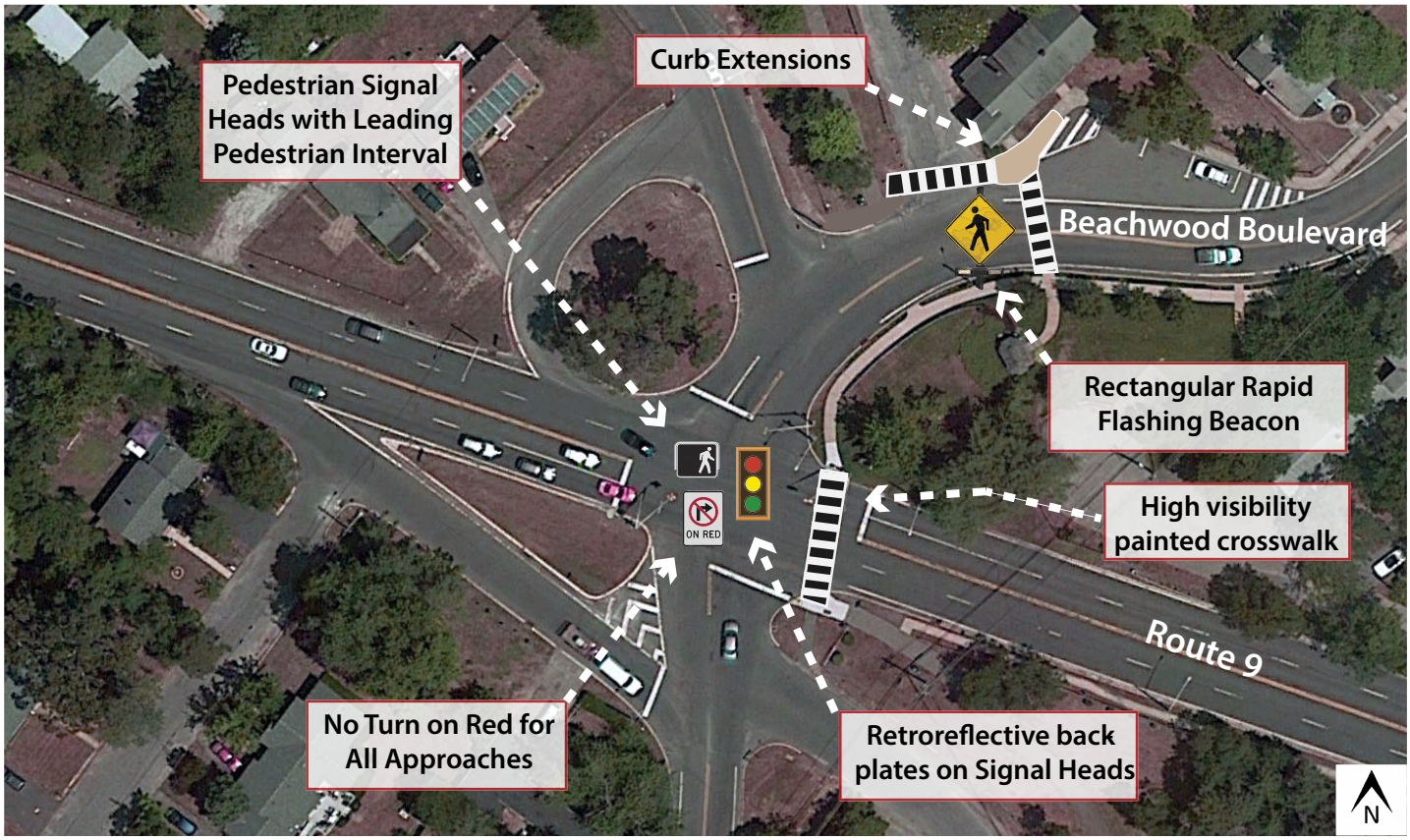
APPENDICES

APPENDIX A – IMPLEMENTATION PLAN SUPPLEMENTS

Intersection Improvements (Beachwood Borough) - NJ 166 & Beachwood Boulevard



Intersection Improvements (Beachwood Borough) - Route 9 & Beachwood Boulevard



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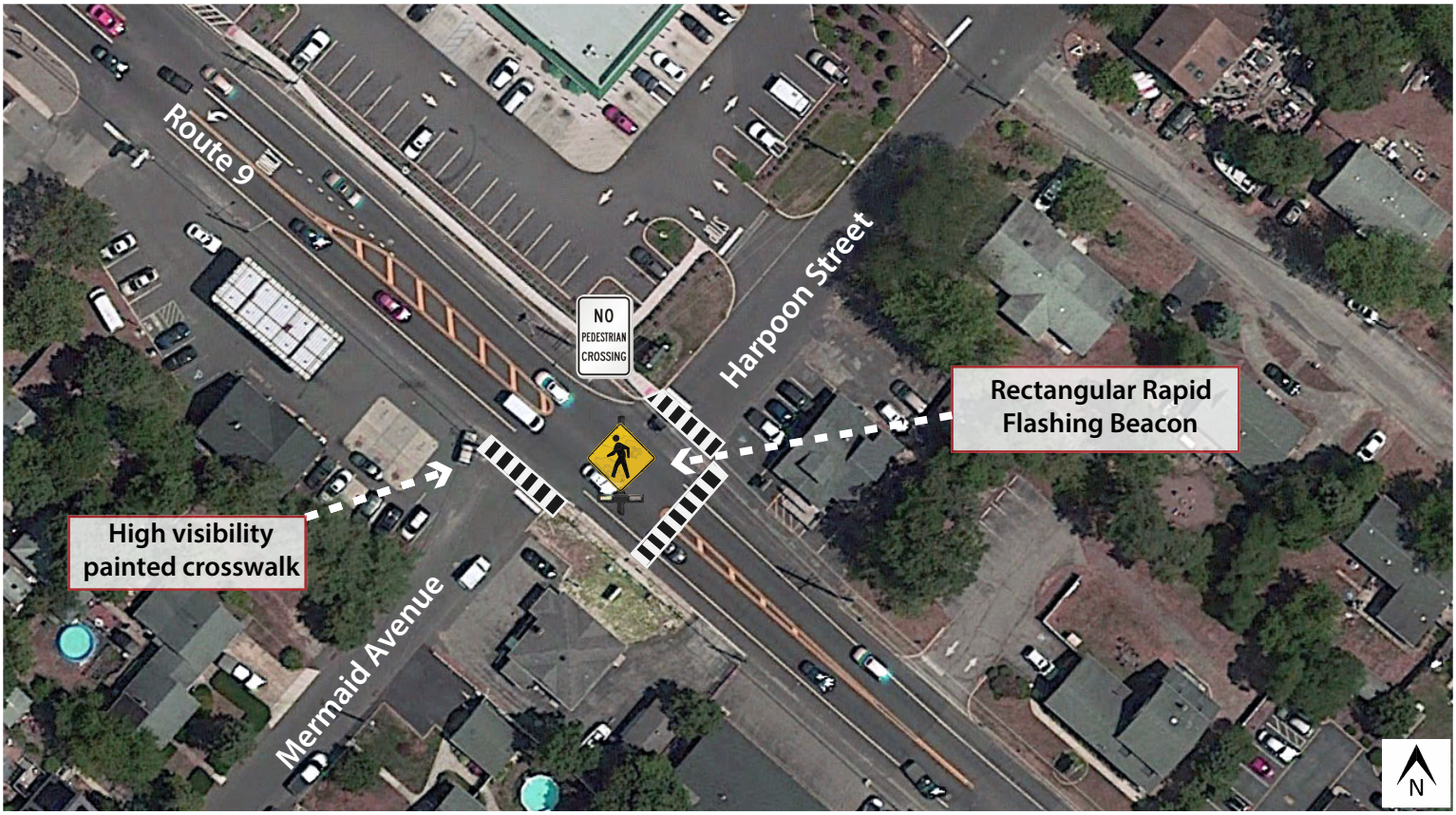
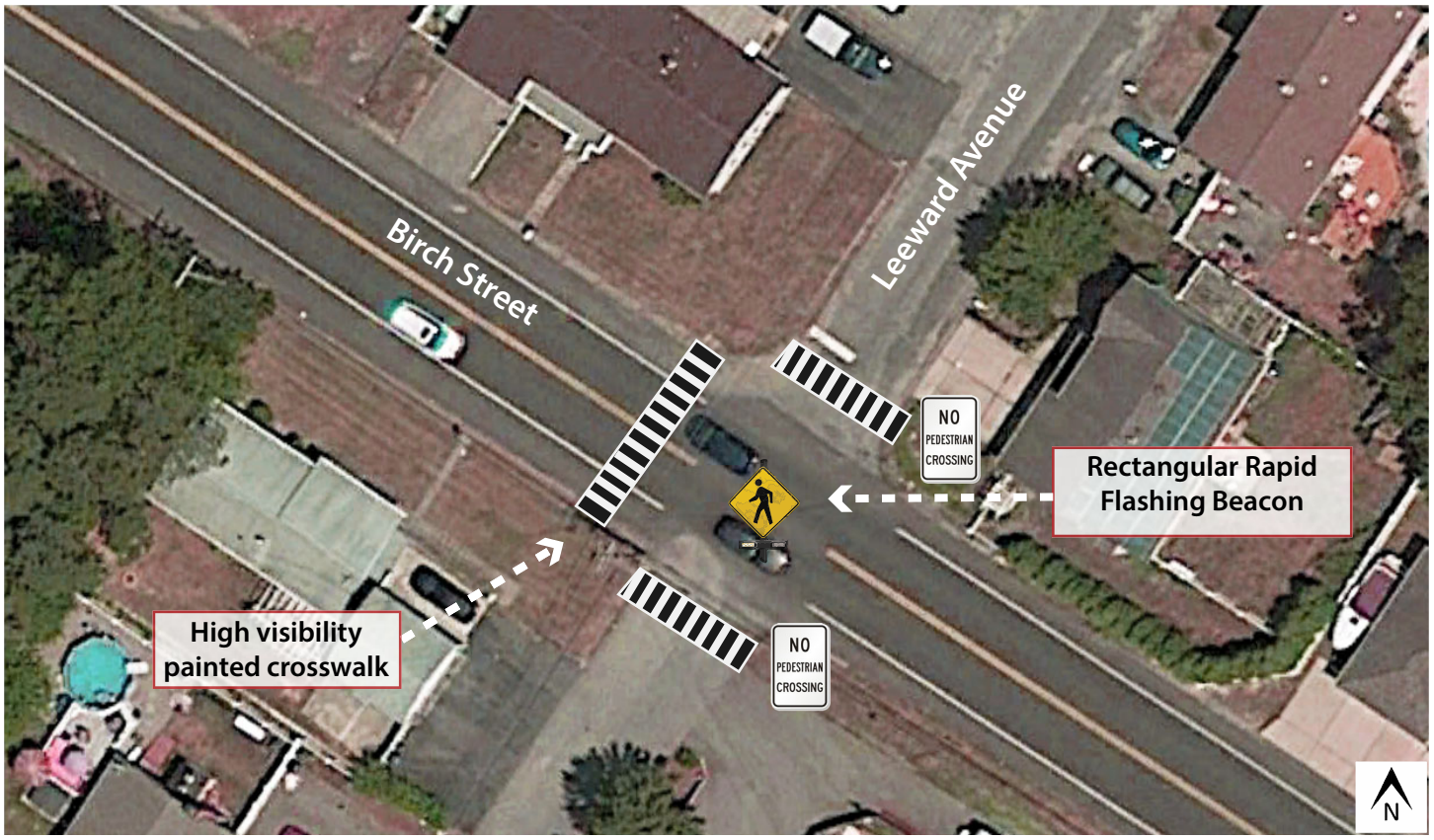
Intersection Improvements (Beachwood Borough) - Route 9 & Mermaid Avenue & Harpoon Street

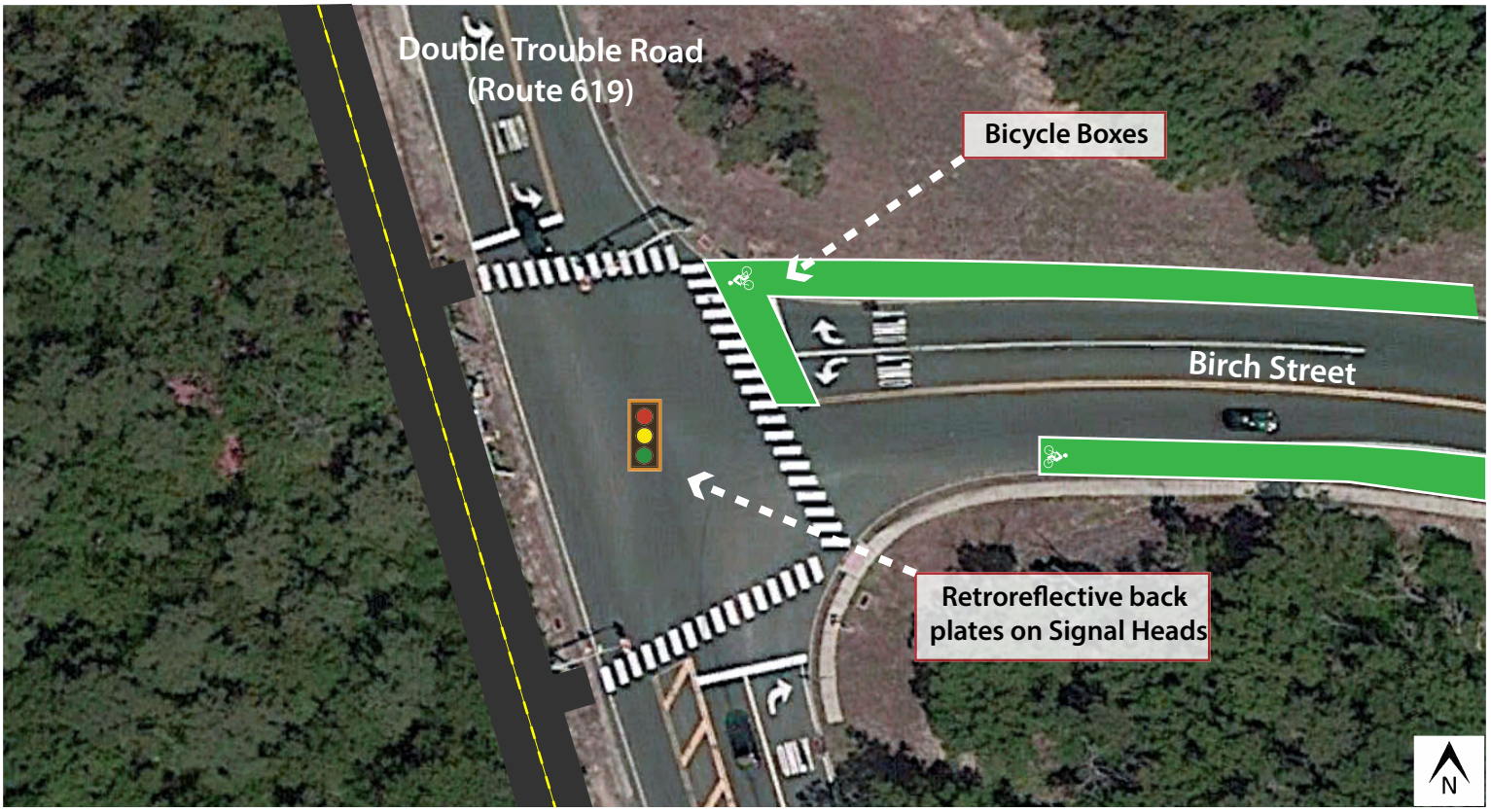


Intersection Improvements (Beachwood Borough) - Birch Street & Leeward Avenue

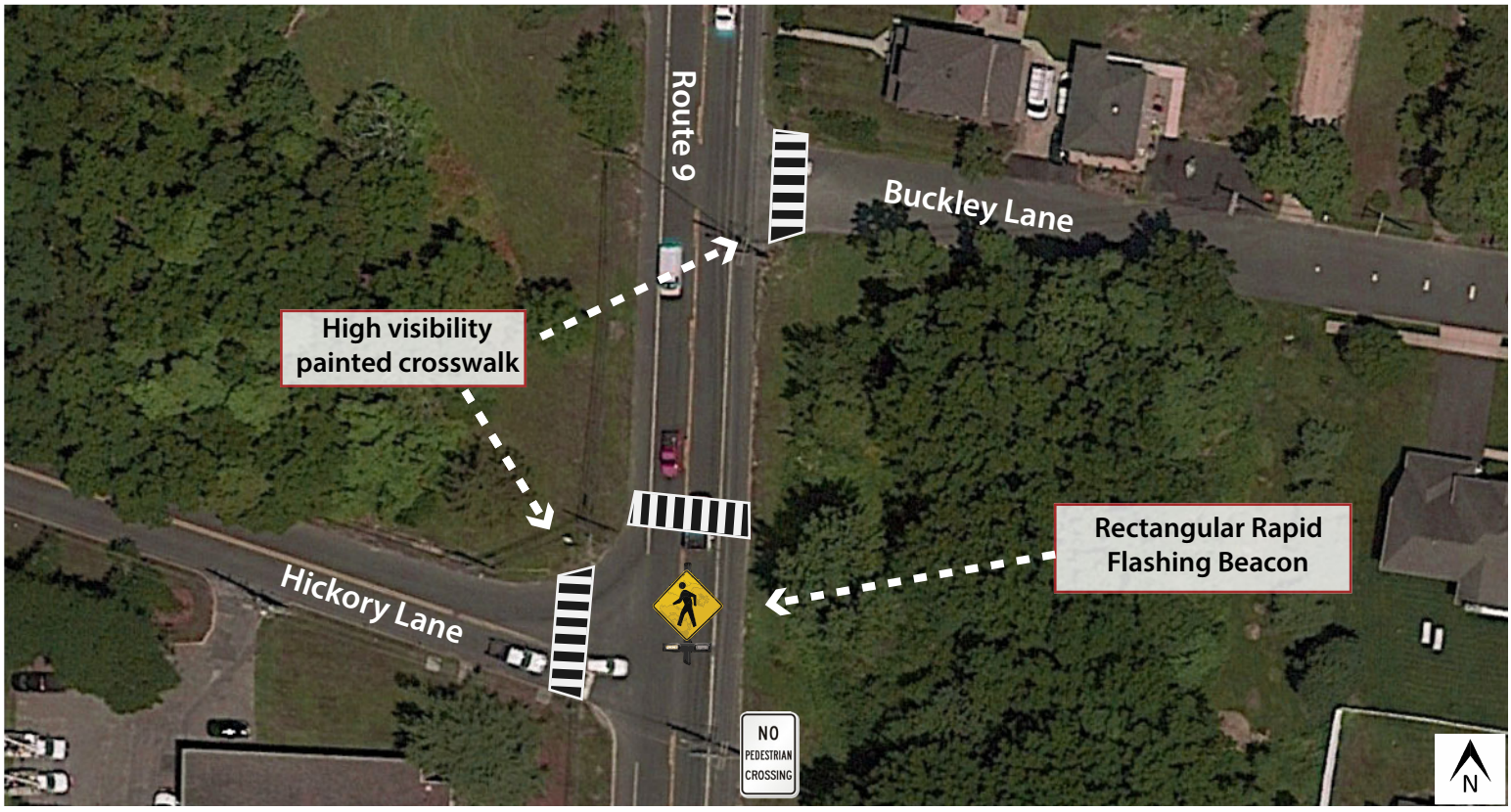


Michael Baker INTERNATIONAL

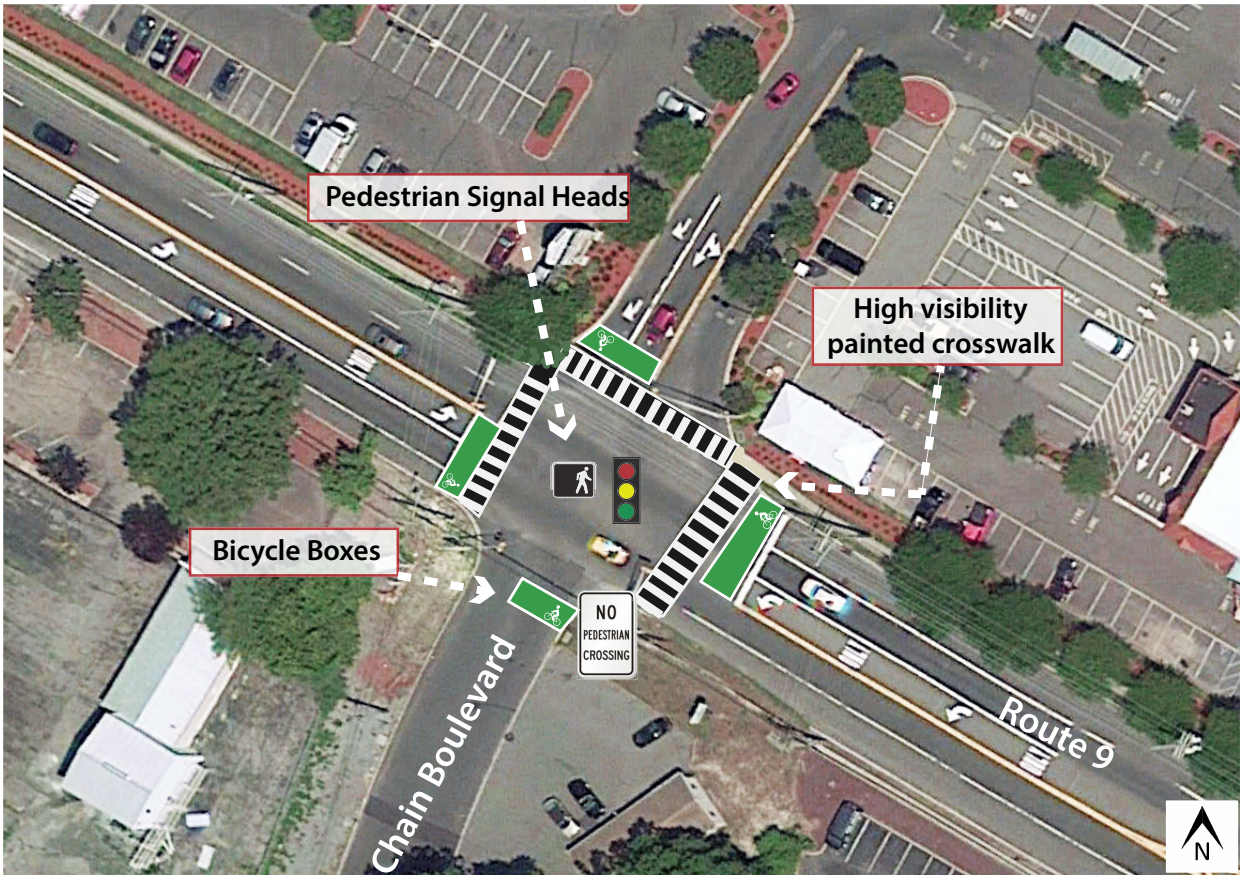
Intersection Improvements (Beachwood Borough) - Birch Street & Double Trouble Road



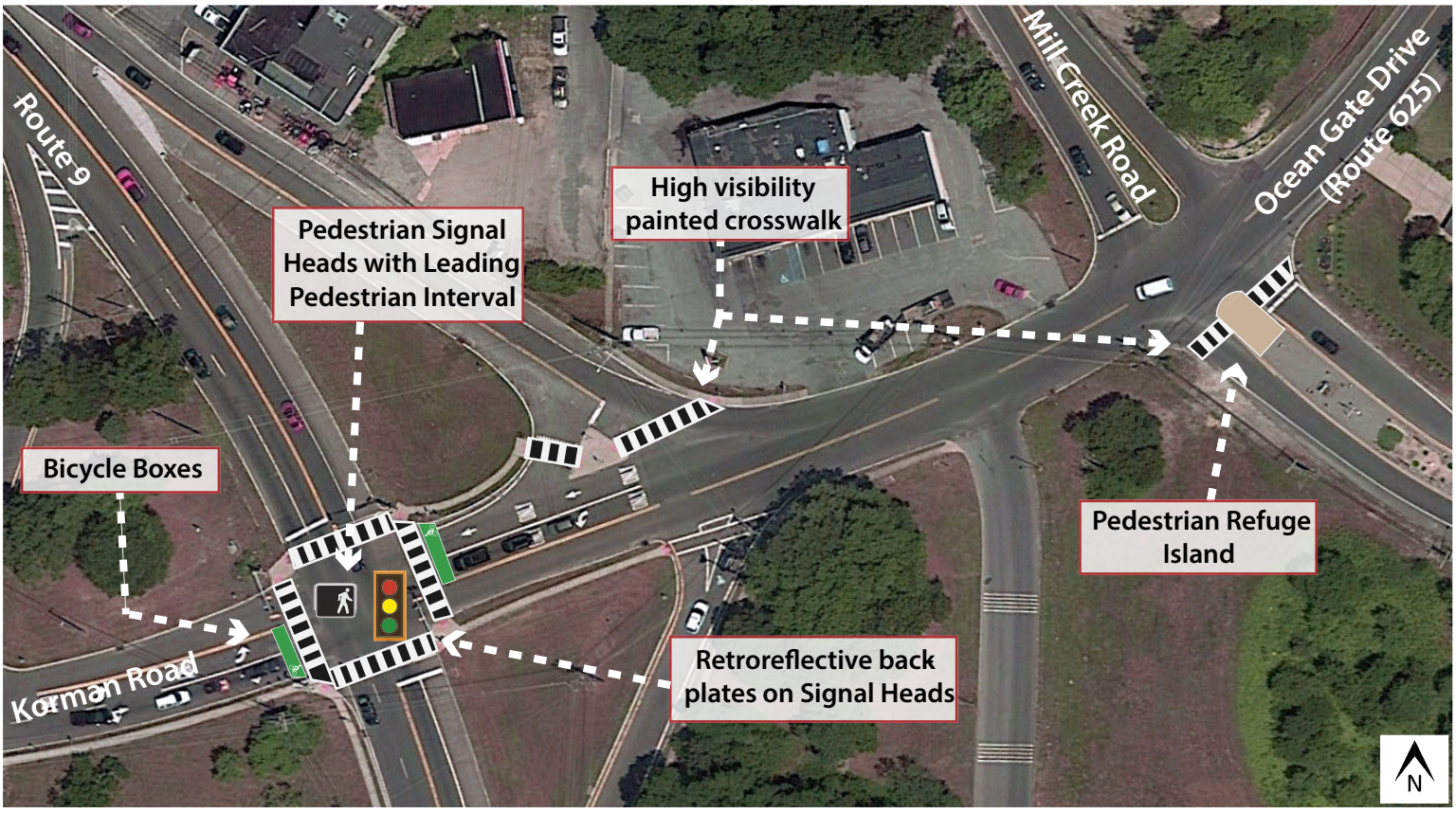
Intersection Improvements (Berkeley Township) - Route 9 & Hickory Lane & Buckley Lane



Intersection Improvements (Berkeley Township) - Route 9 & Chain Boulevard



Intersection Improvements (Berkeley Township) - Route 9 & Korman Road, Mill Creek Road & Ocean Gate Drive



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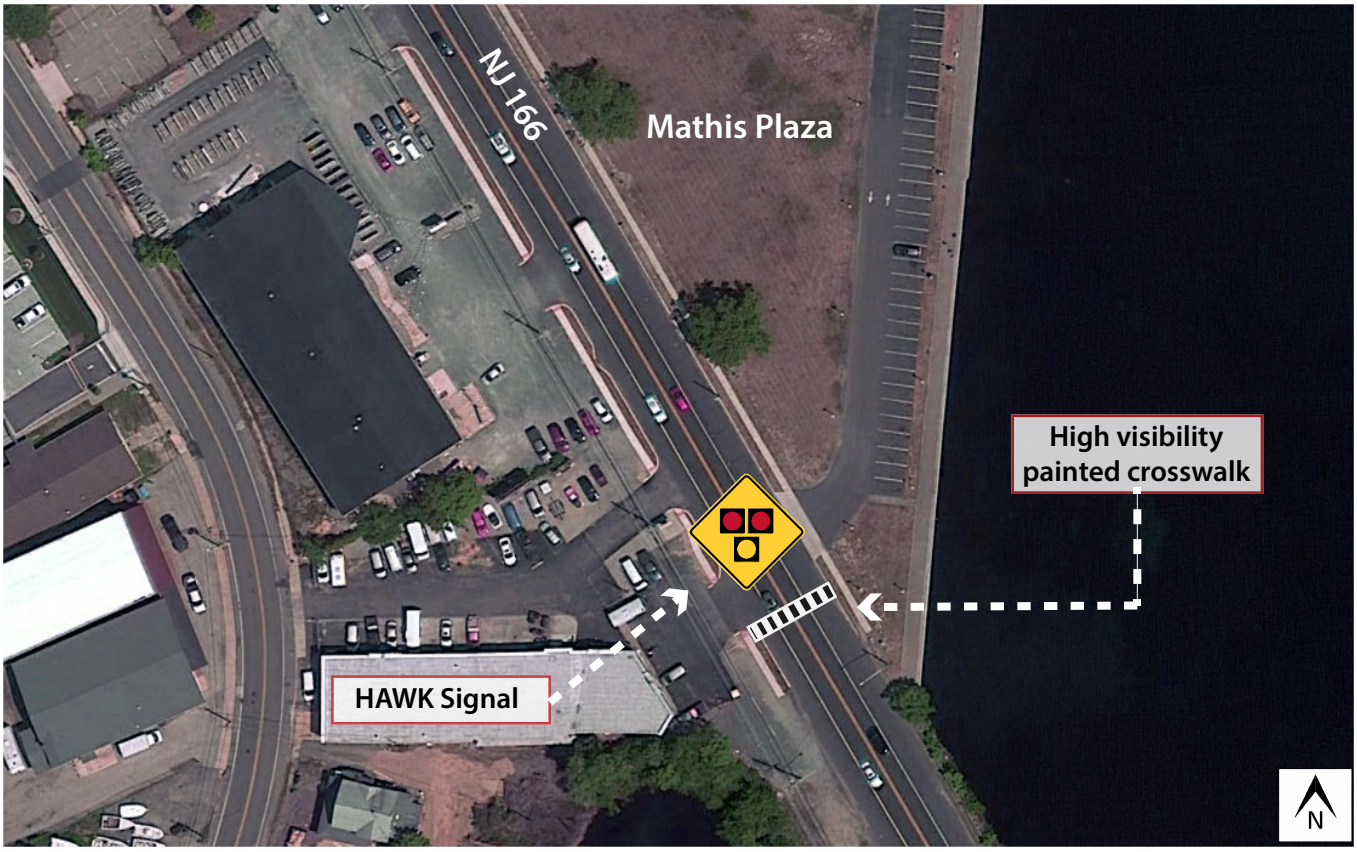
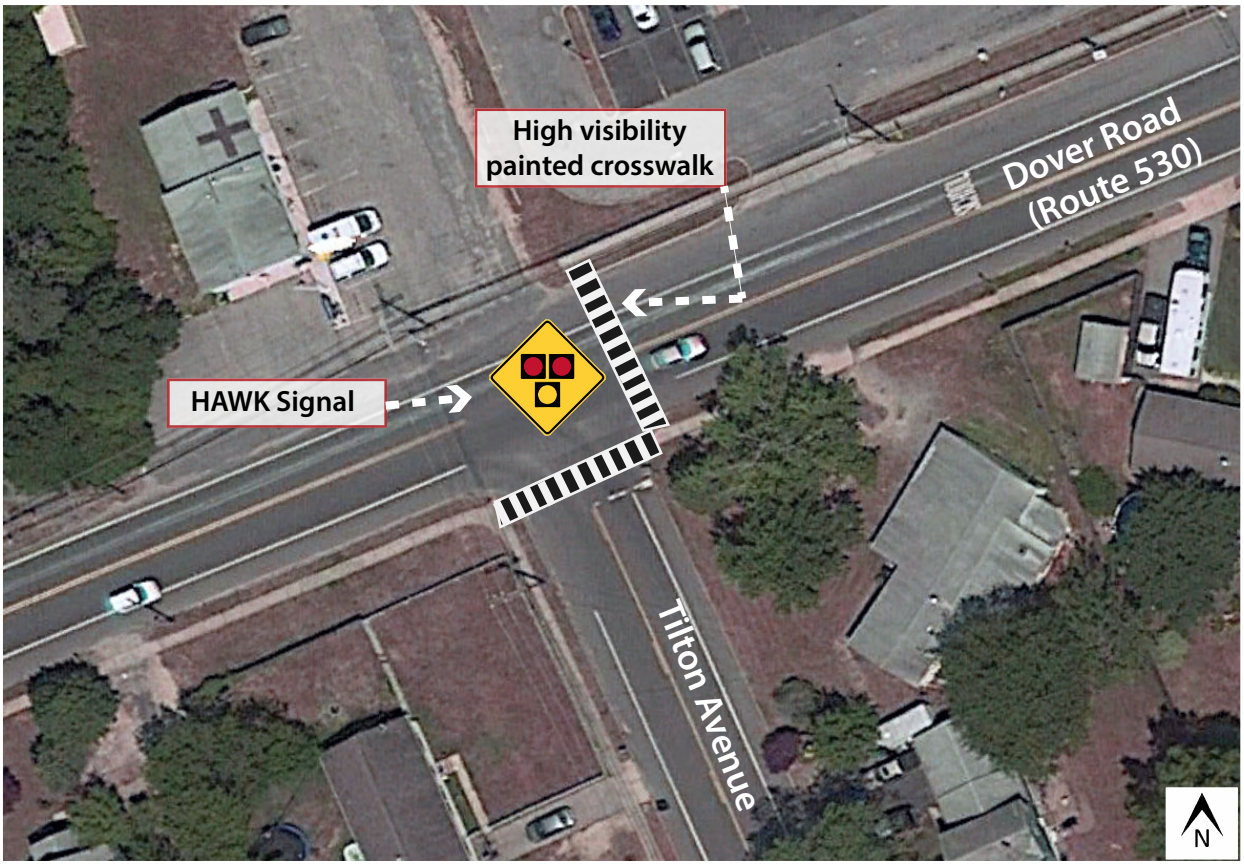
Intersection Improvements (South Toms River) - NJ 166 south of Mathis Plaza

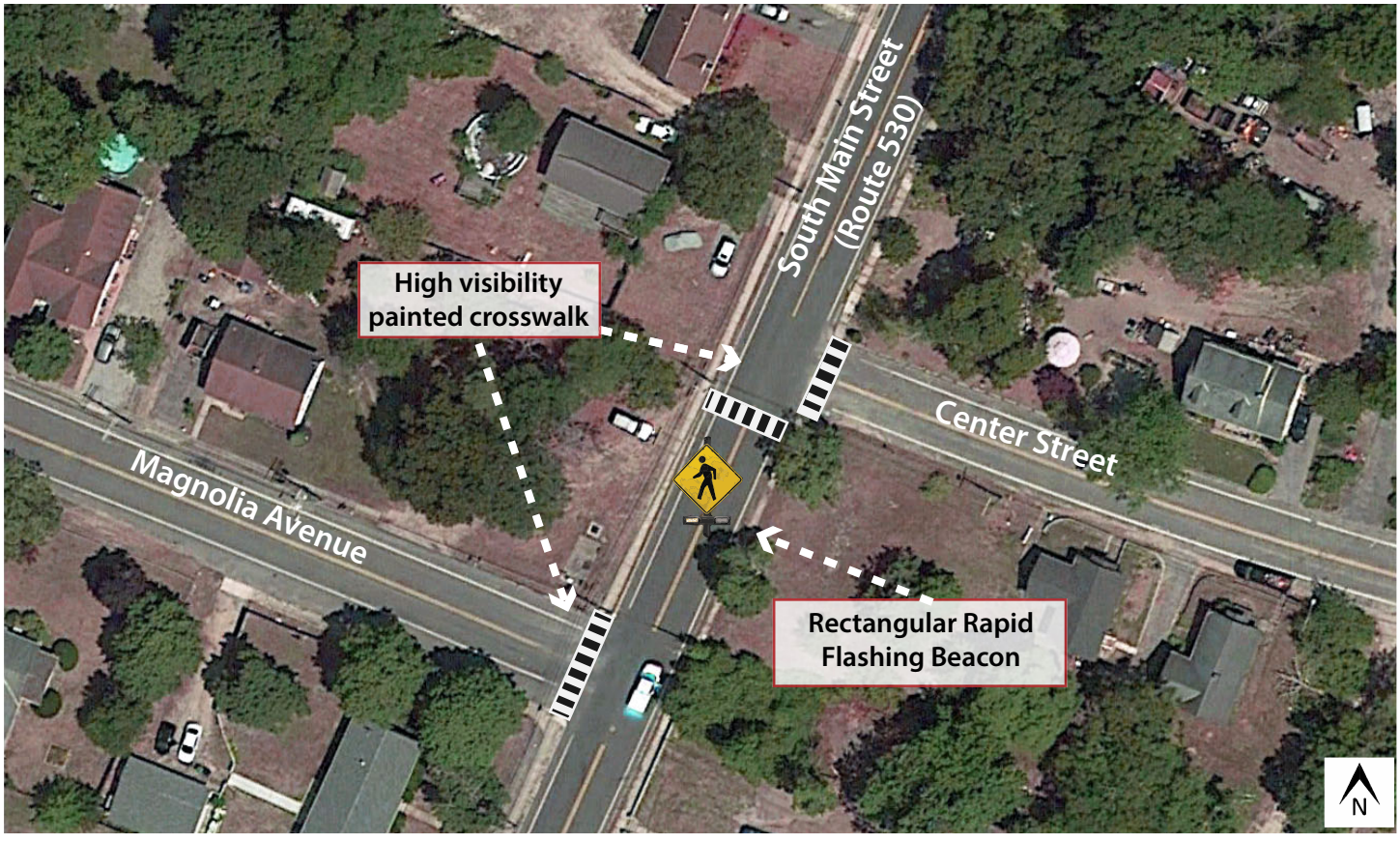


Intersection Improvements (South Toms River) - Tilton Ave. & Double Trouble Rd. & Parkway Blvd.

Intersection Improvements (South Toms River) - Dover Road & Tilton Avenue



Intersection Improvements (South Toms River) - South Main Street & Magnolia Avenue, South Main Street & Center Street



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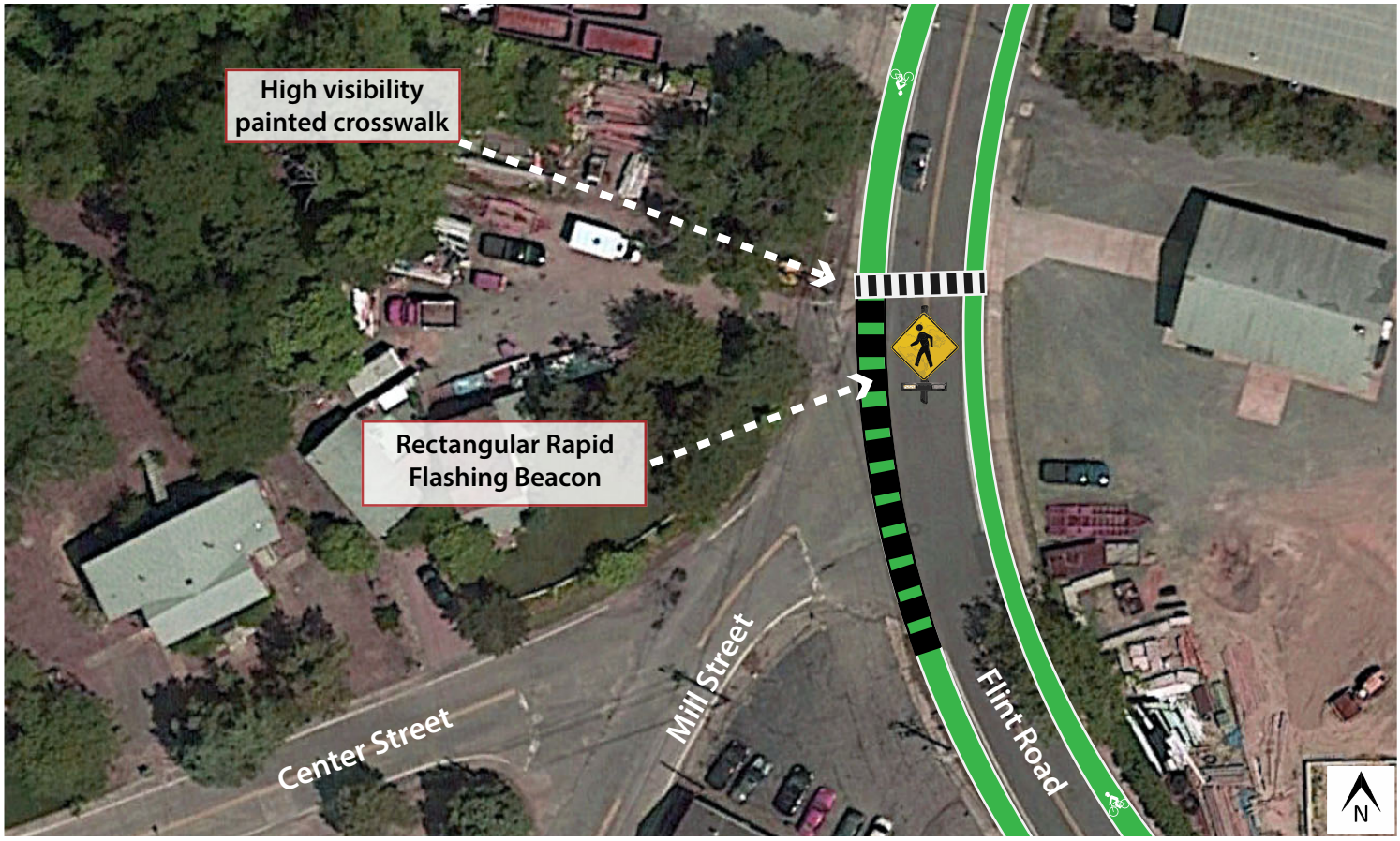
Intersection Improvements (South Toms River) - Flint Road & Mill Street



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INTERNATIONAL

APPENDIX B – EXISTING CONDITIONS DOCUMENTS

Bicycle and Pedestrian Linkages from the Barnegat Branch Trail, Northern Section Existing Conditions Report

Ocean County, New Jersey

October 2018

Prepared by:

Michael Baker
INTERNATIONAL

300 American Metro Boulevard
Hamilton, NJ 08619

Table of Contents

Introduction

The Barnegat Branch Trail (BBT) in entirety is planned to extend 15.6 miles along an abandoned rail corridor from Barnegat Township to Toms River Township. Today, phases I-VI of the BBT are open and completed, linking Barnegat, Ocean, Lacey and Berkeley Townships in Ocean County. The goal of this project is to determine potential walking and bicycling connections to the existing and proposed sections of trail through the surrounding municipalities of the BBT Northern Section, including Beachwood Borough, Berkeley Township, Pine Beach Borough, South Toms River Borough, and Toms River Township. The northern section of the BBT is part of a walking and bicycling backbone that will eventually connect destinations in the study area from Hickory Lane in Berkeley Township to the Toms River Park & Ride, following the alignment of the former Barnegat Branch of the Central New Jersey Railroad.

The BBT throughout Ocean County is envisioned to be a long-term development and become a space that provides connectivity between many of the County's communities near Barnegat Bay. The trail will accommodate both transportation and recreational uses, while providing an efficient and safe alternative to commute to work and school, access parks, libraries and other points of interest. After completion, the trail, along with potential trail linkages that will be proposed during this project, will connect to multiple small, walkable town centers, and will encourage biking and walking as an accessible and attractive daily mode of transportation.

The study area and local destinations map is shown below.

Figure 1: Project Area and Local Destination Map

To support the work to attain this vision, a review of existing local destinations and transportation connections, existing bicycle compatibility, and recent crash data was completed.

Local & Regional Destinations

As part of the goal to provide safe bicycle and pedestrian access from the BBT to community destinations using intermodal linkages, understanding the proximity of transit facilities, recreational facilities, schools, and other community services is a key component to this study.

The Toms River Park & Ride facility, located adjacent to a future conceptual alignment of the BBT, provides express bus service to Midtown Manhattan, as well as local and regional NJ TRANSIT service to Lakewood, Atlantic City, and Cape May County. The facility is also a stop for Ocean Ride bus service, which provides local service to surrounding towns including Manchester, Berkeley Township, and neighborhoods in Toms River. NJ TRANSIT also operates local bus service along US Route 9, NJ Route 166, NJ Route 37, and Hooper Avenue in Toms River.

There are a variety of community destinations with opportunities to connect to the BBT for diverse purposes, including the following for recreational and leisure activities:

- Beaches
- Libraries
- Parks
- Historic Sites

Beachwood Borough, Berkeley Township, Pine Beach Borough, South Toms River Borough, and Toms River Township have several municipal parks located within two miles of the BBT. These parks contain soccer fields, softball/baseball fields, marinas, piers, and conservation areas. Jake's Branch County Park in Beachwood, west of the Garden State Parkway, is a popular County Park that contains a Nature Center, hiking and walking trails, interpretive nature trails, softball/baseball fields, basketball courts and playgrounds. The Garden State Parkway is a barrier for pedestrians and bicyclists trying to access Jake's Branch from the BBT, as Birch Street in Beachwood and Double Trouble Road in Beachwood and South Toms River are the only roads that can access the park. Mill Creek Park is a County Park located approximately 1.75 miles northeast from the Barnegat Branch Trail in Berkeley Township and includes a conservation area, pavilion, picnic area, grills, playgrounds, and trails. This park can be accessed from the BBT by using residential streets and requires pedestrians and bicyclists to cross US Route 9.

There are also various community facilities and gathering spaces located within two miles of the BBT, including the Beachwood Community Center, Beachwood Beach, Beachwood Bicycles, and multiple branches of the Ocean County Library. These branches are all within one mile of the proposed trail. Also, many historic properties such as homes, churches, and museums are located in Beachwood Borough, Berkeley Township, Pine Beach Borough, South Toms River Borough, and Toms River Township, all within two miles of the BBT.

Several schools of grades K-12 are located within two miles of the BBT. The Elementary Schools and/or Middle Schools (Grades K-8) include:

- Bayville School
- Beachwood Elementary School

- Berkeley Township Elementary School
- Central Regional Middle School
- Clara B. Worth School
- Ocean Academy
- Pine Beach Elementary School
- South Toms River Elementary School
- St. Joseph's Grade School
- Toms River Intermediate School South
- Washington Street Elementary School

High Schools include:

- Ambassador Christian Academy
- Central Regional High School
- Donovan Catholic High School
- Toms River High School South

Municipal government facilities such as Town Halls, Police Stations, and Post Offices in Beachwood, Berkeley, Pine Beach, South Toms River and Toms River are located near the trail. The Ocean County Government complex is located in Toms River on Washington Street and Hooper Avenue, approximately ¼ mile from where the BBT runs along NJ Route 166.

Bicycle Compatibility

Using Bicycle Compatibility Rating Criteria Tables, roadways that could serve as potential linkages to the BBT were inventoried and the compatibility for bicycle use along those facilities was determined. The Bicycle Compatibility Rating Criteria tables consider roadway geometry, speed limits, Annual Average Daily Traffic (AADT), and presence of shoulder to determine if a roadway is most suitable, moderately suitable or least suitable for bicycles. The Bicycle Compatibility Rating Criteria tables are included in *Appendix A*.

The Bicycle Compatibility categories are defined as:

- Most – Most suitable for on-road cycling for users of all skill levels. A majority of cyclists would find conditions favorable.
- Moderate – Moderately suitable for on-road cycling. Cyclists of lesser skill and experience may find conditions unfavorable.
- Least – Least suitable for on-road cycling. Cyclists of advance skill and experience riding in traffic may find conditions unfavorable.

A map showing the bicycle compatibility of roads in the project area was made to illustrate identification of roads that may be recommended as potential linkages based on their bicycling suitability. The map also presents where challenges may exist as it identifies roads with least suitability. The roadways that are most suitable for users of all skill levels will be the recommended locations for linkages to the trail. The roadways that are least suitable will not be recommended unless facility improvements are made to increase the suitability. The Bicycle Compatibility Map is displayed in *Appendix B*.

Bicycle and Pedestrian Crash Analysis

The Project Team obtained crash data for the most recent 10-year period available (2007-2016) using the New Jersey Department of Transportation Safety Voyager application. During this period, there were 370 crashes involving pedestrians or bicycles within a two-mile radius of the BBT between Hickory Lane in Berkeley Township and the Toms River Park & Ride. Of the 370 crashes, 214 (58%) involved pedestrians, 142 (38%) involved bicycles, and 14 (4%) involved an unknown party (either pedestrian or bicyclist). Unfortunately, crash reports were not available for these 14 because they occurred prior to 2012.

The largest concentration of crashes occurred on US Route 9, with a total of 73 (20%) crashes. The top five roadways, in terms of the total number of pedestrian and bicyclist crashes within two miles of the BBT were:

- US Route 9 - 73 (20%) crashes
- NJ 37 - 47 (13%) crashes
- Route 549 - 36 (10%) crashes
- NJ 166 - 33 (9%) crashes
- Route 527 - 17 (5%) crashes

The remaining 164 crashes were split among 84 other roads.

The crash locations varied by roadway type. The largest portion of pedestrian and bicyclist crashes occurred along state highways, with 144 (39%) total crashes. The number of crashes by roadway type are shown below:

- State highways - 144 (39%) crashes
- County roads - 119 (32%) crashes
- Municipal roads - 74 (20%) crashes
- Private property - 23 (6%) crashes
- Roads operated by a state/interstate authority - 8 (2%) crashes
- Municipal authority park or institution roads - 2 (1%) crashes

This coincides with trends reported by Alan M. Voorhees Transportation Center at Rutgers University on statewide pedestrian and bicyclist fatal crash data from 2003-2011. In the historical data, approximately 38% of crashes occurred on state highways, 27% occurred on county roads, and 25% occurred on municipal roadways.

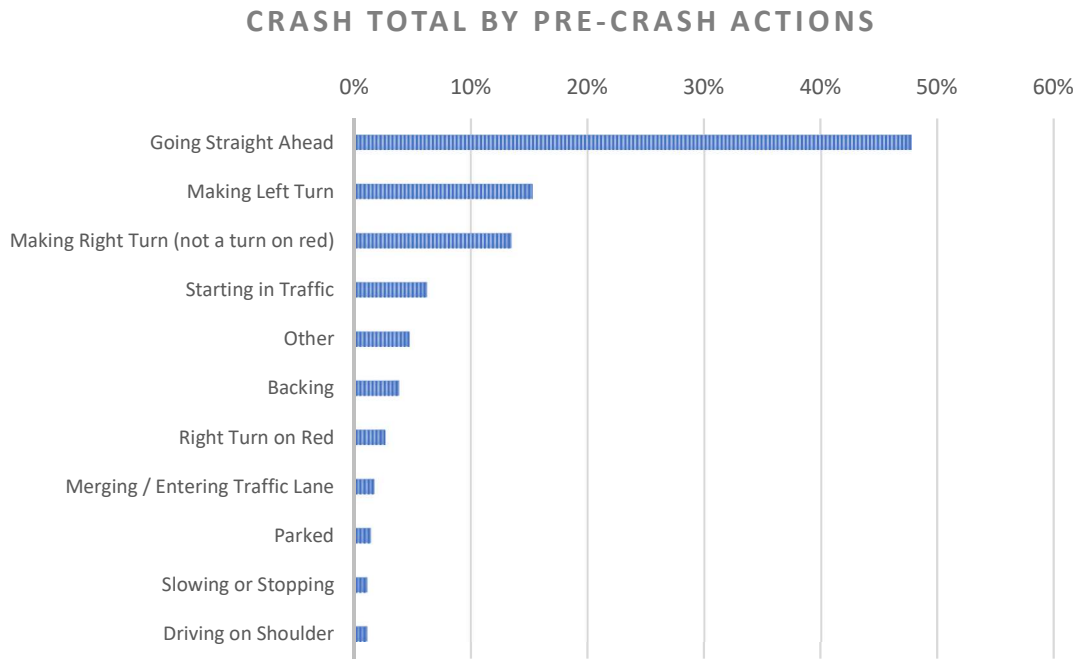


Figure 2: Pre-Crash Actions as a percentage of the known crash total for crashes with bicycles or pedestrians

Pre-crash actions were listed for 333 of the 370 crashes. The known action of motor vehicles prior to each crash are shown above in *Figure 2*.

A motor vehicle operator was going straight ahead in 159 (48%) of pedestrian and bicycle crashes. The "Other" category represents the combination of pre-crash actions listed in less than 1% of the known instances, including passing, changing lanes, parking, or being stopped in traffic.

A total of 170 (46%) crashes had a reported (known) contributing circumstances, while 144 (39%) listed "None (Driver/Pedalcycle)" as the contributing circumstance. The percentage of the total known contributing circumstances are shown in *Figure 2*.

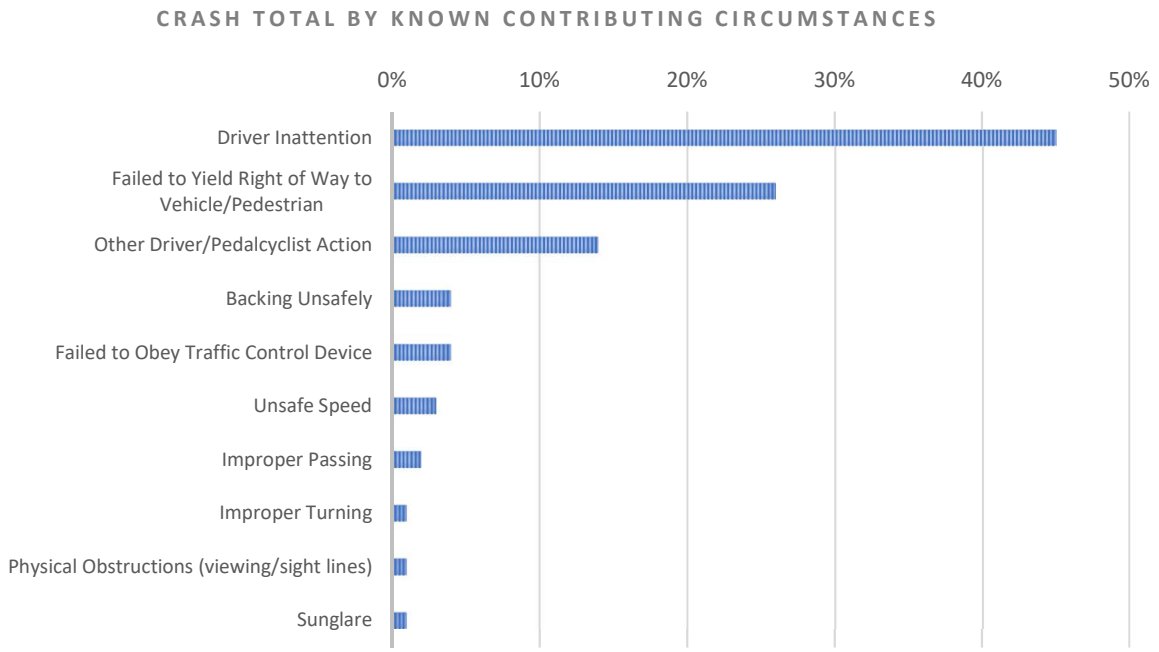


Figure 3: Contributing Circumstances as a percentage of the known crash total for crashes with bicycles or pedestrians

45% of the known contributing circumstances involved driver inattention, and 26% of the known contributing circumstances were a failure to yield by either the motor vehicle operator, pedestrian, or bicyclist. The "Other Driver/Pedalcyclist Action" represents a combination of the remaining contributing circumstances, including improper lane changes, following too closely, improper parking, and roadway factors, where crashes represent less than 1% of the total.

The majority of crashes occurred during the day, in dry conditions. The surface condition during the crashes is summarized below:

- Dry surface condition - 314 (85%)
- Wet Condition - 50 (14%)
- Covered in snow - 4 (1%)
- No road surface condition listed - 2 (<1%)

Light conditions during the crashes are summarized below:

- Day - 222 (60%) crashes
- Dark, street lights on - 110 (30%) crashes
- Dark, no street lights - 14 (4%) crashes
- Dusk - 12 (3%) crashes
- Dawn - 7 (2%) crashes
- Dark, street lights off3 (1%) crashes
- No lighting condition listed - 2 (1%) crashes

In terms of severity, 16 (4%) of the 370 crashes resulted in the death of a pedestrian or bicyclist, 25 (7%) crashes resulted in incapacitating injuries, 120 (32%) crashes resulted in moderate injuries, 148 (40%)

crashes resulted in complaint of pain from a pedestrian or bicyclist, and 61 (17%) crashes resulted in property damage only (PDO).

Table 1: Pedestrian and Bicycle Crashes by Crash Severity

Crash Severity	Pedestrian Crashes	Bicycle Crashes	Unknown Pedestrian or Bicycle Crashes	Total Pedestrian and Bicycle Crashes
Killed	14	2	0	16 (4%)
Incapacitated	20	3	2	25 (7%)
Moderate Injury	73	44	2	120 (32%)
Complaint of Pain	73	68	7	148 (40%)
Property Damage Only	34	25	2	61 (17%)
Total	**214**	**142**	**14**	**370**

Evaluating crash data is important to this study because an understanding of the data can lead to more effective design countermeasures and programs to improve pedestrian and bicycle safety. Design recommendations in the next phase of the study will be guided by analysis of crash hot spots, including the understanding of the causes of crashes.

The maps of the crash locations are shown in *Appendix C.*

Toms River Park & Ride

The Project Team conducted a survey of bus riders at the Toms River Park & Ride in Toms River on August 9, 2018 from 5:30 AM to 9:00 AM, which serves a bus station with four NJ TRANSIT bus routes and five Ocean Rides shuttle routes. There are 524 parking spaces, and one bicycle rack for approximately 6-8 bicycles. The majority of NJ TRANSIT buses that pick up passengers at this Park & Ride head northbound on the Garden State Parkway and terminate at Port Authority Bus Terminal in New York City (Manhattan). Other NJ TRANSIT buses travel to Newark, Jersey City, Atlantic City, Wildwood, Cape May, and Lakewood. Ocean Ride destinations from the Park & Ride include Manchester, Lakehurst, Berkeley Township, Seaside Heights, and neighborhoods within Toms River. The majority of individuals surveyed while waiting at the Park & Ride were taking NJ TRANSIT buses to New York City for work.

Figure 4: Passenger queue at Park & Ride facility

On the north side of the Park & Ride the abandoned rail R.O.W. is still owned by Conrail. The Project Team staff observed a large hole in a chain link fence that people may be using for accessing the northwest side of the Park & Ride from the R.O.W.

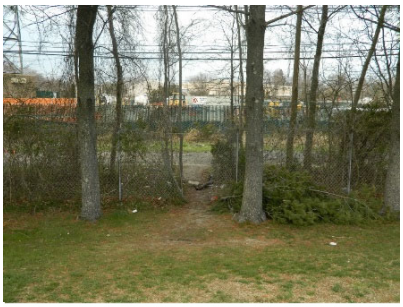


Figure 5: Hole in fence between Park & Ride and BBT

Figure 6: ROW adjacent to Park & Ride

Figure 7: Bike rack at Park & Ride facility

Summary of Survey Results

Date: Thursday, August 9, 2018

Time: 5:30 AM to 9:00 AM

Total Survey Respondents: 60

Total Buses that Departed from Park & Ride: 12

Weather: Clear

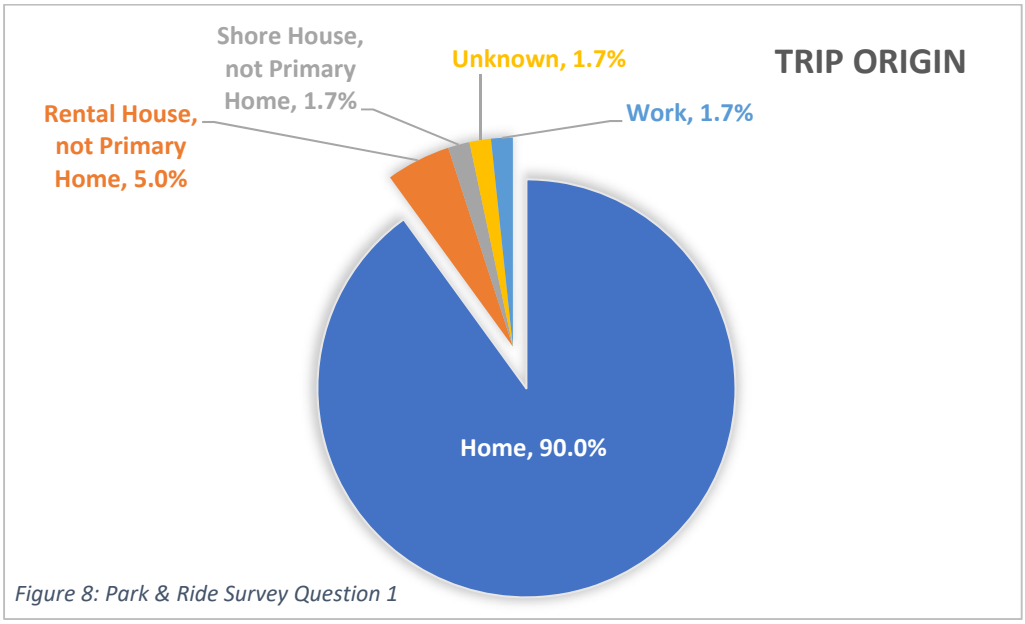


Figure 8: Park & Ride Survey Question 1

Ninety percent of survey respondents trips originated from "Home". 5% of respondents also began their trip from a house that they were renting, which was not their primary residence. These respondents mentioned that the trip started at their "shore house" or "summer house" that they rent. One respondent mentioned that the trip began at their "shore house" and that it was a house that they owned. One respondent answered "Work", indicating that they were working a night shift before arriving at the Park & Ride.

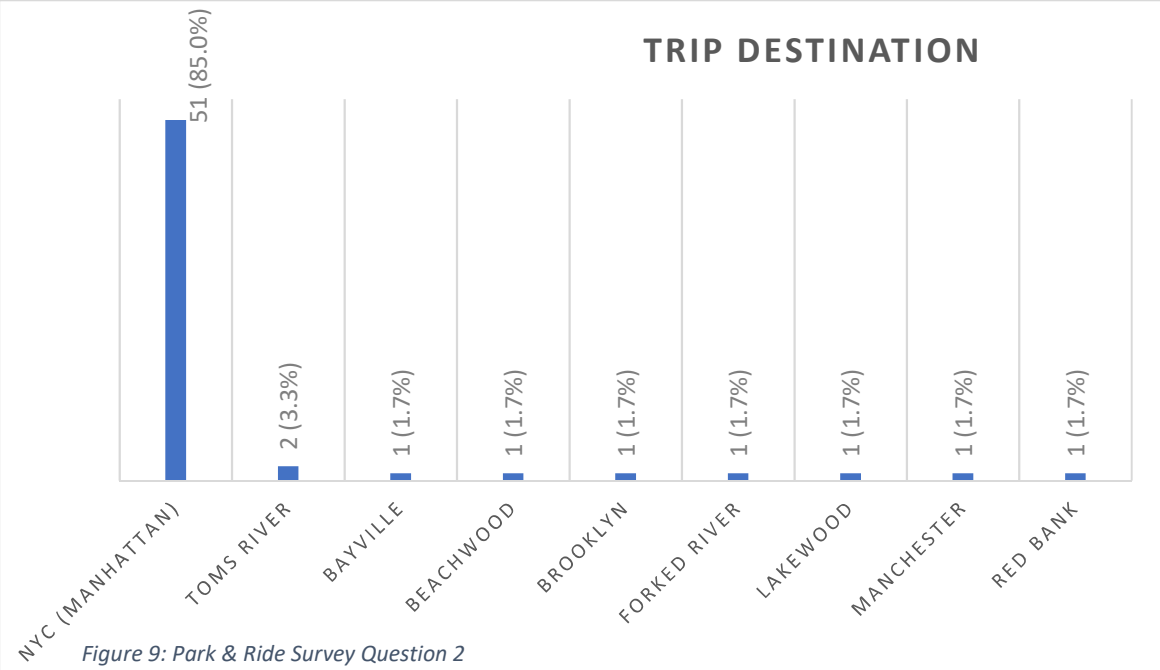


Figure 9: Park & Ride Survey Question 2

Eighty-five percent of the respondents' trips terminated in Manhattan. The remaining trips terminated in municipalities within Ocean County, one in Red Bank (Monmouth County) and one in Brooklyn, NY.

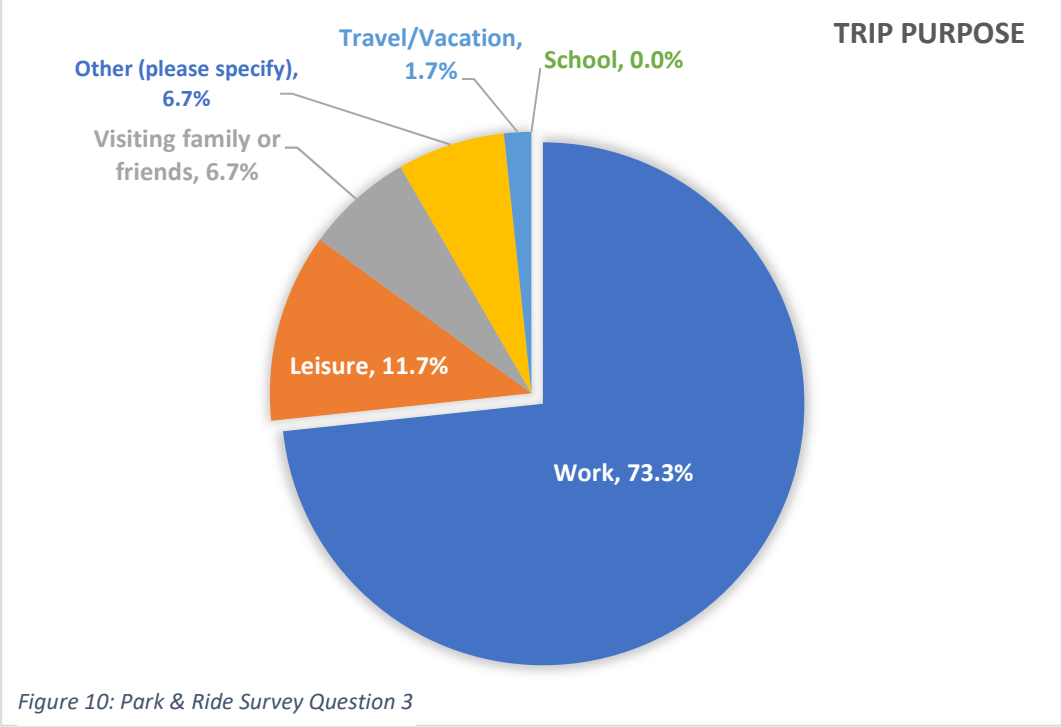


Figure 10: Park & Ride Survey Question 3

Seventy-three percent of respondents were making their trip to work while nearly 12% of respondents chose "Leisure" and nearly 7% chose "Visiting family or friends." Four respondents chose "Other (please specify)", and all four of the respondents mentioned that they were traveling to a medical appointment.

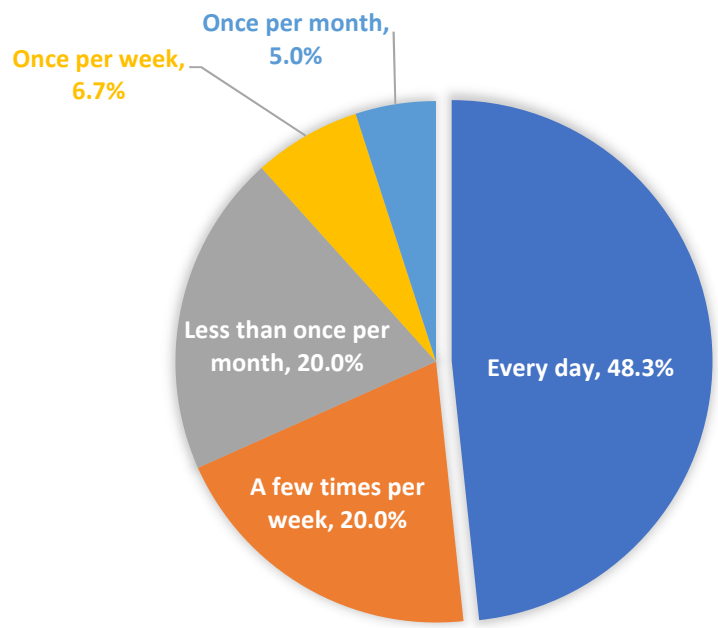


Figure 11: Park & Ride Survey Question 4

Nearly 50% of respondents were taking a trip that they take every day. 20% of respondents take the trip a few times per week, and another 20% of respondents take the trip less than once per month.

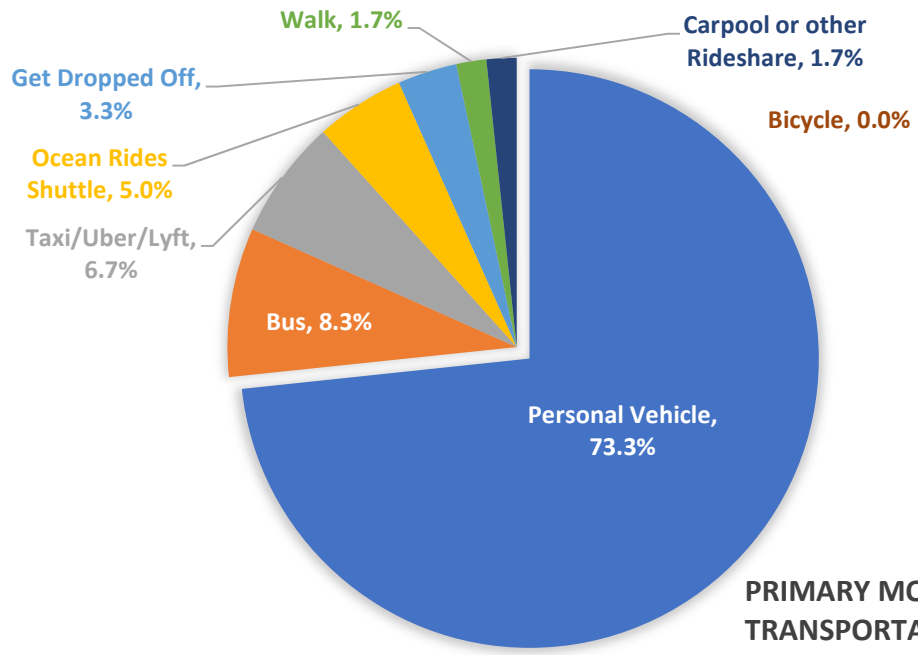


Figure 12: Park & Ride Survey Question 5

The majority of respondents normally arrive at the Park & Ride in their personal vehicle. Bicycle was a listed as a mode choice on the survey, but no respondents indicated it as a transportation mode.

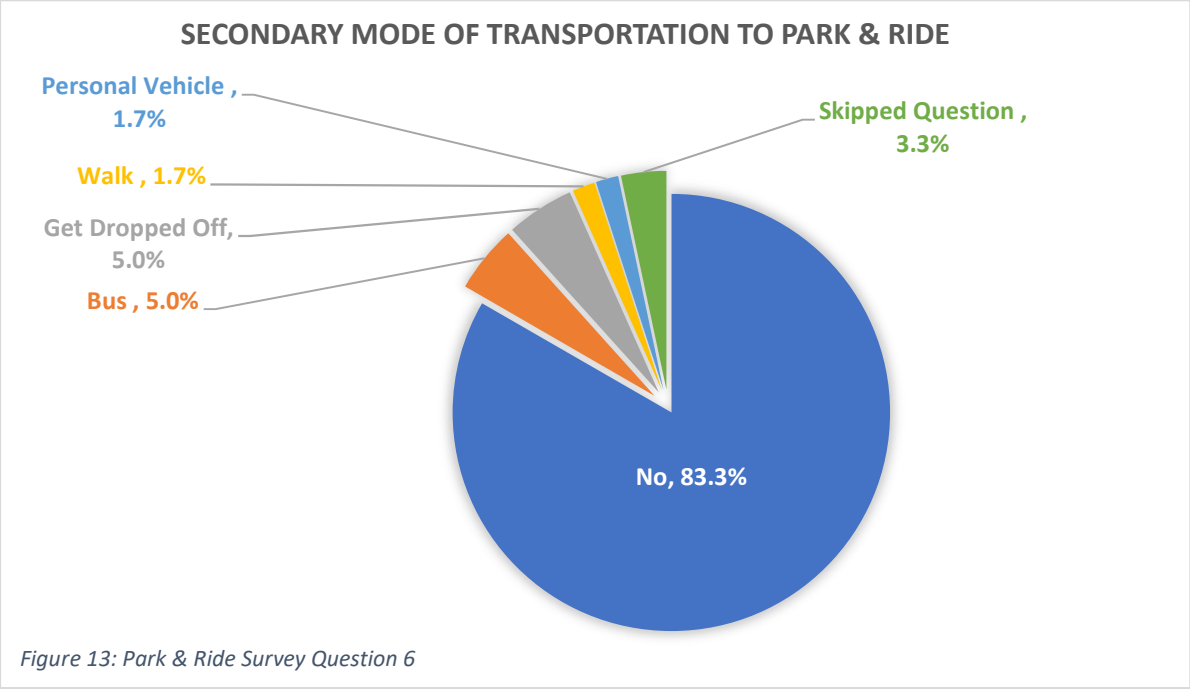


Figure 13: Park & Ride Survey Question 6

The majority of respondents did not use a second mode of transportation to arrive at the Park & Ride.

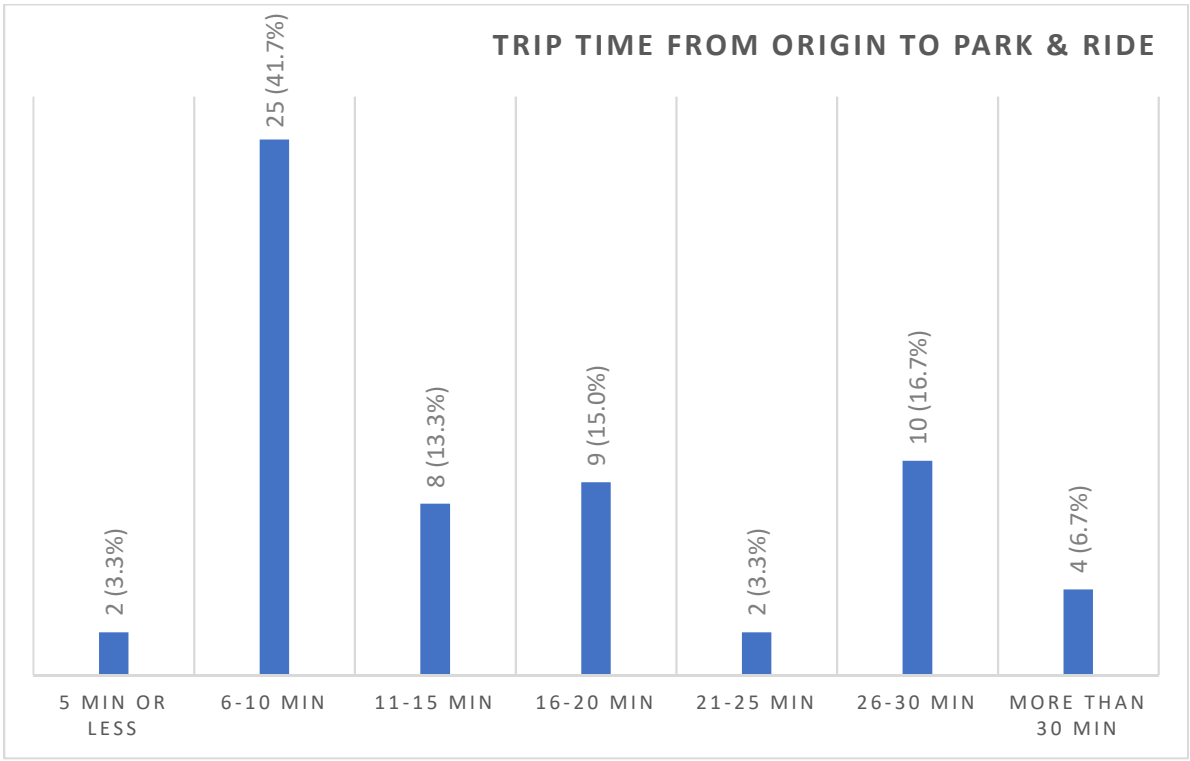


Figure 14: Park & Ride Survey Question 7

Travel time to the Park & Ride is within ten minutes or less for 45% of respondents, indicates that many respondents likely reside in the project area of the BBT, Northern Section.

Table 2: Question 8 - What is the municipality of your primary residence?

Municipality	County or State	Count
Toms River	Ocean County	20
Tuckerton	Ocean County	4
Seaside Heights	Ocean County	4
Manchester	Ocean County	4
Beachwood	Ocean County	3
Lacey Township	Ocean County	5
Berkeley Township	Ocean County	3
Little Egg Harbor	Ocean County	2
St. Petersburg	Florida	2
Barnegat Township	Ocean County	1
Brooklyn	New York	1
Egg Harbor Township	Atlantic County	1
Fairfield	Connecticut	1
Florida	Florida	1
Harvey Cedars	Ocean County	1
Lakewood	Ocean County	1
Toronto	ON, Canada	1
Ship Bottom	Ocean County	1
Stafford Township	Ocean County	2
New York City	New York	1
Ocean City	Cape May County	1
Total		**60**

33% of respondents listed Toms River as the municipality of their primary residence. 51 of the 60 respondents (85%) listed a municipality within Ocean County. Other municipalities listed were located in Atlantic County, Cape May County or were municipalities in other states or Canada.

Conclusion

As the BBT is envisioned to be an active transportation spine throughout the trail's northern section, numerous recreation and community facilities, gathering spaces, schools, and employment centers within two miles of the trail have the opportunity to be connected to the BBT with pedestrian and bicycle linkages. When analyzing existing roads in the project area, it was found that the state highways including US Route 9, NJ 37 and NJ 166 were least suitable for bicycle transportation and these roads also had high concentrations of pedestrian and bicycle crashes. This indicates that the state highways in the area are challenges for pedestrian and bicycle transportation and may require focus and additional safety treatments when recommending facility improvements. The Park & Ride survey results show that the majority of respondents arrive at the facility in a personal vehicle, reside in Ocean County with 33% residing in Toms River, and 45% residing within 10 minutes of the Park & Ride, which is located next to

the future conceptual trail alignment. This indicates potential for many Park & Ride users to utilize the BBT for their commute rather than a personal vehicle.

The findings of this report will be used to develop recommendations and improvements for linkages from the BBT. This report will be shared with the Technical Advisory Committee to help prioritize potential routing and improvements, as well as identify routes that are not favorable for bicycle and pedestrian travel. In the next phase of this study, the Project Team will develop recommendations that factor community input, input from the Technical Advisory Committee convened to provide study governance, data collection efforts, and best practice design guides. The recommendations contained in the next phase will include policies and programs that the County could pursue to enhance connectivity from the BBT and specific design recommendations for the potential linkages.

Appendices

Appendix A

Bicycle Compatibility Rating Criteria

(Based on Traffic Volume, Speed and Roadway Geometry)

Urban with Parking

One-way Daily Traffic Volumes	Urban with Parking

1,200 - 2000 Vehicles/Day

Posted Speed (MPH)	Roadway Geometry: Shared Lane <10'	10'	11'	12'	13'	14'	15'	Shoulder 3'	4'	6'	8+'
25											
30											
35											
40											
45											
50											
55											

2,001 - 5,000 Vehicles/Day or 2,001 - 10,000 Vehicles/Day with Trucks Banned

Posted Speed (MPH)	Roadway Geometry: Shared Lane <10'	10'	11'	12'	13'	14'	15'	Shoulder 3'	4'	6'	8+'
25											
30											
35											
40											
45											
50											
55											

5,001 - 10,000 Vehicles/Day NO Truck Ban

Posted Speed (MPH)	Roadway Geometry: Shared Lane <10'	10'	11'	12'	13'	14'	15'	Shoulder 3'	4'	6'	8+'
25											
30											
35											
40											
45											
50											
55											

More than 10,000 Vehicles/Day

Posted Speed (MPH)	Roadway Geometry: Shared Lane <10'	10'	11'	12'	13'	14'	15'	Shoulder 3'	4'	6'	8+'
25											
30											
35											
40											
45											
50											
55											

Key:

Most Suitable	Most suitable for on-road cycling. A majority of cyclists would find conditions favorable.
Moderately Suitable	Moderately suitable for on-road cycling. Cyclists of lesser skill and experience may find conditions unfavorable.
Least Suitable	Least suitable for on-road cycling. Cyclists of advanced skill and experience may find conditions unfavorable.

Michael Baker INTERNATIONAL

Bicycle Compatibility Rating Criteria

(Based on Traffic Volume, Speed and Roadway Geometry)

Urban No Parking

One-way Daily Traffic Volumes	Urban No Parking

1,200 - 2000 Vehicles/Day

Posted Speed (MPH)	Roadway Geometry										
	Shared							Shoulder			
	<10'	10'	11'	12'	13'	14'	15'	3'	4'	6'	8+'
25											
30											
35											
40											
45											
50											
55											

2,001 - 5,000 Vehicles/Day or 2,001 - 10,000 Vehicles/Day with Trucks Banned

Posted Speed (MPH)	Roadway Geometry										
	Shared							Shoulder			
	<10'	10'	11'	12'	13'	14'	15'	3'	4'	6'	8+'
25											
30											
35											
40											
45											
50											
55											

5,001 - 10,000 Vehicles/Day NO Truck Ban

Posted Speed (MPH)	Roadway Geometry										
	Shared							Shoulder			
	<10'	10'	11'	12'	13'	14'	15'	3'	4'	6'	8+'
25											
30											
35											
40											
45											
50											
55											

More than 10,000 Vehicles/Day

Posted Speed (MPH)	Roadway Geometry										
	Shared							Shoulder			
	<10'	10'	11'	12'	13'	14'	15'	3'	4'	6'	8+'
25											
30											
35											
40											
45											
50											
55											

Key:

Most Suitable — Most suitable for on-road cycling. A majority of cyclists would find conditions favorable.

Moderately Suitable — Moderately suitable for on-road cycling. Cyclists of lesser skill and experience may find conditions unfavorable.

Least Suitable — Least suitable for on-road cycling. Cyclists of advanced skill and experience may find conditions unfavorable.

Michael Baker INTERNATIONAL

Bicycle Compatibility Rating Criteria

(Based on Traffic Volume, Speed and Roadway Geometry)

Rural

One-way Daily Traffic Volumes	Rural

1,200 - 2000 Vehicles/Day

Posted Speed (MPH)	Roadway Geometry										
	Shared							Shoulder			
	<10'	10'	11'	12'	13'	14'	15'	3'	4'	6'	8+'
25											
30											
35											
40											
45											
50											
55											

2,001 - 5,000 Vehicles/Day or 2,001 - 10,000 Vehicles/Day with Trucks Banned

Posted Speed (MPH)	Roadway Geometry										
	Shared							Shoulder			
	<10'	10'	11'	12'	13'	14'	15'	3'	4'	6'	8+'
25											
30											
35											
40											
45											
50											
55											

5,001 - 10,000 Vehicles/Day NO Truck Ban

Posted Speed (MPH)	Roadway Geometry										
	Shared							Shoulder			
	<10'	10'	11'	12'	13'	14'	15'	3'	4'	6'	8+'
25											
30											
35											
40											
45											
50											
55											

More than 10,000 Vehicles/Day

Posted Speed (MPH)	Roadway Geometry										
	Shared							Shoulder			
	<10'	10'	11'	12'	13'	14'	15'	3'	4'	6'	8+'
25											
30											
35											
40											
45											
50											
55											

Key:

Most Suitable	Most suitable for on-road cycling. A majority of cyclists would find conditions favorable.
Moderately Suitable	Moderately suitable for on-road cycling. Cyclists of lesser skill and experience may find conditions unfavorable.
Least Suitable	Least suitable for on-road cycling. Cyclists of advanced skill and experience may find conditions unfavorable.

Michael Baker INTERNATIONAL

Appendix B

Bicycle Compatibility Matrix

Ocean County Linkages To/From the BBT

*Primary: Northbound or Eastbound *Secondary: Southbound or Westbound

Location	Milepost	Jurisdiction	Typical Cross Section North of Intersection									Roadway Data North of Intersection				Notes	Bicycle Compatability	
			Pavement Width (ft)	# Primary Lanes	Primary Lane Width (ft)	# Secondary Lanes	Secondary Lane Width (ft)	Median	Shoulder Primary (ft)	Shoulder Secondary (ft)	On-Street Parking	Speed Limit	AADT	AADT Source	Truck Ban		Primary	Secondary
Hickory Lane @ Railroad (Segle Ave @ E Railroad Ave)	N/A	Municipal	24	1	12	1	12	None	None	None	No	25	<2000	Estimate	No	No SLD		
Railroad @ Hickory Lane (E Railroad Ave @ Segle Ave)	N/A	Municipal	30	1	13	1	13	None	2	2	No	25	<5000	Estimate	No	No SLD		
Mallard Road @ Pheasant Drive	N/A	Municipal	29	1	14.5	1	14.5	None	None	None	Yes, not marked	25	<2000	Estimate	No	No SLD		
Pheasant Drive (between Sylvan Lake)	N/A	Municipal	30	1	15	1	15	None	None	None	Yes, not marked	25	<2000	Estimate	No	No SLD		
Heron Drive @ Pheasant Drive	N/A	Municipal	29	1	14.5	1	14.5	None	None	None	Yes, not marked	25	Dead End		No	No SLD		
Gladney Ave (South of Route 9)	N/A	Municipal	25 (varies)	1	12.5	1	12.5	None	None	None	No	25	<2000	Estimate	No	No SLD		
Berkeley Ave @ Mizzen Ave	0.42	County	30	1	11	1	11	None	4	4	No	30	<5000	Estimate	Yes, over 4 tons	SRI = 15040006		
Mizzen Ave @ Berkeley Ave	0.42	County	23	1	11.5	1	11.5	None	None	None	Yes, not marked	30	<2000	Estimate	Yes, over 4 tons	SRI = 15040006		
Route 9 @ BBT	90	NJDOT	44	2	10	2	10	None	2	2	No	40	20,681	NJDOT	No, Truck Route	SRI = 00000009_		
Elm St. @ Berkeley Ave	N/A	Municipal	29	1	11	1	11	None	3	4	Yes, not marked	25	<2000	Estimate	Yes	No SLD		
Berkeley Ave @ Beachwood Elementary	1	County	28	1	12	1	12	None	2	2	No	30	<5000	Estimate	Yes, over 4 tons	SRI = 15040006		
Beachwood Community Center (Compass Ave)	10.4	County	27	1	10	1	10	None	4	3	No	30	<2000	Estimate	No Truck Route	SRI = 15000617		
Berkeley Ave @ Toms River Intermediate School	2	County	26	1	11	1	11	None	2	2	No	30	<5000	Estimate	Yes, over 4 tons	SRI = 15040006		
Birch St. @ Beach Ave	0.03	County	31.5	1	12	1	12	None	3.5	3.5	No	25	<5000	Estimate	No, Truck Route	SRI = 15000077		
Birch St. @ Double Trouble Road	0.62	County	43.5	1	12	1	12	None	10	10	No	25	<5000	Estimate	No, Truck Route	SRI = 15000077		
S. Main (South of Flint)	31	County	37	1	12	1	12	None	4	8	No	40	<10,000	Estimate	No, Truck Route	SRI = 00000530_		
Magnolia Ave	N/A	Municipal	27	1	13.5	1	13.5	None	None	None	No	35	<2000	Estimate	No	No SLD		
Double Trouble Rd (Between Birch and Jakes Branch)	2.68	County	32	1	12	1	12	None	4	4	No	50	<10,000	Estimate	No, Truck Route	SRI = 15000619		
Surf Avenue	3	County	30	1	12	1	12	None	3	3	No	35	<10,000	Estimate	Yes, over 4 tons	SRI = 15000621		
E Water ST	0.09	County	48	2	12	2	12	None	None	None	No	30	21,972	NJDOT	No	SRI = 15070002		
Washington ST	0.06	County	42	1	13	1	13	None	None	None	Yes, marked	25	<10,000	Estimate	No	SRI = 15070004		
Irons St	0.2	Municipal	36	1	14	1	14	None	4	4	No	25	<5000	Estimate	No, Truck Route	SRI = 15071914		
Flint Road (East of Main)	0.15	County	36.5	1	11	1	11	None	7	7	No	25	<5000	Estimate	No	SRI = 15290002		
Dover St	N/A	Municipal	30	1	15	1	15	None	None	None	Yes, not marked	35	<10,000	Estimate	No	No SLD		
Compass Ave	10.4	County	27	1	10	1	10	None	4	3	No	30	<2000	Estimate	No, Truck Route	SRI = 15000617		
Club House Dr.	10.27	County	28	1	12	1	12	None	2	2	No	30	<5000	Estimate	No, Truck Route	SRI = 15000617		
Bayside Ave	10.27	County	86	1	12	1	12	Yes	2	2	No	30	<5000	Estimate	No, Truck Route	SRI = 15000617		
Springfield Ave	9.75	County	32	1	12	1	12	None	4	4	No	30	<5000	Estimate	No Truck Route	SRI = 15000617		
Riverside Drive in Pine Beach	N/A	Municipal	30	1	15	1	15	None	None	None	No	25	<2000	Estimate	No	No SLD		
Motor Road	0.22	County	30	1	15	1	15	None	None	None	Yes, not marked	25	<2000	Estimate	No	SRI = 15220004		

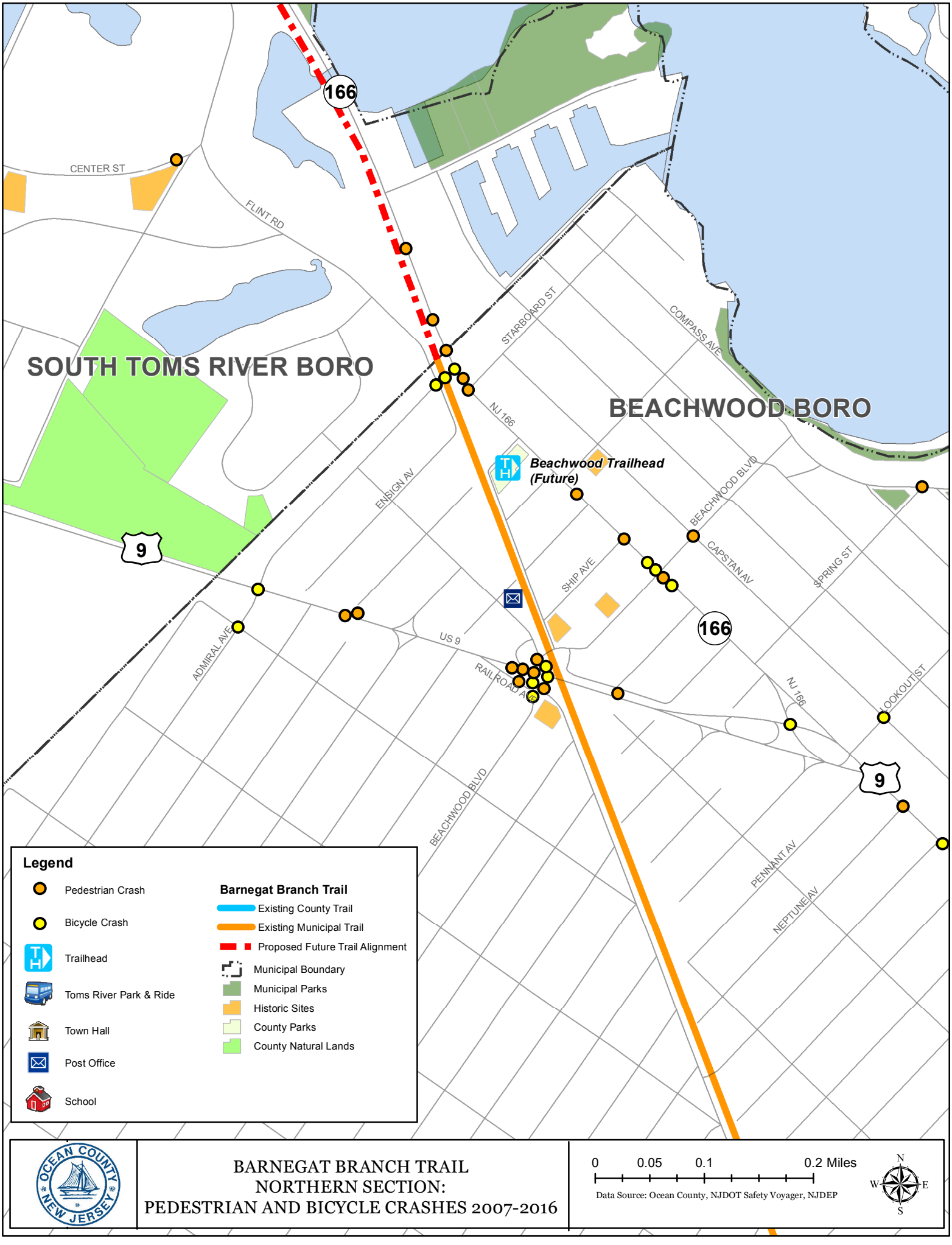
Most Suitable =

Moderately Suitable =

Least Suitable =

Appendix C


TOMS RIVER TWP
SOUTH TOMS RIVER BORO
BEACHWOOD BORO
PINE BEACH BORO
ISLAND HEIGHTS BORO
BERKELEY TWP
Riverfront Landing County Park
Beachwood Trailhead (Future)
Hickory Ln Trailhead (Future)
Railroad Ave
Jake's Branch County Park
Mill Creek Park
New Jersey Pulverizing
527
549
530
166
9
37
Legend
Pedestrian Crash
Bicycle Crash
Higher Density of Crashes
Lower Density of Crashes
Trailhead
Toms River Park & Ride
Town Hall
Post Office
School
Barnegat Branch Trail
Existing County Trail
Existing Municipal Trail
Proposed Future Trail Alignment
Municipal Boundary
Municipal Parks
Historic Sites
County Parks
County Natural Lands
BARNEGAT BRANCH TRAIL
NORTHERN SECTION:
PEDESTRIAN AND BICYCLE CRASHES 2007-2016
0
0.25
0.5
1 Mile
Data Source: Ocean County, NJDOT Safety Voyager, NJDEP
N
S
E
W


SOUTH TOMS RIVER BORO
BEACHWOOD BORO
166
9
CENTER ST
FLINT RD
STARBOARD ST
COMPASS AVE
NJ 166
Beachwood Trailhead
(Future)
ENSIGN AV
BEACHWOOD BLVD
CAPSTAN AV
SPRING ST
SHIP AVE
US 9
ADMIRAL AVE
RAILROAD AVE
LOOKOUT ST
PENNANT AV
NEPTUNE AV
Legend
Pedestrian Crash
Bicycle Crash
Trailhead
Toms River Park & Ride
Town Hall
Post Office
School
Barnegat Branch Trail
Existing County Trail
Existing Municipal Trail
Proposed Future Trail Alignment
Municipal Boundary
Municipal Parks
Historic Sites
County Parks
County Natural Lands
OCEAN COUNTY NEW JERSEY
BARNEGAT BRANCH TRAIL
NORTHERN SECTION:
PEDESTRIAN AND BICYCLE CRASHES 2007-2016
0 0.05 0.1 0.2 Miles
Data Source: Ocean County, NJDOT Safety Voyager, NJDEP
N
W
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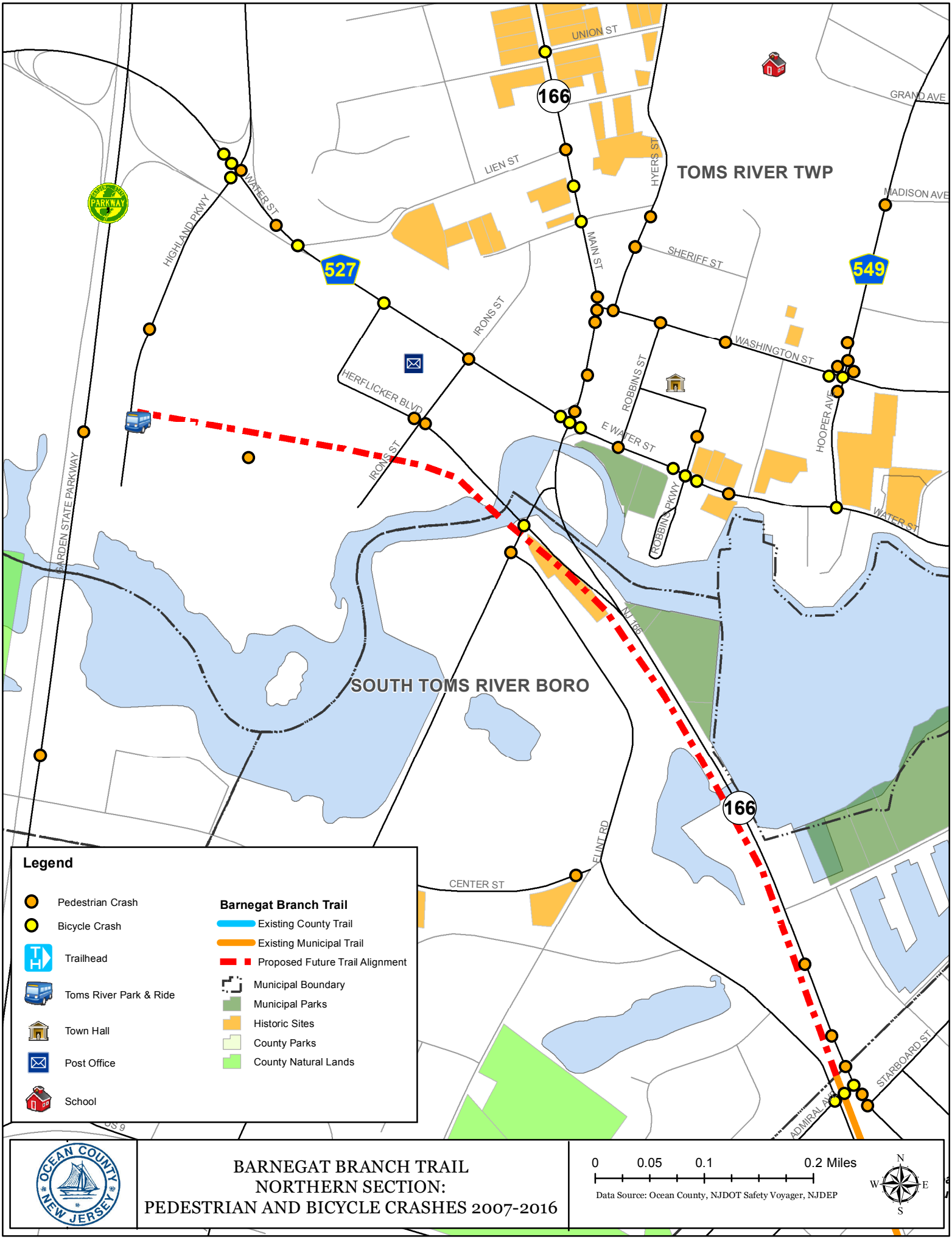
S


TOMS RIVER TWP
SOUTH TOMS RIVER BORO
UNION ST
GRAND AVE
LIEN ST
HYERS ST
MADISON AVE
HIGHLAND PKWY
WATER ST
MAIN ST
SHERIFF ST
IRONS ST
WASHINGTON ST
HERFLICKER BLVD
ROBBINS ST
HOOPER AVE
E WATER ST
GARDEN STATE PARKWAY
ROBBINS PKWY
WATER ST
NJ 166
FLINT RD
CENTER ST
STARBOARD ST
ADMIRAL AVE
166
527
549
Legend
Pedestrian Crash
Bicycle Crash
Trailhead
Toms River Park & Ride
Town Hall
Post Office
School
Barnegat Branch Trail
Existing County Trail
Existing Municipal Trail
Proposed Future Trail Alignment
Municipal Boundary
Municipal Parks
Historic Sites
County Parks
County Natural Lands
OCEAN COUNTY NEW JERSEY
BARNEGAT BRANCH TRAIL
NORTHERN SECTION:
PEDESTRIAN AND BICYCLE CRASHES 2007-2016
0 0.05 0.1 0.2 Miles
Data Source: Ocean County, NJDOT Safety Voyager, NJDEP
N
W
E
S

HGA
HEYER, GRUEL & ASSOCIATES
COMMUNITY PLANNING CONSULTANTS

Memorandum

TO: Project Team for Ocean County Bicycle and Pedestrian Linkages from the Barnegat Branch Trail

CC: Steven Wong, AICP, PTP, PMP
Cory Hopwood, PE
Andrew Lappitt, PP, AICP

FROM: John Barree, PP, AICP

RE: Plan and Ordinance Review and Initial Environmental Justice Demographic Review

DATE: August 27, 2018

The purpose of this memorandum is two-fold: 1) to provide a summary of our initial findings related to our review of the municipal planning documents and zoning / land development ordinances for the five municipalities in the Study Area; and 2) to provide a review of demographic data and its implications for environmental justice populations.

PLANNING DOCUMENT REVIEW

BEACHWOOD BOROUGH

2000 Beachwood Borough Master Plan

Objectives

The Circulation Element of the Plan does not account for bicycling and pedestrian circulation but rather solely addresses vehicular circulation. The recreational facilities inventory notes the "Railroad Avenue Bikeway/Walkway" and the bikeway is further defined under the header, "Public Transportation." The Railroad Avenue Bikeway was completed running along the right-of-way. The future Barnegat Branch Trail alignment will connect to this facility at the municipal boundary.

BERKELEY TOWNSHIP

2008 Berkeley Township Land Use and Circulation Plan Elements, Adopted March 5, 2009

The Land Use Element contains a vision for the Township for the year 2020. The plan envisions retrofitting strip commercial developments along Route 9 into mixed-use centers, promoting in-fill development and efficient use of existing infrastructure, preserving environmentally sensitive areas, maximizing circulation and mobility options (with a focus on a coordinated pedestrian and bicycle trail system), and maximizing housing opportunities.

The vision includes a system of interconnected bikeways that allow for more local trips to shopping, recreation, and other amenities to be made by bicycle. The goals that are relevant to the Barnegat Branch Trail and this project include:

- Provide connections between residential areas, commercial nodes, community facilities and the Town Center through an attractive, free flowing circulation system.
- Provide opportunities for residents and visitors to access multiple modes of transportation including public transportation, bikeways, and pedestrian ways.
- Encourage and support policies and actions to reduce the introduction of harmful greenhouse gases by reducing sprawl, and encouraging green buildings, promoting alternate means of transportation including walking, biking, and public transit, and preserving open space and wetlands.

Objectives include:

- Create a multi-use trail system that ties into the Barnegat Branch Rail Trail to link neighborhoods, community facilities, parks and open space and Barnegat Bay.

The Circulation section of the Land Use Element also includes a discussion of the Barnegat Branch Trail. The Plan describes potential future alignment options for the Trail that were being considered in 2008. The Plan also identifies the dedicated bike lane on County Road 618 near the High School, Middle School, and Veterans Park.

Circulation Plan

The Circulation Plan discusses the potential extension of Western Boulevard from Northern Boulevard to Route 9. The plan proposes an alignment that is intended to work with the Barnegat

Branch Trail alignment. The Plan states that the road should accommodate pedestrians and bicycles as part of the Township's trail system.

An NJDOT Route 9 Corridor Study was conducted in 2004-2005 to develop multi-modal strategies for addressing transportation issues. The Study set forth the following principles:

1. Balance regional mobility and local access needs.
2. Focus on improving capacity where it counts.
3. Reconnect and enhance the street network.
4. Strengthen community character.
5. Provide alternatives to the car.
6. Match growth to infrastructure limitations.

The Study suggested that site design should be more accommodating to pedestrians and cyclists, and that the Highway edge should be landscaped and provide provisions for sidewalks, bike paths, plantings, and shade trees.

The circulation plan envisions a comprehensive trail system in Berkeley Township that builds on the County Barnegat Branch Trail. The existing on-street facilities along Central Boulevard and Veterans Boulevard are envisioned to be linked with the BBT, transit, and important destinations throughout the Township.

Berkeley Town Center Redevelopment Plan, 2009

The Berkeley Town Center Redevelopment Area encompasses 425 acres of property bound by the municipal border with Beachwood, Route 9, and the Barnegat Branch rail right-of-way. The goal of the Plan is to promote a compact mixed use development with open space and recreation facilities.

The Plan mentions the extension of Western Boulevard through the NJ Pulverizing property to connect to Route 9 and the proposed Town Center. The alignment of any potential Western Boulevard extension would need to be designed to interact with the BBT.

The Plan includes design standards for safe pedestrian access and bicycle facilities.

2015 Berkeley Township Master Plan Reexamination Report and Master Plan Amendments for the 1997 Berkeley Township Master Plan

The 2015 Berkeley Township Master Plan Reexamination Report looks at the goals from the 1997 comprehensive Master Plan, the 2003 visioning process, and the 2008 Land Use and Circulation Elements. The Transportation and Circulation carries forward many of the goals and objectives from the 2008 Plan Elements. The Report acknowledges the ongoing development of the Barnegat Branch Trail and highlights Phase VI, which was begun in Spring 2014. The Planning Board also recommends that new development include pedestrian elements to support accessibility and mobility throughout the Township. The proposed Western Boulevard Extension that was discussed in the 2008 Plan continues as a recommendation.

The 2015 Reexam recommends revising the Master Plan to update the Circulation Element. Two specific updates are both relevant to the BBT project – The Township should continue to reaffirm the need for the Western Boulevard Extension in the context of enhancing resiliency to coastal flooding that impacts Route 9, and the Township should revise the Circulation Element to include a sub-plan element for pedestrian circulation.

Other Recommendations include adopting a complete streets policy for Route 9 to complement improvements that have been made to the corridor.

Master Plan Circulation Element Updates

- Vision
    - Develop and expand the Township's network of bicycle and pedestrian linkages that connects the Township's residential developments with: open space and recreation areas, schools, shopping and employment centers, and other key destinations in Berkeley Township and neighboring municipalities.
    - The Circulation Plan Element envisions linkages as sidewalks, on-road bike lanes, shared lanes, greenways, and protected multi-purpose trails.
- Facility Design and Maintenance for Bicycle and Pedestrian Linkages
    - Create a high quality experience that is visually appealing, convenient, connected to key points of origin and destination, and includes special features like educational opportunities, benches, shelters, and other amenities.
    - Ensure that facilities are accessible to users with different physical abilities and needs.

  - Prioritize connectivity between neighborhoods, business districts, parks, community facilities, and natural environments.
  - Provide signage along the trail and at the trailhead.
- Goals for Bicycle and Pedestrian Linkages
  - Provide linkages between major destinations within the Township and to neighboring municipalities.
  - Establish a permanent advisory committee for bicycle and pedestrian facilities.
  - To the greatest extent possible, develop bicycle and pedestrian linkages between dead-end streets and cul-de-sacs.
  - Provide identification and guide signs.
  - Provide safe and adequate bicycle parking options at key destinations, and in all public parks.
  - Work with Ocean County to provide signage that alerts motorists of the presence of bicyclists along county roadways.
  - Provide only bicycle-safe sewer grates in all areas of the Township.
  - Provide adequate lighting to ensure safety for bicyclists and pedestrians.
  - Ensure that all bicycle projects comply with recognized design standards, such as the *Guide for the Development of Bicycling Facilities* prepared by the American Association of State Highway and Transportation Officials.
  - Investigate potential funding mechanisms for bicycle and pedestrian facilities, including grants and open space trust funds.
  - Coordinate bicycle planning with Ocean County and the State of New Jersey.
  - Develop a Township-wide bicycle and pedestrian facility map that is displayed at parks and other major destinations.
  - Provide linkages with the Barnegat Branch Trail.
  - Promote east-west bicycle and pedestrian access by improving crossings at key locations along Route 9.
  - Provide traffic calming at key locations to improve bicycle and pedestrian safety and encourage the use of facilities.

Berkeley Township Municipal Public Access Plan - 2017

- The Township of Berkeley contains more than 11,000 acres of open space, parks and recreation areas.

- The Township's Municipal Public Access Plan makes no note of the Barnegat Branch Trail or its access points but encourages the preservation of areas that promote pedestrian activity and looks to make changes to the zoning code that would reduce impact of development and protect natural areas.
- A goal of the Township's MPAP is to continue aggressive open space preservation efforts with funding shared among Berkeley Township, Ocean County, the State and federal governments and non-profit groups. Berkeley Township continues to partner with the County, State, and federal governments and non-profit groups for open space preservation.

TOMS RIVER TOWNSHIP

2009 Redevelopment Area Study for the Downtown Toms River Waterfront Area

Land Use and Development

"Pedestrian and Bicycle Pathway/Trail: The existing railroad right-of-way shall be preserved through a trail with a paved bicycle lane and gravel pathway. The trail shall connect to the riverfront park to the east and the undercrossing under the Garden State Parkway to the west."

Under the Open Space Element, the plan preserves the land along the unused railway for a future greenway/bikeway. The plan permits redevelopers to propose "paved greenway/bikeway elements and landscaping."

2011 Ocean County Subregional Study: Pedestrian and Bicycle Mobility Plan, Toms River

Study Findings

The plan reports bicycle and pedestrian mobility studies of the Toms River Waterfront. The studies conclude that there are constraints for the proposed route including high traffic volumes and speeds, intersections with multiple lanes and turning movements, signals timed insufficiently for safe bicycle and pedestrian crossing, and the roadside environment including frequent entrances to properties.

Implementation Recommendations

- Recommended Routes

The plan recommended a route incorporating Flint Road, South Main Street, Herflicker Boulevard, Water Street, and Irons Street as the preferred alternative to connect the BBT with downtown Toms Rivers destinations.

As a part of this preferred alternative, the study recommended that the portion of Irons Street located in the Special Waterfront Redevelopment Areas should be redesigned to contain a separated, two-way bikeway. The proposed alternative to separated two-way path was a retrofit with conventional, one-way bike lanes on each side of the street.

Signage should be employed along existing or modified shoulders. These streets should be retrofitted with navigational signage, bike lanes, shared lane markings and "share the road" warning signs as appropriate.

- Bicycle Lanes

The study team recommends bike lanes on Atlantic City Boulevard, Herflicker Boulevard, S. Main Street, Irons Street (including a contraflow bike lane between Water Street and Herflicker Boulevard) and portions of Flint Road and Water Street east of Main Street. The bike lanes should be approximately 5 feet in width, no less than 4 feet. A contraflow lane is a two-way bike lane that opposes the direction of vehicular traffic flow. This would only be feasible if additional width could be secured through the redevelopment of the Post Office site at the corner of Irons Street and Water Street as part of the larger redevelopment plan being pursued by the Township and the Toms River Business Improvement District.

The study recommends that shared bike lane markings be included in Downtown, but favors signage over painted markings. According to the Study, "Ocean County's current policy on bike lanes is that they will designate and even potentially line a shoulder, but will not include the painted symbols or arrows within the lanes for liability reasons. They will however use bicycle route signage in combination with lined shoulders to guide cyclists."

- Desirable Typical Sections

The plan suggests the creation of a best practices guide for ideal dimensions and locations for bike lanes, as well as how best to utilize road shoulders.

- Striped Shoulders

The plan recommends a 4-foot shoulder for bicyclists and "Share the Road" signage where the shoulder diminishes in size. For example, this treatment is recommended for Flint Road alongside the culvert.

- Directional Signage

Directional signs for bicyclists should be placed at important junctions, providing commuters with directional assistance to other important destinations, the distance from the signs, and the commute time to reach the points of interest. Key locations for sign placement are the terminus of the BBT at Admiral Avenue; Flint and South Main streets, Herflicker Boulevard and South Main Street, South Main and Water streets, South Main Street and Atlantic City Boulevard, Irons and Water streets, and Irons Street at Herflicker Boulevard.

- Pedestrian Facilities

The plan recommends countdown signals be installed to inform pedestrians as to when they will be able to access crosswalks. The plan also recommends that seating, street trees, trash receptacles, and pedestrian-oriented directional signage be installed across the business district, specifically Water, South Main, and Hooper Avenue between Washington Street and Water Street.

There were barriers to sidewalk access around the site, such as a lack of ADA accessibility, sidewalks in disrepair, and other physical obstructions. The study called for specific attention to the area around Huddy Park, the government center on Hooper Avenue, along Water Street, Irons Street and Herflicker Boulevard, and surrounding the terminus of the BBT.

- Potential Implementation Agencies

Ocean County Department of Planning

- Potential Funding Sources

Federal and state funding programs can be used for the implementation of the recommendations in this report if funding is available. Applications for federal surface transportation funding that may be available in the future should be made through the North Jersey Transportation Planning Authority; state funding should be sought directly from the New Jersey Department of Transportation.

2016 Neighborhood Plan, Ortley Beach and the Route 35 Corridor, Toms River

The Neighborhood Plan provides an overview of the land use patterns for the 20 coastal neighborhoods in Toms River. Seven of the neighborhoods are located on the west side of the bay

and thirteen are located on the barrier island. The plan reviews the zoning, existing land uses, zoning standards, recent development proposals, and flood hazards for each of the neighborhoods. These neighborhoods are located outside the immediate study area, but represent a destination for cyclists. The Study process should give general consideration to Township wide trail links and future connections between the Barrier Islands and the BBT.

2017 Toms River Township Master Plan Circulation Plan Element

Study Findings

The Toms River Council adopted a Complete Streets resolution in 2012, which recommended a pedestrian and bicycle study. The recommendation still remains valid for identifying missing linkages for pedestrian and bicycle infrastructure. The study also recommended identifying nearby schools and areas in need of redevelopment that could benefit from improved pedestrian and bicycling infrastructure.

Implementation Recommendations

3. Downtown Toms River Area in Need of Redevelopment

Maser Consulting P.A. prepared a Downtown Neighborhood Circulation Plan for the Downtown Redevelopment area to find options for identifying existing transportation volumes and finding a solution for addressing new traffic volumes from a proposed draft redevelopment plan. The plan recommended a loop be created to ease existing congestion and accommodate growth. The preferred method as describing the August 26, 2016 plan has been provided below.

4. Toms River Downtown Transit Orientated Development

In addition, the Township Smart Growth Plan seeks Transit Village Designation for Downtown Toms River. In order to receive Transit Village Designation, the Township will have to implement Transit-Oriented Development Supportive zoning. The 2006 Toms River Master Plan Supported Transit-Oriented Development Supportive Zoning as provided below.

"Areas around the Downtown where Transit Oriented Development is envisioned should have zoning standards reflective of higher density development, with a minimum net residential density of 8 dwelling units/acre (amended to 15 dwelling units/acre should a rail station come about); a minimum floor area ratio (FAR) of 2.0 for non-residential development, and a minimum building height of at least 3.5 stories in a significant portion of the district."

This recommendation is still valid. It is recommended that the Township look at designating an Area in Need of Rehabilitation for all areas that are located outside of the designated Area in Need of Redevelopment and within a ½ mile walking radius of the Bus Terminal/Park and Ride Facility.

Pedestrian and Bicycle Infrastructure

The Circulation Element recommends that the Township seek funding from NJDOT to prepare a bicycle and pedestrian plan that prioritizes infrastructure within half a mile of a bus stop, areas within walking / bicycling distance of schools, and areas designated as in need of redevelopment.

The Plan identifies the Barnegat Branch Trail terminus in Toms River. Recommended connections include a link to Winding River Park and an extension to the Manchester municipal border along the Toms River. The former Conrail line represents a potential option for an extension to the west.

The Route 37 Study encourages pedestrian and bicycle linkages along the commercial corridor. Bicycle racks should be encouraged in Downtown Toms River, Winding River Park, and as part of the proposed River Walk. The Downtown Redevelopment Plan should identify locations for bicycle racks.

New Objectives and Recommendations to enhance community economic resiliency and sustainability include:

- Support, fund, and provide technical assistance to designate downtown Toms River as a Transit Village.
- Create a Transportation Improvement District and improve pedestrian and bicycle connections in the Downton Toms River Regional Center.
- Implement recommendations and conduct recommended studies provided in the Route 37 Economic Corridor Vision Plan to:
    - Study greenway connections between the Barnegat Branch Trail and Route 37, Downtown, and riverfront areas.
    - Study multimodal road/trail along right of way in Downtown
    - Develop alternate bike network for corridor and region
- Implement the circulation recommendations in the 2011 Ocean County Pedestrian and Bicycle Mobility Report
- Implement trail and greenway recommendations provided in the 2016 Conservation, Recreation, and Open Space Element.

Toms River Municipal Public Access Plan – 2015

- The Public Access Plan is proposing a revitalized Toms River Water Walk as part of the Downtown Redevelopment area. This path should reconnect the Downtown to the river and spur economic development while providing the public opportunities to enjoy the River's ecosystem. It is recommended in the plan that the River Walk connect to the Barnegat Branch Trail and Winding River Park.
- Create a linear greenway stretching from the Garden State Parkway to Huddy Park – this greenway should hug the riverfront as much as possible to provide for river views. Interpretive panels discussing the ecology of the Toms River could also be provided. The relationship of this greenway to the water's edge should vary by location. A natural edge is appropriate for much of the area, while a hard, bulk headed edge and formal promenade is more appropriate for the area north of the bypass bridge.
- The Township's abandoned rail right of way is still being considered for rapid bus and other potential sources of transportation. In cases where it is infeasible to link the abandoned rail right of way with the County Barnegat Trail, it had been recommended that the bikeway be incorporated into the riverside greenway. Connecting the trail to the Riverside greenway shall provide access to the southern part of Ocean County and if feasible Winding River Park.
- The Township has placed an emphasis on maintaining owned public access points as well as preserving public access as part of the Township's Recreation and Open Space Inventory (ROSI).

Toms River Conservation, Recreation, and Open Space Element, 2016

Goals and Objectives

- Expand public access to the waterfront and recreational use of Toms River's waterways.
- Create a system of greenways and bicycle-pedestrian linkages between recreation and open space areas, residential neighborhoods, community facilities, and economic centers.

Local Greenways

- Winding River Trail pedestrian and bicycle paths are identified for potential connection to the Barnegat Branch Trail and the River Walk.

Regional Trail Connections

- The BBT is identified in the Plan, with its northern terminus at the Garden State Parkway in Toms River near Water Street and the bus station.
- The 2016 Downtown Neighborhood Circulation Plan expects the BBT to continue along the former right-of-way from the Herflicker Bridge to the Toms River Park and Ride. Another viable route is the River Walk envisioned to traverse the Municipal Utility Authority property below the Park and Ride closer to the river.
- An original concept plan for the BBT proposed a connection between the northern end to he trail and Winding River Park using a Township-owned portion of the abandoned Pennsylvania Railroad Track that follows an underpass below the Garden State Parkway, combined with the use of a 1.2-mile utility easement through properties to the north that is owned by JCP&L.

Downtown Toms River Waterfront Redevelopment Area – Phase 1

The Redevelopment Area includes blocks within walking distance of the Toms River Bus Depot and in close proximity to the Toms River and the existing Downtown Core. The intent and purpose of the Plan is to develop a compact, dense area with a mix of complementary uses within walking distance of retail, services, bus routes, recreation, and civic uses.

Plan Goals

- Create a compact, pedestrian-friendly development through the use of sustainable planning and design techniques.
- Create a development that provides maximum connectivity throughout Downtown Toms River for all modes of transportation, but with emphasis on pedestrian and bicycle mobility and linkage to the Toms River Bus Depot.
- Provide opportunities to utilize bicycle transportation, including dedicated bicycle routes and paths, adequate bicycle storage capacity within residential building design, and adequate bicycle storage facilities at bus stops to encourage bicycle links to bus transit and retail services.

The Plan identifies park and recreation improvements as part of the overall redevelopment of the area. The extension of the BBT from Herflicker Boulevard bridge beyond Highland Parkway under the Garden State Parkway bridge.

The Plan design standards require enclosed bicycle storage space and outdoor bicycle racks.

SOUTH TOMS RIVER BOROUGH

2013 South Toms River Master Plan

Economic Objectives

The master plan recommends improvements to South Toms River's pedestrian circulation system to cross Route 166 in order to provide better access to the Waterfront and the Toms River downtown. The plan asserts this would also serve to better interconnect South Toms River with Toms River.

The plan states the specific economic objective of revitalizing commercial corridors along Dover Road and Route 166 into a pedestrian-friendly, attractive economic corridor. It encourages second-story residential use for Dover Road and increased weeknight and weekend commercial activity to attract pedestrian activity.

Implementation Recommendations

Create a System of Bike Lanes and Trails

The plan recommends identifying potential routes to create a destination-based network of bicycle paths. The main aim of the recommendation is to better link the eastern and western halves of the Borough that are bisected by the Garden State Parkway. The recommendation also identified the Jakes Branch area as an open space with numerous possibilities for trail space.

2013 South Toms River Streetscape Revitalization (Route 166)

The final engineering drawings for the streetscape improvements to Atlantic City Boulevard (Route 166) were completed in February 2016. The project entailed the installation of new sidewalks with ADA accessible features, new landscaping, new pedestrian scale lighting, and new stormwater management facilities. Work has been completed on the improvements.

2014 South Toms River Transportation Alternatives Program (TAP)

In 2014, there were over 28 municipalities across the State of New Jersey that received a total of $17 million in Transportation Alternatives Program grant money. The Borough of South Toms River applied for and received a TAP grant in the amount of $239,000. The purpose of this grant was to acquire an easement to enable the County to construct a portion of the Barnegat Branch Trail on the former railroad alignment instead of striping bike lanes on Flint Road. This section of the trail is Phase IX and consists of 0.60 miles from Admiral Avenue to South Main Street and Herflicker

Boulevard. The easement acquisition is pending and the anticipated completion date is spring 2019.

2015 South Toms Rivers Route 166 Corridor Waterfront Redevelopment Plan

The Route 166 Corridor Waterfront Redevelopment Plan implements an Overlay District for the combined area in need of redevelopment and area in need of rehabilitation. The Barnegat Branch Trail Alignment along the west side of Route 166 is defined as an area for Open Space and Recreation.

The Land Use Objectives of the Plan include:

- Transform the Redevelopment Area into a vibrant waterfront recreational amenity that will serve as a gateway to South Toms River from the north, a catalyst for investment and rehabilitation within the Rehabilitation Area, and a focal point for a new, mixed-use waterfront neighborhood.
- Encourage private investment in public spaces to complement the public investment in the extension of the Barnegat Branch Trail bikeway along Route 166, the new streetscape improvements (sidewalks, curbs, street trees, etc.) along Route 166, and the public access improvements ("riverwalk") along Crabbe Road.

The following pedestrian accessibility standards are provided in the Plan:

(1) Sidewalks shall be provided along all street frontages

(2) All sidewalks shall be a minimum of five feet wide

(3) All sidewalks shall be designated to provide access for the physically disabled

(4) Access ramps shall be conveniently placed and sloped to provide easy connection to streets and sidewalks, in conformance with the Americans with Disabilities Act

South Toms River Municipal Public Access Plan - 2016

- The Public Access Plan references the Borough TAP application that is referenced in more detail above.
- Main objectives of the Public Access Plan were to connect all of the identified public access points via one of four proposed trails, including the Barnegat Branch Bike Trail, and to promote the completion of and connection to the Barnegat Branch Bike Trail.

- The Municipal Public Access Plan (MPAP) has identified two existing public access locations where improvements are to be made to increase and enhance accessibility to the Barnegat Branch Trail.
    - Site 8: Route 166 (West)
        - This location offers primary visual access of Jakes Branch Creek to the west and the Toms River to the east. However, the site is only currently visual access because it is located along a major road; it is unimproved, and unutilized. The site presents an opportunity for active or passive recreation with the improvement of the Barnegat Branch Bicycle Trail, which is projected to cross the bridge at this point and join the adjacent land to the north and south on the west side.
    - Site 9: Route 166 (East)
        - This location has similar properties to those of Site 8 directly across the road. However, this is a longer stretch of road, although partially improved with a sidewalk at the overpass. With the Barnegat Branch Trail occupying the west side, an extension of the existing sidewalk on the east side would be logical and would connect to the existing sidewalk at Mathis Park to the north and to the commercial district and Cedar Point to the south.
- The Barnegat Branch Trail is a part of the MPAP's proposed public access trails plan. It plans to convert the former Barnegat Branch Railroad right-of-way into a bicycle and pedestrian path. Although the trail has not yet been solidified in South Toms River, the right-of-way does pass through the eastern portion of the Borough adjacent to the Route 166 corridor on municipal land. The trail has already been built in Beachwood Borough up to the border of South Toms River, but requires additional approvals to continue its path through to Toms River. Bike lanes and trails, and specifically the Barnegat Branch have been identified as a recommendation in the Borough's Master Plan and in the Route 166 Corridor Redevelopment Plan. The Trail passes by one the Borough's most important and attractive features – its waterfront on the Toms River – as well as through the commercial corridor. Therefore, it not only meets directly with public access points on Toms River, but inherently draws visitors from other municipalities into the core of the Borough.
- The South Toms River Plan, along with the Toms River Plan, describes in their MPAP the need to extend the Barnegat Branch Trail to connect to the River Walk and Waterfront Redevelopment Area.

COUNTY / REGIONAL PLANS

2015 Together North Jersey Route 37 Economic Corridor Vision Plan, Toms River, Manchester. Berkeley, Lakehurst, Ocean County

Study Findings

The study notes that there are limited transit options for the study area and, broadly speaking, within the county. This fact is correlated to the unaffordability of the study area's housing market, as the commuter costs associated with sprawl are attributed to price hikes in the housing stock.

Study Goals

NJ State Route 37 Economic Corridor Vision Plan

A key proposal from the study was for involved municipalities to coordinate efforts to realign development patterns to accommodate transit-oriented development along Route 37.

Specifically, the plan goes on to suggest that the corridor can provide Bus Rapid Transit (BRT) service and link with the greater regional bicycle network.

Economic Development

The support for infill and redevelopment in Downtown Toms River and the goal of creating a tech hub in the area could both encourage transit-oriented development and provide points of interest to connect to the BBT.

Implementation Recommendations

The plan set "Develop a Sustainable Corridor with green tech, infrastructure, & industry employers" as a long-term goal in addition to creating a tourist and economic "gateway" to the Pinelands and the Shore. A short-term goal was the recommendation to create a standing corridor economic development committee, which the plan specified should occur between three to twelve months.

ORDINANCE REVIEW

Beachwood Borough

Chapter III: Police Regulations

It shall be the duty of the Police Department to conduct a bicycle rodeo consisting of registration, safety instruction and competitive skill performance tests at least once a year.

Chapter XIV: Streets and Sanitation

NJDOT bicycle safe grates required for storm drain inlets.

Chapter XVII: Development Regulations

Development of recreational facilities as part of apartment and townhouse developments shall consider pedestrian and bicycle traffic across interior roads and driveways.

Circulation plans shall take pedestrian walks and expected paths of travel into account. Provide sidewalks to access parking lots, driveways, other buildings.

Berkeley Township

Chapter IV Police Regulations

4-20.16 Operation on Roads and Paths.

a. Every person operating a bicycle upon a roadway shall ride as near to the right side of the roadway as practicable, exercising due care when passing a standing vehicle or one proceeding in the same direction.

b. Persons riding bicycles upon a roadway shall ride in single file except on paths or parts of roadways set aside for the exclusive use of bicycles.

c. Wherever a usable path for bicycles has been provided adjacent to a roadway, bicycle riders shall use such path and shall not use the roadway.

Chapter XI Building and Housing

NJDOT bicycle safe grates required for storm drain inlets.

Chapter XXXV Article X Design Standards

35-52.4 Recreation Areas - Portions of proposed open spaces may include but are not limited to pedestrian paths, bicycle paths, sitting areas and naturally preserved areas.

Chapter XXXV Article XI Zoning District Regulations

35-103.10 Streets.

The street system of a PRD (Planned Unit Residential Development) shall be so designed as to:

a. Create a separation of automobile and pedestrian and/or bicycle circulation through a hierarchy of roadway functions and design and pedestrian walkways. The requirement for sidewalks within a street right-of-way as may be waived to accomplish this objective, provided that alternative pathways shall be a minimum of six (6) feet in width, shall be of a surface approved by the Board and shall be constructed to standards set forth in Article X.

35-104 TC Town Center District

6. Bicycle Parking Access: One (1) bike space per twenty (20) required parking spaces shall be allocated for all development. Ornamental bicycle racks shall be used to provide bicycle parking.

35-106.6 Town Center 2 (TC-2) Overlay Zone

Planned Commercial developments shall include a workable pedestrian and bicycle circulation system.

(10) Provide at least one secured, enclosed bicycle storage space for thirty (30%) percent of planned residential occupancy of multifamily residential units (excluding townhouses with garages), but not less than one (1) space per multifamily residential unit.

(11) Bike racks shall be provided at a rate of one (1) multi-loop bike rack per every twenty (20) parking spaces for nonresidential uses within the PCD, but not less than the greater of one (1) bicycle space per business or four (4) bicycle spaces per project site for retail or four (4) bicycle spaces per building for nonretail, nonresidential uses.

(12) Provide at least one (1) secured enclosed bicycle storage space per worker for ten (10%) percent of the worker planned occupancy for nonresidential uses with a changing room and shower for one hundred (100) or more workers of planned occupancy and an additional

changing room and shower for each additional one hundred fifty (150) workers of planned occupancy thereafter.

Pine Beach Borough

Chapter 57: Bicycles

Contains registration requirements, rules and regulations for bicycle operation.

Chapter 125: Private Storm Drain Inlet Retrofitting

Design standards mandate the use of NJDOT bicycle safe grate or another grate with similar opening dimensions.

Sidewalk standards are set forth in Site Plan, Subdivision, and Off-Street Parking requirements.

South Toms River Borough

Chapter VII: Traffic 7-32 BICYCLE ROUTES/LANES.

The Lane Locations described are hereby designated as Bicycle Lanes. Bicycle Lanes shall be a minimum of four (4) feet in width, pursuant to the "Manual on Uniform Traffic Control Devices for Streets and Highways."

Name of Street, Side, Lane Width, Limits *(Reserved)*

It appears that the Borough has not followed through with designating the locations for Bicycle Routes / Lanes

Chapter XXIV Stormwater Management

Mandates the use of the NJDOT bicycle safe grates.

Chapter XXVI Land Development Regulations

Sidewalks are required per the specifications of the Borough Engineer.

Toms River Township

Bicycle connections required for Planned Unit Developments (PUDs) – Rural Highway Zones. Bicycle connections or parking requirements are not mentioned anywhere else in the ordinance.

348-10.27 RHB Rural Highway Business Zone

RHB-AH9 Rural Highway Business Zone – Affordable housing – Route 9

RHB-AH37 – Rural Highway Business Zone – Affordable Housing – Route 37

348-8.25 Sidewalks and Aprons

Sidewalks shall be constructed on both sides of all streets within a development. Sidewalks shall also be constructed at any other places, such as pedestrian walkways or access points to open space.

Toms River Township Pedestrian Safety Fund - Where sidewalk installation is waived by the approving board, an in lieu contribution is required to the Pedestrian Safety fund.

348-8.25.G Toms River Township Pedestrian Safety Fund.

(a) There is hereby established the Toms River Township Pedestrian Safety Fund (hereinafter "fund").

(b) Said fund shall be dedicated to pay for the cost of designing and constructing various pedestrian safety projects within Toms River Township.

(c) All monies paid by developers in accordance with this section shall be deposited into said fund.

(d) The Chief Financial Officer of the Township is hereby directed to establish and maintain the fund and to make disbursements upon the request of the Township Engineer for designated pedestrian safety improvements.

ENVIRONMENTAL JUSTICE DEMOGRAPHIC REVIEW

Definition

On February 16, 1994, President Clinton issued Executive Order 12898 entitled, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.

> "The Executive Order directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law. The order also directs each agency to develop a strategy for implementing environmental justice. The order is also intended to promote nondiscrimination in federal programs that affect human health and the environment, as well as provide minority and low-income communities' access to public information and public participation."[1]

In 2015, the Federal Highway Administration (FHWA) issued an Environmental Justice Reference Guide. The guide highlights three main environmental justice objectives:

- To identify, address, minimize, mitigate and (preferably) avoid disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process. This objective is met by providing public involvement opportunities and dissemination of information, including meaningful access to public information concerning human health or environmental impacts. In addition, solicitation of input from affected minority and low-income populations is required when considering alternatives during the planning and development of transportation infrastructure investments.
- To ensure that no person—particularly those of minority or low-income populations—is excluded from participating in, denied the benefits of, or in any other way subjected to discrimination under any program or activity receiving federal assistance.

[1] https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice

Adverse effect is defined as:

- Bodily impairment, infirmity, illness or death
- Air, noise, and water pollution and soil contamination
- Destruction or disruption of man-made or natural resources
- Destruction or diminution of aesthetic values
- Destruction or disruption of community cohesion or a community's economic vitality, destruction or disruption of the availability of public and private facilities and services
- Vibration
- Adverse employment effects; displacement of persons, businesses, farms or nonprofit organizations
- Increased traffic congestion, isolation, exclusion or separation of minority or low-income individuals within a given community or from the broader community
- The denial of, reduction in, or significant delay in the receipt of benefits of DOT programs, policies or activities

Process

The project team analyzed the 5-Year American Community Survey (ACS) data for the 2012-2016 period for all of the Block Groups in Toms River, South Toms River, Beachwood, Pine Beach, and Berkeley. This analysis was conducted at the block group level to compare the characteristics of individual block groups to the Ocean County average in five different categories. The categories analyzed include:

- Minority Population - Percentage of the population identified as a racial / ethnic minority
- Senior Population - Percentage of the population composed people age 65 or older
- Low-Income Population - Percentage of households with income below poverty level in the past twelve months
- Limited English Proficiency Population - Percentage of the population over the age of 5 that speaks a language other than English, and speaks English less than "very well"
- Disabled Population – Percentage of the "Civilian non-institutionalized population" with a disability
- Zero Vehicle Households - Percentage of households without access to a car

The Table 1 shows the percentage of individuals or households that qualify at the County level for each of the categories.

Ocean County Profile Populations Identified for Environmental Justice Concerns		
Underserved Population Signifier	**Count**	**Percentage**
Data Universe: Total Population	586,166	
Minority Population	87,309	14.9%
Senior Population	128,446	21.9%
Data Universe: Total Population Age 5 or Older	546,201	
Limited English Proficiency	24,439	4.5%
Data Universe: Total Civilian Non-Institutionalized Population	580,846	
Disabled Population	78,100	13.4%
Total Households	222,609	
Households with Income below Poverty Level	20,543	9.2%
Zero Vehicle Households	15,062	6.8%
Source: US Census Bureau ACS 2012-2016 5-Year Estimates Minority Population - Table DP-5 (Total Population - Not Hispanic or Latino, White) Senior Population - Table DP-5 (Total Population Age 65 and Over) Low-Income Population - Table B17017 (Poverty Status in the Past 12 Months by Household) Limited English Proficiency - Table S1601 (Speak English less than 'Very Well') Disabled Population - Table S1810 - (Civilian Non-Institutionalized Population with Disability) Zero Vehicle Households - Table B08201 (Households with No Vehicle Available)		

Table 1- Countywide Profile

These figures are utilized to develop the census block group level maps. On each thematic map, the block groups that have a higher concentration of individuals or households than the County are highlighted.

For some of the indicators analyzed, the 5-year estimates at the block group level are found in different sets of tables and have a substantial margin of error. In some instances, the margin of error is greater than the estimate. While this data may not be statistically significant for many types of analysis, it provides a baseline for consideration. Six municipalities have all, or part, of their land area located within two miles of the Barnegat Branch Trail route. In these six municipalities, a total of 111 block groups were analyzed for this study. Of the 111 block groups, 48 are located wholly or partially within two miles of the existing and proposed Barnegat Branch Trail route.

Table 2 shows the values of each indicator at the municipal level for each of the six municipalities within the study area.

Underserved Population Signifier	Ocean County	Beachwood Borough	Berkeley Township	Ocean Gate Borough	Pine Beach Borough	South Toms River Borough	Toms River Township
Data Universe: Total Population							
Minority Population	14.9%	10.5%	10.6%	8.6%	5.9%	**47.8%**	**16.2%**
Senior Population	21.9%	10.8%	**41.6%**	14.7%	21.6%	8.0%	19.2%
Data Universe: Total Population Age 5 or Older							
Limited English Proficiency	4.5%	1.8%	3.3%	0.8%	1.8%	**6.0%**	3.6%
Data Universe: Total Civilian Non-Institutionalized Population							
Disabled Population	13.4%	11.6%	**22.1%**	**18.7%**	12.3%	11.9%	12.4%
Data Universe: Total Households							
Households with Income below Poverty Level	9.2%	8.4%	8.7%	**14.7%**	4.6%	**15.6%**	7.0%
Zero Vehicle Households	6.8%	2.2%	**7.5%**	**10.0%**	0.7%	4.5%	6.5%

Sources: US Census Bureau ACS 2012-2016 5-Year Estimates.
Minority Population - Table DP-5 (Total Population - Not Hispanic or Latino, White).
Senior Population - Table DP-5 (Total Population Age 65 and Over).
Low-Income Population - Table B1701 7(Households Below Poverty Level).
Limited English Proficiency - Table S1601 (Speak English less than 'Very Well').
Disabled Population - Table S1810 - (Civilian Non-Institutionalized Population with Disability).
Zero Vehicle Households - Table B08201 (Households with No Vehicle Available)

Table 2- Municipal Profile

Race

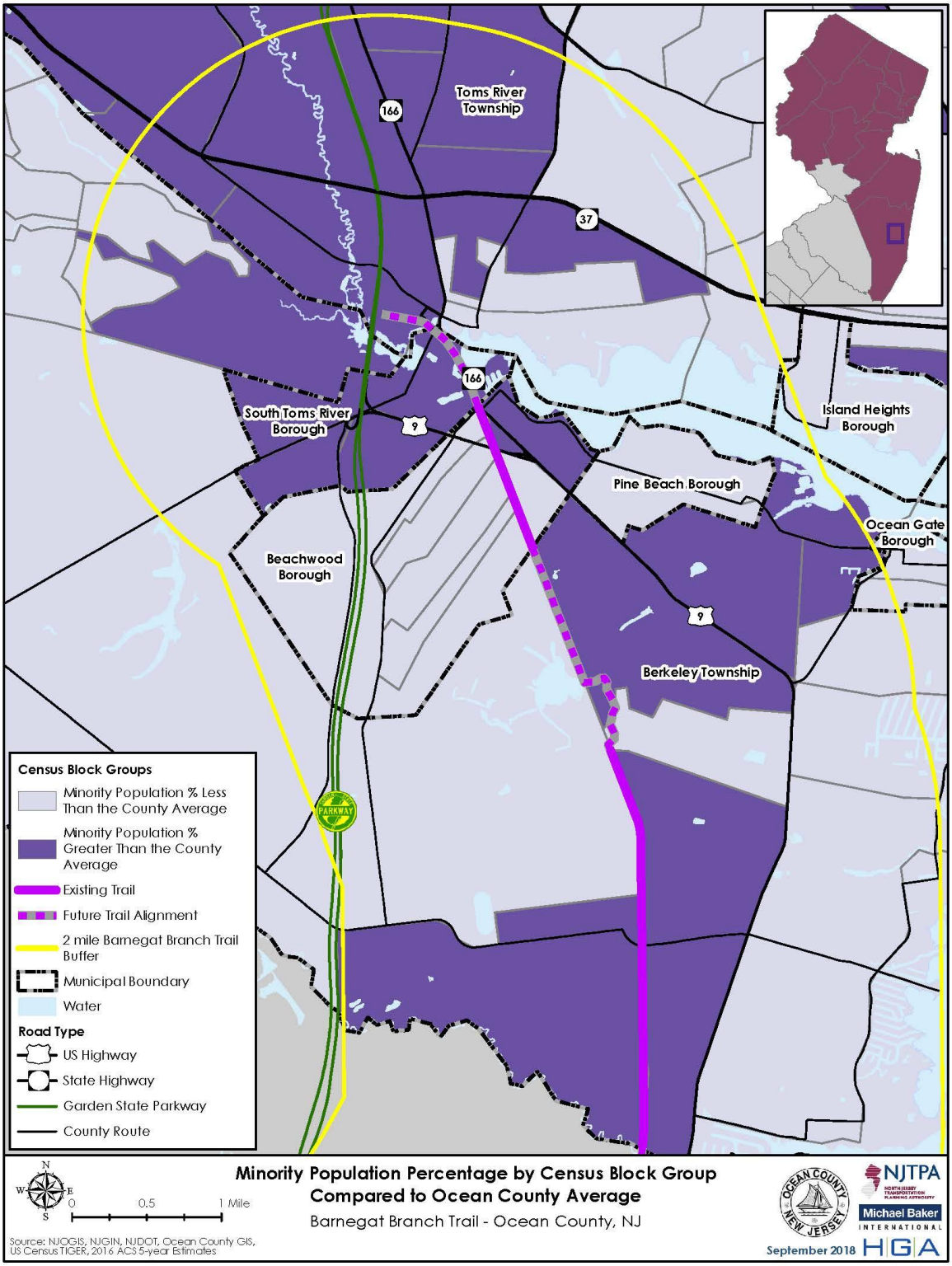
According to American Community Survey data, approximately 15% of Ocean County's population qualifies as a minority. The analysis uses Table DP-5, which provides general population characteristics. The "Not Hispanic or Latino, White" field was subtracted from the total population to determine the population that qualifies as a racial or ethnic minority. Of the six municipalities in the Study Area, only two have a higher concentration of minority population than the County as a whole, as seen in Table 3 below. Toms River is slightly above the County level with 16.2% minority population, and South Toms River is well above the County level with nearly half (47.8%) of its population consisting of racial or ethnic minorities. Beachwood Borough, Berkeley Township, Ocean Gate Borough, and Pine Beach Borough all have a lower concentration of minority population.

At the Block Group level, Table B03002 "Hispanic or Latino Origin by Race" provides the data to identify ethnic and racial minorities. Twenty of the forty-eight block groups within two miles of the trail route have a higher percentage of minority population than the County as a whole. Of these, one is in Beachwood, six are in Berkeley, three are in South Toms River, and ten are in Toms River. Figure 1 shows the block groups in the vicinity of the trail whose concentration of ethnic and racial minorities exceeds the countywide level.

Geography	Minority Population Percentage
Ocean County	*14.9%*
Beachwood Borough	10.5%
Berkeley Township	10.6%
Ocean Gate Borough	8.6%
Pine Beach Borough	5.9%
South Toms River Borough	47.8%
Toms River Township	16.2%

Source: US Census Bureau ACS 2012-2016 5-Year Estimates. Minority Population - Table DP-5 (Total Population - Not Hispanic or Latino, White)

Table 3- Minority Population Percentage


Toms River Township
166
37
South Toms River Borough
9
Island Heights Borough
Pine Beach Borough
Ocean Gate Borough
Beachwood Borough
Berkeley Township
PARKWAY
Census Block Groups
Minority Population % Less Than the County Average
Minority Population % Greater Than the County Average
Existing Trail
Future Trail Alignment
2 mile Barnegat Branch Trail Buffer
Municipal Boundary
Water
Road Type
US Highway
State Highway
Garden State Parkway
County Route
N
W
E
S
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0.5
1 Mile
Source: NJOGIS, NJGIN, NJDOT, Ocean County GIS, US Census TIGER, 2016 ACS 5-year Estimates
Minority Population Percentage by Census Block Group
Compared to Ocean County Average
Barnegat Branch Trail - Ocean County, NJ
OCEAN COUNTY NEW JERSEY
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Figure 1

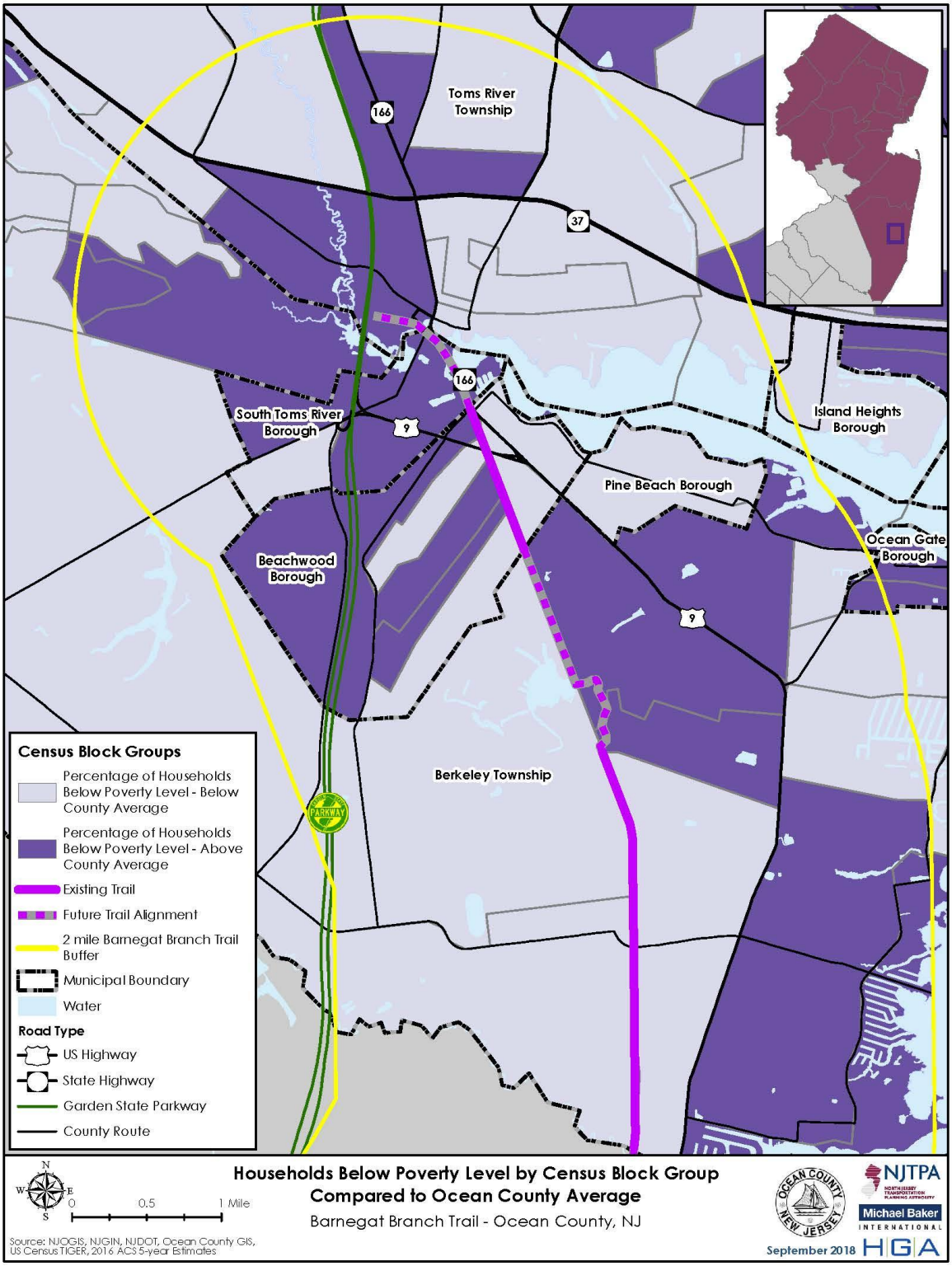
Income

The ACS data shows that just over 9% of Ocean County's households have incomes below the poverty level within the past 12 months. Table B17017 is used for this analysis at both County level and the Block Group Level. Ocean Gate (14.7%) and South Toms River (15.6%) both have higher percentages of their households below the poverty level than the County as a whole, while the other municipalities have lower percentages, as seen in Table 4. Of the block groups in close proximity to the Trail, three in Beachwood, eight in Berkeley, one in Ocean Gate, two in South Toms River, and five in Toms River have higher percentages of their populations below the poverty level than the County as a whole. Figure 2 shows the block groups in the vicinity of the trail whose concentration of households with incomes below the poverty line exceeds the countywide level.

Geography	Households Below Poverty Level Percentage
Ocean County	9.2%
Beachwood Borough	8.4%
Berkeley Township	8.7%
Ocean Gate Borough	14.7%
Pine Beach Borough	4.6%
South Toms River Borough	15.6%
Toms River Township	7.0%

Source: US Census Bureau ACS 2012-2016 5-Year Estimates. Low-Income Population - Table B1701 7(Households Below Poverty Level)

Table 4- Households below Poverty Level


Toms River Township
166
37
South Toms River Borough
9
Island Heights Borough
Pine Beach Borough
Ocean Gate Borough
Beachwood Borough
Berkeley Township
Census Block Groups
Percentage of Households Below Poverty Level - Below County Average
Percentage of Households Below Poverty Level - Above County Average
Existing Trail
Future Trail Alignment
2 mile Barnegat Branch Trail Buffer
Municipal Boundary
Water
Road Type
US Highway
State Highway
Garden State Parkway
County Route
N
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1 Mile
Source: NJOGIS, NJGIN, NJDOT, Ocean County GIS, US Census TIGER, 2016 ACS 5-year Estimates
Households Below Poverty Level by Census Block Group
Compared to Ocean County Average
Barnegat Branch Trail - Ocean County, NJ
OCEAN COUNTY NEW JERSEY
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Figure 2

Senior Population

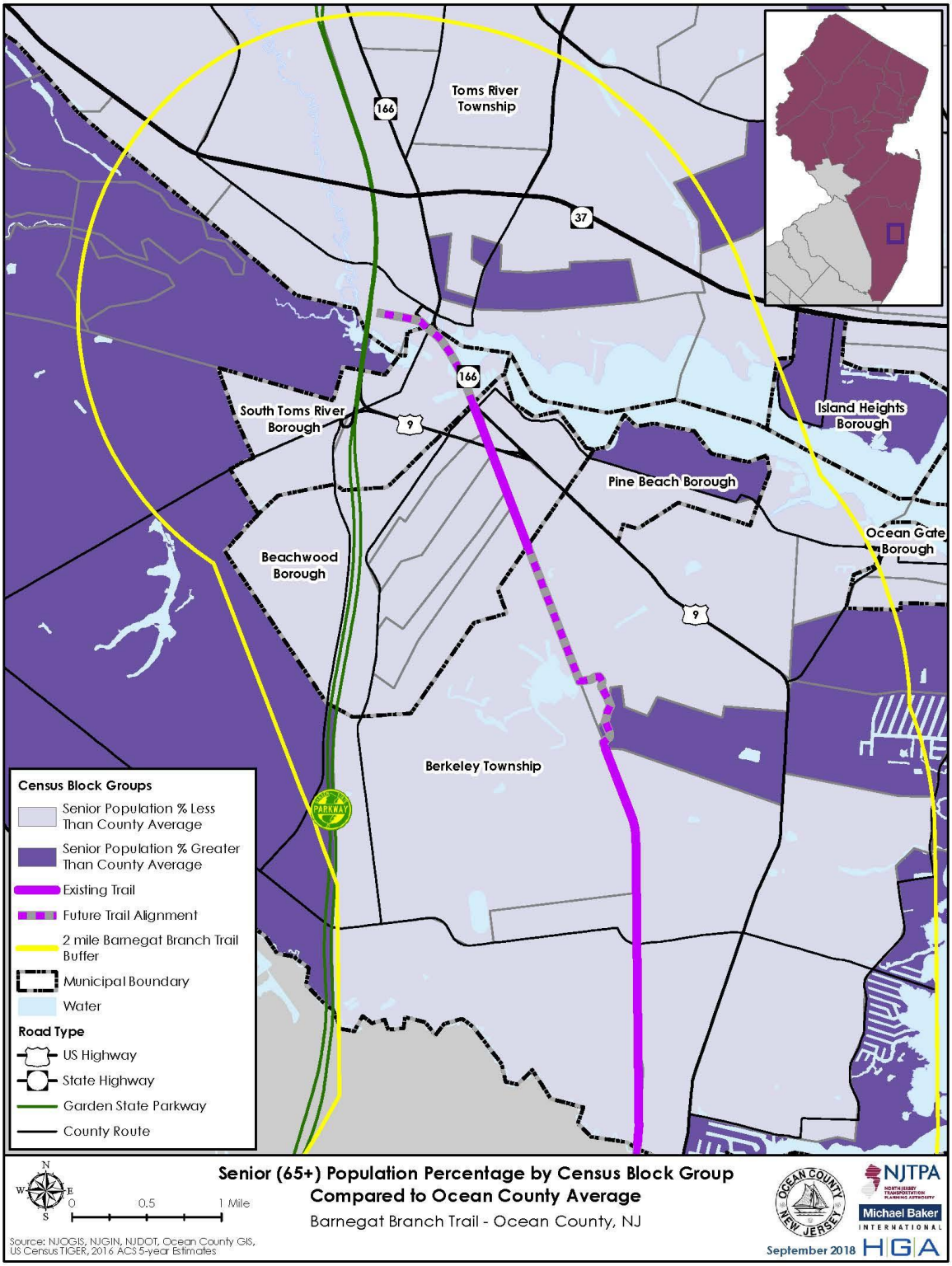
ACS data indicates that approximately 22% of the population of Ocean County is age 65 or older. Table DP-5 is used for this analysis. The County has numerous age-restricted, retirement communities that contribute to this statistic. Pine Beach Borough is on par with the County, as 21.6% of its population is senior citizens. Berkeley Township is significantly above the County level with 41.6% of its population age 65 or older. The other four communities all have populations younger than the countywide numbers, as seen in Table 5.

At the Block Group level, Table B01001 "Sex by Age" provides the data utilized to identify the senior citizen population. Of the fourteen block groups in close proximity to the Trail that have a higher proportion of senior citizen population than the County as whole, eleven also have a higher proportion of population with a disability. Ten of the block groups with a higher concentration of senior population are in Berkeley, one is in Pine Beach, and three are in Toms River. Figure 3 shows the block groups in the vicinity of the trail with senior citizen populations that exceed the countywide level.

Geography	Senior Population Percentage
Ocean County	*21.9%*
Beachwood Borough	10.8%
Berkeley Township	41.6%
Ocean Gate Borough	14.7%
Pine Beach Borough	21.6%
South Toms River Borough	8.0%
Toms River Township	19.2%

Source: US Census Bureau ACS 2012-2016 5-Year Estimates. Senior Population - Table DP-5 (Total Population Age 65 and Over)

Table 5- Senior Citizen Population


Toms River Township
166
37
166
9
South Toms River Borough
Island Heights Borough
Pine Beach Borough
Ocean Gate Borough
Beachwood Borough
9
Berkeley Township
PARKWAY
Census Block Groups
Senior Population % Less Than County Average
Senior Population % Greater Than County Average
Existing Trail
Future Trail Alignment
2 mile Barnegat Branch Trail Buffer
Municipal Boundary
Water
Road Type
US Highway
State Highway
Garden State Parkway
County Route
N
W
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0.5
1 Mile
Source: NJOGIS, NJGIN, NJDOT, Ocean County GIS, US Census TIGER, 2016 ACS 5-year Estimates
Senior (65+) Population Percentage by Census Block Group Compared to Ocean County Average
Barnegat Branch Trail - Ocean County, NJ
OCEAN COUNTY NEW JERSEY
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Figure 3

Limited English Proficiency

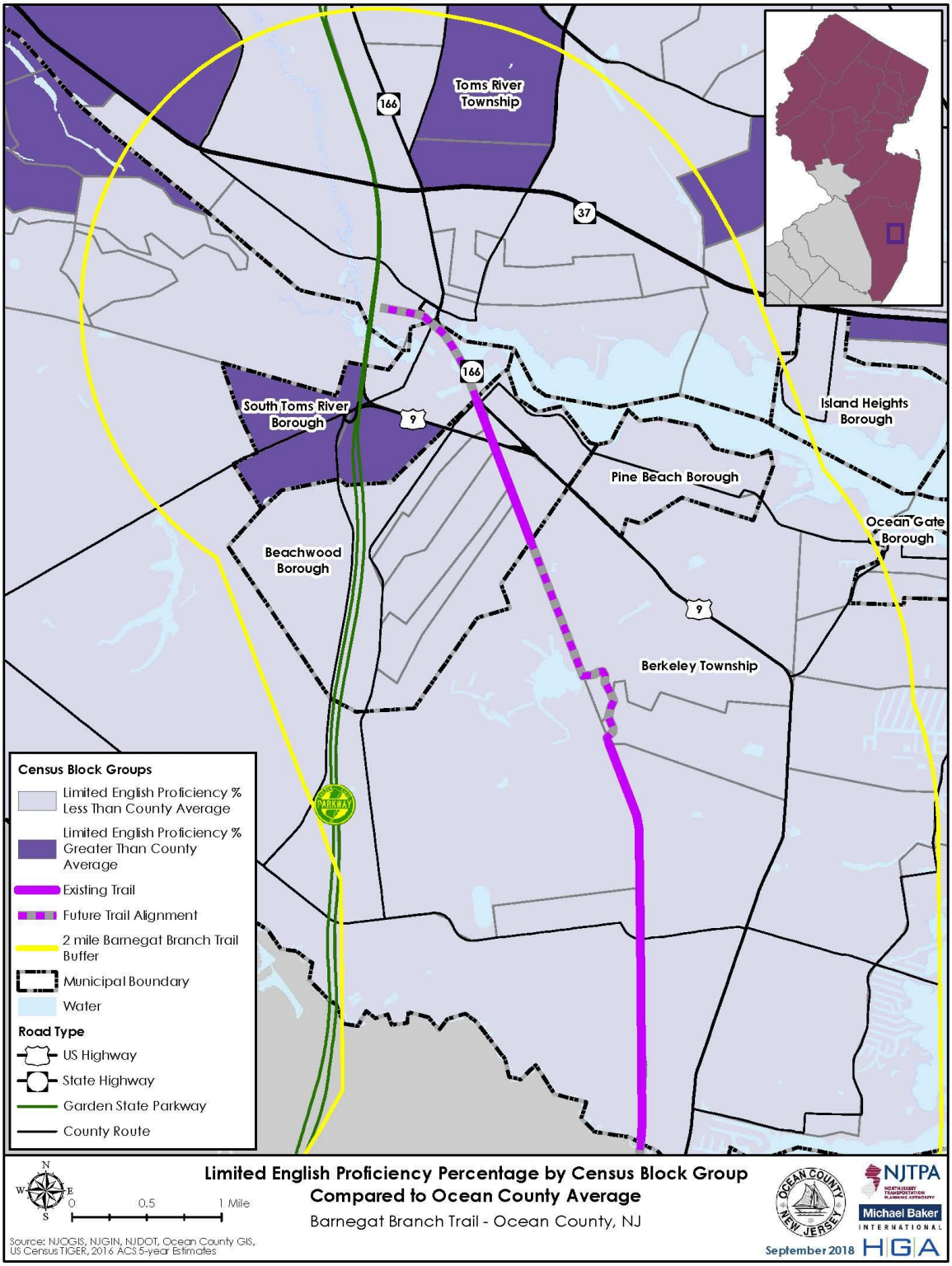
Table S1601 of the American Community Survey provides data on language spoken at home for the population age 5 or older. The field used for this analysis is "Speak English less than 'Very Well'". According to the ACS, 4.5% of the County speaks English less than very well. Of the six municipalities in the Study Area, South Toms River is the only one with a higher percentage of its population that has limited English proficiency, with 6% of people speaking English less than "very well", as shown in Table 6.

At the Block Group level, Table B16004 "Language Spoken at Home" provides the data used to identify populations with limited English proficiency. Seven of the block groups in close proximity to the trail have a higher concentration of population with limited English proficiency than the County does. Four of these block groups are in Toms River, two are in South Toms River, and one is in Berkeley Township. Figure 4 shows the block groups in the vicinity of the trail with populations with limited English proficiency that exceed the countywide level.

Geography	Limited English Proficiency Percentage
Ocean County	*4.5%*
Beachwood Borough	1.8%
Berkeley Township	3.3%
Ocean Gate Borough	0.8%
Pine Beach Borough	1.8%
South Toms River Borough	6.0%
Toms River Township	3.6%

Source: US Census Bureau ACS 2012-2016 5-Year Estimates. Limited English Proficiency - Table S1601 (Speak English less than 'Very Well')

Table 6- Individuals with Limited English Proficiency


Toms River Township
166
37
166
9
South Toms River Borough
Island Heights Borough
Pine Beach Borough
Ocean Gate Borough
Beachwood Borough
9
Berkeley Township
Census Block Groups
Limited English Proficiency % Less Than County Average
Limited English Proficiency % Greater Than County Average
Existing Trail
Future Trail Alignment
2 mile Barnegat Branch Trail Buffer
Municipal Boundary
Water
Road Type
US Highway
State Highway
Garden State Parkway
County Route
N
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0.5
1 Mile
Source: NJOGIS, NJGIN, NJDOT, Ocean County GIS, US Census TIGER, 2016 ACS 5-year Estimates
Limited English Proficiency Percentage by Census Block Group
Compared to Ocean County Average
Barnegat Branch Trail - Ocean County, NJ
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Figure 4

Disabled Population

Table S1810 of the ACS identifies the population with disabilities using the total civilian non-institutionalized population as the data universe. In Ocean County, approximately 13.4% of people are identified as disabled. Beachwood (11.6%), Pine Beach (12.3%), South Toms River (11.9%), and Toms River (12.4%) are all just below the County level. 22.1% of the population in Berkeley is disabled – this elevated figure is likely related to the high concentration of senior citizens in the Township, and 18.7% of the population of Ocean Gate is disabled, as shown in Table 7.

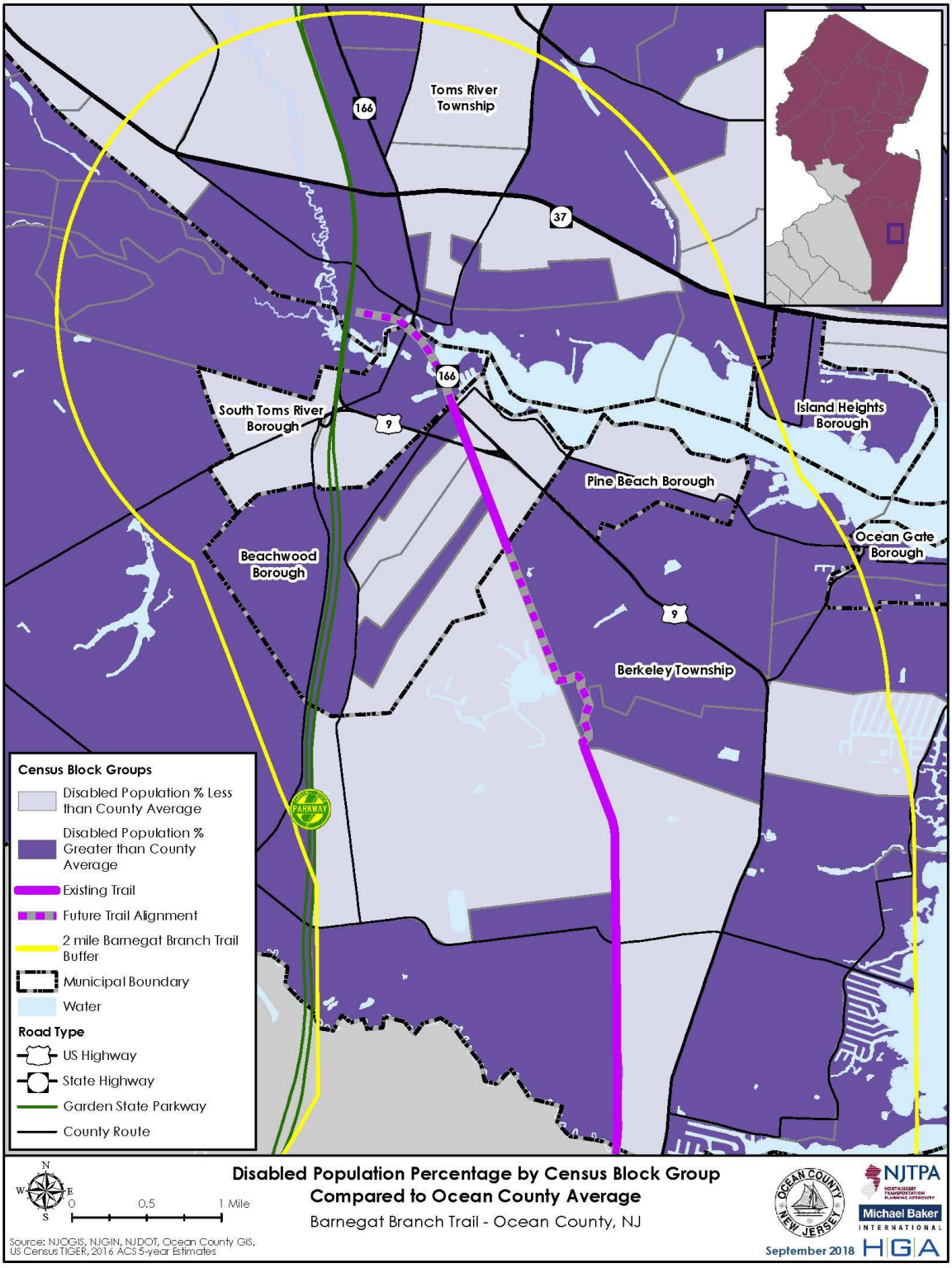
At the Block Group level, Table C21007 "Age by Veteran Status by Poverty Status in the Past 12 Months by Disability Status for the civilian population 18 years and over" is used to identify populations with disabilities. The population considered at the block group level is different from the population considered at the municipal or county level, due to the data that is available. The comparisons are not equivalent because the block group level only considers individuals 18 years of age or older, so the results should be compared with caution.

Figure 5 shows the block groups in the vicinity of the trail with populations with disabilities that exceed the countywide level.

Geography	Disabled Population Percentage
Ocean County	*13.4%*
Beachwood Borough	11.6%
Berkeley Township	22.1%
Ocean Gate Borough	18.7%
Pine Beach Borough	12.3%
South Toms River Borough	11.9%
Toms River Township	12.4%

Source: US Census Bureau ACS 2012-2016 5-Year Estimates. Disabled Population - Table S1810 - (Civilian Non-Institutionalized Population with Disability)

Table 7- Population with a Disability


Toms River Township
166
37
South Toms River Borough
9
Island Heights Borough
Pine Beach Borough
Ocean Gate Borough
Beachwood Borough
Berkeley Township
PARKWAY
Census Block Groups
Disabled Population % Less than County Average
Disabled Population % Greater than County Average
Existing Trail
Future Trail Alignment
2 mile Barnegat Branch Trail Buffer
Municipal Boundary
Water
Road Type
US Highway
State Highway
Garden State Parkway
County Route
N
W
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0.5
1 Mile
Source: NJOGIS, NJGIN, NJDOT, Ocean County GIS, US Census TIGER, 2016 ACS 5-year Estimates
Disabled Population Percentage by Census Block Group
Compared to Ocean County Average
Barnegat Branch Trail - Ocean County, NJ
OCEAN COUNTY NEW JERSEY
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Figure 5

Zero Vehicle Households

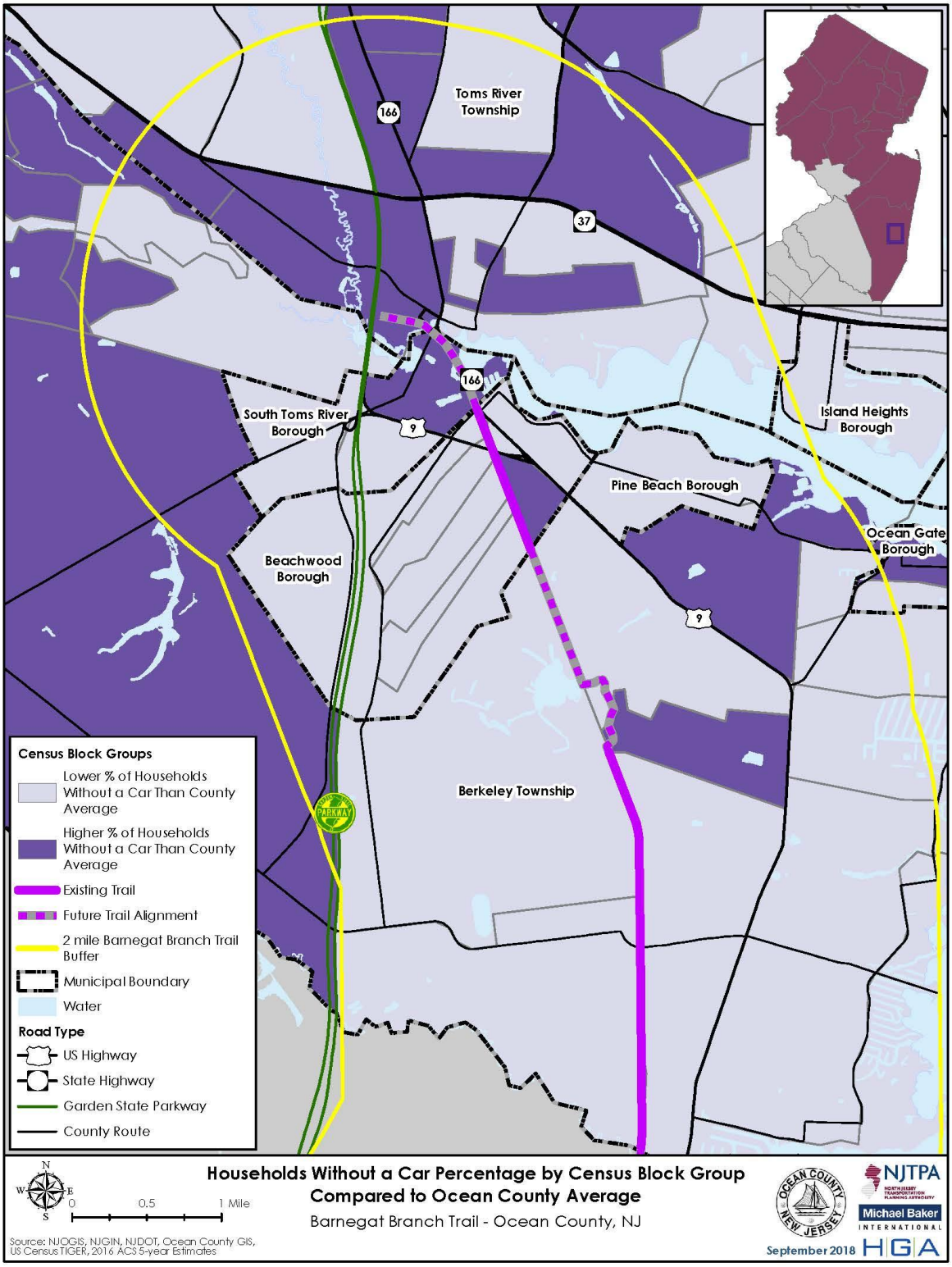
Table B08201 provides data on the number of vehicles available to households. Just under 7% of households in Ocean County have zero vehicles. Berkeley (7.5%) has a slightly higher concentration of zero vehicle households, and Ocean Gate (10%) has a substantially higher concentration. The other four municipalities all have lower concentrations of zero vehicle households. Pine Beach (0.7%) has virtually no households without access to a vehicle. The municipal values are shown in Table 8.

At the Block Group level, Table B25044 "Tenure by Vehicles Available" is used to identify households without access to a vehicle. Figure 6 shows the block groups in the vicinity of the trail with zero vehicle households that exceed the countywide level.

Geography	Zero Vehicle Households Percentage
Ocean County	6.8%
Beachwood Borough	2.2%
Berkeley Township	7.5%
Ocean Gate Borough	10.0%
Pine Beach Borough	0.7%
South Toms River Borough	4.5%
Toms River Township	6.5%

Source: US Census Bureau ACS 2012-2016 5-Year Estimates. Zero Vehicle Households - Table B08201 (Households with No Vehicle Available)

Table 8- Zero Vehicle Households


Toms River Township
166
37
166
South Toms River Borough
9
Island Heights Borough
Pine Beach Borough
Ocean Gate Borough
Beachwood Borough
9
Berkeley Township
Census Block Groups
Lower % of Households Without a Car Than County Average
Higher % of Households Without a Car Than County Average
Existing Trail
Future Trail Alignment
2 mile Barnegat Branch Trail Buffer
Municipal Boundary
Water
Road Type
US Highway
State Highway
Garden State Parkway
County Route
N
W
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0.5
1 Mile
Source: NJOGIS, NJGIN, NJDOT, Ocean County GIS, US Census TIGER, 2016 ACS 5-year Estimates
Households Without a Car Percentage by Census Block Group
Compared to Ocean County Average
Barnegat Branch Trail - Ocean County, NJ
OCEAN COUNTY NEW JERSEY
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Figure 6

Conclusion

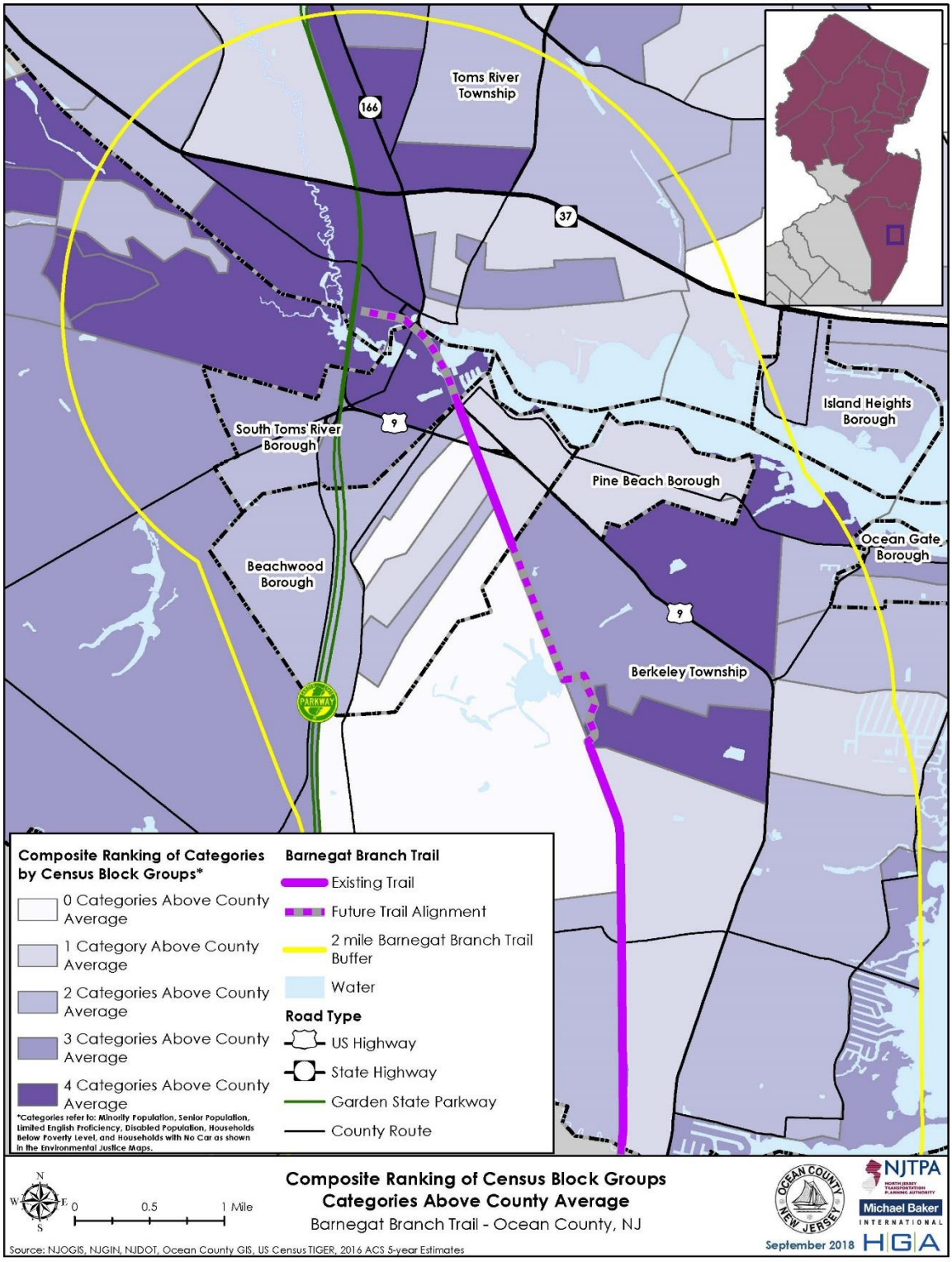
The final map is a composite of all six categories. There are forty-eight block groups that are wholly or partially within two miles of the existing and proposed Barnegat Branch Trail Route in the Study Area. Of these 48 block groups, 44 have a higher concentration of at least one of the environmental justice indicators than the County as a whole. Ten block groups have higher concentrations in four out of six categories, and eight block groups have higher concentrations in three out of four categories. The composite ranking for the block groups is shown in Table 9 and displayed graphically in Figure 7.

Of the ten block groups with four indicators higher than the countywide levels, five are in Berkeley Township, one is in South Toms River, and four are in Toms River. Eight of the ten are clustered near the northern end of the study area, while two are in the southeastern portion.

Block Groups with Higher Concentrations than County									
Municipality	**Block Group**	**Census Tract**	**Poverty**	**Minority**	**65+**	**LEP**	**Disability**	**No Car**	**Categories Above County**
Beachwood	1	7250.01	Yes	No	No	No	Yes	No	2
Beachwood	2	7250.01	No	No	No	No	No	No	0
Beachwood	1	7250.02	No	No	No	No	No	No	0
Beachwood	2	7250.02	Yes	No	No	No	Yes	No	2
Beachwood	3	7250.02	Yes	No	No	No	No	No	1
Beachwood	1	7251	No	Yes	No	No	No	No	1
Beachwood	2	7251	No	No	No	No	No	Yes	1
Berkeley	1	7290	Yes	No	No	No	Yes	Yes	3
Berkeley	1	7310.01	No	No	Yes	No	Yes	No	2
Berkeley	2	7310.01	No	No	Yes	No	No	No	1
Berkeley	1	7310.02	Yes	No	No	No	Yes	No	2
Berkeley	2	7310.02	Yes	No	Yes	No	Yes	No	3
Berkeley	1	7311.01	Yes	Yes	No	No	Yes	Yes	4
Berkeley	2	7311.01	No	Yes	No	No	Yes	No	2
Berkeley	1	7311.02	Yes	Yes	No	No	Yes	No	3
Berkeley	2	7311.02	Yes	No	Yes	No	Yes	Yes	4
Berkeley	3	7311.02	No	Yes	No	No	No	No	1
Berkeley	1	7311.03	No	No	No	No	No	No	0
Berkeley	2	7311.03	No	Yes	No	No	Yes	No	2
Berkeley	1	7312.04	No	No	Yes	No	Yes	Yes	3
Berkeley	2	7312.04	No	No	Yes	No	Yes	Yes	3

Berkeley	1	7312.05	No	No	Yes	No	Yes	No	2
Berkeley	2	7312.05	Yes	Yes	Yes	No	Yes	No	4
Berkeley	3	7312.05	Yes	No	Yes	No	Yes	Yes	4
Berkeley	2	7312.06	No	No	Yes	Yes	Yes	Yes	4
Ocean Gate	2	7290	Yes	No	No	No	Yes	No	2
Pine Beach	1	7300	No	No	Yes	No	No	No	1
Pine Beach	2	7300	No	No	No	No	Yes	No	1
South Toms River	1	7240	No	Yes	No	Yes	No	No	2
South Toms River	2	7240	Yes	Yes	No	Yes	No	No	3
South Toms River	3	7240	Yes	Yes	No	No	Yes	Yes	4
Toms River	1	7228	No	Yes	No	Yes	No	No	2
Toms River	2	7228	Yes	Yes	No	Yes	No	Yes	4
Toms River	1	7229	No	Yes	No	No	Yes	Yes	3
Toms River	2	7229	Yes	Yes	No	No	Yes	Yes	4
Toms River	1	7230	Yes	Yes	No	No	Yes	Yes	4
Toms River	2	7230	No	Yes	No	Yes	No	No	2
Toms River	3	7230	No	Yes	No	No	No	No	1
Toms River	4	7230	No	Yes	No	No	No	Yes	2
Toms River	1	7231	No	Yes	No	No	No	No	1
Toms River	2	7231	No	No	Yes	No	Yes	Yes	3
Toms River	3	7231	Yes	Yes	No	No	Yes	Yes	4
Toms River	1	7232	Yes	No	No	No	No	No	0
Toms River	2	7232	No	No	No	No	Yes	Yes	2
Toms River	3	7232	No	No	Yes	Yes	No	No	2
Toms River	1	7236	No	No	No	No	Yes	No	1
Toms River	2	7236	No	No	No	No	Yes	No	1
Toms River	1	7260	No	No	Yes	No	Yes	No	2

Table 9- Block Group Summary


Toms River Township
166
37
Island Heights Borough
South Toms River Borough
9
Pine Beach Borough
Ocean Gate Borough
Beachwood Borough
9
Berkeley Township
PARKWAY
Composite Ranking of Categories by Census Block Groups*
0 Categories Above County Average
1 Category Above County Average
2 Categories Above County Average
3 Categories Above County Average
4 Categories Above County Average
*Categories refer to: Minority Population, Senior Population, Limited English Proficiency, Disabled Population, Households Below Poverty Level, and Households with No Car as shown in the Environmental Justice Maps.
Barnegat Branch Trail
Existing Trail
Future Trail Alignment
2 mile Barnegat Branch Trail Buffer
Water
Road Type
US Highway
State Highway
Garden State Parkway
County Route
N
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1 Mile
Composite Ranking of Census Block Groups
Categories Above County Average
Barnegat Branch Trail - Ocean County, NJ
OCEAN COUNTY NEW JERSEY
NJTPA
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Source: NJOGIS, NJGIN, NJDOT, Ocean County GIS, US Census TIGER, 2016 ACS 5-year Estimates

Figure 7

Additional demographic analysis is forthcoming, this is a preliminary identification of locations at the block group level that have higher concentrations of individuals or households among the census categories traditionally associated with underserved populations. The future analysis will consider burdens and indicate if the identified environmental justice populations are adversely affected by environmental or other factors.

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APPENDIX C – PUBLIC OUTREACH DOCUMENTS

OCEAN COUNTY BICYCLE AND PEDESTRIAN LINKAGES FROM THE BARNEGAT BRANCH TRAIL, NORTHERN SECTION

Community Involvement Action Plan

Ocean County's northern municipalities are home to a dense and growing population with many desirable destinations, including businesses, transit hubs, libraries, schools, and waterfront parks. However, bicycle and pedestrian access and connectivity in this area are limited. The goal of this study is to identify destinations and bicycle and pedestrian linkages between those destinations, residential areas, and the Barnegat Branch Trail (BBT). Recommended improvements to the facilities will be identified and prioritized based on existing studies, transportation-related data, demographic data, and feedback from the community.

Linkages will be prioritized where significant numbers of residents are reliant on walking and bicycling as means of transportation, including areas where poverty, minority populations, and non-English speaking individuals are above the County average. By focusing on improvements to safe access for the most reliant members of the community, benefits will be provided to all users, including reducing traffic congestion, providing safer commuting and recreational use, attracting new residents, and enhancing the quality of life for current residents.

Community members, especially those that rely on walking and bicycling, offer unique and specific perspectives on the transportation network they use every day. The feedback received from the public and community representatives is integral to guiding the study and producing recommendations most likely to improve safety and accessibility. The major objectives of the outreach strategy for this study are to provide regular updates and information to keep everyone within the affected communities informed throughout the process and to supply multiple methods for community members to provide input.

Meetings

TAC Meetings

The project team will develop a list of key technical representatives involved in transportation-related decision making that are interested in the regional and subregional goals of the study. These key representatives will be invited to join a Technical Advisory Committee (TAC). Members of the TAC will provide input on the goals and objectives of this study, as well as feedback on any materials used in outreach or reporting. Representatives from each organization will be requested to send someone in their place if they are unable to attend. Conference call capability will also be provided for those unable to attend in-person.

- **TAC Meeting #1 (April 2018):** The first TAC meeting will be used to present the Purpose and Need of the study to the members of the committee. Materials reviewed by the North Jersey Transportation Planning Authority (NJTPA) and Ocean County, including destinations mapping, review of existing studies and plans, environmental justice mapping, and the project fact sheet will be provided in advance of the meeting to help familiarize committee members with the

study area and vicinity. TAC input will be requested on outreach components including the following:

- Community Involvement Action Plan
- Study Website
- Public Outreach Survey
- Environmental Justice Populations

- **TAC Meeting #2 (September 2018):** During this meeting, feedback provided in the focus group sessions and the first public meeting will be presented to the TAC, as well as summarized results of the bicycle compatibility assessment, crash analysis, and environmental justice analysis. Michael Baker will present potential facility improvements for discussion among the TAC at this meeting.
- **TAC Meeting #3 (November 2018):** Michael Baker will present recommended facility improvements, routes, and an implementation matrix for feedback from the TAC. The TAC will also be provided maps and details regarding cost, implementation barriers, responsible agencies, and benefits in a format where potential treatments can be compared and prioritized. TAC members will be asked to prioritize the potential treatments based on the data provided. The outline of the final report will also be provided and discussed at this meeting.
- **TAC Meeting #4 (March 2019):** The draft final report will be summarized and reviewed. Input from the project team will be requested prior to the meeting to allow multiple weeks for NJTPA and Ocean County review of the document. Comments and feedback will be incorporated into the final draft of the submitted final report.

Focus Groups Sessions (September 2018)

Two (2) meetings with local stakeholders will be conducted by Heyer, Gruel & Associates (HGA). The TAC will determine the list of stakeholders to invite to the focus group sessions. Two individual group sessions will be held during which stakeholders will be interviewed to gather expertise and input on specific local issues relating to the study. This information will be used to help determine priority linkages and improvement recommendations.

Session materials such as maps, informational poster boards, and interview questions to lead discussion will be prepared in advance and provided at the focus group sessions.

Public Meetings and Community Events (June – September 2018)

Two (2) public meetings will be held. The first meeting will be organized to provide general information regarding the project background and explain all the methods that interested parties can use to submit feedback. It will also be an opportunity to record public priorities, frequent destination, and specific facility concerns in person, recording verbal feedback and providing maps for the public to record location specific comments. Surveys, maps, project fact sheets, and bookmarks with links to the public feedback page of the project website will be made available at this public meeting. The meeting will take place in an area with an identified environmental justice population, and the location will have

access to public transit, and the facility will be ADA accessible. Meetings will take place when people are most likely to be available or already visiting the meeting location.

At the second public meeting, Michael Baker will provide the results of the completed analyses, present the recommended improvements included in the draft final report, and seek feedback from the public. As with the first meeting, the location of the second public meeting will be held in an area with an identified environmental justice population, access to public transit, and an ADA accessible facility.

Opportunities for setting up booths or providing staff at other scheduled community events will also be considered. Community events will be discussed with the TAC at the first TAC meeting.

Materials that will be provided for these meetings and events include large printouts of the local destinations mapping for the public to provide comment, hard copies of the survey, and the project fact sheet. Materials will be provided in Spanish and other languages as necessary. The project team will seek to engage bicycle and pedestrian interest groups and BBT users to assist in identifying current gaps in existing facilities, potential linkages, popular origins, destinations, and routes, and priorities for developing new and improved bicycle and pedestrian facilities. Flyers will be placed at local destinations, such as businesses, libraries, and places of worship, within the community, prioritizing locations within the environmental justice communities identified by the census data.

Municipal Officials and Stakeholders Meetings (November 2018)

HGA will lead up to four (4) in-person meetings with officials and stakeholders from the municipalities encompassing the study area. A contact list of desired attendees will be determined by the TAC. The study objectives, goals, and previously completed analysis will be summarized and presented. HGA will incorporate information from existing studies, ordinances, and environmental justice analyses to present at the meetings and will seek municipal input on potential issues and strategies.

The initial draft implementation matrix and recommended facility improvements, as well as related maps will be presented for additional input from the members of Beachwood Borough, Berkeley Township, South Toms River Borough and Toms River Township. The input from the community groups and officials will aid in the prioritization of the identified facility improvements and routes. Meeting agendas and meeting summaries will be provided.

Media and Outreach

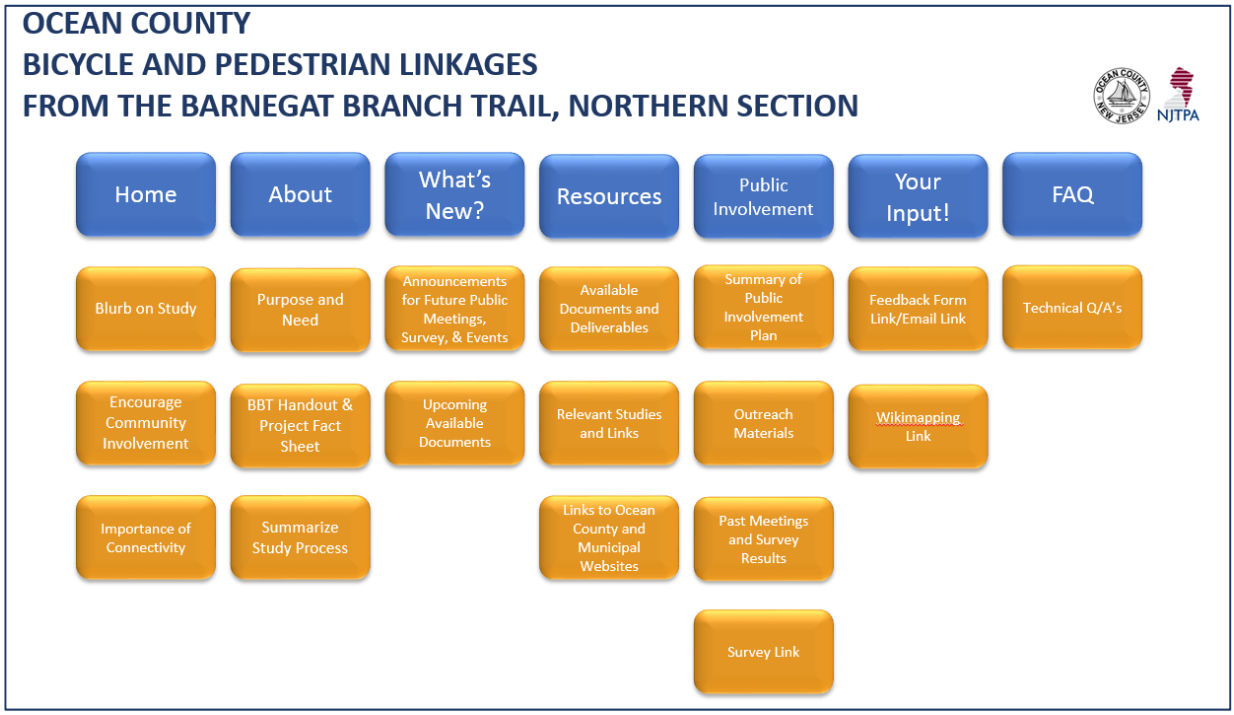
Press Releases and Promotion

Press releases regarding events and major milestones of the study will be released by Ocean County's Public Information Officer, including materials requested from Michael Baker. Ocean County, NJTPA, and TAC organizations will also use their available websites and social media to promote public outreach materials, project progress, and events.

OCEAN COUNTY BICYCLE AND PEDESTRIAN LINKAGES FROM THE BARNEGAT BRANCH TRAIL, NORTHERN SECTION

Website (Ongoing Updates)

A project website will be created to facilitate outreach and document sharing. The website will be organized according to the following framework:



www.bbtconnections.com

The website address will be displayed on handouts, at public events, on surveys, and on the County website. The website will be updated by Michael Baker once materials and information are approved by the project team and, when appropriate, the TAC. Michael Baker will maintain the website until the conclusion of the study, June 30, 2019. As the study progresses, the website will be updated with proposed recommendations and facility improvements, and as the study concludes, the recommendations from the Final Report will be displayed.

Multiple options are provided for public users that want to leave comments or information. The survey, a crowdsource mapping tool, and contact information will also be provided for public input.

Public Outreach Survey (June 2018)

A public outreach survey will be conducted to determine local walking and bicycling usage. Travel patterns, frequency, destinations, and concerns will be collected, and the results of the will aid in identifying routes that are comfortable or dangerous from the public perspective.

The survey will be provided in hard copy and online with links placed on social media outlets, the study website, and the County website. Survey results will be collected, summarized, and ultimately used to

identify locations where barriers to walking and bicycling are present near the existing and proposed Barnegat Branch Trail.

Project Fact Sheet (April 2018)
A one-page document will be created to circulate at outreach events and meetings. This document will summarize Purpose and Need of the study, as well as the study approach. A map depicting the existing and proposed portions of the trail, local destinations, and municipalities within the study area will also be provided to supplement the information.

The project fact sheet will also be provided electronically on the project and County websites. The fact sheet will inform stakeholders and the public with a basic understanding of the study and how it pertains to them, directing the reader to project website comment form, survey, and email to provide input.

Preference Survey (September 2018)
Civic Eye Collaborative will build a preference survey to conduct online, publicly. The questions on this survey will focus on determining the types of environments or facility features that are valued or desired by the community, complementing the public outreach survey. Videos, maps, and pictures will be provided on the preference survey to help conceptualize the broad range of physical design alternatives that could be considered in the implementation strategies.

The TAC's input will be used to develop the survey to effectively reach and gain meaningful input from all the communities within the study area. These communities are likely to differ in their preferences about proposed improvements based on demographics and current transportation access and use.

This survey will also be distributed online through social media outlets, the study website, and the County website. A summary of the results will be provided.

Video (Ongoing)
Civic Eye Collaborative and Michael Baker will develop a series of narrated videos for public outreach purposes that will include interviews with community members who walk or bike in the study area, fly-over video obtained from drone footage, and videos from the perspective of a bicyclist riding the BBT and potential linkages.

Links to the videos will be available on the study and County websites, as well as social media. Video can also be shown at meetings and other community events. The videos will be engaging and help draw public interest, as well as inform the audience on the study and related topics.

OCEAN COUNTY
BICYCLE AND PEDESTRIAN LINKAGES
FROM THE BARNEGAT BRANCH TRAIL, NORTHERN SECTION

Technical Advisory Committee Meeting #1
Tuesday, April 24, 2018, 1:30 PM to 4:00 PM
Ocean County Planning, Engineering and Roads Building
3rd Floor, Engineering Conference Room
129 Hooper Ave, Toms River

MEETING SUMMARY

I. Welcome and Introductions

Mr. Agliata and Mr. Wong welcomed the committee to the meeting and led introductions. Committee members were provided an overview the meeting agenda. The sign in sheet is attached.

II. Introduction to the Study

a. Purpose and Need

Ms. Pecchioli provided an overview of the goals of the study which include:

- Improving intermodal connectivity
- Improving system coordination
- Adding connections to desired destinations and residential areas from the Barnegat Branch Trail. Destinations to consider include businesses, employers, schools, recreation, etc.
- Improving safety for bicyclists and pedestrians along linkages both on and off-road. The study should address opportunities through the pulverizing site and existing roadways.
- Encourage non-vehicular travel, decreasing congestion and emissions.
- Serve as a guide to help prioritize investments in bicycle and pedestrian facilities and identify funding opportunities.
- Improvements that focus on environmental justice populations most reliant on walking and biking, as well as existing plans and ordinances.

b. NJTPA Subregional Studies Program Overview

Ms. Eaman provided an overview of the NJTPA Subregional Studies Program. It is used to distribute federal funding to the northern counties of New Jersey, and includes Ocean County. The studies selected for this program are focused on regional benefits and strategies for connectivity that are consistent with NJTPA's Plan 2045.

c. Barnegat Branch Trail Background

Ms. Pecchioli presented a description of the Barnegat Branch Trail is a rail trail to be used as the backbone for building a connected network for walking and biking. The trail was purchased through the Natural Lands Trust. Beachwood already owned and created the existing portion through the municipality. The trail will be completed in phases. There are currently plans to acquire proposed trail alignment in Toms River.

d. Advisory Committee Role

Mr. Hopwood discussed the role of the Technical Advisory Committee and stated that the input is integral in driving the study. The committee was formed to capitalize on the knowledge and expertise of the TAC regarding the study area, as well as bicycle and pedestrian related activity

in the area. The committee includes representatives of agencies involved in transportation decisions in the study area and regional interests and goals that align with this study.

This committee will also be used to access special interest stakeholders to include in outreach activities. Data will be summarized and shared with the committee, as well as draft documents for review prior to sharing with the public. This includes the final report and recommendations.

There will be four meetings. Meeting one is to inform the committee of the study goals, approach, and obtain feedback on items regarding outreach. Meeting two will be used to present feedback from focus groups and public meetings, as well as the results of the bicycle compatibility assessment, crash analysis, and potential facility improvements to consider. Meeting three will be used to present the recommended routes and facility improvements and implementation matrix. Meeting four will be used to present the final report and address final edits.

III. Data Collection and Outreach Materials

a. Existing Studies and Ordinance Review

Plans, ordinances, and studies related to the study area have been reviewed and summarized. Toms River will send additional updated documents for consideration.

b. Environmental Justice Populations

Populations with above average poverty rates and above average minority percentages have been mapped and will be used for public outreach upon approval. Additional information, such as car ownership, has also been analyzed. Data has shown a large potential margin for error, but other demographic data will be examined.

c. Regional Connections Mapping

Understanding the regional connections and need for linkages outside the immediate study area is also relevant to the study goals. Michael Baker has developed mapping to show trails, parks, and other municipalities in the region. Recommended improvements locally may gain additional priority if they are used to close gaps in the regional network.

d. Project Fact Sheet

The Project Fact Sheet was supplied as a handout. The one-page document will be used to provide a quick background on the trail, study, approach, and directions for providing public input, such as links to the website and survey. A supplemental map is provided on the back to help inform the audience on where linkages and improvements are being considered.

e. Public Outreach Survey

A brief survey has been developed to gather information about the public's use of the study area as pedestrians and cyclists. The survey asks about their use of the existing trail, where they ride or walk, specific facilities of note, safety concerns or accessibility barriers, and general information about where they live, work, or go to school that could help us pin point target routes. There is also potential for a longer online preference survey to gauge the public's perceptions of certain infrastructure and facility types, using visual elements, as well the types of riders, walkers, and behaviors observed in the study area.

IV. Technical Advisory Committee Input

a. Stakeholders to Include in Outreach

Examples of current stakeholders the project team is considering include schools, the health department, the department of environmental protection, bike clubs, businesses, and alternative transportation providers. The TAC suggested additional groups, including running clubs and the

office of senior services. Committee members will send additional stakeholders to the project team following the meeting.

b. Local Destinations and Key Linkages

The TAC provided points of interest and key linkages, as well as other land use and ownership information on large maps. This information will be used to create more comprehensive destinations mapping, as well as to select facilities for prioritizing certain facilities to recommend improvements.

c. Public Events and other Opportunities for Public Outreach

Beyond public meetings and the project website, we plan to get involved at community events, as well as providing updates through social media outlets and websites like the Ocean County Planning website. The committee is providing events, such as the opening of the new trolley route and farmers markets, where Michael Baker can set up a booth with surveys and handouts, or provide maps to get public feedback on the study.

V. Community Involvement Action Plan

The Community Involvement Action Plan is being drafted. TAC meetings will take place around August, November, and March. Focus group sessions for interviewing stakeholders, surveys, and public meetings will take place over the summer. Municipal officials and stakeholders meetings to present analyses and recommended facility improvements will take place around November.

Throughout the study the project website will be updated with new information and outreach materials. Public comments on the website form and crowdsourcing map application, videos and further developed media, and any community events shall also be utilized to return additional feedback and inform the communities to be affected. The project website should also include the additional documents or links to updated plans supplied by the municipalities. Once the draft is finalized and approved it will be sent along to the TAC for additional thoughts and details to be added to the Action Plan.

V. Next Steps

Documents and outreach materials will be sent to the committee for review. Committee feedback will help to ensure purpose and need are met. Updates to mapping and other materials will be made based on committee feedback.

OCEAN COUNTY BICYCLE AND PEDESTRIAN LINKAGES FROM THE BARNEGAT BRANCH TRAIL, NORTHERN SECTION

Technical Advisory Committee Meeting #1

Tuesday, April 24, 2018

WELCOME AND INTRODUCTIONS

OVERVIEW

3

- Introduction to the Study
- Data Collection and Outreach Materials
- Technical Advisory Committee Input
- Community Involvement Action Plan
- Next Steps

INTRODUCTION TO THE STUDY

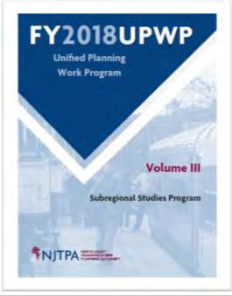
PURPOSE AND NEED

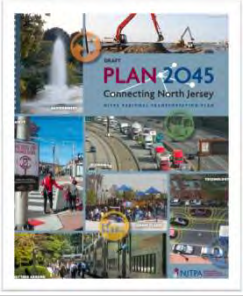
5

1. Improve intermodal connectivity and system coordination
2. Improve connectivity between desired destinations, residential areas, and the Barnegat Branch Trail
3. Improve safety for bicyclists and pedestrians through on and off-road improvements and linkages
4. Serve as a guide to prioritize investments in bicycle and pedestrian facilities and identify funding opportunities

NJTPA SUBREGIONAL STUDIES PROGRAM

6





BARNEGAT BRANCH TRAIL BACKGROUND

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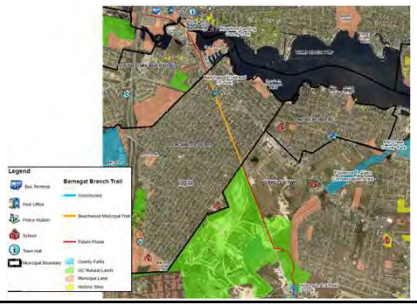


TECHNICAL ADVISORY COMMITTEE ROLE

8

- Identify stakeholders to consider in outreach strategies
- Provide technical knowledge and expertise on the study area
- Share public events or other opportunities for public outreach
- Review study documents, recommendations, and the final report

(Gallagher, K. Beachwood Bikes)

TECHNICAL ADVISORY COMMITTEE ROLE

9

TAC Meeting #2

Present feedback from focus group sessions/ public meetings. Share results of bicycle compatibility assessment, crash analysis, and potential facility improvements to consider.

TAC Meeting #3

TAC Meeting #4

TECHNICAL ADVISORY COMMITTEE ROLE

10

TAC Meeting #2

Present feedback from focus group sessions/ public meetings. Share results of bicycle compatibility assessment, crash analysis, and potential facility improvements to consider.

TAC Meeting #3

Present recommended routes, facility improvements, and an implementation matrix. Prioritize potential treatments based on data, cost, barriers, and benefits. Discuss Final Report Outline.

TAC Meeting #4

TECHNICAL ADVISORY COMMITTEE ROLE

11

TAC Meeting #2

Present feedback from focus group sessions/ public meetings. Share results of bicycle compatibility assessment, crash analysis, and potential facility improvements to consider.

TAC Meeting #3

Present recommended routes, facility improvements, and an implementation matrix. Prioritize potential treatments based on data, cost, barriers, and benefits. Discuss Final Report Outline.

TAC Meeting #4

Present Final Draft Report and prioritized improvement recommendations. Discuss changes to be incorporated in Final Report and the presentations for municipal officials.

DATA COLLECTION AND OUTREACH MATERIALS

EXISTING PLANS AND ORDINACE REVIEW

13

- Master Plans
- Land Use Plans
- Mobility Plans
- Public Access Plans
- Circulation Plans
- Redevelopment Plans
- Studies within the Project Area
- Ordinances Relating to the Study

ENVIRONMENTAL JUSTICE POPULATIONS

14

Minority Populations Mapping

ENVIRONMENTAL JUSTICE POPULATIONS

15

Impoverished Populations Mapping

REGIONAL CONNECTIONS MAPPING

16

PROJECT FACT SHEET

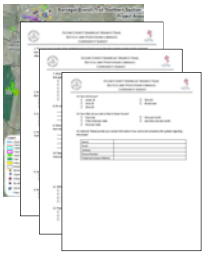
17

PUBLIC OUTREACH SURVEY

18

FEEDBACK:

- Who Uses Existing Trail
- What the Existing Trail is Used for
- Where People Walk or Bike in Study Area
- Perceived Barriers to Walking/Bicycling in Study Area
- Safety Concerns
- Specific Facilities or Linkages of Importance
- Preferences
- Demographic Information



TECHNICAL ADVISORY COMMITTEE INPUT

TECHNICAL ADVISORY COMMITTEE INPUT

20

1. Stakeholders to Include in Outreach
2. Local Destinations and Key Linkages
3. Public Events and other Opportunities for Public Outreach

STAKEHOLDERS

21

(Pecchioli, V. 2017)

Current List Includes:

- Local Schools
- Ocean County Health Department
- New Jersey Department of Environmental Protection
- Local Bike Clubs
- Alternative Transportation Providers
- Environmental Justice Organizations

LOCAL DESTINATION AND KEY LINKAGES

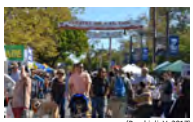
22

1. Find the local maps pertaining to your expertise
2. Identify and mark desired destinations for bicyclists and pedestrian
3. Identify and mark important linkages or facilities between destinations, residences, and the BBT

OPPORTUNITIES FOR PUBLIC OUTREACH

23

Twitter Inc.



(Pecchioli, V. 2017)

AMERICAN HIKING SOCIETY'S NATIONAL TRAILS DAY®

Ocean County Parks & Recreation

COMMUNITY INVOLVEMENT ACTION PLAN

COMMUNITY INVOLVEMENT ACTION PLAN

25

FUTURE OUTREACH ACTIVITIES:

- TAC Meetings (August, November, and March)
- Focus Group Sessions/Interviews (June)
- Public Outreach Survey (June)
- Preference Survey (July)
- Public Meetings (July)
- Municipal Officials and Stakeholders Meetings (November)

ONGOING:

- Website Updates
- Public Comments
- Videos and Media
- Community Events

Elm Street, Beachwood

NEXT STEPS

QUESTIONS?

Contact:
Vicki Pecchioli
Project Manager
Vpecchioli@co.ocean.nj.us
(732) 929-2054

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

Michael Baker INTERNATIONAL

We Make a Difference

OCEAN COUNTY
BICYCLE AND PEDESTRIAN LINKAGES
FROM THE BARNEGAT BRANCH TRAIL, NORTHERN SECTION

Technical Advisory Committee Meeting #2
Thursday, November 1, 2018, 10:00 AM to 12:00 PM
Ocean County Engineering Department
3rd Floor, Engineering Conference Room
129 Hooper Ave, Toms River

MEETING SUMMARY

I. Welcome and Introductions

Steven Wong of Michael Baker welcomed the committee to the meeting and led introductions. Committee members were provided an overview of the meeting agenda. The sign in sheet is attached.

II. Update on the Study (MBI)

a. Brief background of the project

Michael Baker provided a brief background of the project as some members in the room were not present for the first TAC meeting.

III. Presentation (MBI)

A powerpoint was presented to the TAC to visually provide updates on progress.

a. Feedback and Findings from TAC Meeting #1

Michael Baker explained how the first meeting provided the purpose of the study and how it fits within the goals of Ocean County and the NJTPA Subregional Studies Program. The first meeting allowed the project team to determine outreach strategies such as public events that would soon be held in the vicinity of the BBT and social media platforms that can be used to promote the study. Michael Baker also explained how TAC meeting #3 will present recommended routes and linkages, as well as an implementation matrix to be prioritized by the committee.

b. Environmental Justice

An update on the Environmental Justice analysis was provided. Michael Baker mentioned that Heyer, Gruel & Associates, who could not attend the TAC meeting, prepared several maps to identify geographic concerns of traditionally underserved populations. The goal is to gain full and fair participation of these identified communities. Michael Baker added that these populations may not have access to personal vehicles and that transit, riding a bike or commuting on foot may be primary modes of transportation.

c. Existing Conditions Analysis

An update on the Existing Conditions Analysis was provided and it was mentioned that everything is complete except for the Bicycle Compatibility Map. Michael Baker discussed the local and regional destinations map which contains points of interest away from the BBT. The formulation of the Bicycle Compatibility Map was explained by covering the criteria that generated the map, including roadway features such as roadway width, shoulder presence,

shoulder width, speed limit and Average Annual Daily Traffic. Michael Baker mentioned that this map is under review.

The crash analysis was reviewed, highlighting the pedestrian/bicycle crash clusters in Toms River and Beachwood. Michael Baker mentioned that the crash analysis is intended to identify streets and intersections of concern for bicycle and pedestrian safety and where safety countermeasures could apply. The Park & Ride survey results were reviewed, highlighting the modes of transportation respondents use to arrive at the Park & Ride, where people are traveling, the purpose of their trip, and the average time it takes to arrive at the Park & Ride.

d. Public Outreach and Stakeholder Feedback

The public outreach survey was reviewed, highlighting the responses that were chosen by the majority of respondents. Preferred improvements mentioned from respondents were also discussed, as well as comments and observations mentioned at the Public Meeting. Michael Baker also discussed an overview of the stakeholder meeting and highlighted general comments and concerns mentioned to the project team during the meeting.

e. Facility Recommendations-Breakout Activity

At the conclusion of the powerpoint presentation, Michael Baker went over common bike facilities that could be applied to existing roads before going into the breakout activity. The breakout activity allowed TAC members to place stickers with images of preferred bike facilities onto roads on a map of the project area, indicating existing roads that would be appropriate for sharrows, bike lanes, buffered bike lanes, or an off-street shared use path. This activity lasted approximately 20 minutes.

IV. Next Steps (MBI)

a. Select Best Routes and Facilities

At the conclusion of the breakout activity, Michael Baker explained to the TAC that based on this activity, data collection efforts, and input received during public outreach, the best and most appropriate routes and facility types will begin to be selected. Michael Baker also mentioned the project video script for the BBT project video is under review and once approved, Civic Eye Collaborative will begin filming and editing.

b. Project Film

Michael Baker mentioned that the project video script for the BBT project video is under review and once approved, Civic Eye Collaborative will begin filming and editing.

NJTPA

Michael Baker INTERNATIONAL

PV2

OCEAN COUNTY BICYCLE AND PEDESTRIAN LINKAGES FROM THE BARNEGAT BRANCH TRAIL, NORTHERN SECTION

Technical Advisory Committee Meeting #2

November 1st 2018

WELCOME AND INTRODUCTIONS

OVERVIEW

- Meeting #1 Feedback and Findings
- Environmental Justice Analysis
- Existing Conditions Analysis
- Public Outreach and Stakeholder Feedback
- Technical Advisory Committee Facility Recommendations PV3 LA1
- Next Steps

MEETING #1 FEEDBACK AND FINDINGS

PV23

MEETING #1 FEEDBACK AND FINDINGS

- Review of the Community Outreach Action Plan
- Stakeholders and contacts for focus groups
- Local destinations
- Routes to be considered in the existing conditions inventory

GL1

TECHNICAL ADVISORY COMMITTEE ROLE

TAC Meeting #2	TAC Meeting #3	TAC Meeting #4
Feedback, Analysis Results, and Potential Improvements		

R1 PV31

TECHNICAL ADVISORY COMMITTEE ROLE

TAC Meeting #2

Feedback, Analysis Results, and Potential Improvements

TAC Meeting #3

Present Recommendations, Prioritize Potential Treatments, Discuss Final Report Outline.

TAC Meeting #4

TECHNICAL ADVISORY COMMITTEE ROLE

TAC Meeting #2

Feedback, Analysis Results, and Potential Improvements

TAC Meeting #3

Present Recommendations, Prioritize Potential Treatments, Discuss Final Report Outline.

TAC Meeting #4

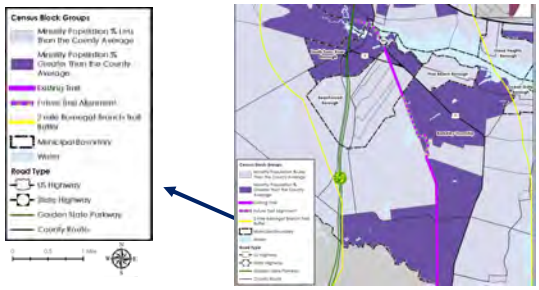
Present Final Draft Report, Discuss Any Necessary Changes

ENVIRONMENTAL JUSTICE ANALYSIS

GL4 DV24 DV25 DS2

ENVIRONMENTAL JUSTICE POPULATIONS

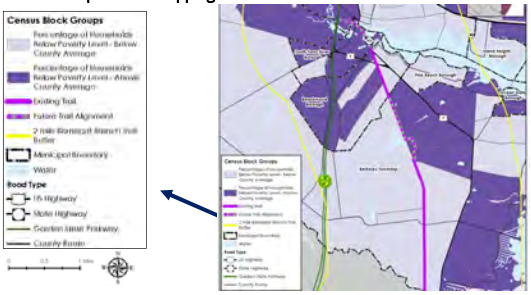
Minority Populations Mapping



GL5

ENVIRONMENTAL JUSTICE POPULATIONS

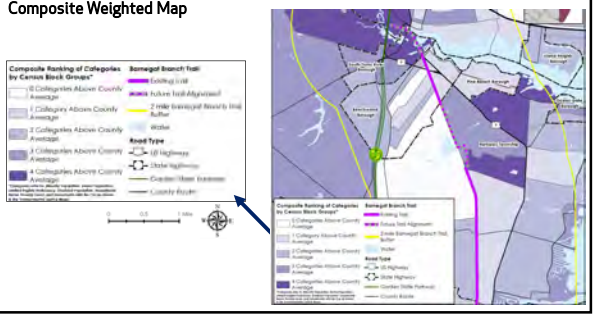
Impoverished Populations Mapping



GL5

ENVIRONMENTAL JUSTICE POPULATIONS

Composite Weighted Map



EXISTING CONDITIONS ANALYSIS

PV26 DS43 **Local and Regional Destinations** 14

- Recreation and Leisure
- Community facilities
- Gathering spaces
- Schools
- Municipal Government facilities PV19

B4 PV5 **Bicycle Compatibility – Map Under Review** 15

B12 PV4

GL8 **Bicycle and Pedestrian Crash Analysis** 16

High Crash Areas PV20

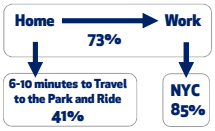
- US Route 9
- NJ 37
- Route 549
- NJ 166
- Route 527

GL8 **Bicycle and Pedestrian Crash Analysis** 17

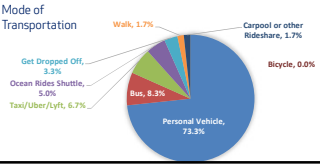
High Crash Areas PV20

- US Route 9
- NJ 37
- Route 549
- NJ 166
- Route 527

PV27 **Toms River Park & Ride** 18



Mode of Transportation



PUBLIC OUTREACH AND STAKEHOLDER FEEDBACK

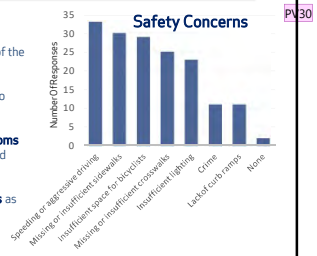
GL9

PUBLIC OUTREACH SURVEY

Highlights

- **80%** of respondents have used an existing section of the Barnegat Branch Trail
- **59%** of respondents claim there are **zero barriers** to walking and biking in the area
- Respondents mentioned **Beachwood, Downtown Toms River, and Bayville** as accessible for pedestrians and bicyclists.
- The majority of respondents chose **off-street paths** as their preferred pedestrian and bicycle facility.

PV29 PV7 PV30



GL10 PV8

PUBLIC OUTREACH SURVEY

Preferred Improvements

GL11

Public Meeting #1

Comments and Observations

B7

- Uncomfortable and unsafe intersections in the area
- Current routes are high-stress for less experienced bikers
- Recommendations of specific linkages

GL12 PV10

Stakeholder Meeting – October 16, 2018

General Comments and Concerns:

- Future trail alignment in Toms River already used for commuting.
- Connection to Park & Ride is crucial.

- Downtown Toms River does not have bike lanes, lacks bike parking
- No wayfinding signage indicating distance to BBT and how to access

- Need bike lanes leading from neighborhoods to trail

GL15

Stakeholder Meeting – October 16, 2018

General Comments and Concerns (continued):

B10

- Make the trail a two-way destination: Bring people to the trail and to places away from the trail.
  - Create signage, maps, distance markers and advertisements for restaurants, commercial uses and natural features.
- Speak to running and cycling clubs

- Seek better access from trail to Berkeley Branch of the Ocean County Library.
- Improved connections would be beneficial to tourists, frequent trail riders, commuters, seniors and people with disabilities.

PV14 PV13 B11

TECHNICAL ADVISORY COMMITTEE FACILITY RECOMMENDATIONS

Bicycle Facilities

"Sharrow" | Bike Lane | Buffered Bike Lane | Shared Use Path

1. List specific improvements or facility types to utilize
2. Identify linkages to create or improve
3. Identify routes to avoid

NEXT STEPS

QUESTIONS?

OCEAN COUNTY
BICYCLE AND PEDESTRIAN LINKAGES
FROM THE BARNEGAT BRANCH TRAIL, NORTHERN SECTION

Technical Advisory Committee Meeting #3
Thursday, February 14, 2019, 10:00 AM to 12:00 PM
Ocean County Engineering Department
3rd Floor, Engineering Conference Room
129 Hooper Ave, Toms River

MEETING SUMMARY

I. Welcome and Introductions
Amy Wong of Michael Baker welcomed the committee to the meeting and led introductions. Committee members were provided an overview of the meeting agenda. The sign in sheet is attached.

II. Update on the Study (MBI)
a. Brief background of the project
Michael Baker provided a brief background of the project as some members in the room were not present for the second Technical Advisory Committee (TAC) meeting.

III. Presentation (MBI)
A powerpoint was presented to the TAC to visually provide updates on progress.

a. Feedback and Findings from TAC Meeting #2
A review of TAC Meeting #1 was presented. Topics discussed included feedback from the first meeting, the findings of the existing conditions report, the findings of the Environmental Justice analysis, and the facilities recommendation activity. The input from members of the TAC provided during the second meeting were the starting point for the set of recommendations to be presented during TAC Meeting #3.

b. BBT Video
Michael Baker showed a three-minute-long video produced by Civic Eye Collaborative on the Barnegat Branch Trail. The video's primary purpose is to educate the public; providing viewers with a history of the Barnegat Branch Trail as well as an overview of the study and its goals.

c. Proposed Recommendations
Michael Baker gave an overview of the preliminary recommendations developed. Recommendations include 5' bicycle lanes, shared use paths, paved shoulder with bicycle route signage, and bicycle route signage. To demonstrate what each recommendation would look like Michael Baker produced a set of cross-sections showing a generic version of the four potential facility improvements. In addition to these recommendations, Michael Baker discussed Sharrows as a potential improvement that could be implemented by municipalities on roads within their jurisdiction. Sharrows were not included in the set of proposed improvements due to concerns about cost expressed by the County. Michael Baker also presented a draft of the Recommended Improvements Map. The Recommended Improvements Map serves as a visual overview of the proposed improvements, destinations, and linkages to the Barnegat Branch Trail.

d. Prioritize Potential Treatments

A draft of the Implementation Matrix was presented and discussed. The Implementation Matrix is a tabular summary of each of the recommended improvements. The Matrix includes information on the timeframe, cost, and priority of each of the potential treatments. The prioritization of each improvement is an ongoing process that will come into focus as the project team continues to communicate with the project's stakeholders. The Matrix will provide municipalities a guide for possible prioritization of improvements.

e. Final Report Outline

The outline of the final report was discussed. The final report will include the deliverables produced for the project in addition to the Implementation Plan for the recommendations. Specific feedback on the outline of the final report was not provided.

IV. Next Steps (MBI)

a. Finalize Recommended Improvements Map

Michael Baker will continue to update the Recommended Improvements Map as feedback from municipalities, NJDOT, and other stakeholders is received. Additionally, the improvements map will reflect Right of Way information collected by Heyer, Gruel and Associates.

b. Second BBT Video

Civic Eye Collaborative will begin work on the second BBT film once the recommended improvements are finalized. The second film will focus on the findings of the study.

c. Finalize Implementation Matrix

The Implementation Matrix will be finalized once the Recommended Improvements Map is complete. Comments from the stakeholders on the priority of each treatment will be incorporated into the matrix.

d. Draft Final Report

A draft of the final report will be produced and distributed for review two weeks prior to TAC Meeting #4.

OCEAN COUNTY BICYCLE AND PEDESTRIAN LINKAGES FROM THE BARNEGAT BRANCH TRAIL, NORTHERN SECTION

Technical Advisory Committee Meeting #3

February 14, 2019

WELCOME AND INTRODUCTIONS

OVERVIEW

- Meeting #2 Feedback and Findings
- Present Proposed Recommendations
- Prioritize Potential Treatments
- BBT Video
- Final Report Outline Discussion

MEETING #2 FEEDBACK AND FINDINGS

MEETING #2 FEEDBACK AND FINDINGS

- TAC #1 Feedback
- Environmental Justice
- Existing Conditions Analysis
- Facility Recommendations Activity
- Routes of Interest for Potential Treatments

VIDEO VIEWING

The Barnegat Branch Trail

NJTPA

OCEAN COUNTY NEW JERSEY

TECHNICAL ADVISORY COMMITTEE ROLE

8

TAC Meeting #3

Present Recommendations, Prioritize Potential Treatments, Discuss Final Report Outline.

TAC Meeting #4

TECHNICAL ADVISORY COMMITTEE ROLE

9

TAC Meeting #3

Present Recommendations, Prioritize Potential Treatments, Discuss Final Report Outline.

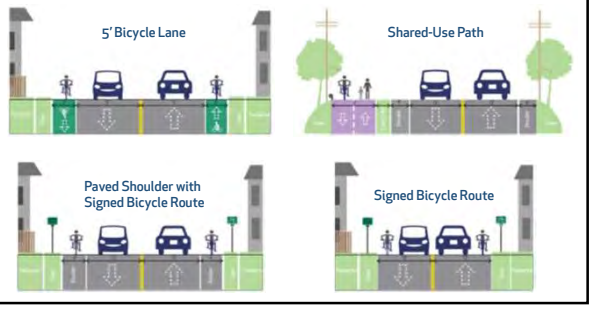
TAC Meeting #4

Present Final Draft Report, Discuss Any Necessary Changes

PROPOSED RECOMMENDATIONS

Proposed Recommendations

11



Proposed Recommendations

12

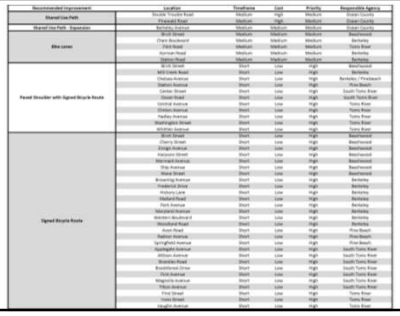
Proposed Recommendations

13

PRIORITIZING POTENTIAL IMPROVEMENTS

Prioritizing Potential Improvements

15



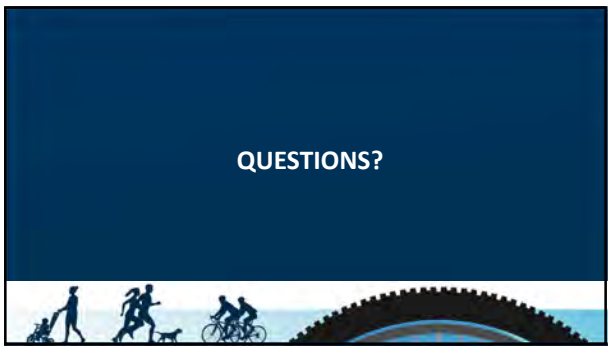
FINAL REPORT OUTLINE DISCUSSION

Final Report Outline Discussion

17

- Existing Conditions
  - Environmental Justice
  - Bicycle Compatibility
  - Land Ownership
- Public Outreach
  - Survey Results
  - Public Meetings
- Recommendations
  - Implementation Matrix
  - Implementation Plan
- Next Steps

NEXT STEPS


QUESTIONS?


NJTPA
Michael Baker
INTERNATIONAL
Vicki Pecchioli
Project Manager
VPecchioli@co.ocean.nj.us
(732) 929-2054

OCEAN COUNTY
BICYCLE AND PEDESTRIAN LINKAGES
FROM THE BARNEGAT BRANCH TRAIL, NORTHERN SECTION

TAC CALL LOG

After the third Technical Advisory Committee Meeting, the project team reached out to all members through email in order to solicit any further comments on the recommendations being proposed. In addition to the email, each municipality was contacted via phone. When a representative was reached, the improvements within their municipality were reviewed and questions/comments and concerns were discussed. Below is a brief overview of the main points that came from these calls as well as the names and affiliation of all individuals contacted.

I. **Previously Reached**
   a. **Nick Zorojew –** Representative of the Tom's River Business Improvement District (BID). Is happy with the recommendations he sees within the Tom's River boundary and would be willing to lobby for "sharrows" in the future. Was happy to see recommendations for Dutch intersections and would be willing to assist with funding involving implementation of bicycle parking/signage within the BID.
   b. **Mike Viscardi –** Representative from NJTRANSIT. Mr. Viscardi's biggest area of concern was connectivity to the park & ride located in Tom's River. Additionally, he would like for the area to consider a bike share program in the future.
   c. **Geoffrey Lohmeyer –** Representative from Ocean County Parks. Mr.Lohmeyer felt that he had voiced his concerns at the TAC meeting but reiterated that his biggest concern is the surfaces of the shared-use paths that would be installed.
   d. **Jamie Zimmerman –** Representative from RV Engineering (Berkeley Township). Had no comments on the recommended improvements, was content with the improvements presented.
   e. **David Fitzgerald –** Representative from Ocean County Dept. of Transportation. Had no comments on the recommended improvements, was content with the improvements presented.

II. **Thursday, February 28th**
   a. Toms River Township
      i. Message Left with receptionist for:
         1. Donald Guardian – the receptionist recommended reaching out to him over email only, Mr. Guardian is much more responsive that way.
         2. Dave Roberts
         3. Erika Stahl
      ii. Unable to Contact
         1. Robert Chankalian
   b. Pine Beach Borough
      i. Barry Wieck – the receptionist stated that Mr. Wieck is only available over email.
   c. Beachwood Police Department
      i. Message left for:
         1. Robert Tapp
         2. Sgt. Frank Melillo

OCEAN COUNTY
BICYCLE AND PEDESTRIAN LINKAGES
FROM THE BARNEGAT BRANCH TRAIL, NORTHERN SECTION

III. Friday, March 1st

a. Received comments from the following via email:
   - **i.** David McKieh
   - **ii.** Mike Viscardi

b. Called the following individuals for a second time and left messages on voicemails or with administrative assistants:
   - **i.** Dave Roberts
   - **ii.** Erika Stahl
   - **iii.** Robert Tapp
   - **iv.** Sgt. Frank Melillo

IV. Monday, March 4th

a. Called the following:

b. **Dave Roberts –** Representative from Tom's River Township. Had no comments on the recommended improvements at the time. Mr. Roberts stated if he had further comments he would respond to the original email that was sent from Amy Wong. **Email was received from Mr. Roberts on 3/5.**

c. **Erika Stahl –** Called again and did not receive a response.

OCEAN COUNTY BICYCLE AND PEDESTRIAN LINKAGES FROM THE BARNEGAT BRANCH TRAIL, NORTHERN SECTION

Public Meeting #1

The first meeting will be organized to provide general information regarding the project background and purpose, share elements of the existing conditions analyses, and solicit feedback from the attendees. It will also be an opportunity to record public priorities, frequent destinations, and specific facility concerns in person, recording verbal feedback and providing maps for the public to record location specific comments. An open house setting will be utilized to allow the public to come and go as they please, while engaging in discussions with Project Team Members about different elements of the study based on their familiarity and curiosity.

Table 1

The first table will be used to provide the study background, resources, and a general introduction into the purpose of the study. This booth/table will also be staffed with Ocean County Parks & Recreation employee that is familiar with the trail and can answer questions pertaining specifically to the Barnegat Branch Trail. A large printed map of the trail and phases in which it is being completed will be provided. Project fact sheets and bookmarks with links to the public feedback page of the project website will be provided at this table as well. A large printout of the study area map with local destinations will also be provided here.

Table 2

The second table will be used to share the existing conditions analyses approved by Ocean County and NJTPA. Large printouts of the crash map and survey summary will be provided. We will also share the bicycle compatibility assessment matrix for the roadways within the study area as an example of analyses that will help drive our decision-making from the quantitative approach. This display will help the public formulate ideas for linkages and improvements based on data, highlighting any consistencies or inconsistencies with what they have personally observed or experienced.

Table 3

The third table will be focused on gathering additional public input. A large printed map will be provided for crowdsourcing similar to the online application and feedback was collected in the first TAC meeting. Participants will be able to draw directly on the map to identify other local destinations, as well as opportunities for linkages to the trail and roadways to avoid for bicyclist and pedestrian travel. Comment cards will also be provided, so that we the project team can continue discussion with the attendees and not spend as much time writing down every comment.

Materials:

- **Trail Poster Depicting Completed and Future Phases**
- **Large Print of Study Area Local Destinations Map**
- **Fact Sheets and Bookmarks**
- **Large Prints of Crash Map, Bicycle Compatibility Matrix, and Survey Summary Poster**
- **Large Print of Study Area Map**
- **Comment Cards**

Help Identify Potential Walking and Biking Linkages to the Barnegat Branch Trail

Public Meeting

September 26, 2018, 5:30-8:00PM,
Ocean County Library - Berkeley Township Branch

We want to hear from you! Public feedback on potential trail connections is important to this project.

Ocean County and the North Jersey Transportation Planning Authority are working together to identify potential bicycle and pedestrian connections to and from the proposed Northern Section of the Barnegat Branch Trail, between Berkeley Township and Toms River, with local and regional destinations.

To learn more about the study and what's happening next visit **http://bbtconnections.com/**

Scan me

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

OCEAN COUNTY NEW JERSEY

FOR IMMEDIATE RELEASE kjk# 9/19/2018

PUBLIC INPUT WANTED FOR BARNEGAT BRANCH TRAIL LINKAGES

BERKELEY TOWNSHIP – Ocean County and the North Jersey Transportation Planning Authority are asking the public to help identify potential walking and biking linkages for the next phase of the Barnegat Branch Trail.

A meeting seeking public input is scheduled for 5:30 to 8 p.m., Sept. 26 at the Berkeley Township branch of the Ocean County Library, 30 Station Road, here.

"We are looking for public input on bicycle and pedestrian connections to and from the Northern section of the Barnegat Branch Trail between Berkeley Township and Toms River, with local and regional destinations," said Ocean County Freeholder Virginia E. Haines, who serves as liaison to the Ocean County Planning Department, which is helping to coordinate the surveys. "Community members, especially those who rely on walking or bicycling, offer unique and specific perspectives on the transportation networks that they use every day."

In addition to the public meeting, the community is invited to provide their local knowledge directly on a crowdsourcing map on the study website at https://bbtconnections.com.

This two-year study, conducted by Michael Baker International, will result in a plan that will provide safe and healthy travel alternatives and encourage increased walking and biking, while prompting economic growth in an environmentally friendly way.

"Public feedback on potential trail connections has been important in guiding this study and producing recommendations that are most likely to improve safety and accessibility," said Ocean County Freeholder Director Gerry P. Little. "Connections should accommodate safe, healthy, and efficient means of travel to schools, parks, libraries, historical sites, and other destinations near the trail."

The Barnegat Branch trail follows the existing right of way of the former Barnegat Branch Division of the Central Railroad of New Jersey.

To get the trail under way, in October 2002, the Ocean County Board of Chosen Freeholders purchased 8.8 miles of the old railroad property in three towns – Berkeley, Ocean and Barnegat townships. This purchase was supplemented in 2004 when Lacey Township granted to Ocean County an easement over its 4.8-mile trail segment. Coupled with the existing bike path in Beachwood and the planned trail along the historic railroad property parallel to Route 166 in South Toms River, the completed trail will span about 16 miles from Barnegat Township to Toms River Township.

"The design of the Barnegat Branch Trail is sensitive to the changing landscape of central Ocean County," has said Ocean County Freeholder Deputy Director John C. Bartlett Jr., who serves as liaison to the trail and the County's Department of Parks and Recreation. "Trail visitors experience wooded areas in Barnegat and Waretown's southern reach before transitioning into an active-use corridor that parallels Route 9 north of Waretown."

Ocean County has completed six phases of the trail, which includes seven contiguous miles from Burr Street in Barnegat Township to Lacey Road in Lacey

Township. In addition, almost 2.8 miles from Dudley Park at the Cedar Creek in Lacey Township to Hickory Lane in Berkeley Township have been completed.

"It was always the County's intent to complete the trail in segments as we received clearance and funding to move ahead," Bartlett has said. "The County has already received four grants for the trail totaling $1,253,000.

"Residential and commercial neighbors border much of the trail through Lacey Township before it returns to forest and then borders an old sand mine in a portion of Berkeley Township," he has said.

The Barnegat Branch Trail will provide a walking and bicycling backbone through Ocean County and opportunities to provide connectivity between the County's communities.

"As the Barnegat Branch Trail continues to grow in popularity with visitors and residents, this study will help make sure that they have input in trail connections," Little said. "We encourage those who have suggestions to attend the public meeting and help us in the study to use the trail to its full potential."

For more information regarding the study and the meeting, visit https://bbtconnections.com/.

Barnegat Branch Trail
Pedestrian and Bicycle Linkages Survey Analysis

Overview

The survey was available **June 2018 – September 2018**. The Project Team advertised the survey at Ocean County Fair and distributed survey flyers to Ocean County Libraries and Points of Interest in the project area. There were **55** survey respondents.

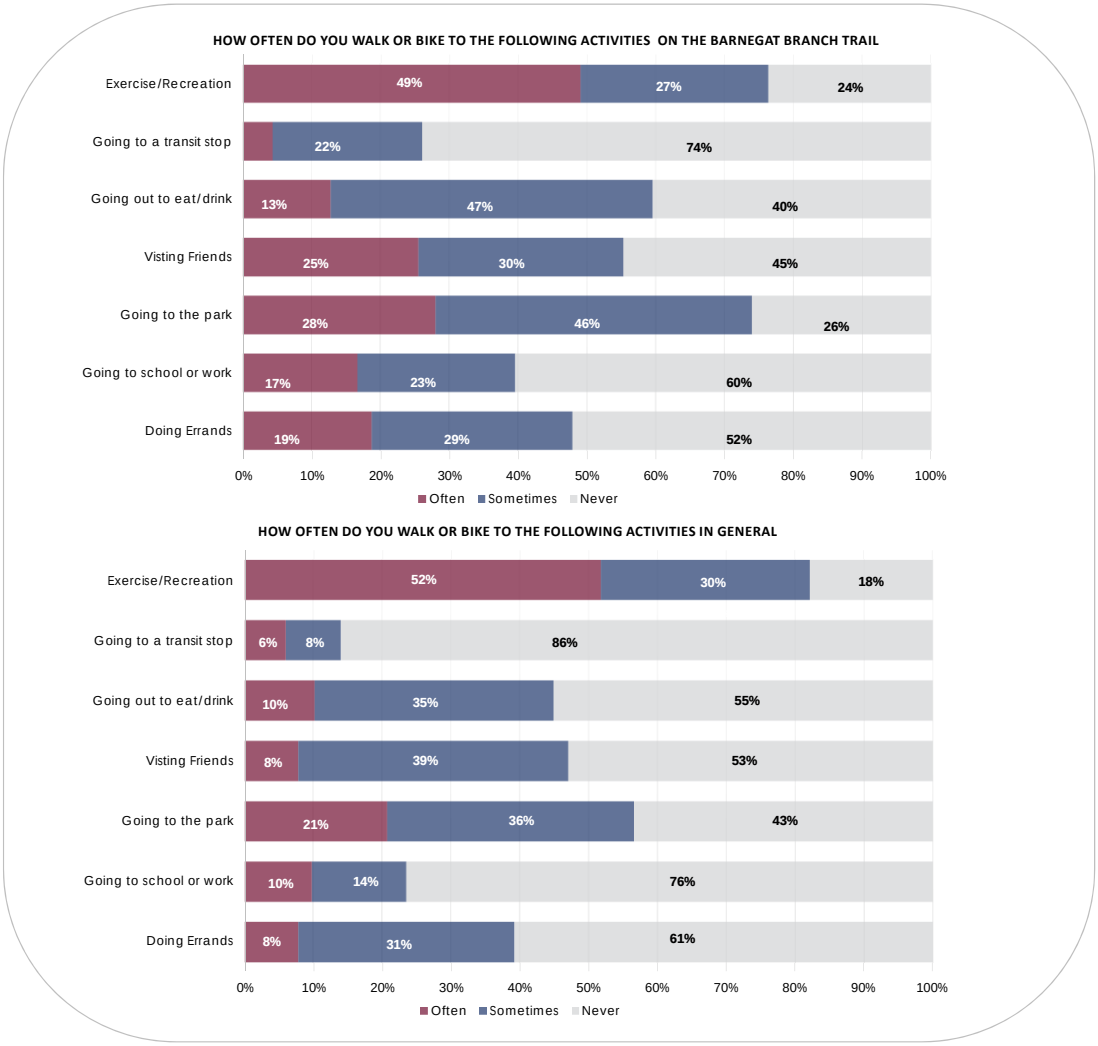
View of Barnegat Branch Trail

Survey Highlights

- **80%** of respondents have used an existing section of the Barnegat Branch Trail.
- **59%** of respondents claim there are **zero barriers** to walking and biking in the area.
- Respondents mentioned **Beachwood, Downtown Toms River, and Bayville** as accessible for pedestrians and bicyclists.
- The majority of respondents chose **off-street paths** as their **preferred** pedestrian and bicycle facility.

Activities in the Project Area

The graphs below compare activities that occur in the project area and activities that occur using the Barnegat Branch Trail.



Barnegat Branch Trail
Pedestrian and Bicycle Linkages Survey Analysis

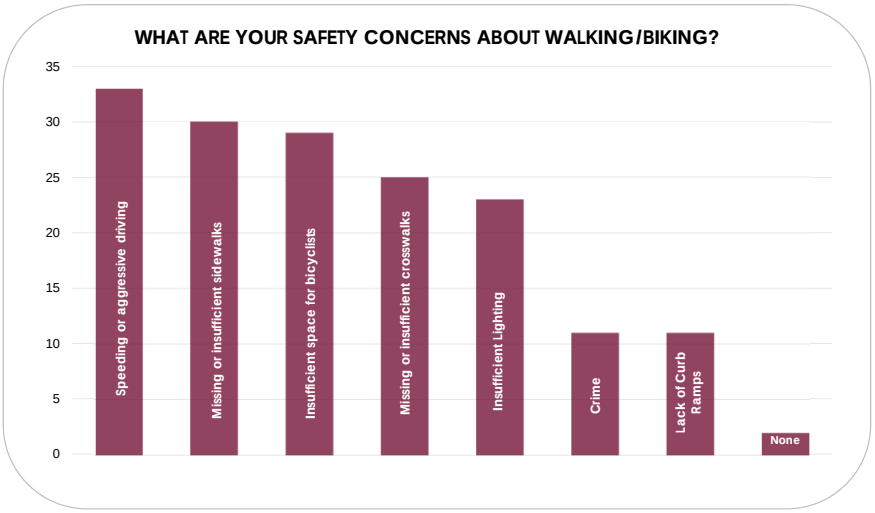
Safety Concerns

The following are safety concerns identified by the survey respondents about walking/biking to and from destinations in the project area:

- **69%** of respondents chose **"speeding or aggressive driving"** as a safety concern
- **63%** of respondents chose **"missing or insufficient sidewalks"** as a safety concern.
- **60%** of respondents chose **"insufficient space for bicyclists"** as a safety concern.
- **52%** of respondents chose **"missing or insufficient crosswalks"** as a safety concern.

The following are streets or paths identified by the survey respondents that they feel unsafe walking or biking on:

- **US Route 9 (8 mentions)**
- **NJ Route 166 (4 mentions)**
- **Water Street in Toms River (3 mentions)**



ROUTE 166 EASTBOUND IN TOMS RIVER

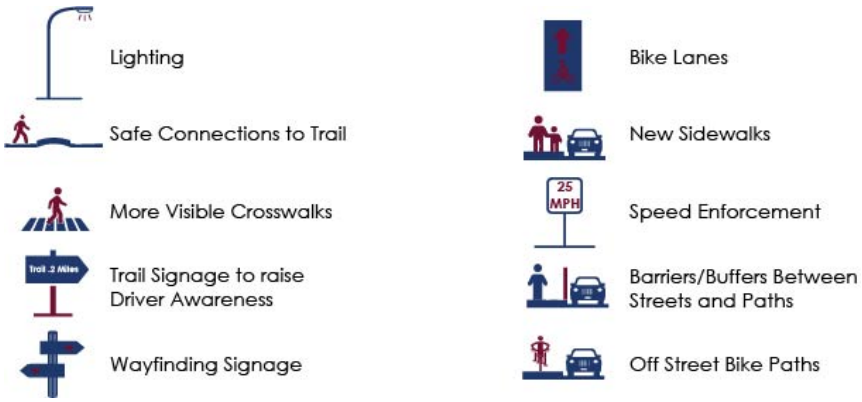
MENTIONED AS AN UNSAFE STREET FOR WALKING OR BIKING

OFF-STREET PATH IN PINE BEACH

MAJORITY OF RESPONDENTS CHOSE OFF-STREET PATHS AS THEIR PREFERRED FACILITY

Improvements

Respondents believe that the following should be improved or implemented for access to and from the Barnegat Branch Trail:



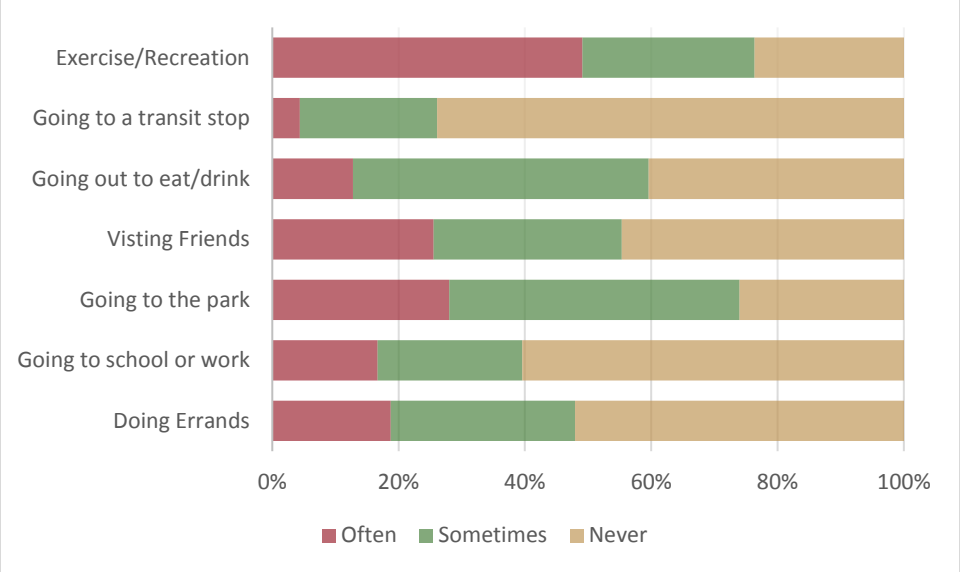
Bicycle and Pedestrian Linkages Community Survey

Michael Baker conducted a survey of individuals that live, work or visit the area around the proposed northern section of the Barnegat Branch Trail. The survey was available online starting in June of 2018 and closed on September 10th, 2018. Members of the project team attended the Ocean County Fair to advertise the survey and distributed flyers to Libraries and other Points of Interest in the Project area to promote the survey. A total of 55 people responded to the survey. Eighty percent of respondents had previously ridden on an existing section of the Barnegat Branch trail while only 15% had not and 5% were unsure of whether they had or not. This shows that individuals are invested in this trail and familiar with the trail.

Summary of Survey Results

Question 1:

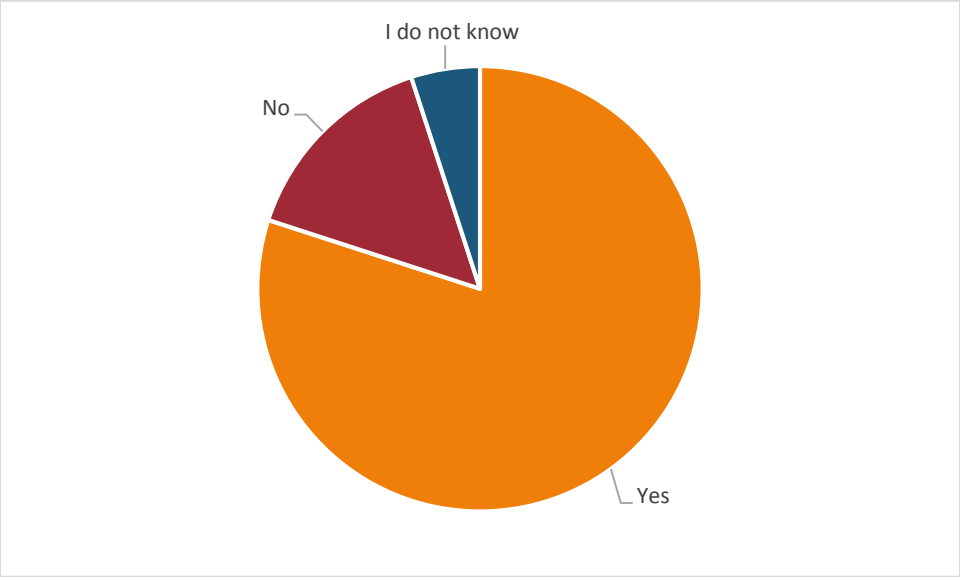
The Study area consists of the neighborhoods and land surrounding the northern section of the proposed trail in Toms River Township, South Toms River Borough, Beachwood Borough, and Berkeley Township. How often do you walk or bike to the following activities in the Project Area displayed on the map?



49% of survey respondents walk or bike often for exercise and recreational purposes. The majority of respondents never walk or bike in the Project area in order to do errands, go to school or work, or to go to a transit stop. These responses show that the majority of respondents use other forms of transportation, aside from walking and biking, to complete their day-to-day activities aside from exercise and recreation.

Question 2:

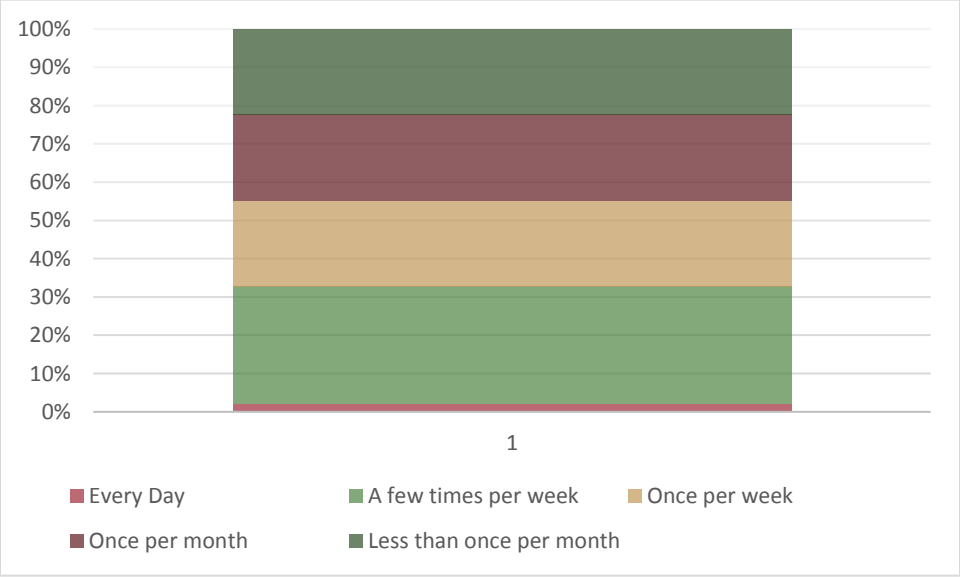
Some sections of the Barnegat Branch Trail already exist. Have you ridden an existing section of the Barnegat Branch Trail?



80% of survey respondents had previously ridden an existing portion of the Barnegat Branch Trail. 15% had not ridden the trail before and an additional 5% were unsure.

Question 3:

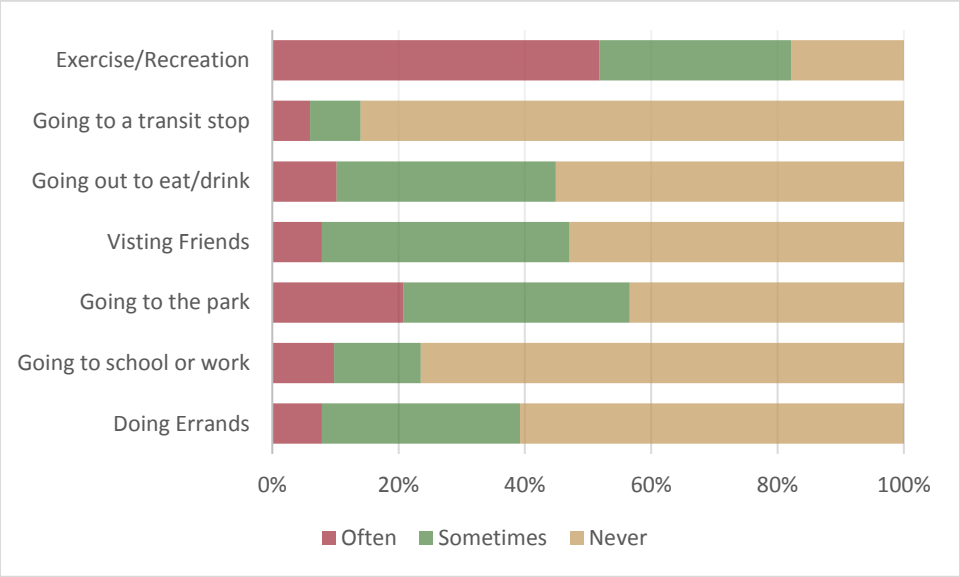
If yes, how often do you walk or bike on an existing section of the Barnegat Branch Trail?



Only one respondent indicated that they use an existing section of the Barnegat Branch Trail daily. 31% of respondents stated that they use existing sections a few times a week, while the remainder of respondents were equally split between using it once per week, once per month and less than once per month.

Question 4:

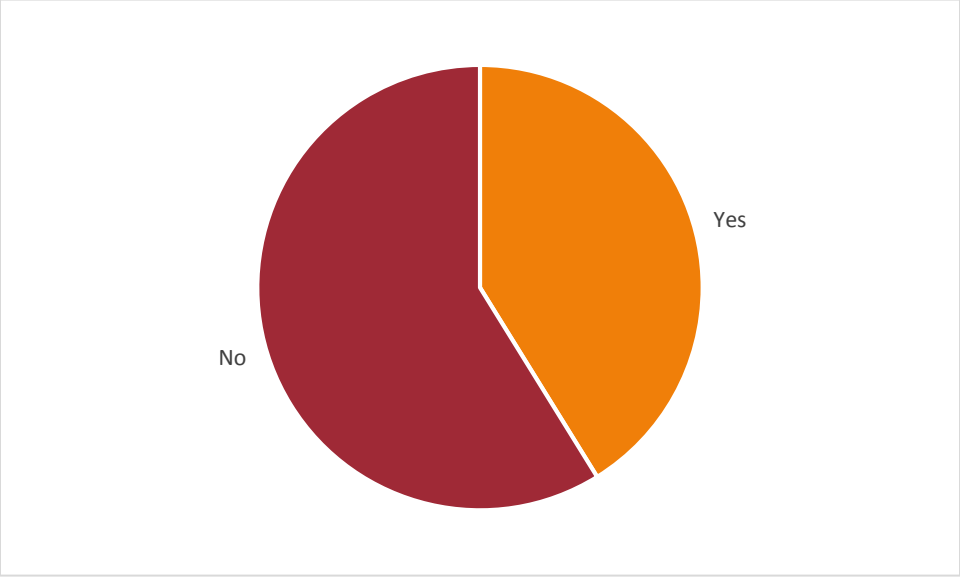
How often do you walk or bike to the following activities using an existing section of the Barnegat Branch Trail?



When respondents use the existing section of the Barnegat Branch Trail the majority use it for exercise and recreational purposes, 52% of people responded that they do this often. The majority of respondents never use the existing section for errands, going to school or work, visiting friends, going out to eat/drink or going to a transit stop. For individuals going to the park, 21% use the trail often, 36% use it sometimes and 43% never use the trail to go to the park.

Question 5:

Are there barriers to people walking/biking in the study area?

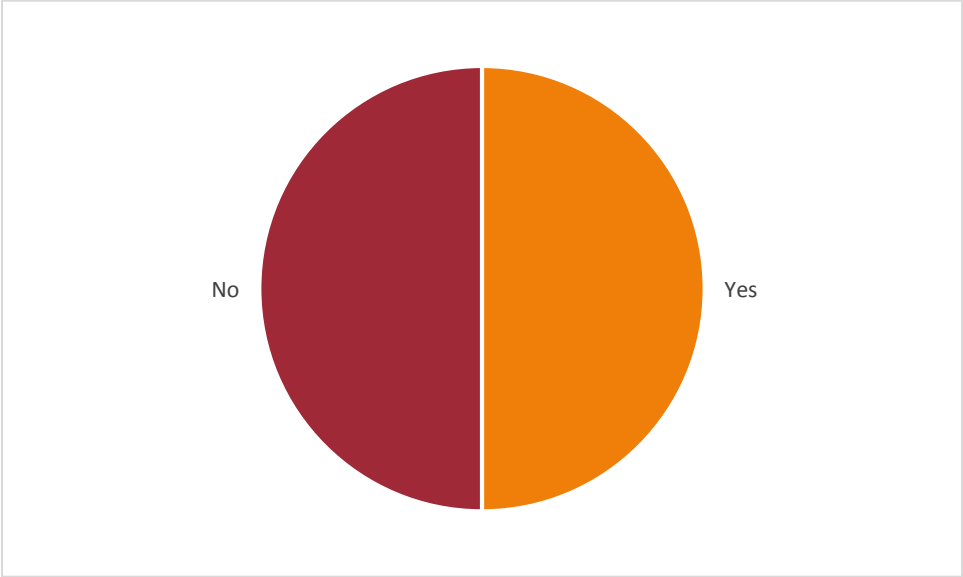


59% of respondents said that there are no barriers to people walking and biking within the study area while 41% of individuals said that there were barriers. When asked why some of the responses included:

- Breaks in the trail
- Traffic and congestion on roadways
- Safety in the surrounding areas
- Missing sidewalks
- Insufficient bike facilities on roads around the trail

Question 6:

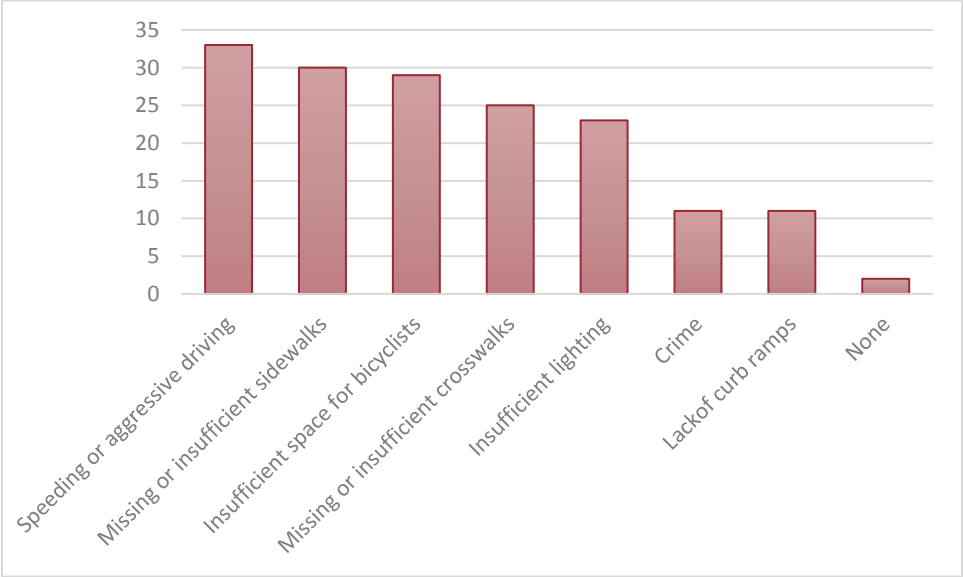
Do you view these neighborhoods as accessible for bicyclists and pedestrians?



50% of individuals answer that neighborhoods are accessible for bicyclists and pedestrians while 50% answered that these neighborhoods were not accessible.

Question 7:

What are your safety concerns about walking/biking to and from destinations in the study area?



The majority of survey respondents believe that the biggest safety concerns when biking and walking around the study area are speeding and aggressive driving, missing or insufficient sidewalks, insufficient space for bicyclists and missing or insufficient crosswalks. While 48% believed that insufficient lighting is a concern, 23% that both crime and lack of curb ramps are concerns and 4% of respondents believed there to be no concerns.

Question 8:

On which streets or paths do you feel unsafe walking or biking?

- Railroad Avenue
- Motor Road
- Flint Road
- Water Street
- **Route 9**
- Bayside Avenue
- Lacey Road
- Hooper Avenue
- **Route 166**
- Admiral Avenue
- Berkeley Avenue
- Barnegat Boulevard

Above are all the streets and paths listed as feeling unsafe for walking and biking. Route 9 and Route 166 received the most mentions in the results with 6 and 4 mentions respectively.

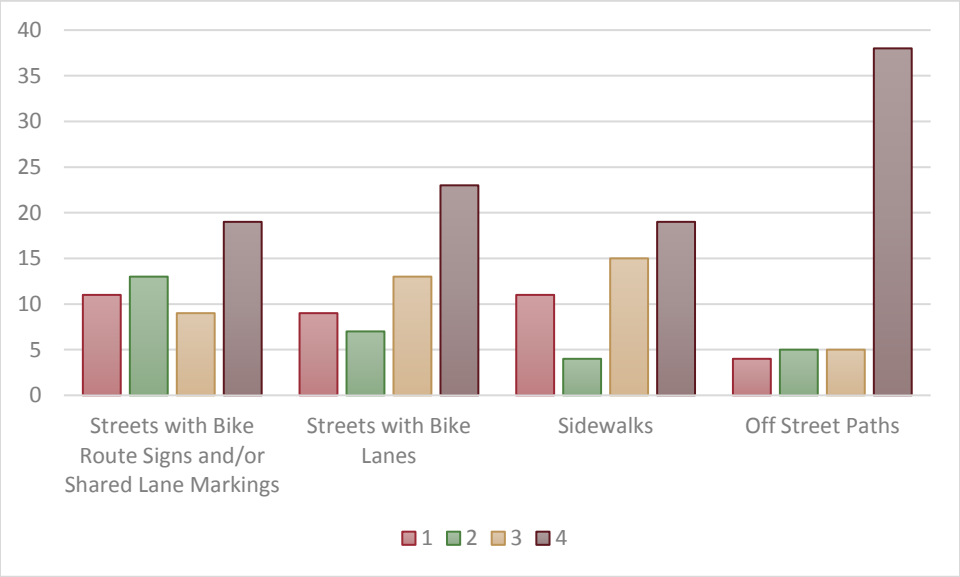
Question 9:

What can be done to improve access for walkers and bicyclists traveling these routes, especially to and from the proposed Barnegat Branch Trail?

- Clearly marked paths
- **Lighting**
- Restroom stations and water fountains along the trail
- A safe connection to route 9
- Addition of sidewalks where missing
- More trash receptacles
- **Bike lanes**
- Speed enforcement
- Blue light phones on the trail
- Barriers to deter Quad riding

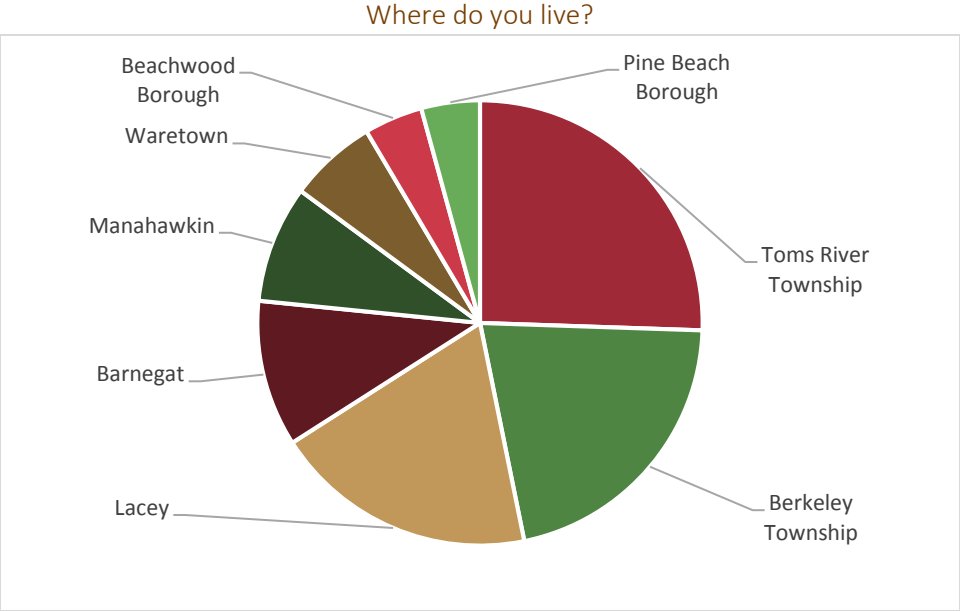
Above is a summary of the responses received to question nine. The most popular responses were increased lighting and bike lanes on roadways connecting to the Barnegat Branch Trail.

Question 10:



When respondents were asked to rank their preference for different types of pedestrian and bicycle facilities the majority of individuals supported off street paths. The second most popular option was streets with bike lanes followed by sidewalks and lastly, streets with bike route signs and/or shared lane markings.

Question 11:

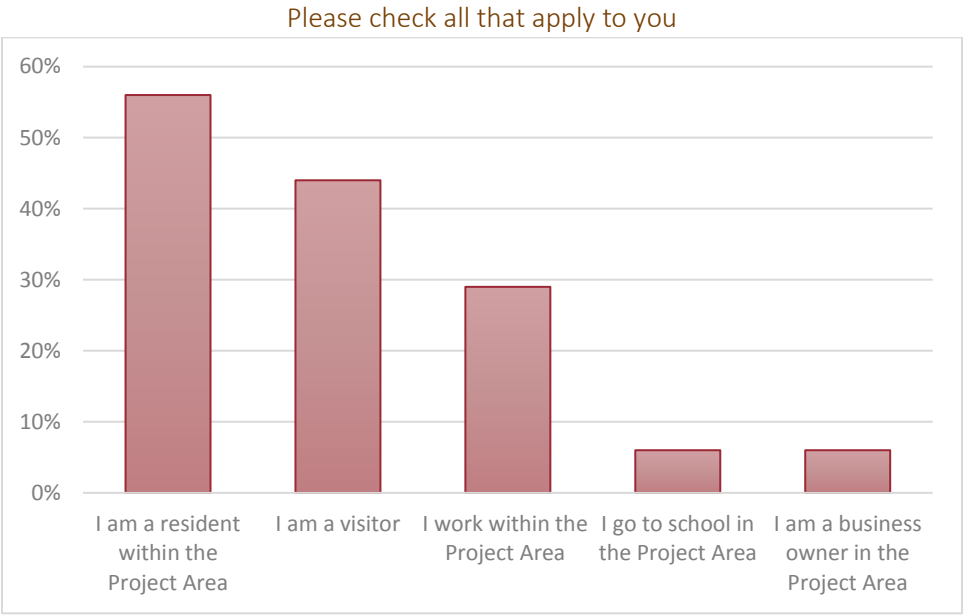


The majority of respondents live in Toms River Township followed by Berkeley Township and Lacey.

The below Municipalities received one response each.

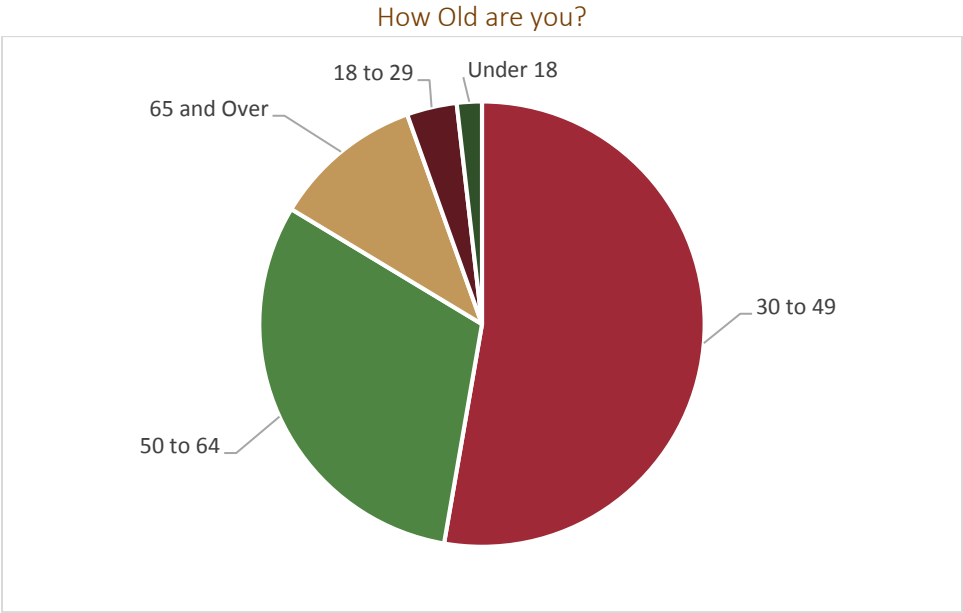
- South Toms River Borough
- Eagleswood Township
- Point Pleasant
- Forked River
- Ocean Gate
- Manchester
- Brick
- Titusville

Question 12:



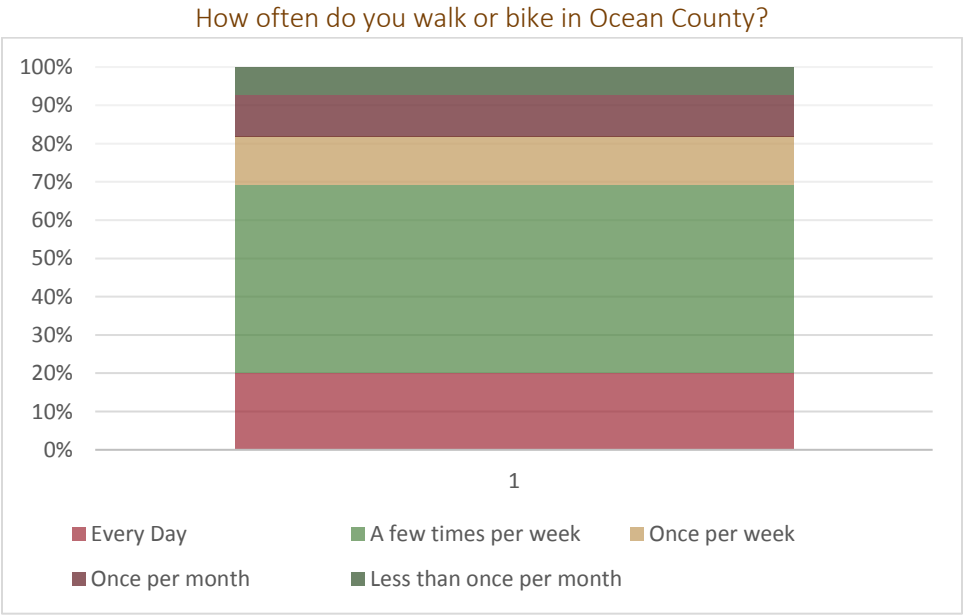
56% of the survey respondent are residents of the Project area and 44% are visitors to the area. Within those respondents 29% work in the project area, 6% go to school in the project area and 6% are business owners.

Question 13:



The majority of respondents (53%) are between the ages of 30 and 49 years old. The second largest respondent group is 50 to 64 years old with 31% followed by 65 and older at 11%. The smallest respondent groups were 18 to 29 years old and under 18 with 4% and 2% respectively.

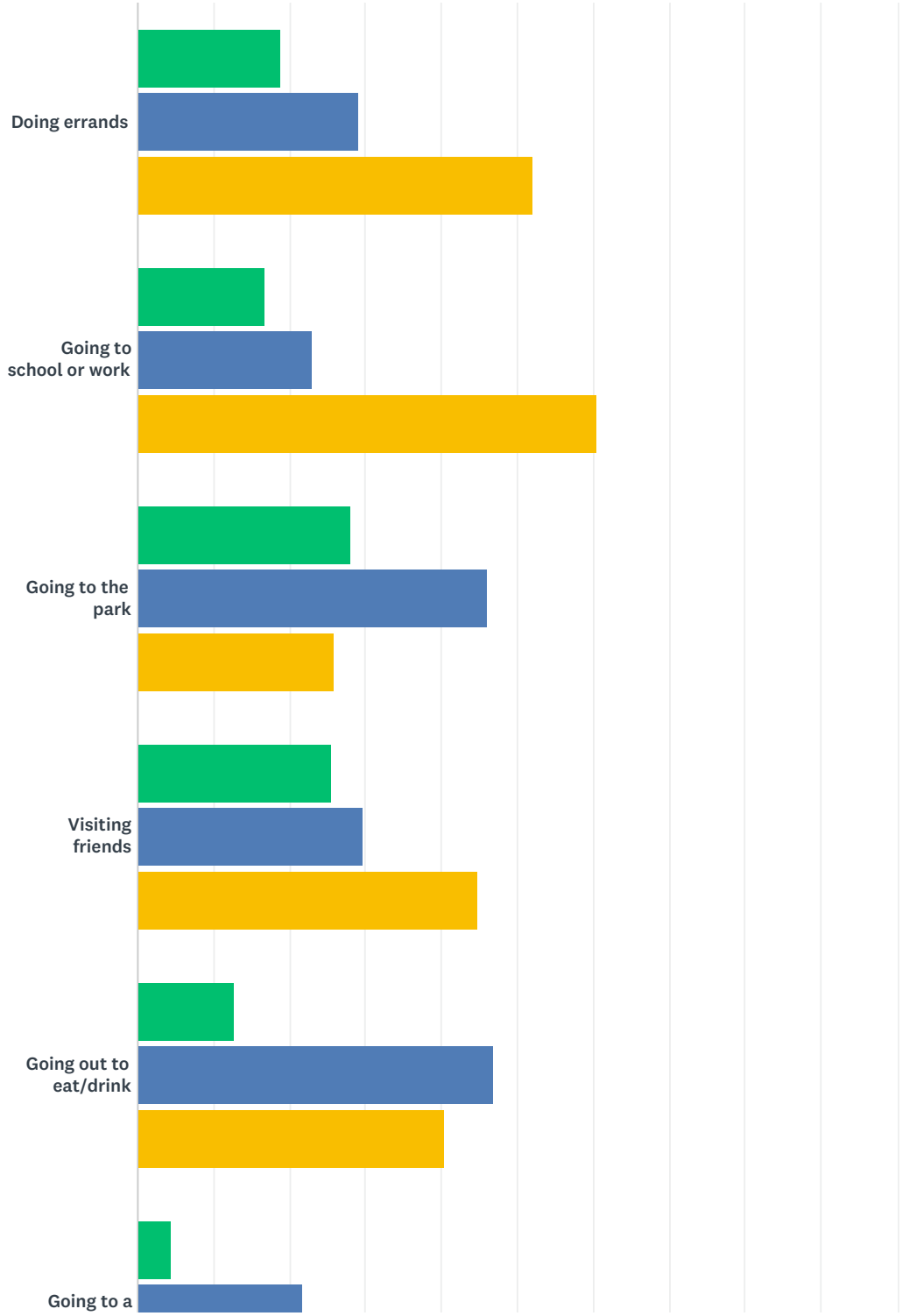
Question 14:

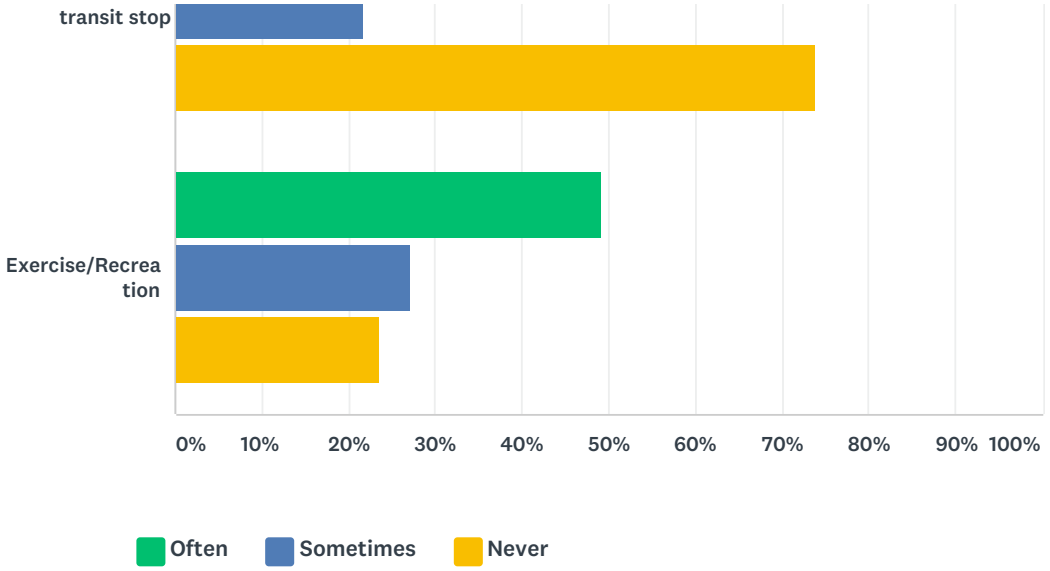


The largest number of respondents (49%) walk or bike in Ocean County a few times per week, this is followed by those who do so every day (20%). About 13% walk or bike once per week, 11% do so one per month and the remaining 7% walk or bike less than once per month.

Q1 The study area consists of the neighborhoods and land surrounding the northern section of the proposed trail in Toms River Township, South Toms River Borough, Beachwood Borough, and Berkeley Township. How often do you walk or bike to the following activities in Project Area displayed on the map?

Answered: 55 Skipped: 3

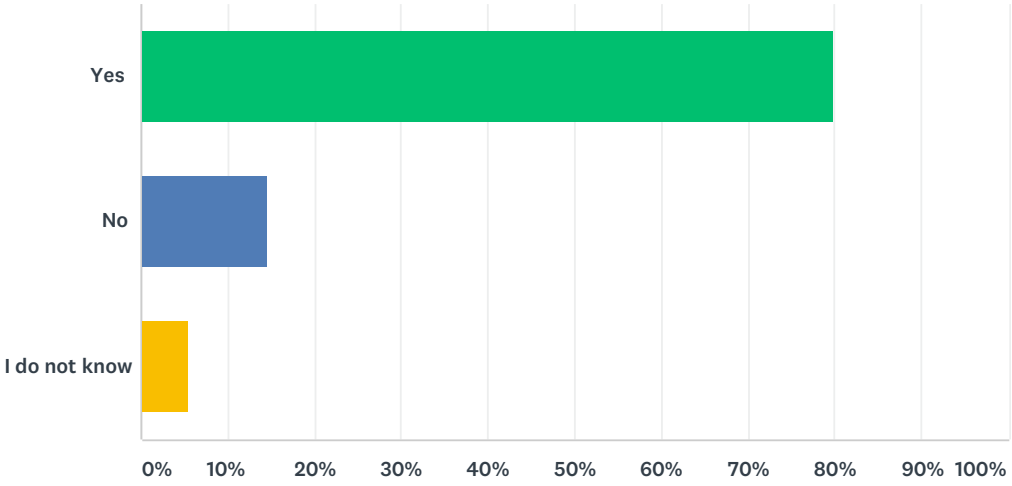




	OFTEN	SOMETIMES	NEVER	TOTAL
Doing errands	18.75% 9	29.17% 14	52.08% 25	48
Going to school or work	16.67% 8	22.92% 11	60.42% 29	48
Going to the park	28.00% 14	46.00% 23	26.00% 13	50
Visiting friends	25.53% 12	29.79% 14	44.68% 21	47
Going out to eat/drink	12.77% 6	46.81% 22	40.43% 19	47
Going to a transit stop	4.35% 2	21.74% 10	73.91% 34	46
Exercise/Recreation	49.09% 27	27.27% 15	23.64% 13	55

Q2 Some sections of the Barnegat Branch Trail already exist. Have you ridden an existing section of the Barnegat Branch Trail?

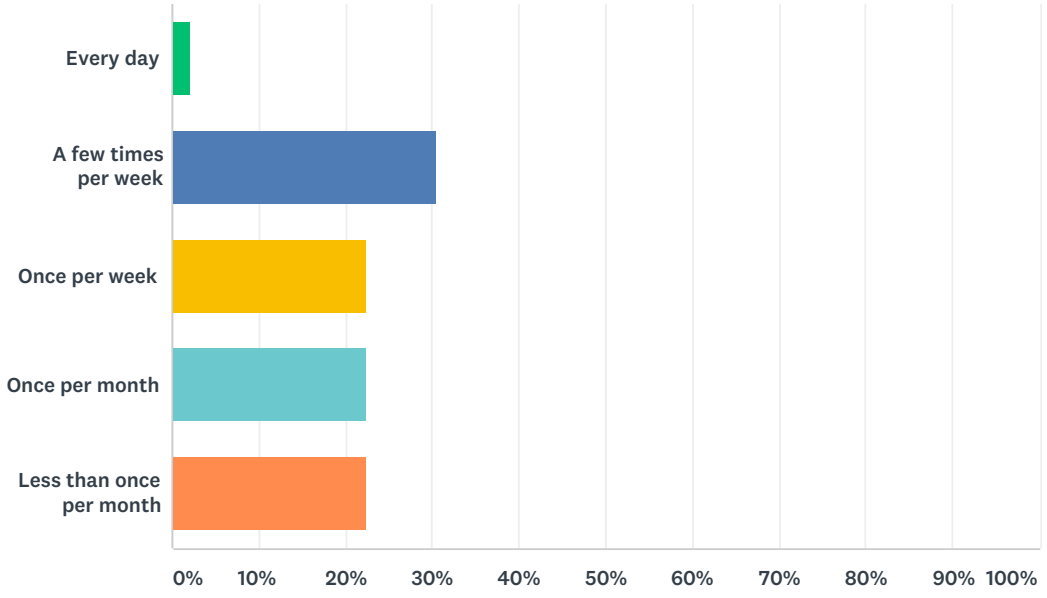
Answered: 55 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	80.00%	44
No	14.55%	8
I do not know	5.45%	3
TOTAL		55

Q3 If yes, how often do you walk or bike on an existing section of the Barnegat Branch Trail?

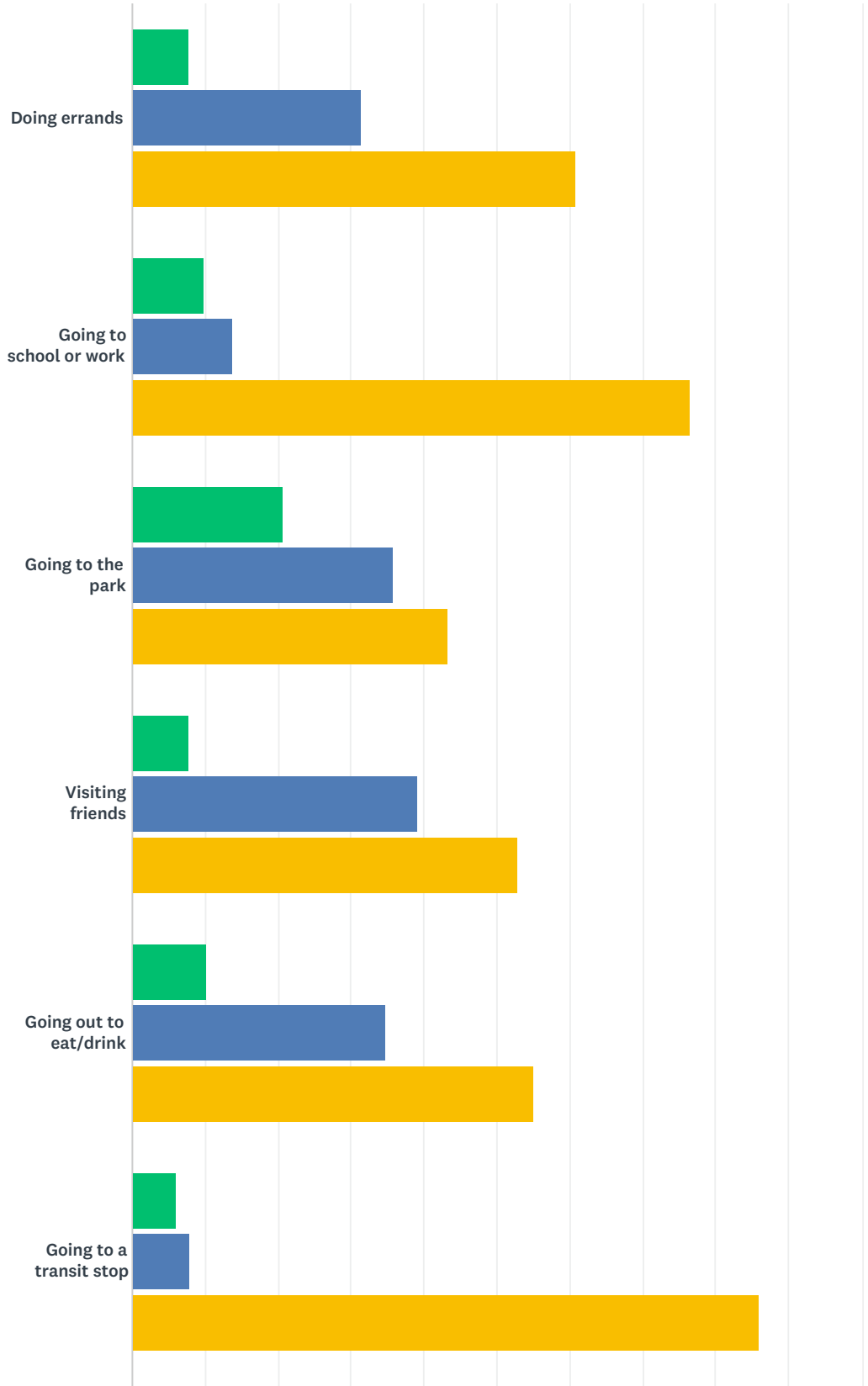
Answered: 49 Skipped: 9

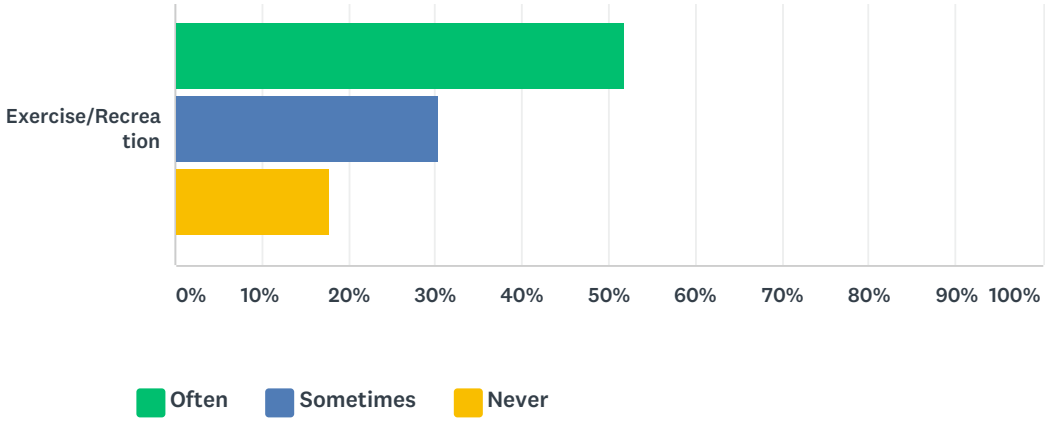


ANSWER CHOICES	RESPONSES	
Every day	2.04%	1
A few times per week	30.61%	15
Once per week	22.45%	11
Once per month	22.45%	11
Less than once per month	22.45%	11
TOTAL		49

Q4 How often do you walk or bike to the following activities using an existing section of the Barnegat Branch Trail?

Answered: 56 Skipped: 2

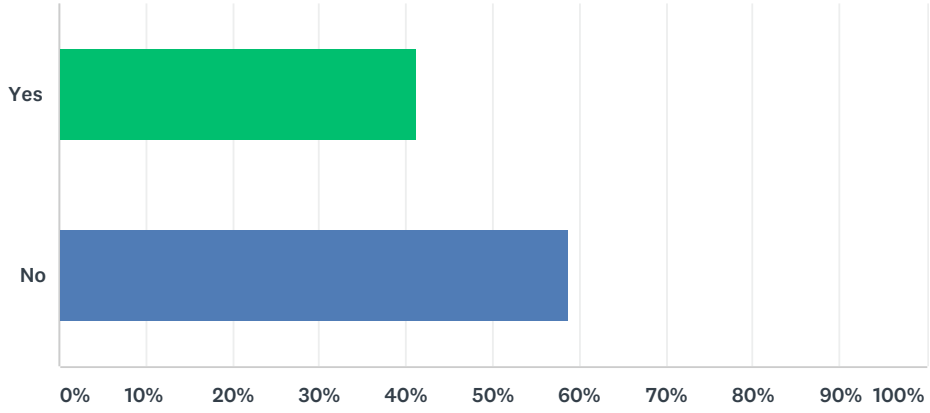




	OFTEN	SOMETIMES	NEVER	TOTAL
Doing errands	7.84% 4	31.37% 16	60.78% 31	51
Going to school or work	9.80% 5	13.73% 7	76.47% 39	51
Going to the park	20.75% 11	35.85% 19	43.40% 23	53
Visiting friends	7.84% 4	39.22% 20	52.94% 27	51
Going out to eat/drink	10.20% 5	34.69% 17	55.10% 27	49
Going to a transit stop	6.00% 3	8.00% 4	86.00% 43	50
Exercise/Recreation	51.79% 29	30.36% 17	17.86% 10	56

Q5 Are there barriers to people walking/biking in the study area?

Answered: 51 Skipped: 7

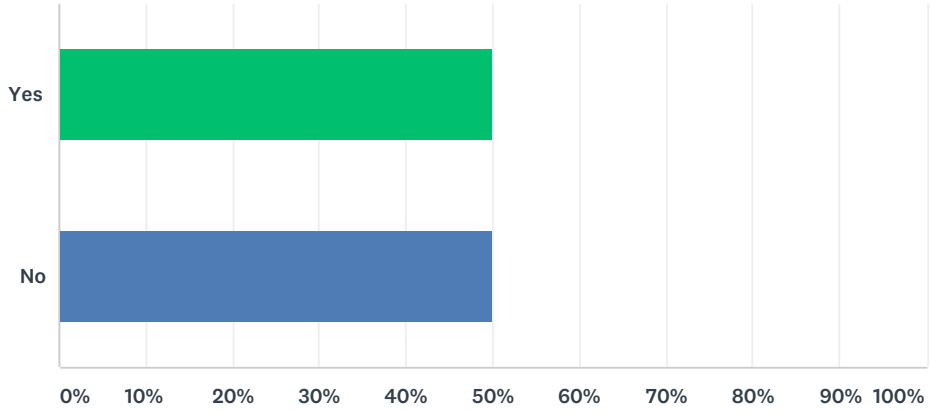


ANSWER CHOICES	RESPONSES	
Yes	41.18%	21
No	58.82%	30
TOTAL		51

#	IF YES, WHERE?	DATE
1	Tressle between Lacey and Bayville	8/17/2018 9:21 AM
2	In Lacey, the trail stops.	8/16/2018 9:51 PM
3	The break in the trail between Bayville and beachwood	8/16/2018 9:28 PM
4	Traffic/congestion on roads	8/16/2018 9:06 PM
5	All of Forked River, N.J.	8/16/2018 8:57 PM
6	the trail isn't complete. It would be great if we could connect all the way to the one in Monmouth	8/16/2018 5:33 PM
7	S. Toms River	8/16/2018 4:39 PM
8	Major highways such as Rt 9, Rt 166, Parkway	8/14/2018 8:50 AM
9	The Cedar Creek Trestle, Undev. Areas	8/13/2018 5:07 PM
10	Downtown TR, STR are terribly unsafe for biking.	7/27/2018 10:15 AM
11	Nothing else connects to the rail trail	7/25/2018 9:12 AM
12	Perceived safety in some of these areas. Accessibility from other areas of the county or towns	7/25/2018 3:46 AM
13	cross over Cedar Creek is missing to connect to Lacey parks.	7/24/2018 8:30 PM
14	Congested roads	7/24/2018 8:08 PM
15	NA	7/15/2018 11:40 AM
16	Missing sidewalks narrow streets	7/14/2018 2:03 PM
17	Insufficient bike facilities on local roads in downtown Toms River.	7/14/2018 12:25 PM
18	Crossing Memorial Dive by Shoprite is dangerous	7/13/2018 2:11 PM
19	37. Walk over kmart. Hooper ave corner bike stops	7/13/2018 12:55 PM

Q6 Do you view these neighborhoods as accessible for bicyclists and pedestrians?

Answered: 50 Skipped: 8

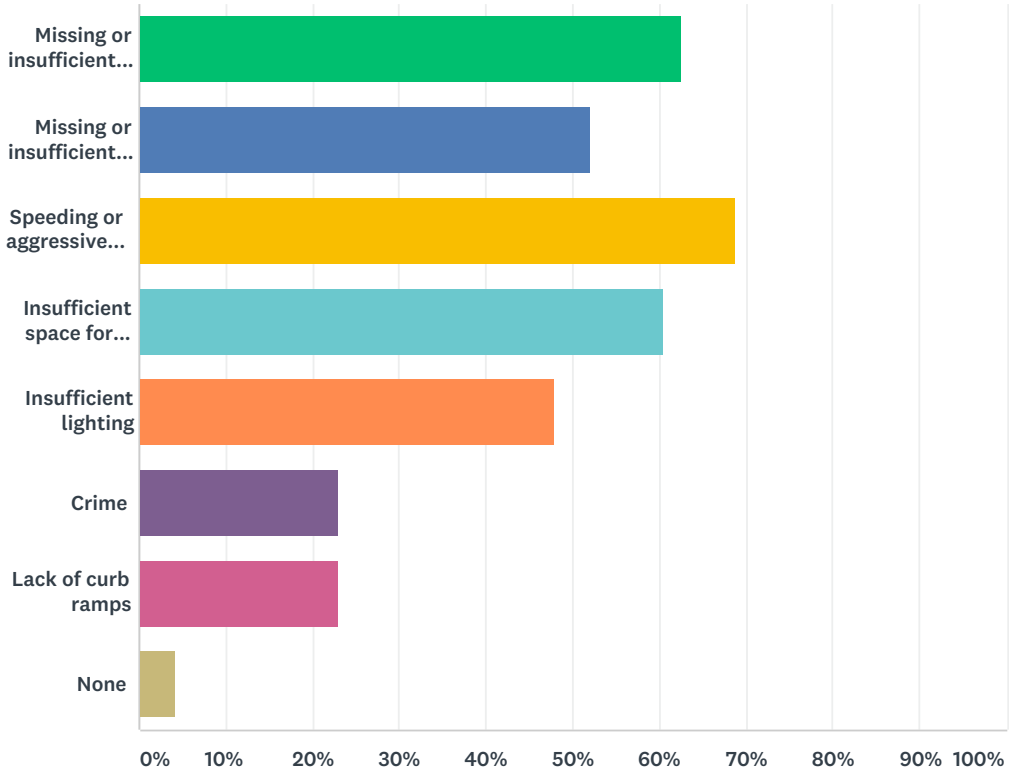


ANSWER CHOICES	RESPONSES	
Yes	50.00%	25
No	50.00%	25
TOTAL		50

#	IF YES, WHERE?	DATE
1	Beachwood area	8/19/2018 3:46 PM
2	All of the beachwood area and the parts of Bayville that are along the back streets	8/16/2018 9:28 PM
3	A lot of infrastructure is in place but are cut off by car network	8/14/2018 8:50 AM
4	That is, some of them	8/13/2018 5:07 PM
5	Downtown Toms River	8/4/2018 6:05 PM
6	throughout the trail	7/27/2018 4:11 PM
7	South and away from route 9	7/27/2018 10:15 AM
8	Along Trail	7/24/2018 5:58 PM
9	Bayville	7/15/2018 1:03 PM
10	NA	7/15/2018 11:40 AM
11	Dont wanna drive all the way down town to get to beach wood or Berkeley beach. Seaside bridge narrow more bike friendly	7/13/2018 12:55 PM

Q7 What are your safety concerns about walking/biking to and from destinations in the study area? (check all that apply)

Answered: 48 Skipped: 10



ANSWER CHOICES	RESPONSES	
Missing or insufficient sidewalks	62.50%	30
Missing or insufficient crosswalks	52.08%	25
Speeding or aggressive driving	68.75%	33
Insufficient space for bicyclists	60.42%	29
Insufficient lighting	47.92%	23
Crime	22.92%	11
Lack of curb ramps	22.92%	11
None	4.17%	2
Total Respondents: 48		

#	SOMETHING ELSE (PLEASE SPECIFY):	DATE
1	Wheelchair accessibility. No big bumps. Just a smooth ride for a wheelchair user.	8/23/2018 12:21 PM
2	Illegal activity , drinking drugs and litter	8/16/2018 7:24 PM
3	Heavy vegetation in undev. areas (usually harboring ticks/chiggers)	8/13/2018 5:07 PM
4	No bike lanes	7/25/2018 9:12 AM

5	there are areas where the cluster of folks drinking and being obnoxious need attention, especially around and near the cross over at Cedar Creek.	7/24/2018 8:30 PM
6	Quad riding but I think they put up metal barriers in Bayville	7/15/2018 1:03 PM
7	Portion that diverts out to rt 9@ Dudley park puts you on a main road. Save the trestle don't destroy it. Allow swimming, keep local tradition/community. Dog waste all over trails regularly.	7/14/2018 2:41 PM
8	Distance	7/14/2018 2:03 PM
9	Too many barrier posts at road crossings. Just enough posts to block cars is good, too many leaves no margin of error for bike handles.	7/13/2018 2:11 PM

Q8 On which streets or paths do you feel unsafe walking or biking?

Answered: 36 Skipped: 22

#	RESPONSES	DATE
1	Haven't experienced this. But I will when the new trail opens.	8/23/2018 12:21 PM
2	Railroad Ave beginning @Lacey Rd. to the new vehicular road's end @ Home Depot	8/18/2018 8:05 AM
3	None during the day, but at night is different	8/16/2018 9:28 PM
4	All businesses basically lie on Rt 9. I love the rail trail that cuts through Bayville but it is nowhere near Rt 9. I love the plan to make the rail trail another safe and healthy way to get from Point A to Point B and I REALLY hope it happens. I just don't know how. If I could ride my bike to get ice cream w my daughter or pick her up from daycare or even run to a convenient store quickly I totally would. But based on the location of my home, rail trail, and Rt 9 - it's just not feasible right now.	8/16/2018 9:08 PM
5	South Toms River, all of route 9, prospect/Chelsea Ave and other through streets	8/16/2018 9:06 PM
6	All paths due to lack of SIDEWALKS and BIKE LANES	8/16/2018 8:57 PM
7	Route 9	8/16/2018 5:33 PM
8	Route 9/166 in general	8/16/2018 4:39 PM
9	Rt 166 (entire), Route 9 (entire), Motor Road (Pine Beach), Bayside Ave (Beachwood), Admiral Ave (Beachwood), Flint Road (South Toms River)	8/14/2018 8:50 AM
10	Occasionally at the trestle in Dudley Park drinking and drugs, thoughtless people strewing all manner of trash some quite objectional	8/13/2018 5:07 PM
11	Water St. & vicinity (Rt. 166 area), due to fast-moving through traffic.	8/4/2018 6:05 PM
12	Beachwood	7/27/2018 4:11 PM
13	all unlit paths at night	7/27/2018 11:32 AM
14	From my residence on Seward ave, through Hyers street and until I get to the proposed trail requires experience and judgement to properly navigate.	7/27/2018 10:15 AM
15	most local roads	7/25/2018 12:26 PM
16	Most	7/25/2018 9:12 AM
17	Downtown TR in the evening once I leave water street. Areass adjencr to rte 9	7/25/2018 3:46 AM
18	No	7/24/2018 11:14 PM
19	Lacey part of the trail	7/24/2018 8:08 PM
20	Near Rt 9 in Lacey Twp	7/24/2018 6:39 PM
21	Route 9	7/24/2018 6:20 PM
22	None	7/24/2018 5:58 PM
23	Rat 166	7/24/2018 5:45 PM
24	Don't know the area that well, I know the Barnegat area best.	7/24/2018 4:01 PM
25	Lacey Road	7/24/2018 3:53 PM
26	Berkeley Ave Bayville	7/15/2018 1:03 PM
27	NA	7/15/2018 11:40 AM
28	Route 9 and some side streets	7/14/2018 2:41 PM
29	530 Dover rd	7/14/2018 2:03 PM
30	Lacey road	7/14/2018 12:42 PM

31	Water Street, Hooper Avenue	7/14/2018 12:25 PM
32	9	7/13/2018 4:06 PM
33	Barnegat blvd	7/13/2018 3:14 PM
34	Crossing Memorial Dr.	7/13/2018 2:11 PM
35	Seaside bridge. 37.	7/13/2018 12:55 PM
36	Not sure	7/13/2018 9:48 AM

Q9 What can be done to improve access for walkers and bicyclists traveling these routes, especially to and from the proposed Barnegat Branch Trail?

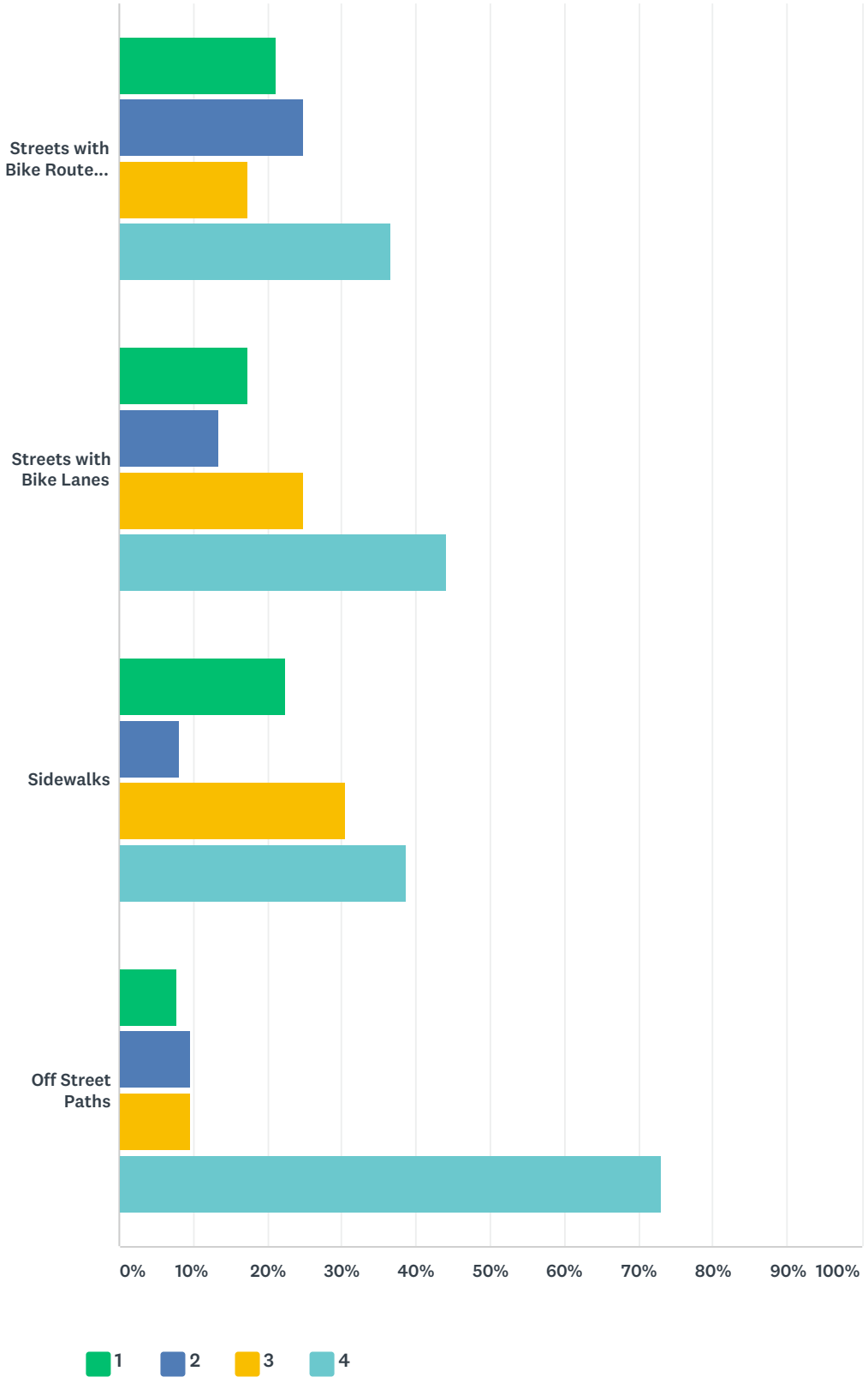
Answered: 36 Skipped: 22

#	RESPONSES	DATE
1	Clearly marked paths so pedestrians and drivers can see the signs.	8/23/2018 12:21 PM
2	Remove the road, but that is a moot point.	8/18/2018 8:05 AM
3	Lighting and a restroom station and water fountains like in barnegat	8/16/2018 9:28 PM
4	A way to connect to Rt9 w sufficient and safe space on side of road for bicyclists and pedestrians. Simililar to what was made in waretown and by the Power Plant would be ideal.	8/16/2018 9:08 PM
5	ADD SIDEWALKS and bike paths branching around the bike path and along commercial areas.	8/16/2018 8:57 PM
6	Not enough trash receptacles or supervision	8/16/2018 7:24 PM
7	An area back from the road that has a barrier between pedestrians and street	8/16/2018 4:39 PM
8	Provide lanes, paths, and construct with pedestrians in mind.	8/14/2018 8:50 AM
9	Hold Lacey's & Berkeley's feet to the fire to make that trestle connection! Convince the county to provide funding. An irreplaceable resource!	8/13/2018 5:07 PM
10	Blinking lights, bigger speed-limit signs, marked bike lanes. ==> Also please create hiking & biking connections northward to the county's most populous areas, northern Toms River, Brick, Pt. Pleasant and Lakewood. Few of us want to drive 10 miles or more from those areas to the BBT. You have a huge untapped market! (I live in Silverton, TR.)	8/4/2018 6:05 PM
11	More Lighting, even grounds, more signage	7/27/2018 4:11 PM
12	more well lit paths	7/27/2018 11:32 AM
13	an elevated walkway? a totally separate route that doesn't cross dozens of driveways?	7/27/2018 10:15 AM
14	Take a look at Peachtree City, GA. They have paths everywhere across the city and people rarely use cars. They do use golf carts, but it would be neat if the trails were more accessible and promoted for people to use in actually getting somewhere other than just for recreation. Lacey needs a pedestrian bridge over Lacey Road.	7/26/2018 9:49 AM
15	Lighting	7/25/2018 4:02 PM
16	bicycle lane	7/25/2018 12:26 PM
17	Bike lanes, speed enforcement	7/25/2018 9:12 AM
18	More awareness of the trail. Better traffic patterns in the area. Manage homeless population and those staying in the area for court proceedings	7/25/2018 3:46 AM
19	Notification and trail signs. Bike stations.	7/24/2018 11:14 PM
20	Make sure the areas are lit and well there are plenty of signs with designated areas, ie bike path etc	7/24/2018 8:27 PM
21	Complete the BBt in lacey.	7/24/2018 8:08 PM
22	A buffer from the main streets & wider trails with some security	7/24/2018 6:39 PM
23	Extend and Finish proposed trail	7/24/2018 5:58 PM
24	I wish I knew!	7/24/2018 5:45 PM
25	No vehicle access traveling on the trail, leave for just bicyclist and walkers.	7/24/2018 4:01 PM

26	Make everything well lit, increase patrolling, and maybe add emergency phones every so often. While this is a great idea and I plan to walk this, I think this opens up a lot of opportunity for many different crimes.	7/24/2018 3:42 PM
27	I hope the metal barriers will help because big trees didn't stop quad riding.	7/15/2018 1:03 PM
28	NA	7/15/2018 11:40 AM
29	Bike lane. Share the road signs. Make motorist aware of bicycle traffic	7/14/2018 2:41 PM
30	Bike path	7/14/2018 2:03 PM
31	Sidewalks and better crosswalks	7/14/2018 12:42 PM
32	Install bike lanes along key streets, such as Main and Washington.	7/14/2018 12:25 PM
33	Maybe caution signs	7/13/2018 3:14 PM
34	More hard pack over the sugar sand, trim stumps in places	7/13/2018 2:11 PM
35	Overpasses.	7/13/2018 12:55 PM
36	Delineated bike lanes	7/13/2018 9:48 AM

Q10 Please rank your preference for the following types of pedestrian and bicycle facilities (1-4, “4” being the most preferred):

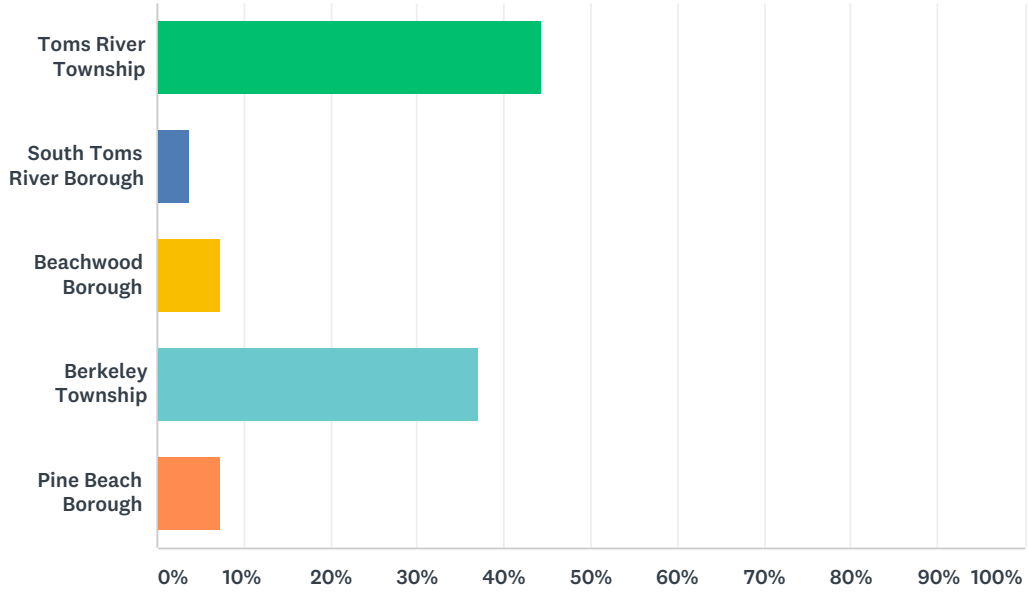
Answered: 54 Skipped: 4



	1	2	3	4	TOTAL
Streets with Bike Route Signs and/or Shared Lane Markings	21.15% 11	25.00% 13	17.31% 9	36.54% 19	52
Streets with Bike Lanes	17.31% 9	13.46% 7	25.00% 13	44.23% 23	52
Sidewalks	22.45% 11	8.16% 4	30.61% 15	38.78% 19	49
Off Street Paths	7.69% 4	9.62% 5	9.62% 5	73.08% 38	52

Q11 Where do you live?

Answered: 27 Skipped: 31



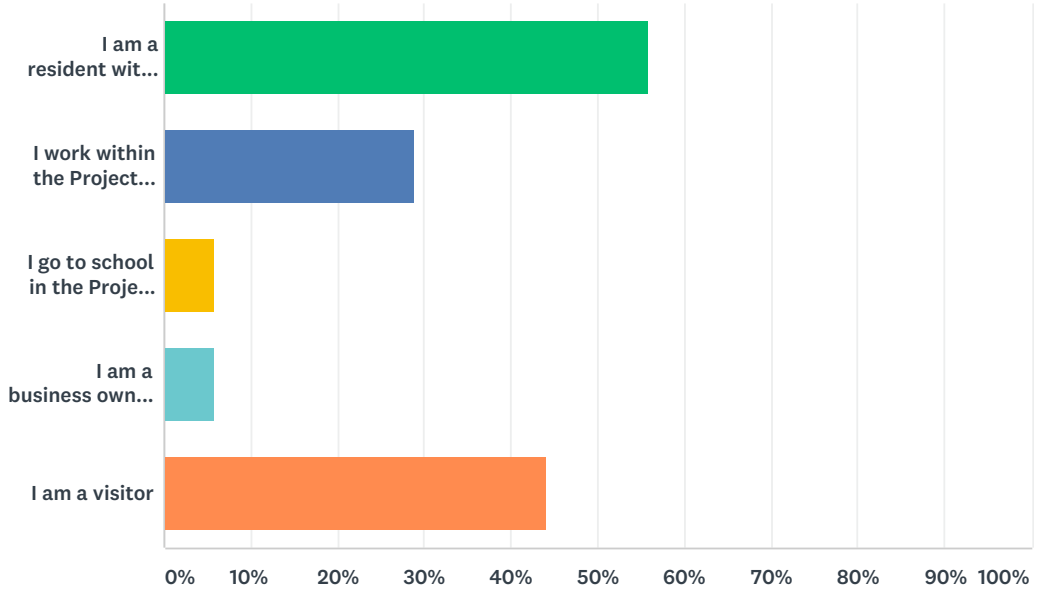
ANSWER CHOICES	RESPONSES	
Toms River Township	44.44%	12
South Toms River Borough	3.70%	1
Beachwood Borough	7.41%	2
Berkeley Township	37.04%	10
Pine Beach Borough	7.41%	2
TOTAL		27

#	SOMEWHERE ELSE (PLEASE SPECIFY):	DATE
1	Lacey	8/18/2018 8:05 AM
2	Waretown	8/16/2018 10:11 PM
3	Lacey	8/16/2018 9:51 PM
4	Ocean Gate	8/16/2018 9:06 PM
5	Forked River/Lacey	8/16/2018 8:57 PM
6	Lacey	8/16/2018 7:24 PM
7	Lacey	8/16/2018 5:33 PM
8	Lacey but work at Jakes Branch in Beachwood	8/13/2018 5:07 PM
9	Lacey	7/26/2018 9:49 AM
10	Manahawkin	7/25/2018 7:34 PM
11	Barnegat	7/25/2018 4:02 PM
12	Manahawkin	7/24/2018 8:27 PM
13	Lacey	7/24/2018 8:08 PM

14	Waretown	7/24/2018 7:13 PM
15	Manahawkin	7/24/2018 6:20 PM
16	Barnegat	7/24/2018 6:10 PM
17	Barnegat	7/24/2018 5:58 PM
18	Eagleswood Township	7/24/2018 5:45 PM
19	Barnegat	7/24/2018 4:01 PM
20	Waretown	7/24/2018 3:53 PM
21	Manchester	7/24/2018 3:42 PM
22	Point Pleasant	7/15/2018 11:40 AM
23	Brick	7/14/2018 2:03 PM
24	Forked riverma	7/14/2018 12:47 PM
25	Lacey Township	7/14/2018 12:42 PM
26	Barnegat	7/13/2018 3:14 PM
27	Mana hawk in, Stafford, aka Ocean Acres	7/13/2018 2:11 PM
28	Titusville	7/13/2018 9:48 AM

Q12 Please check all that apply to you:

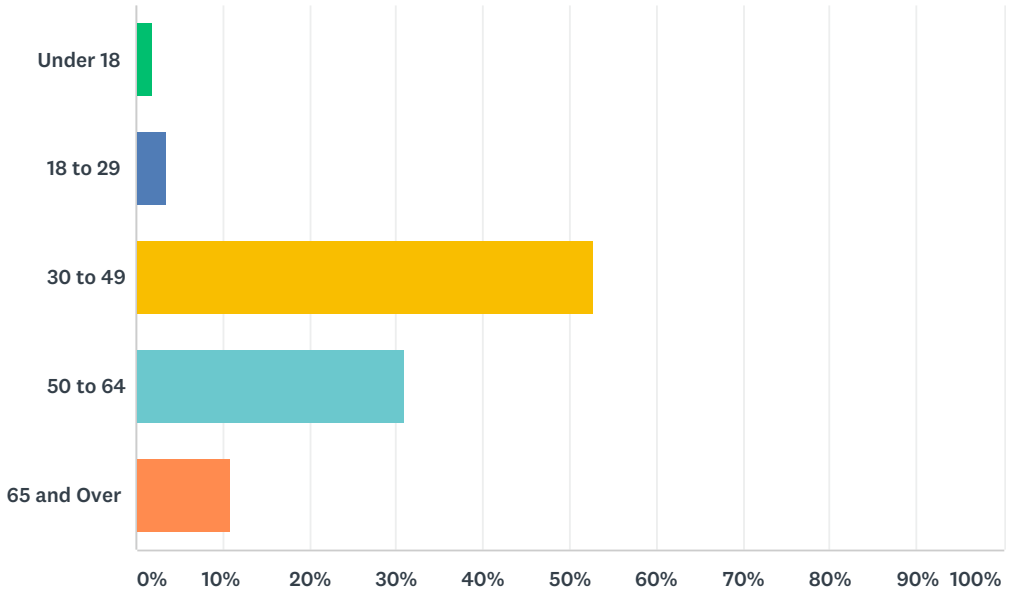
Answered: 52 Skipped: 6



ANSWER CHOICES	RESPONSES	
I am a resident within the Project Area	55.77%	29
I work within the Project Area	28.85%	15
I go to school in the Project Area	5.77%	3
I am a business owner in the Project Area	5.77%	3
I am a visitor	44.23%	23
Total Respondents: 52		

Q13 How old are you?

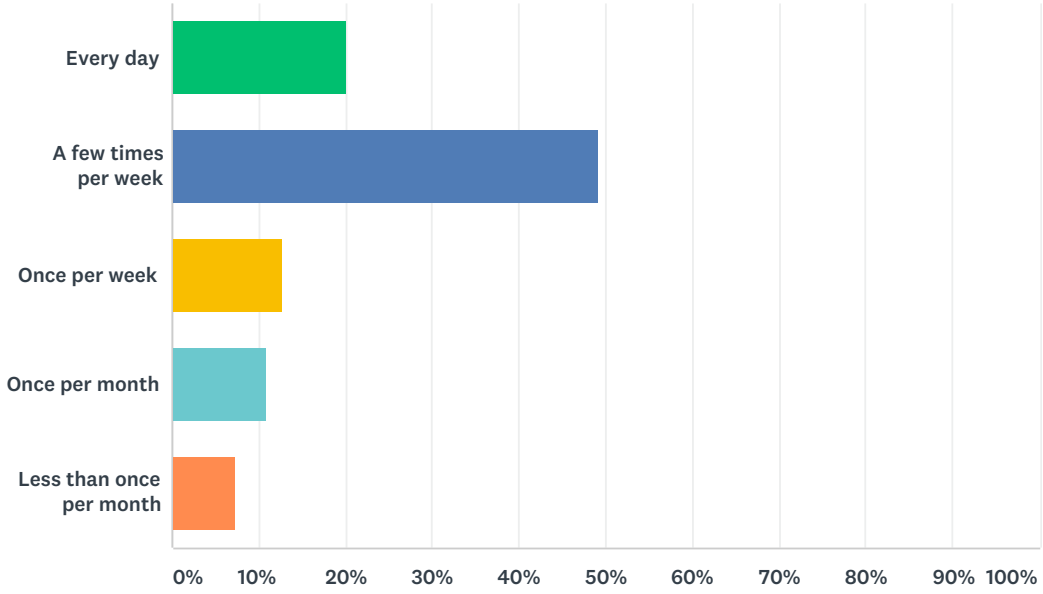
Answered: 55 Skipped: 3



ANSWER CHOICES	RESPONSES	
Under 18	1.82%	1
18 to 29	3.64%	2
30 to 49	52.73%	29
50 to 64	30.91%	17
65 and Over	10.91%	6
TOTAL		55

Q14 How often do you walk or bike in Ocean County?

Answered: 55 Skipped: 3



ANSWER CHOICES	RESPONSES	
Every day	20.00%	11
A few times per week	49.09%	27
Once per week	12.73%	7
Once per month	10.91%	6
Less than once per month	7.27%	4
TOTAL		55

OCEAN COUNTY BICYCLE AND PEDESTRIAN LINKAGES FROM THE BARNEGAT BRANCH TRAIL, NORTHERN SECTION

About the Barnegat Branch Trail

The Barnegat Branch Trail is a "rail-to-trail" project that will extend 15.6 miles from Barnegat Township to Toms River Township along the alignment of the former Barnegat Branch of the Central New Jersey Railroad. Completed sections span 7 contiguous miles from Barnegat Township to Lacey Township, 2.75 miles in Berkeley Township between Dudley Park and Hickory Lane, and 1 mile along the existing municipal trail in Beachwood. The Barnegat Branch Trail will provide a walking and bicycling backbone through Ocean County and opportunities to provide connectivity between the County's communities.

About the Study

Ocean County is conducting a study of potential bicycle and pedestrian connections to and from the proposed northern section Barnegat Branch Trail that will run through Berkeley Township, Beachwood Borough, South Toms River Borough, and Toms River Township. This study aims to improve system coordination, intermodal connectivity, access from residential areas to commercial destinations, and safety for bicyclists and pedestrians. It will incorporate existing studies and local efforts.

Connections should accommodate safe, healthy, and efficient means of travel to schools, parks, libraries, historical sites, and other destinations near the trail.

Providing comfortable and attractive connections from local destinations to the regional trail will encourage increased walking and biking while, aiding in economic growth in an environmentally friendly way.

Study Approach

The study will produce a report that includes an implementation plan with recommended strategies and actions for improving key corridors that connect points of interest to the Barnegat Branch Trail based on local feedback and expert advice. The recommendations will focus on populations that rely on walking, bicycling, and transit as their predominant form of travel. Regional representatives will provide expertise and support to guide the study.

Recommendations will be prioritized into short-term and long-term improvements. This plan can be used to guide bicycle and pedestrian facility investments and provide support for the potential improvements.

How You Can Help

Whether you believe existing facilities need improvement or new links need to be created, your input is integral in driving these changes. We want to know the destinations you are walking or biking to, as well as the missing connections that you need to get there.

Please visit our website below to take the online survey, leave comments, or contact us directly at bbtconnections@gmail.com. Updates will be provided regularly on the website as the study progresses. Join our mailing list to receive updates and announcements about upcoming events directly.

For more information please visit our website bbtconnections.com
or e-mail us at bbtconnections@gmail.com

BARNEGAT BRANCH TRAIL NORTHERN SECTION: PROJECT AREA

0 0.25 0.5 1 Miles

N S E W

Creator: Ocean County Department of Planning GIS
Date: 5/9/2018
Contact: (732) 929-2054

Michael Baker
INTERNATIONAL

APPENDIX D – RECOMMENDED IMPROVEMENTS SUPPLEMENTS

Recommended Improvement	Location	Municipality	Responsible Agency	ROW Width	Block	Lot	Owner
Bike Lanes	Birch Street (CR 77)	Beachwood	Ocean County / Beachwood	100+ (Bridge)			
	Ocean Gate Drive (CR 625)	Berkeley	Ocean County	60			
	Station Road	Berkeley	Berkeley	50-55			
	Flint Road	South Toms River	South Toms River	50-55-60			
Existing Shared Use Path	Berkeley Avenue	Beachwood	Beachwood	33			
	Pennsylvania Avenue / Station Avenue	Pine Beach	Pine Beach	50			
Paved Shoulder with Signed Bike Route	Mill Creek Road	Berkeley	Berkeley	Variable 33-60			
	US-9 (Connection between Buckley and Hickory)	Berkeley	NJDOT	66			
	Station Avenue	Pine Beach	Pine Beach	50			
	Chelsea Avenue / Prospect Avenue (CR 617)	Pine Beach / Berkeley	Ocean County	50-65			
	Center Street	South Toms River	South Toms River	50			
	Dover Road (CR 530)	South Toms River	Ocean County	60			
	Tilton Avenue (CR 77)	South Toms River	Ocean County	60			
	Hadley Street	Toms River	Toms River	75-80			
	Clinton Avenue	Toms River	Toms River	60			
	Central Avenue	Toms River	Toms River	75			
	Washington Street	Toms River	Toms River	Variable 52-63			
	Whittier Avenue	Toms River	Toms River	40-50			
	West End Avenue	Toms River	Ocean County	60			
Shared Use Path	Pinewald Rd (CR 621)	Beachwood	Ocean County	50			
	Pulverizing Tract	Berkeley	Ocean County	NA	836	1	Ocean County
	Double Trouble Rd (CR 619)	South Toms River / Beachwood	Ocean County	50			
Signed Bicycle Route	Compass Avenue (CR 617)	Beachwood	Ocean County	33			
	Cherry Street	Beachwood	Beachwood	33			
	Mermaid Avenue	Beachwood	Beachwood	33			
	Leeward Avenue	Beachwood	Beachwood	33			
	Elm Street	Beachwood	Beachwood	33			
	Poplar Street	Beachwood	Beachwood	33			
	Ensign Avenue	Beachwood	Beachwood	33			
	Birch Street	Beachwood	Beachwood	33			
	Harpoon Street	Beachwood	Beachwood	33			
	Barnegat Blvd	Beachwood	Beachwood	40			
	Wave St	Beachwood	Beachwood	33			
	Beachwood Blvd	Beachwood	Beachwood	Variable 50-55			
	Seaman Avenue	Beachwood	Beachwood	33			
	Ship Avenue	Beachwood	Beachwood	33			
	Spruce Street	Beachwood	Beachwood	33			
	Chain Blvd	Berkeley	Berkeley	60			
	Korman Rd	Berkeley	Berkeley	50			
	Tern Court	Berkeley	Berkeley	50			
	Woodland Road	Berkeley	Berkeley	50			
	Hickory Lane	Berkeley	Berkeley	Variable 33-50			
	Maryland Ave	Berkeley	Berkeley	50			
	Mallard Road	Berkeley	Berkeley	50			
	First Ave	Berkeley	Berkeley	40			
	Western Blvd	Berkeley	Berkeley	105			
	Buckley Lane	Berkeley	Berkeley	41.5 (8.5 Ease)			
	Michelle Lane	Berkeley	Berkeley	50			
	Poe Drive	Berkeley	Berkeley	50			
	Browning Ave	Berkeley	Berkeley	50			
	Park Ave	Berkeley	Berkeley	50			
	Frederick Drive	Berkeley	Berkeley	35			
	Bittern Lane	Berkeley	Berkeley	50			
	Quail Road	Berkeley	Berkeley	50			
	Pheasant Drive	Berkeley	Berkeley	50			

	Magnolia Ave	Berkeley / South Toms River	Berkeley / STR	50+			
	Clubhouse Rd / Bayside Ave (CR 617)	Ocean County	Beachwood	Variable 33-40			
	Riverside Drive	Pine Beach	Pine Beach	50			
	Motor Road	Pine Beach	Pine Beach	50			
	Prospect Avenue	Pine Beach	Pine Beach	50			
	Monument Road	Pine Beach	Pine Beach	50			
	Springfield Avenue	Pine Beach	Pine Beach	50			
	South Main Street	South Toms River	South Toms River	43			
	South Main Street (CR 530)	South Toms River	Ocean County	60			
	Brookforest Drive	South Toms River	South Toms River	Variable 50-60			
	Attison Rd	South Toms River	South Toms River	60			
	Applegate Rd	South Toms River	South Toms River	50			
	Brandies Road	South Toms River	South Toms River	Variable 50-60			
	Railroad Ave	South Toms River	South Toms River / GSP ROW	33+			
	First Street	South Toms River / Berkeley	STR / Berkeley	40			
	Dayton Avenue	Toms River	Toms River	60			
	Washington Street near Main Street	Toms River	Toms River	58			
	Irons Street	Toms River	Toms River	Variable 25-60			
	Legion Court	Toms River	Toms River	33			
	Hyers Street	Toms River	Toms River	Variable 33-60			
	South Main Street / US-166	Toms River	NJDOT?	60			
Other Possible Trails	Mill Street	South Toms River	South Toms River	Variable 46.5-60			
	Green Ridge Drive	South Toms River	South Toms River	50			
	US-9; Wawa - B837.01;L1.07	Berkeley	NJDOT / Ocean County	66 / NA	837.01	1.07	Swa Remaiander I LLC
	Conservation Easement on Wawa Property may provide connection				837.01	1	Ocean County
	Atlantic Ave (Partially developed, partial paper street)	Berkeley	Berkeley	33-50	882.01	2	Twp. of Berkeley
	Connection to Station Ave	Pine Beach	Pine Beach		3.01	1	Boro of Pine Beach
					882	89.01	Twp. of Berkeley
					882	44	Ocean County
					882	26.01	Ocean County
	Connection to Rt 9 & Browning Ave				882	26	Ocean County
	Connection to Browning Ave		Ocean County		882	93	Ocean County
	Connect Pine Street to Pulverizing	Beachwood / Berkeley	Ocean County	33	836	4.01	Ocean County
	Connect Cherry Street to Pulverizing	Beachwood / Berkeley	Ocean County	33	836	2	Ocean County
	Connect Chestnut Street to Pulverizing Tract	Berkeley	Ocean County	33	1073	5	Ocean County
		Berkeley			836	4	Ocean County
		Beachwood			9.40	8	Borough of Beachwood
	Connect Western Blvd to Pulverizing	Berkeley	Ocean County	NA	620	1	OC Sewerage Authority
	Connect Quail Rd to Pulverizing	Berkeley	Ocean County	NA	837	17	Ocean County
	Connect Brookforest Drive to Jakes Branch	South Toms River	South Toms River	NA	21.20	1.01 & 4.01	Borough of South Toms River
			Beachwood	Jakes Branch	8.11	2	Ocean County