BICYCLE AND PEDESTRIAN PLAN FOR CAPE MAY CITY AND CAPE MAY POINT BOROUGH

Bike Walk Cape May

Technical Memorandum 2: Recommendations

WSP | PARSONS BRINCKERHOFF

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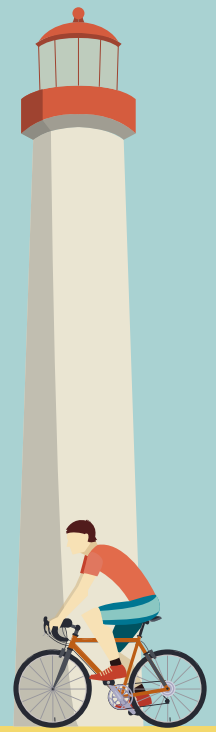

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GENERAL STORE

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1 Introduction

This technical memorandum highlights the recommendations developed by the project team to improve conditions for bicyclists and pedestrians in Cape May City and Cape May Point Borough.

These recommendations are based on the analysis in the Existing Conditions Technical Memorandum and input from the Stakeholder Advisory Committee. The proposed improvement concepts focus on the "4 E's" – Engineering, Education, Enforcement, and Encouragement. Through this holistic approach, the education, encouragement, and enforcement recommendations focus on policy and program options to improve safety and foster bicycle and pedestrian travel throughout Cape May City and Cape May Point, while the engineering recommendations identify physical infrastructure improvements at priority locations. These recommendations seek to improve mobility and safety for all travelers and travel modes.

2 Programs and Policies

This chapter describes the programs and policies relevant to improving bicycle and pedestrian infrastructure and public spaces in Cape May City and Cape May Point Borough.

While proper design and physical infrastructure improvements are essential to creating a safe, comfortable, and convenient environment for biking and walking, they are only part of the process. Underlying policies and programs sponsored by the municipalities, as well as partnerships with non-governmental organizations or local businesses, can help create a successful and sustaining bicycle and pedestrian friendly community, support and promote higher rates of biking and walking, and foster mutual respect among all roadway users. Efforts can include educational programs, encouragement initiatives, and enforcement activities. Appropriate travel behaviors and practices among bicyclists, pedestrians and drivers alike are essential to creating safe and accessible communities.

2.1 Education

Educational programs provide all roadway users – cyclists, pedestrians, and motorists – with information about their rights and responsibilities and applicable laws. These efforts can increase general awareness and promote courteous and safe interaction among all users. Educational programs may include a simple distribution of information in a wide range of formats to improve motorist, cyclist, or pedestrian awareness and understanding of traffic laws and safe practices. Larger efforts could include a more structured, hands-on training program to improve individual skills and abilities. Educational programs should be tailored to specific audiences, such as school-age children, parents, adults, seniors, or motorists.

Specific recommendations for the study area include:

- Continue efforts to distribute public service announcements (PSAs) and brochures on topics such as speeding, safe bicycling, how to bicycle with traffic, proper helmet usage, bicycle routes, and safe pedestrian behavior. Materials can be posted or distributed at the public library, municipal offices, the school, and/or at community events. PSAs may also be printed in the local newspaper or posted on the Cape May City and Cape May Point's websites or social media sites. Resources with safety information and brochures include the Cross County Connection Transportation Management Association (TMA); NJDOT's Biking in New Jersey and Pedestrian Safety websites; the Pedestrian and Bicycle Information Center, a national clearinghouse of information related to walking and biking sponsored by the FHWA and operated by the University of North Carolina Highway Safety Research Center; and the National Highway Traffic Safety Administration (NHTSA).
- Emphasize distribution of information to the large number of tourists and seasonal visitors to Cape May, many of whom bike or walk frequently while visiting or vacationing, but may not do so regularly in their hometown. To reach this target audience, brochures and displays related to safe bicycling tips, bicycle routes, and bicycle traffic law should be available at bike rental locations, the information kiosk on Washington Street, local hotels and bed and breakfasts, and where beach badges are sold.
- Work with other municipalities along the Jersey Shore and Cross County Connection to develop a brochure tailored to the unique needs of Shore communities as it relates to biking, walking, tourism, and informing seasonal visitors.
- Integrate bicycle and pedestrian educational programs into the school curriculum. The Cape May City Elementary School is located near the center of the City, making it within a comfortable walking or biking distance for the vast majority of students. To support and foster safe biking and walking to and from school, as well as to develop lifelong habits, educational programs tailored for children should be an important element of the overall community campaign. Several types of resources are available:
  - Traffic Safety Learning Progression Component: Funded by the Division of Highway Traffic Safety and developed by Kean and Rowan Universities, the curriculum includes lessons on pedestrian, bicycle, and traffic safety. It is an on-going educational program, with lesson plans on several pedestrian safety issues tailored to each age group with interactive activities. These materials are available to all New Jersey schools free of charge. Kindergarten through Grade 8 lesson plans can be found at http://bianj.org/prevention/childhood-safety/pedestrian-safety/ and Grade 9-12 lesson plans at http://teensafedriving.bianj.org/submit-a-lesson-plan/.
  - Safe Routes to School (SRTS): Resources are available through SRTS, a Federal and state program designed to enable and encourage children to walk and bike to school. Education is a key element when developing a SRTS plan. Information is available through the NJDOT program office, the Federal Highway Administration, and the National Center for Safe Routes to School.
  - Other programs, such as WalkSafe™, BikeSafe™, and Safe Kids also offer educational materials and other activities focused on school-aged children.
- Partner with local community groups, schools, the police department, businesses, local advocacy groups, or other interested parties to organize bicycle training through the League of American Bicyclists (LAB). The LAB offers a range of courses by certified instructors for different ages and different abilities. These interactive training courses are a good way to educate cyclists on traffic rules and safety equipment, as well as to practice cycling skills that enable novices and experts to ride confidently and safely with traffic.

Education campaigns can address all roadway users, such as the above by the South Jersey Traffic Safety Alliance, or target specific issues, such as recent signage installed in West Cape May to address wrong-way cycling.

- Provide training for local officials, planners, engineers, and public works staff to support Complete Streets implementation. Cape May City's adoption of a Complete Streets policy ensures that transportation projects should provide for all expected users, including pedestrians and cyclists. Providing training on effective implementation and maintenance will reinforce the City's policy and help make it part of all future transportation investments in the study area. NJDOT has resources available online and periodically provides training workshops.

  Cross County Connection TMA also provides technical expertise and educational resources to support local Complete Street initiatives, including:

  - Workshops on Complete Streets planning, design and implementation
  - "Lunch and Learn" seminars upon request that can be targeted to specific topics pertinent to a community, such as drafting a policy or selecting the best type of infrastructure improvements to meet user needs and fit the local context
  - Presentations to municipal and county staff on a variety of topics related to Complete Streets
  - Complete Streets policy examples and templates
  - Assistance in drafting a Complete Streets policy that considers the unique context of the municipality
  - Support in creating a Complete Streets Implementation Plan and Implementation Checklist according to NJDOT guidelines
  - Guidance and examples on best practices in Complete Streets design
  - Identification of funding sources for Complete Streets projects and assisting with grant applications

2.2 Encouragement

Encouraging active modes of transportation such as walking and biking has a host of benefits for residents and the community, including better health, reduced road congestion, support for local businesses, reduced environmental impact, and lower per-trip costs. By supporting and promoting walking and bicycling activities, the City and Borough can spur a change in travel habits among residents and visitors, and entice more residents to walk and bike more regularly. Recommendations include:

- Encourage the use of "Walking School Buses" and "Bike Trains" to promote physical activity for children and parents traveling to and from schools. Walking school buses and bike trains provide an organized and supervised way for children to walk and bike to school, particularly for younger children, and can make walking and biking a fun, social activity. Work with school staff, parent volunteers, and the police department to organize the events. Assistance is available through the Cross County Connection TMA.
- Utilize resources through SRTS and Cross County Connection TMA to provide activities that encourage bicycling and walking at local schools, such as bike rodeos or other events.
- Create and publish an online bike map on the Cape May City and Cape May Point Borough's website, highlighting the location of bicycle lanes, off-road facilities, preferred on-road cycling routes, bike parking, and major destinations (schools, businesses, etc). Providing information on Cape May City and Cape May Point Borough's bicycle facilities and best routes can encourage more people to try cycling.

  Resources include the bike network evaluated in this report, as well as the county-wide map developed by Cross County Connection TMA. Cross County Connection TMA also offers assistance in creating electronic and printable bike maps.

Bike trains are a fun way to promote biking to school, and provide supervision for younger children (Source: Center for Urban Transportation Research)

- Highlight pedestrian and bicycle improvements that accompany transportation projects through press releases, websites, and social media. By focusing on these elements and improved conditions, more people will be encouraged to walk and bike.
- Apply to become a Bicycle or Walk Friendly Community. These programs, sponsored by the League of American Bicyclists and the Federal Highway Administration, respectively, will not only encourage bicycle use or increased walking by residents, but serve as a potential marketing tool to encourage visitors to travel to the study area.
- Promote and market Cape May's significant bicycling and walking assets, including its connections to the Washington Street Mall and other commercial areas, historical landmarks, ecological preserves, and beaches. Work with local businesses to publicize the communities' resources,

promote tourism, and emphasize Cape May as a regional destination for biking and walking.

2.3 Enforcement

When combined with education, enforcement is a key element to ensuring safe travel for all roadway users. While the police department cannot dedicate a significant amount of resources to enforce traffic regulations, targeted enforcement campaigns, through warnings and tickets, are effective at correcting unsafe behaviors. Enforcement should apply to both motorists (speeding, failure to stop for pedestrians) and cyclists (riding on the wrong side of the street, failure to adhere to traffic control devices). Study area-specific recommendations include:

- Implement a pedestrian safety enforcement (PSE) program. A key resource for local police departments is the PSE program sponsored by the NJ Division of Highway Traffic Safety (NJDHTS) with support from NJDOT. The PSE program provides a structured approach to crosswalk compliance enforcement, with training and support for local police officers. It addresses two important contributing factors to pedestrian crashes: driver knowledge of the law and driver yielding behavior. A variety of resources for enforcement are available through the NJDHTS, including grant funding. PSE training workshops are also available through the NJ Bicycle and Pedestrian Resource Center. One common PSE program supported by the NJDHTS is the "Cops in Crosswalks" decoy program. Used in municipalities throughout New Jersey, the program is a targeted enforcement campaign. A plainclothes police officer attempts to cross a marked crosswalk, and drivers who fail to stop for the pedestrian are given a warning or citation. NJDOT provides additional information about PSE programs and resources in its Pedestrian Safety Action Plan Toolbox.
- Institute a community-oriented traffic calming campaign to help raise awareness about speeding and safety. Consistent with the proposed local speed limits (as discussed on page 38), Cape May City may implement a "Drive 25" campaign, while Cape May Point might employ a "20 is Plenty" campaign. A unified branding element for the campaign would also help reinforce Cape May City and Cape May Point's reputations as walkable and bikeable communities.

  A similar campaign was initiated by the Borough of Haddonfield in Camden County and has been emulated by other municipalities in New Jersey. "Keep Kids Alive – Drive 25" is a common slogan for the campaign. Promotion of a campaign may be timed to coincide with back to school activity in September or the summer tourism season. The campaign may include use of variable message signs (VMS) at gateways into the communities and main corridors, use of local websites and social media, posters and flyers at municipal buildings, mailings, and/or distribution of "Keep Kids Alive – Drive 25" or "20 is Plenty" stickers to residents, which may be posted to curbside garbage barrels or their vehicles as a reminder to motorists.

Hopewell, Pennington, and Titusville have collaborated on a community-oriented traffic calming campaign by distributing "Drive 25 Pace Car" stickers and car magnets to area residents.


STOP

3 Infrastructure Improvements

This chapter describes infrastructure improvements to enhance bicycling and walking in Cape May City and Cape May Point. Recommendations focus on key intersections and consider expanding the multi-modal network.

A primary outcome of this technical memorandum is the development of pedestrian and bicycle infrastructure improvements for targeted locations and corridors based upon the existing conditions analysis and input provided by the Study Advisory Committee. Building upon existing bicycle and pedestrian facilities, these improvements focus on improving safety, comfort, and circulation opportunities to and from major activity centers. Pedestrian recommendations enhance crossing locations, build upon and expand the existing sidewalk network, and seek to create a more pedestrian friendly environment. Recommended bicycle improvements are focused on creating a low-stress, study area-wide bicycle network linking recreational, commercial, and residential areas throughout Cape May City and Cape May Point Borough.

Improvement concepts are intended to be easily implementable and emphasize low-cost options, such as restriping of existing roadways or enhanced signage. Projects may be implemented over time as funding allows and incorporated into routine roadway maintenance at minimal additional cost. The list of recommended projects may be used to support grant applications, integrate bicycle and pedestrian projects into the capital improvement pipeline, and/or identify bicycle and pedestrian improvements as roadways are due for maintenance and resurfacing.

The proposed improvements are intended as conceptual recommendations that would likely require varying levels of design or further analysis, depending on the magnitude of the improvement. Where practical, general order-of-magnitude cost estimates are included for each improvement based on average material rates for sidewalks, crosswalks, striping, etc. These estimates are only intended to convey the level of investment that proposed concepts would require for implementation. The cost estimates are based on industry and NJDOT standards for per unit material costs, and do not include the cost of right-of-way acquisition, relocation of utilities that could be involved, or contingencies.

3.1 Intersection Improvements

Based on the results of several field visits, data analysis, and stakeholder input, as detailed in the existing conditions section, pedestrian improvement recommendations were developed for targeted intersections within the study area. The improvement concepts reflect state-of-the-practice guidance (i.e., NACTO, AASHTO, FHWA), and are consistent with both statewide and national standards for multimodal safety and mobility through implementation of Complete Streets principles. For each location, an aerial view is shown depicting recommendations.

For each location, improvements are classified as short-term (less than 6 months), mid-term (6 months to 2 years), or long-term (more than 2 years), based primarily on the scope of the improvement and the anticipated level of design and/or resources required for implementation. The rate at which improvements are implemented may be subject to availability of funding.

The following intersections are summarized in the following pages:

- Beach Avenue at Ocean Street
- Gurney Street at Columbia Avenue
- Benton Avenue at Sewell Avenue and Howard Street at Sewell Avenue
- Myrtle Avenue and Jackson Street
- Jackson Street at Broad Street
- Lafayette Street at Jackson Street
- Washington Street Pedestrian Mall

Beach Avenue at Ocean Street

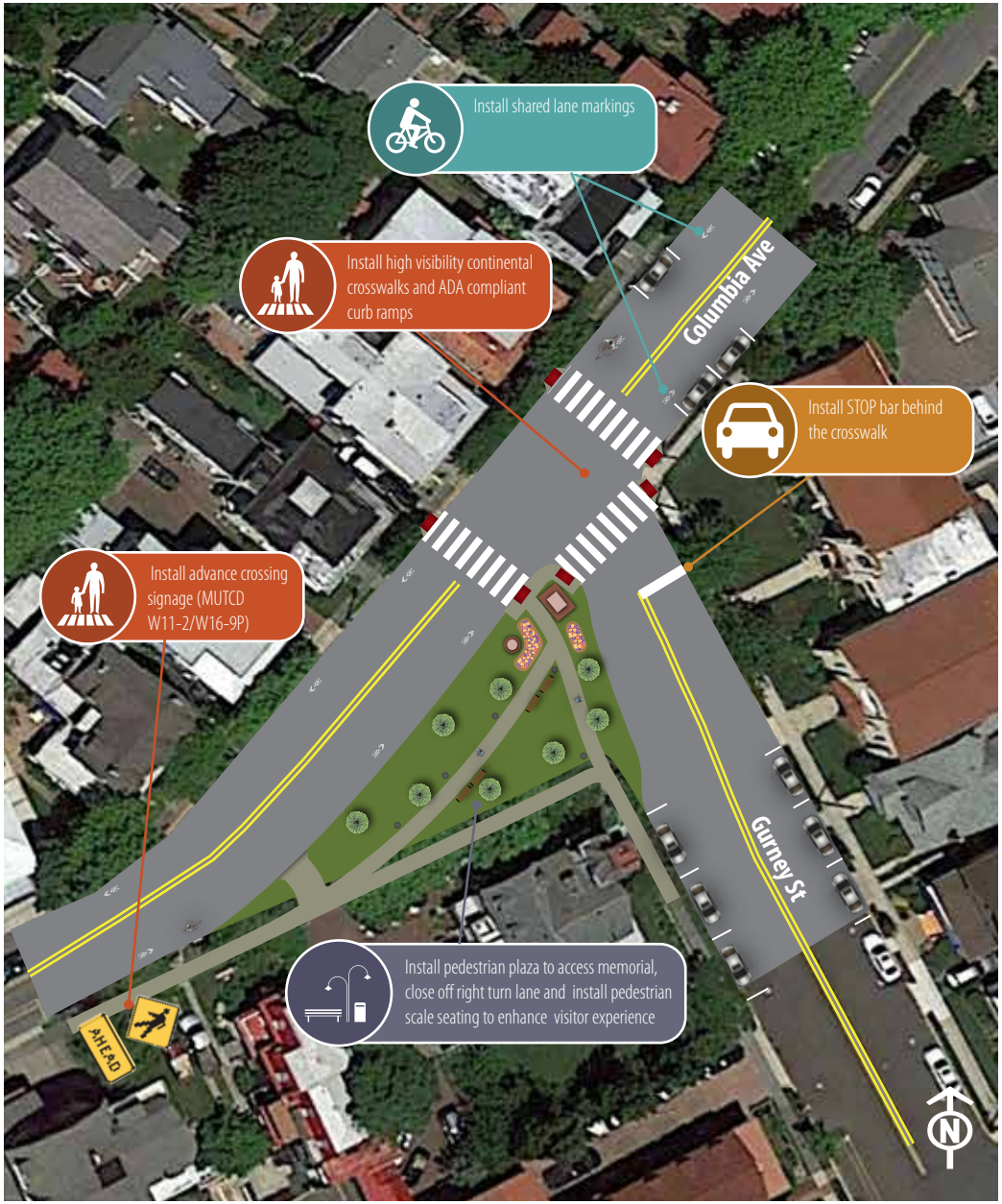
This signalized intersection is typical of signalized crossings along Beach Avenue and provides access to the beach and leads to the commercial areas in downtown Cape May City. Proposed recommendations, illustrated to the right, seek to minimize the pedestrian crossing distance and enhance visibility.

Short Term

- Install high visibility continental crosswalks at the intersection and straighten crosswalk at westbound approach
- Maintain (proposed page 27) dashed bicycle lane striping through the intersection along Beach Avenue
- Given observed travel patterns to the beach, a similar treatment approach would be applicable at most crossings of Beach Avenue where standard crosswalk markings are present

Cost Estimate

Short Term	*$2,900*
Mid-Term	-
Long Term	-



Gurney Street at Columbia Avenue

This unsignalized intersection is located in historic downtown Cape May City and is surrounded by residential and commercial uses. The existing configuration of the intersection creates wide pedestrian crossings and a small public green space at its center. However, the War Memorial located at the center of the island is underutilized and difficult to access due to the lack of marked crosswalks and curb ramps.

Proposed improvements, illustrated to the left and in the photo simulation on the opposite page, include place-making strategies to transform a portion of the intersection into a public park space focused around the War Memorial. The improvements will enhance the War Memorial by making it a more accessible public asset, increase green space in this section of the City, and tighten the intersection to improve pedestrian safety and circulation.

Short Term

- Install ADA-compliant curb ramps and high visibility continental crosswalk at the southbound approach

Long Term

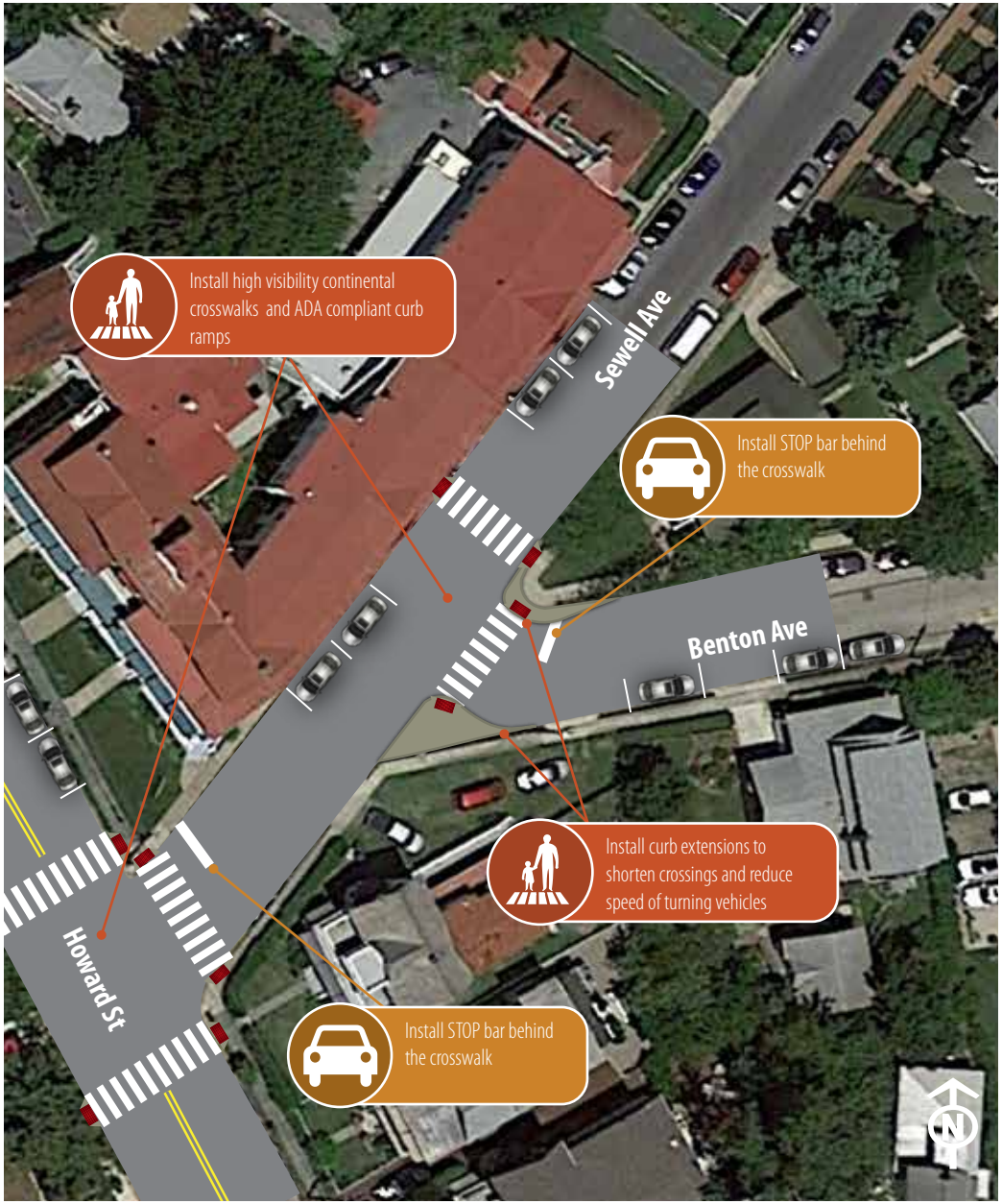
- Eliminate channelized right turn lane from Columbia Avenue to Gurney Street to tighten intersection
- Create small park around the war memorial, reflective of the historic character of the area with seating, sidewalk access, and plantings. This effort should be done in collaboration with American Legion Post 193 (Harvey Snyder) and VFW Post 386
- Install ADA-compliant curb ramps and high visibility continental crosswalk at the northbound and westbound approaches

Cost Estimate*

Short Term	*$1,100*
Mid-Term	-
Long Term	*$56,600*

**Does not include park design, plantings, lighting, benches, and other amenities*

Simulation of potential reconfiguration of the Gurney Street at Columbia Avenue intersection and enhanced War Memorial park



Benton Avenue at Sewell Avenue, Howard Street at Sewell Avenue

This unsignalized intersection is located in historic downtown Cape May City and is adjacent to a hotel and residential neighborhoods. Proposed improvements, illustrated to the left, seek to provide marked pedestrian crossings at key crossing locations.

Short Term

- Install ADA-compliant curb ramps and high visibility continental crosswalk on all approaches at the intersection of Sewell Avenue and Howard Street

Long Term

- Install curb extensions at Benton Avenue to create a more traditional T-intersection and minimize vehicular turning speeds and pedestrian crossing distance
- Install ADA-compliant curb ramps and high visibility continental crosswalk at the southbound and westbound approaches of Sewell Avenue and Benton Avenue, respectively

Cost Estimate

Short Term	*$6,000*
Mid-Term	-
Long Term	*$28,300*

Myrtle Avenue and Jackson Street

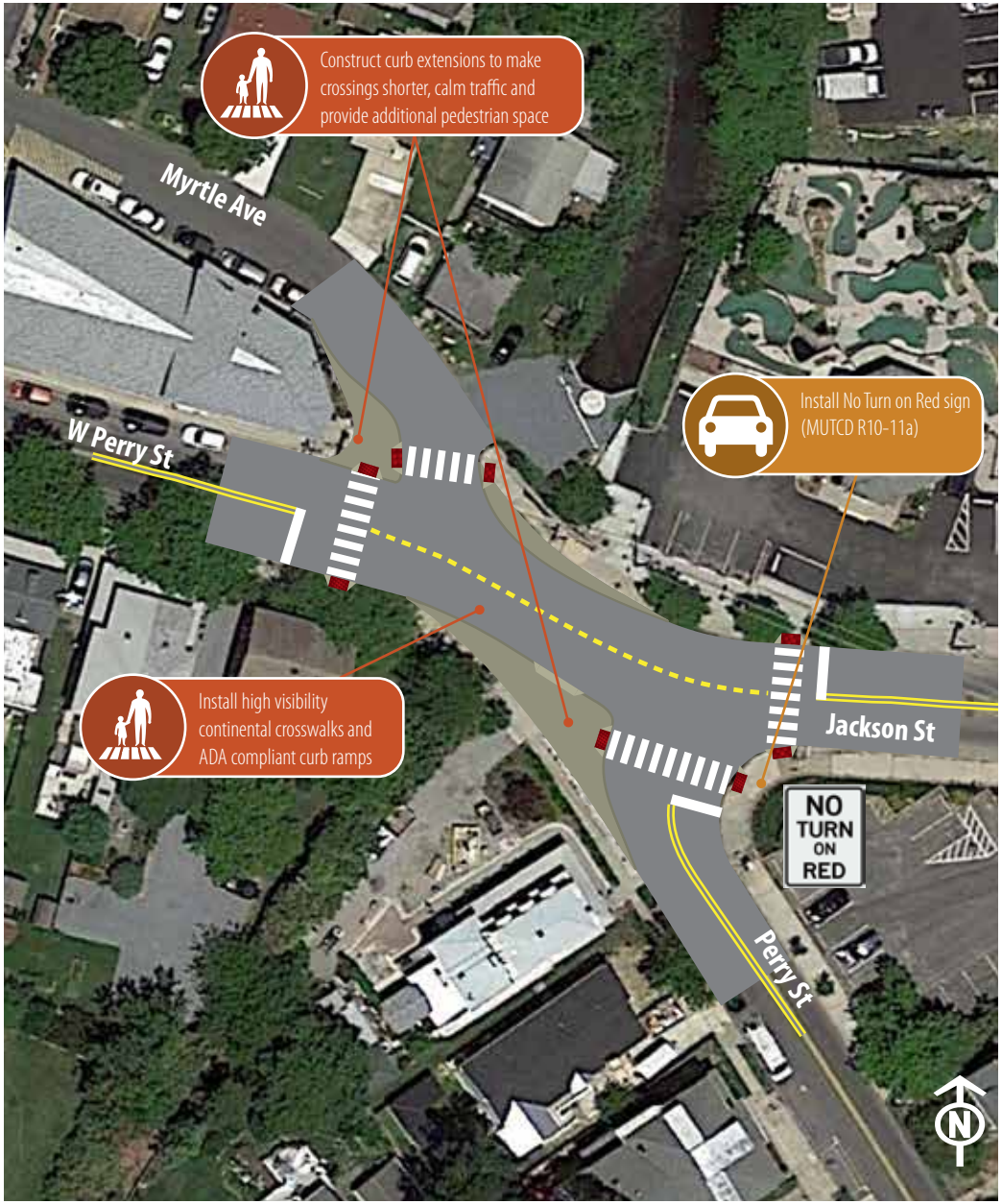
This signalized intersection is located at the western end of Cape May City and provides a link between West Cape May and Cape May City. Proposed recommendations, illustrated to the right, seek to upgrade existing pedestrian crossing treatments and tighten the intersection to shorten pedestrian crossings, improve visibility, and slow vehicular traffic.

Short Term

- Install No Turn on Red Sign (MUTCD R10-11a) at Perry Street and Jackson Street corner

Long Term

- Install curb extensions on both sides of Myrtle Avenue, squaring off the approach and narrowing the roadway to a single lane
- Install curb extension at corner of Perry Street and West Perry Street to create more of a ninety-degree intersection
- Install ADA-compliant curb ramps at all crossings
- Install high visibility continental crosswalks at the four approaches



Cost Estimate

Short Term	*$100*
Mid-Term	*-*
Long Term	*$45,000*

Jackson Street at Broad Street

This unsignalized intersection is located at the western end of Cape May City. It provides access to neighboring residential and commercial areas. The curvature of Jackson Street at the intersection creates a challenging environment for all roadway users. Proposed recommendations include three different scenarios that seek to improve pedestrian circulation and safety for all modes by reducing the footprint of the intersection, slowing traffic speeds, and creating more predictable behavior between the different modes.

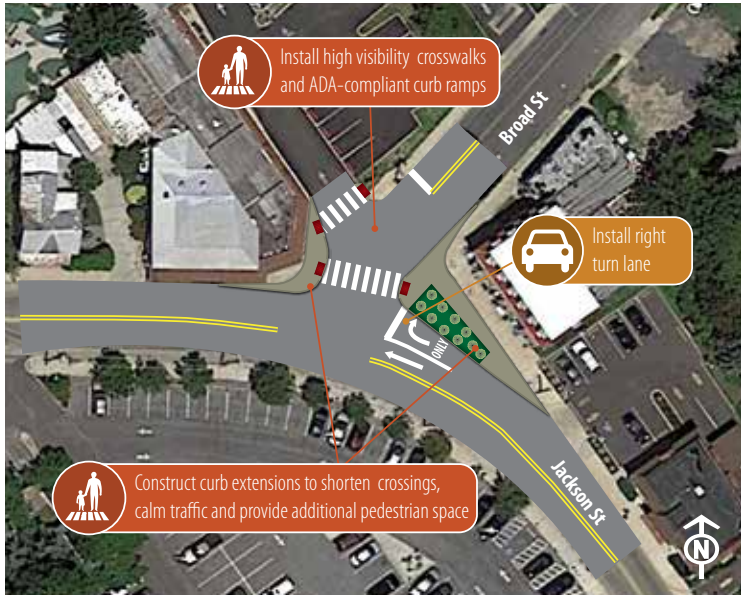
Table 3.1 | Comparison of Jackson Street at Broad Street Alternatives

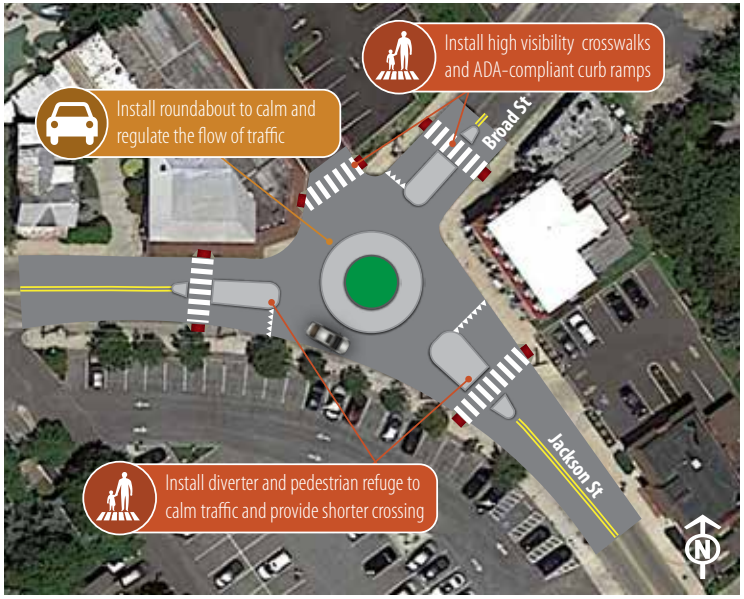
Option	Benefits	Concerns
Option 1 - Pedestrian Refuge Island	▪ Reduces pedestrian crossing distances ▪ Tightens intersection ▪ Facilitates more visible movements by all modes	▪ Does not address crossing of Jackson Street due to horizontal curvature and visibility issues
Option 2 - Curb Extension	▪ Reduces pedestrian crossing distances ▪ Tightens intersection ▪ Facilitates more visible movements by all modes ▪ Provides opportunity for additional public space and/or green stormwater treatment ▪ Eliminates channelized right-turn	▪ Does not address crossing of Jackson street due to horizontal curvature and visibility issues
Option 3 - Round -about	▪ Enables visible crossings at all intersection approaches ▪ Creates gateway approaching downtown	▪ Requires significant reconfiguration of intersection ▪ Substantially higher cost and design effort

Option 1 - Pedestrian Refuge Island

Option 1 seeks to upgrade the existing configuration of the intersection by replacing the striped channelized right-turn island with a curbed, raised island that can serve as a pedestrian refuge island. Combined with a curb extension at the northwest corner, this will tighten the intersection to create shorter, more visible pedestrian crossings.

- Install ADA-compliant curb ramps and high visibility continental crosswalks at hardware store entrance and crossing at Broad Street and Jackson Street
- Install permanent raised island to regulate separate traffic and provide a pedestrian crossing refuge at the intersection
- Install curb extension at Jackson Street and hardware store entrance corner to reduce turning radius





Cost Estimate

Option 1	*$24,700*
Option 2	*$28,400*
Option 3	*$258,500*

Option 2 - Curb Extension

Option 2 seeks to tighten the intersection by removing the channelized right-turn, replacing it with a large curb extension and standard right-turn lane.

- Install curb extension at the corner of Jackson Street and Broad Street. Utilize the additional space provided by the curb extension as an opportunity for green stormwater treatment
- Install curb extension at Jackson Street and hardware store entrance corner to reduce turning radius
- Install ADA-compliant curb ramps and high visibility continental crosswalks at hardware store entrance and crossing at Broad Street and Jackson Street

Option 3 - Roundabout

Option 3 reconfigures the three-way, stop-controlled intersection as a roundabout, providing a traffic calming gateway approaching downtown and allowing pedestrian crossings at all approaches to the intersection.

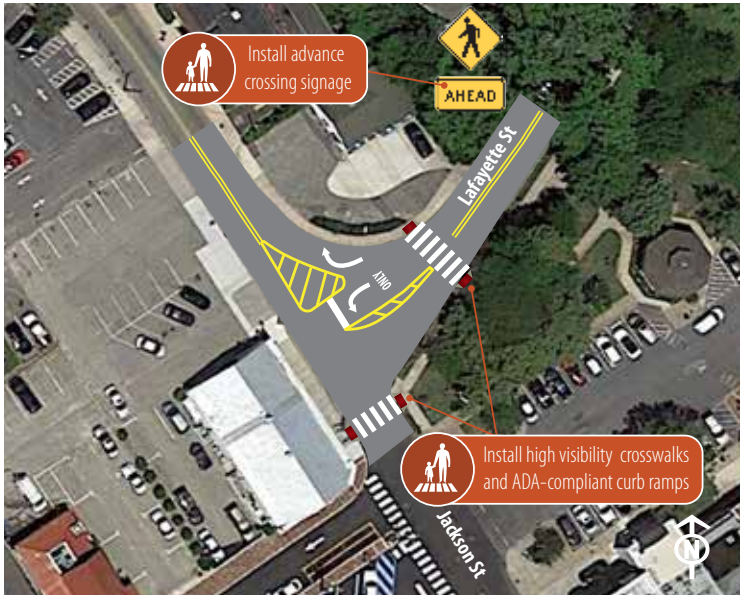
- Install a roundabout at the intersection
- Install ADA-compliant curb ramps and high visibility continental crosswalks at all approaches
- Install yield signs for lanes entering traffic circle

Lafayette Street at Jackson Street

This unsignalized intersection is an important access point to downtown Cape May City and other tourist attractions in the City. Major destinations surrounding the intersection include the Washington Street Mall, Rotary Park, and Cape May Stage. Proposed recommendations seek to provide a pedestrian crossing of Lafayette Street to improve pedestrian circulation and access to Rotary Park. The improvement options below would be in conjunction with on-going planning for improvements to the northeast corner. Potential changes to the curb radius at this corner should consider utilizing a mountable curb apron to better accommodate large vehicles while maintaining a tighter curb radius for most vehicles.

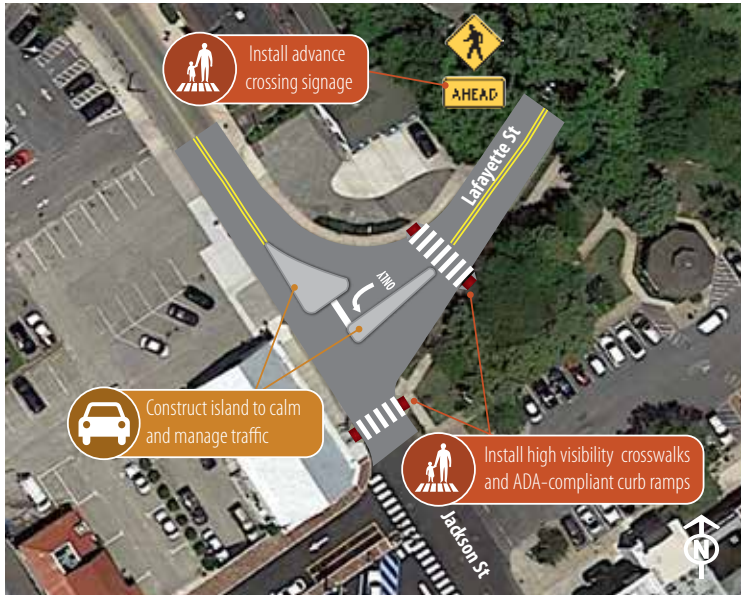
Table 3.2 | Comparison of Jackson Street at Lafayette Street Alternatives

Option	Benefits	Concerns
Short Term	▪ Provides crossing of Lafayette Street	▪ No traffic calming elements ▪ Lafayette Street crossing is offset from intersection
Long Term Option 1	▪ Provides crossing of Lafayette Street ▪ Provides traffic calming	▪ Lafayette Street crossing is offset from intersection
Long Term Option 2	▪ Provides crossing of Lafayette Street ▪ Provides traffic calming ▪ Shortens crossings ▪ Enhances visibility	▪ Potential impacts to turning movements for large vehicles



Short Term

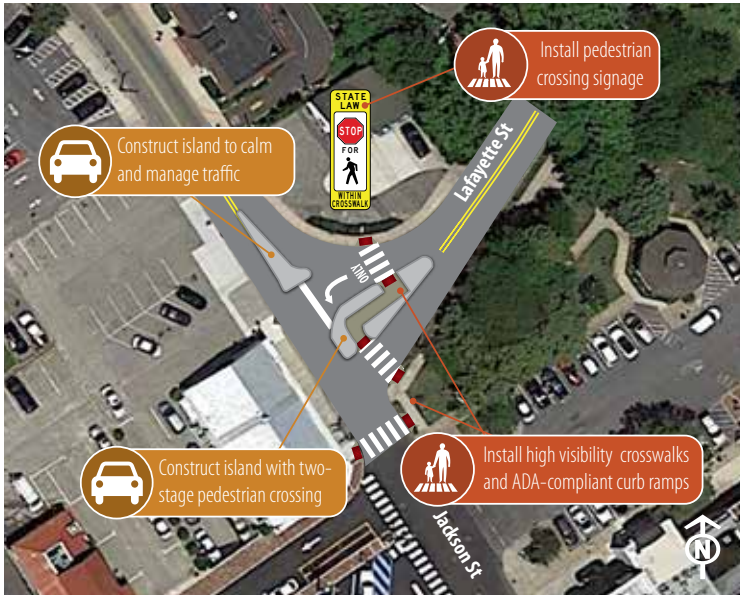
- Install high visibility continental crosswalk at Lafayette Street crossing, located slightly north of the intersection to improve pedestrian visibility and reduce crossing distance
- Install Pedestrian Crossing Ahead advanced warning sign (MUTCD W11-2/W16-9P) to alert vehicular traffic
- Install ADA-compliant curb ramps at all approaches



Long Term Option 1

Long term Option 1 would replace the existing striped median islands with raised islands in order to reinforce slow vehicle speeds.

- Install raised traffic islands at the location of the existing striped islands. Utilize a mountable curb or apron to accommodate truck and bus traffic



Long Term Option 2

Long term Option 2 would provide a two-stage, staggered crossing to minimize the crossing distance and exposure to vehicular traffic, while also providing the crossings at the most convenient and predictable locations.

- Install pedestrian refuge island at Lafayette Street, with a two-stage, staggered crossing. Utilize a mountable curb or apron to accommodate truck and bus traffic, as needed
- Install traffic island on Jackson Street to reinforce slow vehicular speeds
- Install “Stop for Pedestrians within Crosswalk” warning sign (MUTCD R1-6a) on the pedestrian island
- Install high visibility continental crosswalks at Lafayette Street
- Install ADA-compliant curb ramps at all approaches

Cost Estimate

Option 1	*$4,300*
Option 2	*$12,900*
Option 3	*$14,400*

Pedestrian Mall

seeks to further prioritize pedestrian movement over vehicular traffic and enhance the continuity of the Washington Street Mall

Washington Street Pedestrian Mall

The Washington Street Pedestrian Mall is a pedestrian-only commercial corridor from Ocean Street to Perry Street. This street experiences heavy pedestrian traffic, particularly during the summer. The proposed recommendations, as shown in sketch below, seek to prioritize foot traffic over vehicular traffic where the Mall intersects Jackson and Decatur Streets.

Mid-Term

- Install raised intersections with yield markings, providing a continuous, level walking surface of pedestrians and slowing vehicular traffic

Long Term

- Conduct a traffic study of the Washington Street Pedestrian Mall to understand traffic patterns, and explore the impacts of closing Jackson and Decatur Streets between Lyle Lane and Carpenter Lane to vehicular traffic during peak pedestrian periods (e.g., summer weekends)

Cost Estimate

Mid-Term	*$118,300*

High Bicycle Usage

Bicycling is a popular form of transportation and recreation among residents and visitors alike in both Cape May City and Cape May Point

3.2 Bicycle Network

Cape May City and Cape May Point Borough are both compact communities whose roadways have a high degree of connectivity and several existing bicycle facilities. These characteristics provide a solid foundation to build upon. The proposed bicycle network outlined in this section aims to expand the existing bicycle facilities to create a more complete bicycle network that is comfortable for most users and conveniently connects key origins and destinations.

Development of the Network

Based on the analysis summarized in the Existing Conditions Technical Memorandum and input from the Study Advisory Committee, the project team identified network improvements guided by:

- Existing bicycle lanes: Building around existing facilities to enhance network connectivity and leverage existing infrastructure
- Major destinations: Seeking opportunities to provide convenient access to key destinations
- Inter-municipal linkages: Identifying opportunities to create a more comfortable bicycle connection between Cape May City and Cape May Point
- Bicycle level of traffic stress (LTS): Utilizing the existing conditions LTS analysis as a guide to identify high traffic stress roadways and develop targeted recommendations to improve user comfort and connectivity of the low stress network
- Roadway constraints: Prioritizing easily implementable improvements that can be constructed within existing roadway widths with minimal disruption to current roadway configurations and existing on-street parking
- Environmental constraints: Considering potential constraints and permitting requirements necessary to implement off-road trail facilities

Bicycle Improvements

The proposed bicycle improvements are shown in Map 01. As discussed in the following pages, the recommendations are divided into four categories: off-road trails, bicycle lanes, bicycle boulevards, and shared lane markings.

Bike Walk Cape May

BICYCLE AND PEDESTRIAN PLAN FOR
CAPE MAY CITY AND CAPE MAY POINT BOROUGH

Map 01 - Proposed Bicycle Improvements

- Proposed Bike Lane
- Proposed Bike Boulevard
- Proposed Shared Lane
- Proposed Multi-use Trail
- Existing Bike Lane
- Existing Promenade
- Existing Walking Path

0 0.5 1 Miles

N

Off-Road Trails

To enhance connectivity between Cape May City and Cape May Point and provide an alternative route to Sunset Boulevard, a beachside trail is proposed through the Cape May Point State Park and South Cape May Meadows. The "unimproved" trail would be compacted dirt and approximately 10 feet wide, consistent with the character of the main trails in the South Cape May Meadows area. It would follow the general alignment of existing narrow footpaths, linking the existing boardwalk and beach access point at Mount Vernon Avenue to the Cape May Lighthouse.

Completely separated from vehicular traffic, the proposed trail would provide a more comfortable and more direct route for both bicyclists and pedestrians than Sunset Boulevard. It would reduce the trip length between the Lighthouse and the Washington Street Mall from approximately 2.60 miles to 2.20 miles. The unimproved design of the trail would only make it suitable for low speed bicycle travel, such as beach cruisers or mountain bikes. The scenic path would enhance the connectivity of the existing trail network, provide additional opportunities for recreation and birding, and improve access to the Lighthouse, state park, and beaches.

Given the environmentally sensitive nature of the area, the unimproved trail would require extensive permitting and environmental review. Design options should mitigate potential impacts by using pervious materials, low impact design tools, and avoiding loss of habitat. While the constraints do not appear to preclude further feasibility analysis, they would include:

- Detailed mapping of beaches, dunes, and wetlands
- Cape May Migratory Bird Refuge, which is a New Jersey Natural Heritage Priority Site, Migratory Raptor Concentration Site and part of Cape May Point State Park
- Federally/state listed threatened and endangered species
- Cultural resources, including the Cape May Lighthouse, Battery 223, and the Cape May Historic District

Clockwise from top-left (1) Existing spur trail could be used for the alignment of the proposed trail (2) Proposed trail would be consistent with the existing "unimproved" trail system within the State Park and Preserve area (3) Proposed trail would enhance access to natural, recreational, and historic assets

Facility Type | Bicycle Lane

Bicycle lanes provide a dedicated space for bicyclists within the roadway through the use of striping, pavement markings, and/or signage. They enable bicyclists to ride at their preferred speed with minimal interference from vehicular traffic, and help facilitate predictable behavior between motorists and bicyclists.

Bicycle lanes should be a minimum of 5 feet wide, and motor vehicle lanes should typically be 10 – 11 feet wide. When there is additional roadway width available, the excess space can be used to stripe a buffer between the travel lane and bicycle lane. The buffer enhances bicyclist comfort by increasing separation from traffic and visually narrowing the travel lane to help reduce motor vehicle speeds. Additional design details can be found in NACTO's "Urban Bikeway Design Guide."

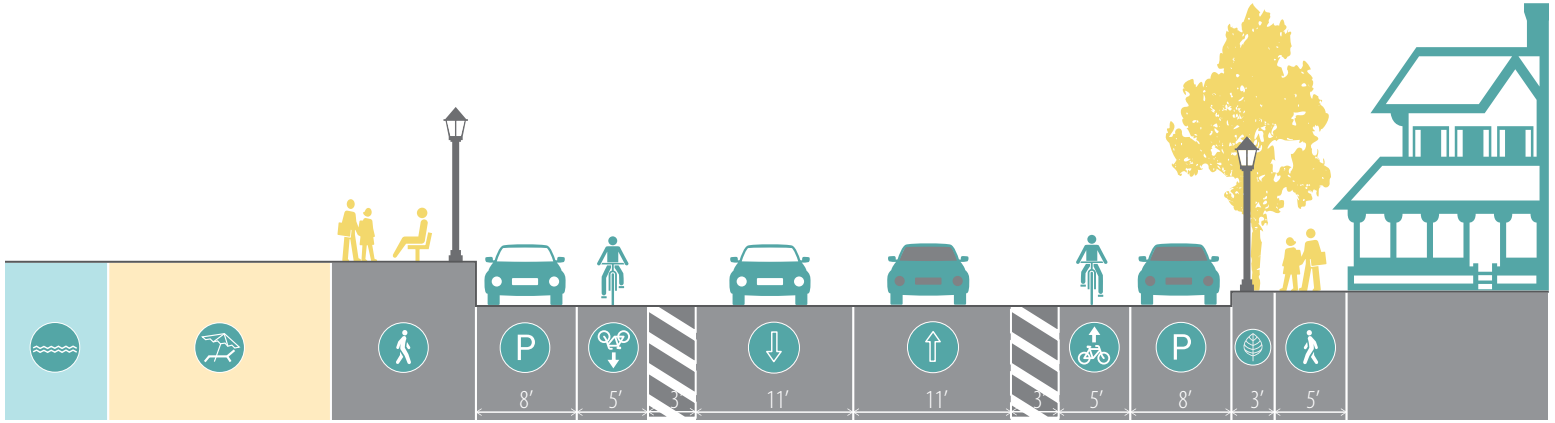
Bicycle lanes are recommended on the following roadways:

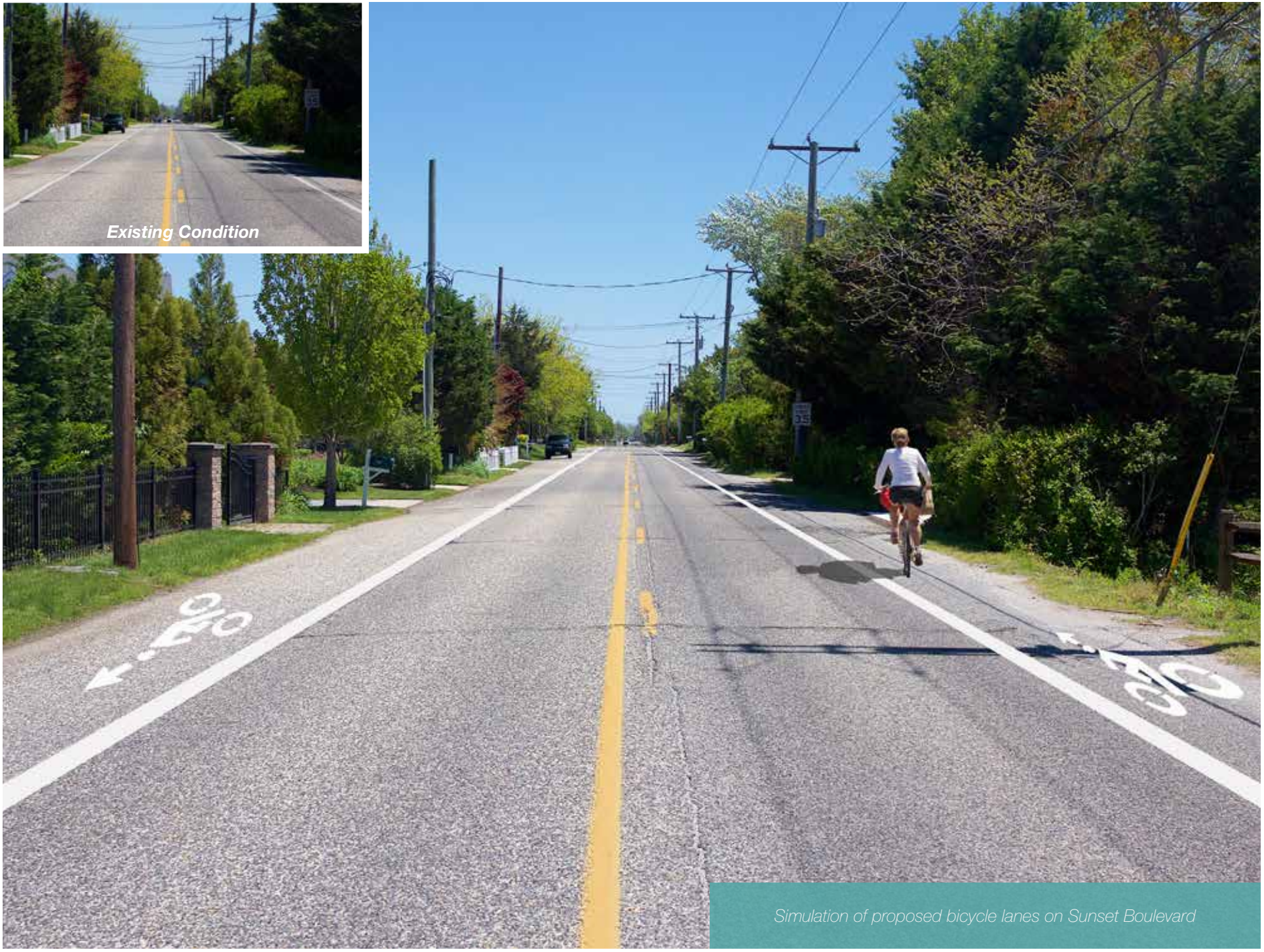
- Beach Avenue
- Sunset Boulevard
- Jackson Street
- Columbia Street
- Pennsylvania Avenue

Beach Avenue

On Beach Avenue, both bicycle lanes and shared lane markings have been proposed due to width constraints. The width on Beach Avenue varies from 39’ to 62’ along the corridor. Shared lane markings are proposed along the narrower sections that cannot adequately accommodate bicycle lanes (discussed in more detail on page 37). As shown in Map 01, sections that are wide enough to install bicycle lanes include the western end of Beach Avenue to Grant Street (55’-62’), Decatur Street to Howard Street (60’), and Madison Avenue to Wilmington Avenue (52’-58’).

The proposed cross section of bicycle lanes on Beach Avenue are illustrated below. The width of the buffer between the bicycle lane and travel lane may narrow or widen to accommodate the changes in cartway width. Where perpendicular on-street parking exists along the corridor (South Broadway to the western terminus), the parking can be reconfigured as reverse angle parking to improve safety for all roadway users and improve the visibility of all passing traffic to motorists leaving their parking spaces. Including bicycle lanes on Beach Avenue will reduce the stress level from 2 to 1 on this roadway.



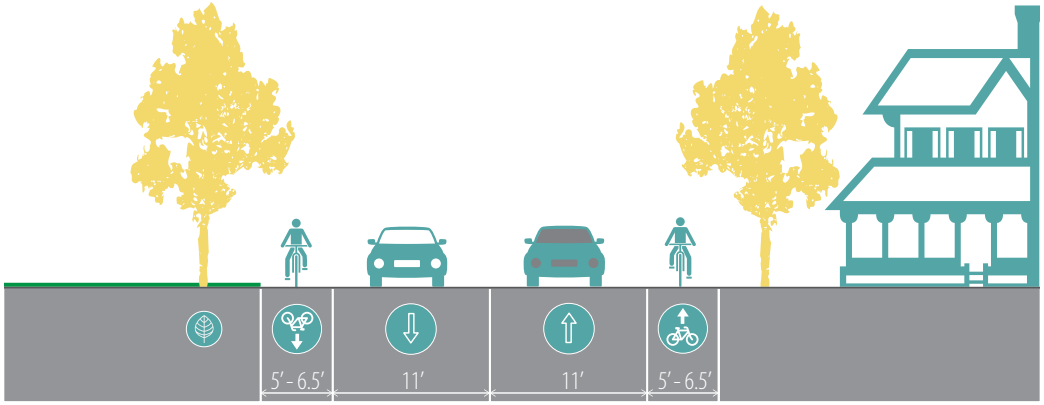


Simulation of proposed bicycle lanes on Sunset Boulevard

Sunset Boulevard

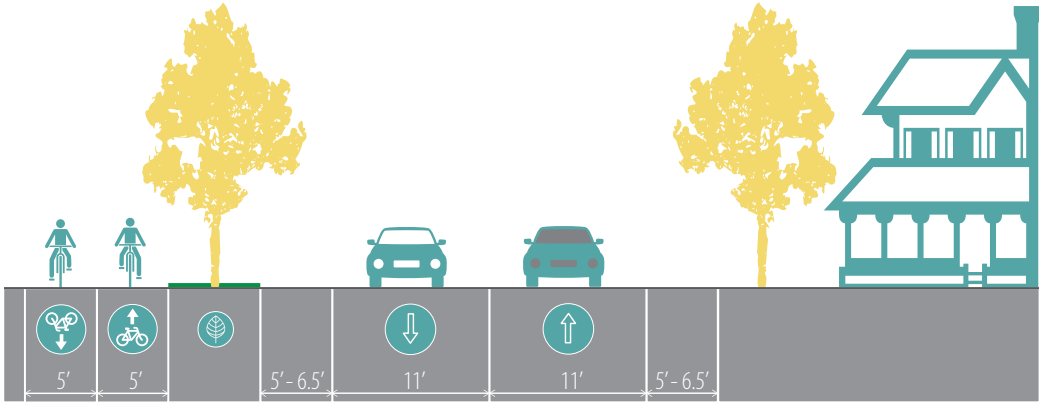
Short Term

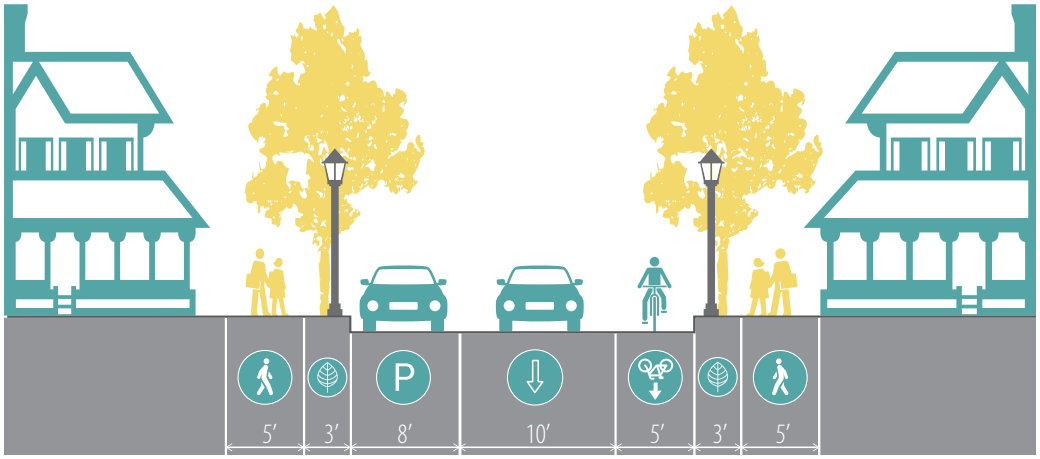
Striped bicycle lanes are proposed from Sunset Beach to Broadway. As shown to the right in the proposed cross section, the existing shoulders on Sunset are converted to 5-foot bicycle lanes. The provision of designated bicycle lanes would reduce the LTS from 4 to 3 between Broadway and Seagrove Avenue, where the speed limit is 35 mph. It would remain LTS 4 west of Seagrove Avenue due to the higher speed limit (40 mph).



Long Term

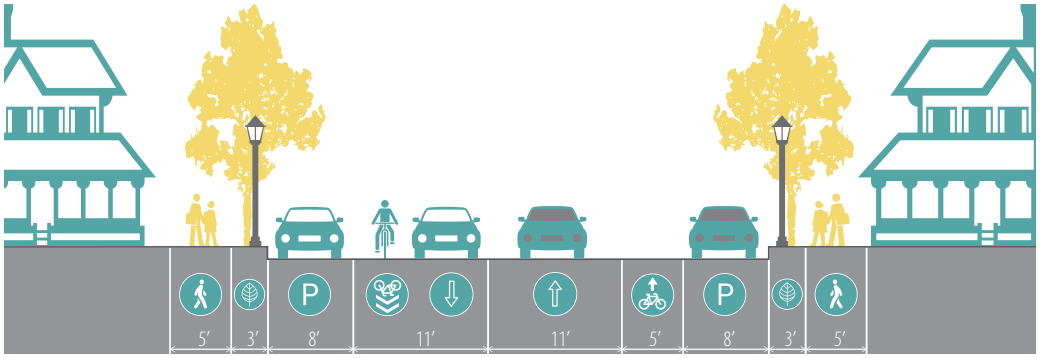
On Sunset Boulevard there is land available on the southern side of the roadway to create a two-way separated bicycle lanes or a multi-use path parallel to the roadway from Broadway to Seagrove Avenue. The cross section for the proposed off-road facility is shown to the right. The off-road facility would reduce traffic stress from 4 to 1 and provide a more comfortable option for bicyclists of all ages and abilities. This concept would require outreach and coordination with NJDEP and the Nature Conservancy given the sensitive nature of the proposed development area.





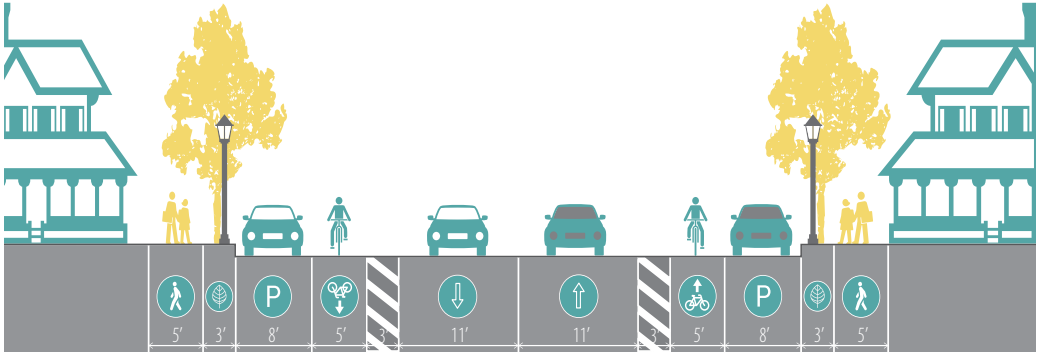
Jackson Street

A one-way southbound bicycle lane on Jackson Street provides an important bike connection from downtown Cape May City and the Washington Street Pedestrian Mall to the beach. The travel lane is reduced from 15’ to 10’ in order to accommodate a 5-foot bicycle lane. The bicycle lane is located on the left side of the street to reduce conflicts with parked vehicles and enhance visibility to drivers. The addition of the bicycle lane reduces the traffic stress level from 2 to 1 on this roadway.



Columbia Avenue

The width of Columbia Avenue is approximately 43 feet, which is too narrow to provide a bicycle lane in both directions of travel. Therefore, a hybrid approach is proposed, with a 5-foot bicycle lane in the westbound direction and a shared-lane in the eastbound direction. Columbia Avenue is an important east/west link, combining with Pennsylvania Avenue and Michigan Avenue to link the USCG facility and surrounding neighborhood to the downtown, as well as connecting with the existing north/south bicycle lane on Madison Avenue.



Pennsylvania Avenue

There are existing bicycle lanes on Pennsylvania Avenue east of Pittsburgh Avenue. The cartway width of Pennsylvania Avenue from Pittsburgh Avenue to Michigan Avenue is 54 feet, which can accommodate 5-foot bicycle lanes with 3-foot striped buffers in each direction. The proposed lanes extend the existing Pennsylvania Avenue bicycle lanes from Pittsburgh Avenue to Michigan Avenue, providing a connection from the USCG facility and surrounding neighborhood to the downtown commercial area, school, and other destinations.

Clockwise from top-left (1) Existing bicycle lane on Pennsylvania Avenue east of Pittsburgh Avenue (2) Bicyclists on Jackson Street (3) Bicyclists on Columbia Avenue

Facility Type | Bicycle Boulevard

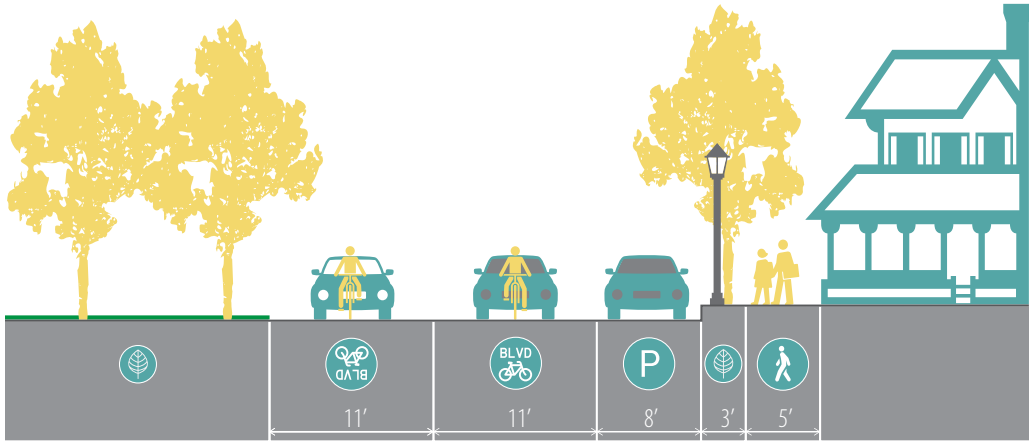
Bicycle boulevards are traffic calmed streets that prioritize bicycle travel and create a more comfortable bicycling environment. Many low speed, low volume residential streets provide the basic components of a bicycle boulevard. The preferred speed limit of a bicycle boulevard is 20 mph. Traffic calming elements appropriate for the context, such as curb extensions, speed cushions, chicanes, or mini-roundabouts, should be used to reinforce the low speed limit and discourage cut-through traffic. Pavement markings and wayfinding signage are also key elements, highlighting the corridor as a priority route for bicyclists and that the roadway is intended as a shared, slow street. Additional design details can be found in ***NACTO's "Urban Bikeway Design Guide."***

Bicycle boulevards are recommended on the following roadways:

- Seagrove Avenue
- Cape May Avenue

Seagrove Avenue

Seagrove Avenue is a low speed, low volume corridor between Sunset Boulevard and Lighthouse Avenue. It is an entry point into Cape May Point Borough, an alternative to the higher speed Sunset Boulevard, and provides access to the Cape May Lighthouse and Cape May Point State Park via Lighthouse Avenue. A bicycle boulevard is proposed on this corridor to prioritize travel for bicyclists and improve access to these destinations. Improvements would include context-sensitive traffic calming elements, pavement markings, and wayfinding signage.



Cape May Avenue

Cape May Avenue provides an east/west connection through residential neighborhoods in the eastern part of Cape May City, linking existing north/south bicycle lanes on Pittsburgh Avenue and Madison Avenue. Cape May Avenue is a low speed, low volume residential corridor. The corridor consists of a pair of two-way streets separated by approximately 100 feet of open space. Two concepts are proposed:

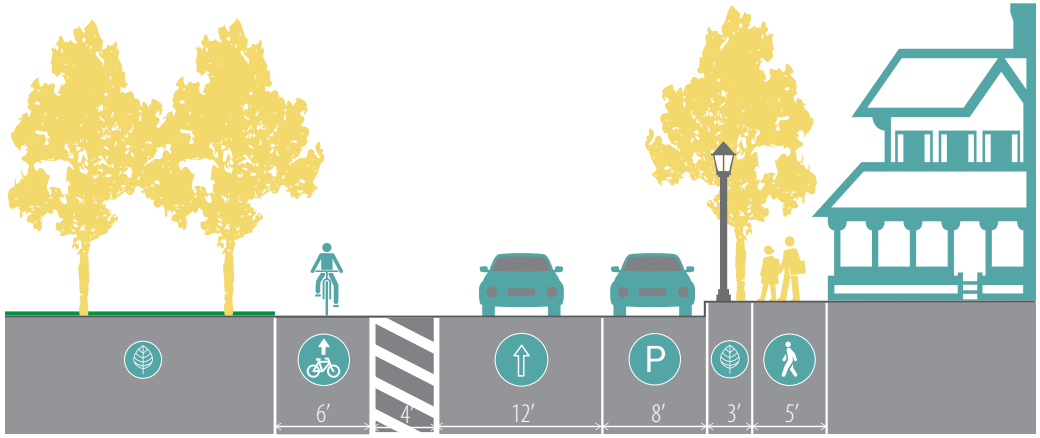
Option 1: Bicycle Boulevard

A bicycle boulevard is proposed along this corridor, as illustrated below and in the cross section to the left. The proposed improvements would require no changes to roadway circulation or on-street parking. Improvements would include context-sensitive traffic calming elements, pavement markings, and wayfinding signage.

Simulation of proposed bicycle boulevard on Cape May Avenue

Option 2: Separated Bicycle Lanes and One-way Conversion

An alternative concept for Cape May Avenue is to implement separated bicycle lanes, as shown in below and to the right. This would require converting Cape May Avenue to a one-way pair, with the north side of the park accommodating westbound travel and the south side accommodating eastbound travel. Bicycle lanes would run adjacent to the park, separated from traffic by a buffer and curbing or other vertical separator. On-street parking would remain adjacent to the residential side of the street.



Simulation of proposed separated bicycle lane on Cape May Avenue

Facility Type | Shared-Lane Marking

To complete the bicycle network and provide vital connections to major destinations in the study area, shared-lane markings are proposed on roadways with cartway width limitations. While shared-lane markings alone do not reduce bicycle level of traffic stress, the markings help increase motorist awareness of bicyclists on the roadway, assert the legitimacy of bicyclists on the roadway, help bicyclists properly position themselves in the lane, and provide directional and wayfinding guidance.

Shared-lane markings typically consist of a bicycle and chevron symbol (photo above left). To increase the visibility and effectiveness of the marking, the marking can be applied on a green background, such as the example from Newark shown above. This “enhanced” shared-lane marking is particularly useful on streets with higher traffic volumes and more activity. Additional design details can be found in NACTO’s “Urban Bikeway Design Guide.”

Recommendations for shared-lane marking are described on the following page.

Beach Avenue (Enhanced Shared-Lane Markings)

Enhanced shared-lane markings are proposed on two sections of Beach Avenue: from Grant Street to Decatur Street, and from Howard Street and Madison Avenue. As discussed on page 36, shared lanes are proposed for these sections because cartway width limitations preclude dedicated bicycle lanes without impacting on-street parking. Because the Beach Avenue corridor alternates between bicycle lanes and shared-lane markings and has significant bicycle, pedestrian, and vehicle traffic, enhanced shared-lane markings with a green background are recommended to enhance visibility.

Michigan Avenue

Shared-lane markings are proposed from Pennsylvania Avenue to Pittsburgh Avenue. The corridor provides an important bike connection from the USCG facility to the elementary school on Lafayette Street and to downtown via Columbia Avenue.

Columbia Avenue

Shared-lane markings are proposed from Decatur Street to Gurney Street, and in the eastbound direction from Gurney Street to Madison Avenue as part of the bicycle lane/shared-lane marking hybrid design. This is an important east-west bicycle connection for the downtown, elementary school and USCG facility.

Decatur Street

Shared-lane markings are proposed from Lafayette Street to Beach Avenue, as it provides a connection to the beach, downtown, Rotary Park and Lafayette Street Park bike trail via Bank and Broad Streets.

Broadway

Shared-lane markings are proposed from Beach Avenue to Sunset Boulevard, providing an important connection from Beach Avenue to the bicycle lanes on Sunset Boulevard.

Perry Street and West Perry Street

Shared-lane markings are proposed on West Perry Street from Broadway to Perry Street, and on Perry Street from West Perry Street to Beach Avenue. This shared-lane connection will help bicyclists avoid the conflicts with vehicular traffic at Jackson Street and Lafayette Street and easily access downtown and the beach.

Lyle Lane and Carpenter Lane

One-way eastbound shared-lane markings are proposed on Lyle Lane from Perry Street to Decatur Street and one-way westbound on Carpenter Lane from Decatur Street to Perry Street. These are important bicycle connections in the downtown, providing parallel routes the pedestrian-only section of Washington Street, and connecting the north/south Decatur and Perry Street corridors.

Wilmington Avenue

Shared-lane markings are proposed from New Jersey Avenue to Beach Avenue, connecting the eastern termini of the bicycle lanes on New Jersey and Beach Avenues.

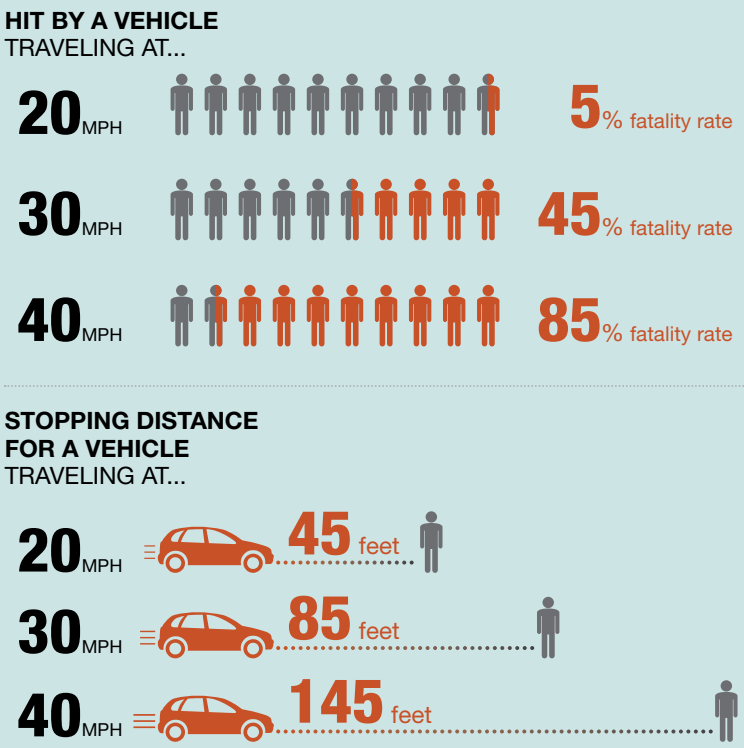
Cape Avenue

Shared-lane markings are proposed from Sunset Boulevard to Lincoln Avenue in Cape May Point Borough. Cape Avenue is one of the primary roadway corridors in the Borough, and provides access to Sunset Boulevard, the Borough green, and the beach.

Lighthouse Avenue

Shared-lane markings are proposed from Sunset Boulevard to Yale Avenue. Lighthouse Avenue is also an entry point to Cape May Point Borough and provides access to the lighthouse and Cape May Point State Park.

Speed vs. Safety



Source: NACTO's "Urban Bikeway Design Guide

Speed Limit Change

Vehicle speed is a critical determinant in crash severity, as illustrated in the sidebar to the left. To maintain consistent driver expectations and behaviors throughout the two communities, a standard City-wide and Borough-wide speed limit is proposed.

In Cape May Point, a speed limit of 20 mph should be applied throughout the community. This is consistent with the dense, village development pattern of the Borough and reflective the goal of the Borough Master Plan's Circulation Element, which encourages a "pedestrian oriented community with the streets part of the 'life' of the village. … The streets of the Borough are part of our 'living yard'." A low speed limit supports this shared-street concept, where pedestrians, bicyclists, and motorists share the street to balance transportation, recreation, and community life needs. The unique location and street network within the Borough also means traffic volumes are low and that there is essentially no "cut through" traffic, and all trips are either made by local residents or visitors.

In Cape May City, a consistent speed limit of 25 mph should be applied (with the exception of 20 mph on bicycle boulevards), which is consistent with the urban character and relatively dense residential neighborhoods through the City. The vast majority of the City's streets are already 25 mph, and the proposed change would only impact the following streets:

Broadway

Proposed speed limit reduction from 30 mph to 25 mph. This will reduce the LTS from 3 to 2 on this roadway. This residential street is a major connector to the beach for both bicyclists and pedestrians.

Pittsburgh Avenue

Proposed speed limit reduction from 35 mph to 25 mph. Given the wide roadway width, targeted enforcement and traffic calming elements such as curb extensions should also be considered to support the lower speed limit.

Clockwise from top-left (1) Cape May Point's streets function as a shared space for pedestrians, bicyclists, and motorists (2) Broadway is a major connector within the bicycle network (3) Bicyclist on Pittsburgh Avenue

Summary

The proposed improvements described in the previous section are intended to provide a more comfortable, convenient, and interconnected bicycle network for cyclists of all ages and abilities. Improving the bicycle facilities for the roadways mentioned in the previous section will create a comprehensive bicycle network for Cape May City and Cape May Point. As shown in Map 01, the proposed network builds upon existing bicycle facilities, connects major destinations for residents and tourists, and improves linkages between Cape May City and Cape May Point.

Re-evaluating the bicycle level of traffic stress (LTS) for the proposed network is one way to measure the anticipated benefits to user comfort. Map 02 shows the revised LTS analysis with all the recommended bicycle improvements implemented. The result is a network composed almost entirely of stress level 1 or 2 roadways. The percentage change in the LTS 1 and LTS 2 roadway network is 6.1 percent, which is significant. While part Sunset Boulevard would remain an LTS 3 and LTS 4 due to the higher speed limit, the proposed beach trail provides a new alternative route. Further, long-term improvements to construct a multi-use path from Seagrove Avenue to Pacific Avenue adjacent to Sunset Boulevard would create an LTS 1 facility and fill this gap in the low stress network.

The level of traffic stress metric measures the comfort level of a roadway for different types of users. By focusing on providing connections that are either LTS 1 or 2, the network better accommodates current cyclists and is more attractive to potential new bicyclists. Most importantly, it increases the livability of the communities by prioritizing and accommodating an active, healthy, and fun transportation mode for residents and tourists alike.

Facility Type	Length (lane miles)	Cost
Separated Bicycle Lane	1.2	$79,300
Buffered Bicycle Lane	4.1	$50,100
Bicycle Lane	5.1	$42,800
Bicycle Boulevard	2.3	$13,800*
Enhanced Shared Lane Markings	1.3	$13,000
Shared-Lane Markings	7.5	$47,600
Multi-Use Path	1.1	$619,400
Unimproved Trail	1.7	n/a
Total	**24.3**	**$866,000****

**does not include cost of traffic calming and signage elements*

*** does not include cost of unimproved trail*

Note: Where multiple alternatives are proposed for a corridor (e.g., Cape May Avenue), both alternatives are included in the length and cost estimates

Bike Walk Cape May

BICYCLE AND PEDESTRIAN PLAN FOR CAPE MAY CITY AND CAPE MAY POINT BOROUGH

Map 02 - Proposed Bicycle Level of Traffic Stress

- Level of Stress 1
- Level of Stress 2
- Level of Stress 3
- Level of Stress 4
- LTS Change from Existing

0 0.5 1 Miles

N

Bicycle Facilities

Bicycle Parking

The City and Borough have an ample amount of bicycle parking. However, as noted in the Existing Conditions Technical Memorandum, many bicycle racks are still over-capacity during the summer months, and bicycle theft data indicated a correlation between thefts and lack of secure bicycle parking. To help meet high demand, the City should continue efforts to provide additional bicycle parking throughout downtown Cape May City and at beach access points along Beach Avenue. Cape May Point should continue to expand capacity at beach access points within the Borough.

Most existing bicycle racks are an obsolete “wave” or “comb style.” These rack designs do not adequately support the bike frame, have poor spacing, and are frequently used incorrectly. As the existing racks approach the end of their life cycle, they should be replaced with racks that meet current standards, such as the inverted-U, “A”, or post and loop designs more commonly installed today. New bicycle parking at the recently renovated Rotary Park features inverted-U style racks. (Recommended bike rack designs can be found on page 56 in the Existing Conditions Technical Memorandum).

The Borough and City should also encourage businesses and require new development to provide bicycle parking to further expand parking capacity and improve the convenience of bicycling. Finally, Cape May City should explore opportunities to for bicycle corrals in key commercial nodes, such as along Beach Avenue and at the Washington Street Pedestrian Mall intersections with Jackson Street, Decatur Street and Perry Street.

Wayfinding

Wayfinding is yet another method for improving the convenience and attractiveness of walking and biking. It serves as a navigational aid for both residents and visitors, indicating the location and direction of key destinations. By providing distance and time estimates, wayfinding can also overcome people’s tendency to over-estimate distances, thereby making walking or biking options more appealing and encouraging people to make more trips by foot or by bike.

The wayfinding system can also be used to designate and promote bicycle routes in the network. This will help direct bicyclists to the preferred routes and steer bicyclists away from high traffic areas such as Lafayette and Washington Streets.

The wayfinding signs should be developed based on the guidance provided by the Placemaking Study conducted by Temple University. The study is described in the Existing Conditions Technical Memorandum.

Clockwise from top-left (1) Older style "comb" rack at Cape May Point State Park (2) Over-capacity racks along Beach Avenue (3) New "inverted-U" racks at Rotary Park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4 Next Steps

The recommendations in this report provide a roadmap for improving conditions for biking and walking in Cape May City and Cape May Point.

The proposed recommendations outline a range of engineering, education, enforcement, and encouragement concepts and strategies to enhance bicycle and pedestrian mobility throughout the two communities. Prioritized and implemented over time, as funding is available, they will foster higher levels of walking and biking activity, spur economic activity along the commercial corridors, support tourism, and create a more robust network to link residents and tourists with the places they want to go.

Cape May City and Cape May Point Borough should work with Cape May County, the South Jersey Transportation Planning Organization (SJTPO), and NJDOT to advance the proposed improvements. A variety of funding sources are `available to support local bicycle and pedestrian improvements and programs. The New Jersey Bicycle and Pedestrian Resource Center has compiled a summary of available resources, which will be included as an appendix to the final report.

Bike Walk Cape May

Bicycle and Pedestrian Plan for
Cape May City and Cape May Point Borough