# TABLE OF CONTENTS

**I. Introduction ..... 1**

**II. New Jersey Statewide Bicycle and Pedestrian Master Plan ..... 6**

**III. West Cape May's Bicycle and Pedestrian Network ..... 7**

- **A. Land Use, Bicycle and Pedestrian Trip Generators and Travel Patterns ..... 8**
- **B. Regional Trail Network ..... 9**
- **C. Pedestrian Environment and Existing Facilities ..... 10**
- **D. Bicycle Environment and Facilities ..... 16**

**IV. Crash Analysis ..... 18**

- **A. Pedestrian Crash History ..... 18**
- **B. Bicycle Crash History ..... 19**

**V. Conceptual Improvements ..... 21**

- **A. Pedestrian Facility Improvements ..... 21**
- **B. Bicycle Facility Improvements ..... 28**
- **C. Regional Trail Network Connections ..... 35**

**VI. Policy and Education Recommendations ..... 35**

- **A. Policy ..... 35**
- **B. Education ..... 35**

**VII. Funding and Implementation ..... 37**

**VIII. Photograph Log ..... 37**

## Figures

Figure 1: Study Area – Regional Context ..... 5
Figure 2: Study Area – Local Context ..... 6
Figure 3: Intersection of Broadway and Sunset Boulevard ..... 14
Figure 4: Intersection of West Perry Street, Myrtle Avenue and Park Boulevard ..... 16
Figure 5: Pedestrian Crash Locations ..... 21
Figure 6: Bicycle Crash Locations ..... 19
Figure 7: Sidewalk Improvements by Trip Purpose Category ..... 24
Figure 8: Recommended Improvements to Broadway (Bicycle Facility) ..... 30
Figure 9: Recommended Improvements to Sunset Boulevard (Bicycle Lanes) ..... 33
Figure 10: Artistic Rendering of Bicycle Lanes on Sunset Boulevard ..... 34

## Maps

Map 1: Local Trip Generators and Bicycle/Pedestrian Travel Patterns
Map 2: Regional Bicycle Routes and Potential Connectors
Map 3: Sidewalk Inventory
Map 4: Bicycle Compatibility Assessment
Map 5: Sidewalk Improvements

## Appendices

Appendix A: New Jersey Statewide Bicycle and Pedestrian Master Plan Update
Appendix B: Postcard, Comments and Travel Survey Results from the Strawberry Festival
Appendix C: Comments from the Public Information Center
Appendix D: Cape Island, NJ, Car Free/Care Free Biking, Hiking and Birding Map
Appendix E: High Point to Cape May Bicycle Route
Appendix F: Sixth Avenue and Stevens Street Bicycle and Vehicle Traffic Count
Appendix G: NJDOT Planning and Design Guidelines for Bicycle Compatible Roadways/Bikeways
Appendix H: Funding Sources for Bicycle and Pedestrian Improvements
Appendix I: Preliminary Estimate Spreadsheets for Cost Estimates
Appendix J: West Cape May Ordinance Number 70-83
Appendix K: Photograph Log
Appendix L: Study Advisory Committee Meeting Materials

# I. Introduction

***The Borough of West Cape May***, through its officially appointed Task Force on Alternative Transportation Modes, submitted an application requesting bicycle and pedestrian planning assistance from the New Jersey Department of Transportation. Their primary objective is to establish a safe bicycle network within the Borough of West Cape May and to identify connections with adjacent municipalities. A secondary objective is to increase the safety of pedestrian crossings and to establish sidewalk continuity.

The New Jersey Department of Transportation – Office of Bicycle and Pedestrian Programs (NJDOT-OBPP) requested Michael Baker Jr. Inc. (Baker) to perform a Bicycle and Pedestrian Planning Study in the Borough of West Cape May, Cape May County under the ***Local Assistance Program***. The purpose of this study is to identify and assess the functionality of existing bicycle and pedestrian facilities, identify physical deficiencies, and develop and evaluate treatments to improve bicycle and pedestrian circulation in the Borough.

This report documents the activities, findings and determinations of the West Cape May Bicycle and Pedestrian Planning Assistance Study including the data collection process, assumptions, needs assessment findings and concept development efforts.

## A. Local Assistance Program

NJDOT initiated a program in 1997 for Bicycle and Pedestrian Local Planning Assistance. Through this program, New Jersey municipalities have an opportunity to identify pedestrian and bicycle issues that they would like addressed in their communities. Upon the request of a local entity, NJDOT provides consultant planning services to the community to conduct planning studies that evaluate needs and opportunities relating to bicycle and pedestrian circulation and safety. The result of the planning study then serves as a basis for developing proposals for implementing specific improvements. The studies are locally driven in a partnership arrangement with the applicant and have a strong public outreach component.

## B. Scope of Services

The West Cape May Bicycle and Pedestrian Study was completed following a series of tasks:

1) ***Data Collection and Activity Investigation:*** Existing resources were obtained to support deficiency identification and concept development including traffic volumes, bicycle and pedestrian crash data, applicable reports and studies and information on proposed development and rezoning. A site visit was performed to identify the location of bicycle and pedestrian trip generators and potential existing bicycle and pedestrian travel patterns.
2) ***Sidewalk Survey:*** The presence and condition of sidewalks and curb ramps were inventoried in the Borough and gaps in the sidewalk network were identified.
3) ***Bicycle Facility Assessment:*** The presence and condition of bicycle facilities were inventoried and traffic counts were performed to determine bicycle compatibility on roadways in the Borough.
4) ***Intersection Inventory and Assessment:*** An inventory was performed for the presence of pedestrian facilities at intersections identified as having mobility deficiencies by Borough officials. Physical and operational deficiencies were identified.
5) ***Regional Connections:*** Data and available mapping was collected for existing and proposed bicycle facilities in Cape May County. Bicycle facilities and proposed connections were illustrated on mapping.
6) ***Conceptual Improvements:*** Conceptual improvements were developed to address the identified bicycle and pedestrian deficiencies, and expand on regional trail opportunities. Concept level schematics were developed and an architectural sketch illustrating bicycle lanes on Sunset Boulevard was created.
7) ***Local Officials Coordination and Public Outreach:*** Administered two (2) Study Advisory Committee Meetings with stakeholders (April 10, 2007 and August 10, 2007), conducted a Public Information Center (October 11, 2007) and attended the

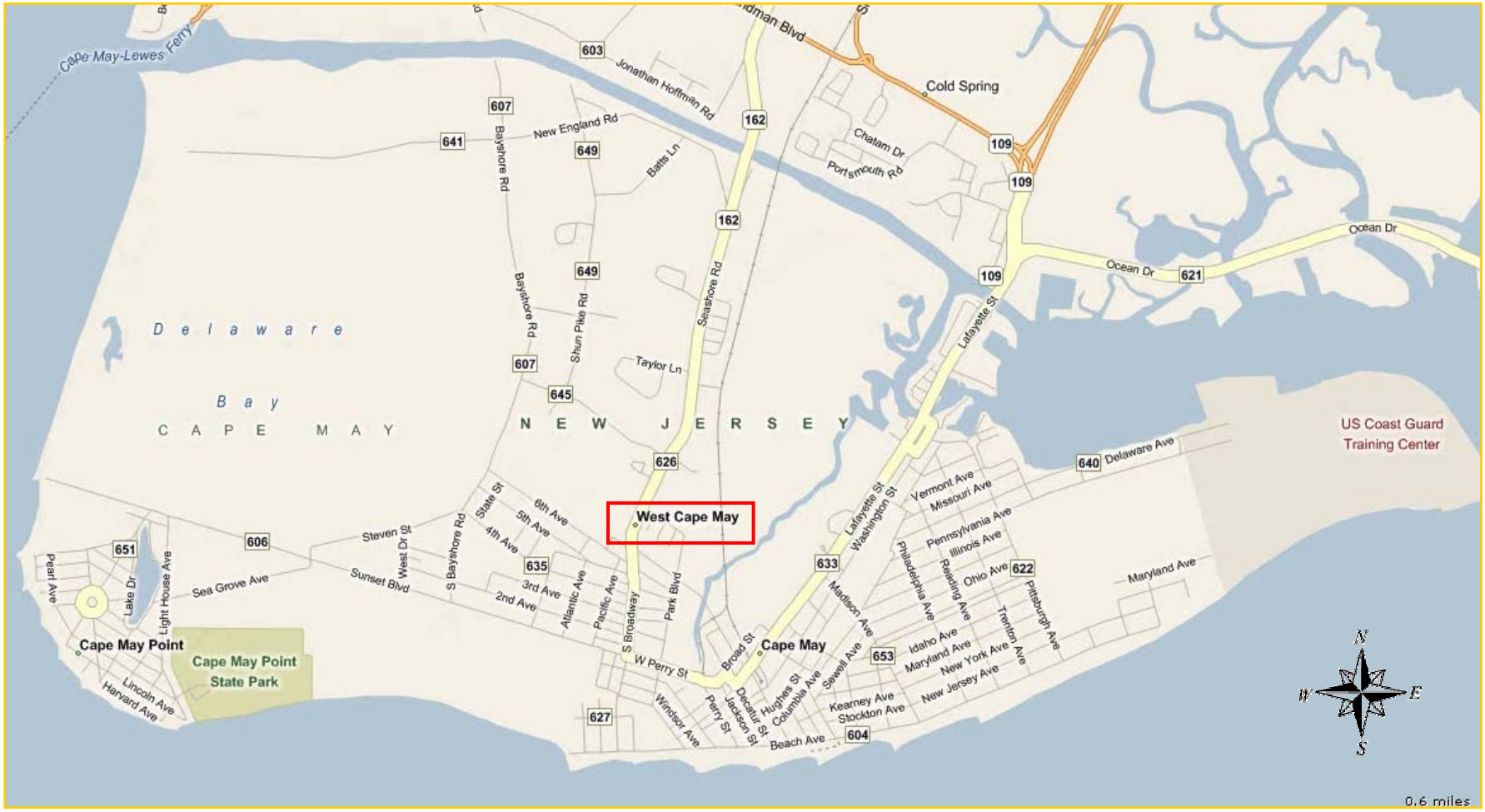
West Cape May Strawberry Festival on June 2, 2007 to provide the public with information about the study.

## C. Study Area

Generally, the Study Area included the entire Borough of West Cape May. Specific areas of investigation included major north-south and east-west corridors, local roadways that connect to major destinations (i.e. schools and municipal services, nature preserves and resources, retail and commerce centers), and specific intersections or areas where pedestrian and bicycle mobility were identified as a concern by Borough and County officials and the public. **Figures 1 and 2** illustrate the Study Area.

*Longitudinal striped crosswalk on Broadway at Fourth Avenue*

## FIGURE 1: STUDY AREA – REGIONAL CONTEXT



## FIGURE 2: STUDY AREA – LOCAL CONTEXT

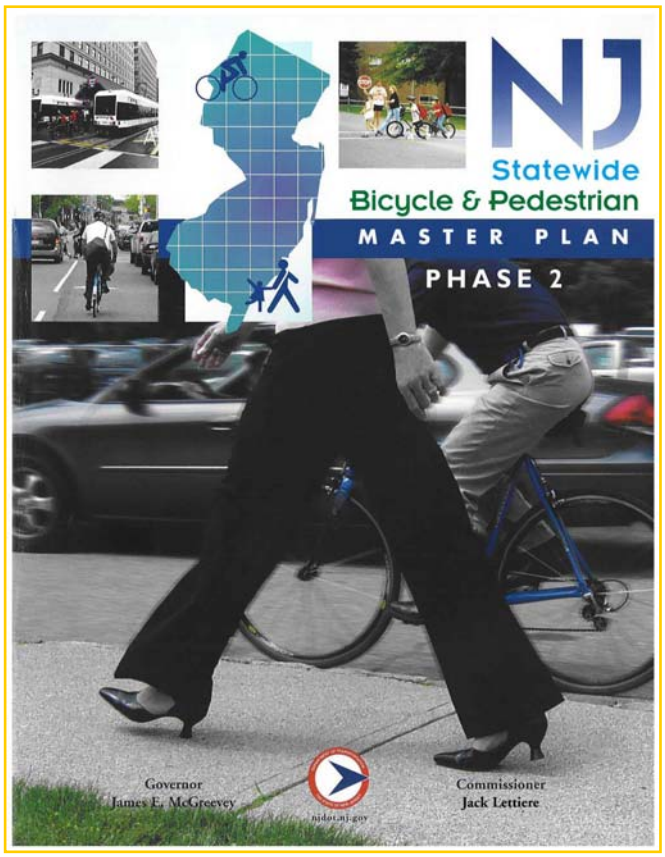
## II. New Jersey Statewide Bicycle and Pedestrian Master Plan

The Local Assistance Program, and by association this study, is governed by the goals and objectives of the New Jersey Statewide Bicycle and Pedestrian Master Plan. The Master Plan maintains the following goals:

1) ***Build the Infrastructure:*** "Create bicycle and pedestrian infrastructure by planning, designing, constructing and managing transportation and recreational facilities that will accommodate and encourage use by bicyclists and pedestrians and be responsive to their needs."
2) ***Improve Access:*** "Make community destinations, transit facilities and recreation facilities accessible and convenient for use by all types and skills levels of bicyclists and pedestrians."
3) ***Update Policies, Ordinances and Procedures:*** "Reform land use planning policies, ordinances and procedures to maximize opportunities for walking and bicycling."
4) ***Educate and Enforce:*** "Develop and implement education and enforcement programs that will result in reduction of crashes and a greater sense of security."
5) ***Foster a Pro-Bicycling and Walking Ethic*:** "Increase bicycling and walking by fostering a pro-bicycling and pro-walking ethic in individuals, private sector organizations and all levels of government."

Wherever possible, these goals should be factored into the bicycle and pedestrian planning and concept development process.

***The Statewide Bicycle and Pedestrian Master Plan, Update*** is contained in **Appendix A**.



## III. West Cape May's Bicycle and Pedestrian Network

Through the course of this study, several deficiencies and opportunities relating to West Cape May's Bicycle and Pedestrian network were identified. Comments were received from residents at the West Cape May Strawberry Festival held on June 2, 2007, and at the Public Information Center held on October 11, 2007, relating to desired bicycle and pedestrian connections and improvements. Residents commented on the need for sidewalk connections from the residential neighborhoods to educational, commercial and recreational destinations. A study postcard was distributed at the Strawberry Festival informing the public about the study. This postcard, a list of comments received, and the results from the travel survey administered at the Strawberry Festival are included in **Appendix B**. Comments received at the Public Information Center are included in **Appendix C**.

### A. Land Use, Bicycle and Pedestrian Trip Generators and Travel Patterns

The Borough of West Cape May is one of four municipalities (the other three include Cape May Point, City of Cape May and Lower Township) that a century ago were named collectively "Cape Island," an area that continues to be rich in nature, Victorian and Colonial architecture and seashore resort activities.[1] Attractions in the "Cape Island" area include, but are not limited to, the following:

- Cape May Point State Park, Museum and Lighthouse
- Cape May Bird Observatory and Lily Lake
- Sunset Beach; Concrete Ship
- Higbee Beach Wildlife Management Area
- The Emlen Physick Estate, Gallery, Visitor's Center
- The Nature Center of Cape May
- Washington Street Mall
- City of Cape May Beach, Fishing Jetties
- Congress Hall, Museum Shop

*Sunset Beach, Lower Township*

"Cape Island" attractions, as well as local attractions, are accessed by a variety of transportation modes, including bicyclists and pedestrians. To confirm which attractions are accessed through bicycle and pedestrian trips, field trips were made to the Study Area. In addition to the "Cape Island" attractions listed above, there are a number of agricultural, historic, retail and recreational resources in the Borough of West Cape May. Local trip generators are summarized on pages 8 and 9, and identified on **Map 1**. Map 1 also illustrates observed bicycle and pedestrian travel patterns.

[1] Cunningham, John T. "The New Jersey Shore." Rutgers University Press, New Brunswick, New Jersey, 1958.

*Agricultural Resources*

West Cape May has a flourishing history in agriculture and was once considered the "Lima Bean Capital East of the Rockies."[2] This community continues to embrace its history in agriculture through annual events celebrating local harvests, including strawberries and lima beans. A number of farms are located in the Borough for residents and visitors to sample local fruits, vegetables and wine. Bayshore Road and Stevens Street are home to both Rea's Farm Market and the Willow Creek Farm and Winery. Duckie's Farm Market is located on Broadway and during the summer months there is a weekly Farmer's Market that operates behind Borough Hall.

*West Cape May Farmer's Market*
*Source: Cape May Times Online*
*http://www.capemaytimes.com/cape-may-shopper/07-08farmstands.htm*

*Historic Resources*

West Cape May's history dates back to the time of the Lenni-Lenape Native Americans, and has since been visited and settled by Mayflower descendents, transient fisherman and whalers, and former slaves (it has reported ties to the Underground Railroad).[3] Portions of downtown West Cape May are included in the Cape May Historic District (ID#3042) listed on the National Register of Historic Places since 1970. The West Cape May Historic District is listed on the New Jersey Register of Historic Places (ID#4653) as having a Certificate of Eligibility (COE). The West Cape May Historic District includes Broadway (south of Myrtle Avenue to Leaming Street and the west side of Broadway from Grant to Sixth Street), portions of Myrtle Avenue, portions of Grant Avenue, Fow Street, McCullough Alley and Pacific Avenue.[4] The Borough of West Cape May defines the Historic District as including one block on either side of Broadway between Leaming Avenue on the north and West Grant Street on the south. A number of residences in the Historic District originated in Victorian times and some even earlier, in Colonial times.

*Retail and Services*

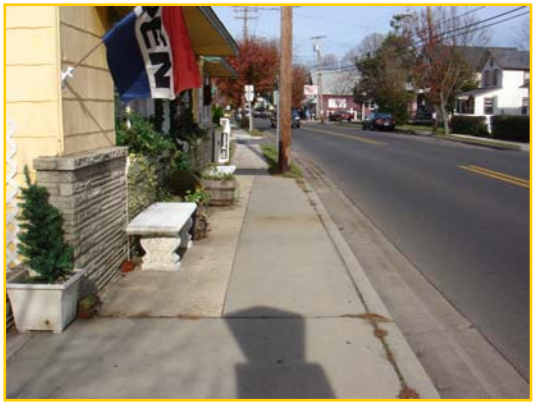
Most retail and public services are located on Broadway (CR 626), Sunset Boulevard (CR 606), West Perry Street and Park Avenue. Antique stores, clothing boutiques, restaurants, bakeries, convenience stores and specialty shops are

[2] Borough of West Cape May's Website: http://www.westcapemay.us/

[3] Wikipedia online: http://en.wikipedia.org/wiki/West_Cape_May%2C_New_Jersey

[4] New Jersey and National Registers of Historic Places, NJ DEP - Historic Preservation Office, Cape May County, August 2007.

distinctive fixtures of the business district. Cape Island Bike Rentals is located on Sunset Boulevard.



*Bella Vida Café, 406 Broadway*

*Civic/Institutional*
The West Cape May Municipal Complex, located at 732 Broadway, houses the Borough's municipal offices and services. The West Cape May Elementary School is located on Moore Street at Fifth Avenue.

*Recreation and Open Space*
Wilbraham Park, a common venue for community events (e.g., Strawberry Festival), is located at the intersection of Broadway, Perry Street and Myrtle Avenue. The Cape May Bird Observatory and Cape May Point State Park (home to the Cape May Point Lighthouse) are located just west of the downtown area. The Depot Travel Park Family Camping provides camping facilities in the northern section of the Borough. There is a Borough proposed recreational area east of Park Avenue.

## B. Regional Trail Network

There are numerous walking trails and bicycle routes throughout "Cape Island." Walking trails are available on park grounds and in the City of Cape May. Bicycle routes are both local and regional in origin. Local walking trails and bicycle routes are detailed in the "Cape Island, NJ, Car Free/Care Free Biking, Hiking and Birding Map" created by the West Cape May Citizens for Good Government (**Appendix D**). Existing regional bicycle routes include the Cold Spring Bike Path, Seashore Road Bicycle Lanes and the High Point to Cape May Bike Route. Existing regional bicycle routes are described in detail below and illustrated on **Map 2**.

*Share the Road Sign southbound on Seashore Road*

*Cold Spring Bike Path*
The Cold Spring Bike Path is a 2.72-mile off-road paved path traversing Lower Township from Sandman Boulevard to Sally Marshall Crossing in Atlantic Electric's right-of-way on the former West Jersey and Seashore Railroad Company rail bed. [5]

*Seashore Road Bicycle Lanes*
Striped and signed bicycle lanes are available

[5] Cape May County Online: http://www.co.cape-may.nj.us/Cit-e-Access/News/archnews.cfm?NID=868&TID=5&jump2=0

both northbound and southbound on Seashore Road from Cape May Harbor south to the municipal boundary of West Cape May.

*High Point to Cape May Bike Route*

The High Point to Cape May (HPTCM) Bike Route is a 238 mile bicycle route spanning the length of New Jersey from High Point State Park in Montague Township, Sussex County in the north to Cape May Point State Park in Lower Township, Cape May County in the south. Locally, HPTCM crosses over the Cape May Canal at Seashore Road/Broadway, then continues west on Sunset Boulevard to Lighthouse Avenue. Maps and directions for the HPTCM bike route were published in March 2006 by NJDOT and are contained in **Appendix E**.

## C. Pedestrian Environment and Existing Facilities

Site visits to West Cape May were performed to observe pedestrian travel patterns and inventory the presence of sidewalks, curb ramps, crosswalks, push buttons and pedestrian signals. Pedestrian travel patterns are illustrated on Map 1.

*Sidewalk*

An inventory was performed of Borough roadways to determine the presence and condition of sidewalks. Sidewalk is available in the Borough on Broadway, Emerald Avenue and sections of Fifth Avenue, Fourth Avenue, Third Avenue, Second Avenue, Pacific Avenue, Pearl Street, Eldredge Avenue, York Avenue, Myrtle Street, Sunset Boulevard, Park Boulevard and West Perry Street. Curb ramps and/or curb cuts exist on Broadway at intersecting streets. Sidewalk condition was rated based on the following criteria:

A. ***Excellent Condition:*** Well maintained or new sidewalk with no cracks, weeds or obstacles

B. ***Good Condition:*** Nearly new sidewalk with very little distress

C. ***Fair Condition:*** Sidewalk with minor cracking with some overgrowth (weeds) and/or a few obstacles

D. ***Poor Condition:*** Cracks in several sections with overgrowth and/or trees uprooting the sidewalk with several obstacles in the walkway

E. **Very Poor Condition**: Extremely deteriorated sidewalks with severe cracks and/or sections completely covered by dirt, overgrowth or mud

The results of the sidewalk inventory are illustrated on **Map 3**.

*Pedestrian Facilities at Unsignalized Intersections*

A longitudinal striped crosswalk and school warning signs are located on Broadway at Fourth Avenue. Designated school crossings with longitudinal striped crosswalks are also located on Fifth Avenue and Moore Street at the West Cape May Elementary School. Standard striped crosswalks are present on Fourth Avenue at the intersections of Broadway, Pacific Avenue and Atlantic Avenue, and on Atlantic and Pacific Avenues at the intersection of Fourth Avenue.

*Pedestrian Facilities at Signalized Intersections*

As part of the West Cape May Bicycle and Pedestrian Assistance Study, Baker performed an inventory and assessment of pedestrian facilities at intersections identified as having a mobility concern. Identified intersections were based on data collected in the field, pedestrian crash reports and discussion with local officials. An intersection inventory and assessment was performed for the following two intersections in the Borough of West Cape May:

- Broadway and Sunset Boulevard
- Perry Street, Myrtle Avenue and Park Boulevard

The two intersections are located in the southwestern portion of West Cape May, in close proximity to the City of Cape May. Land use in the vicinity of the intersections is primarily retail with Wilbraham Park located along West Perry Street between the two intersections.

**Intersection of Broadway and Sunset Boulevard**

The intersection of Broadway and Sunset Boulevard is signalized with standard striped crosswalks (**Figure 3**). Curb ramp treatments vary at the intersection with perpendicular curb ramps to cross Broadway on the northwest and southwest corners. The northeast corner has a diagonal curb ramp to cross Broadway and Sunset Avenue, while the southeast corner has a perpendicular ramp to cross Broadway. The western crosswalk on Sunset Avenue has no curb cuts and an

existing high curb that presents a barrier to pedestrian mobility. None of the existing curb ramps have detectable warning strips that could assist ADA users.

There are pedestrian signals at the intersection, but they are not push button activated. Signals could be upgraded to countdown signal heads indicating to pedestrians the amount of time they have remaining to cross one leg of the intersection. The pedestrian signal on the northeast corner (in front of the park) is located in the middle of the curb cut causing pedestrians to maneuver around the signal and travel further into the intersection.

The intersection is sufficiently served by crosswalks, which exist on each leg of the intersection. The existing crosswalks were found to meet minimum NJDOT's recommended crosswalk width of six (6) feet[6]. However, the crosswalks are standard striped and visibility could be enhanced if they were restriped longitudinally.

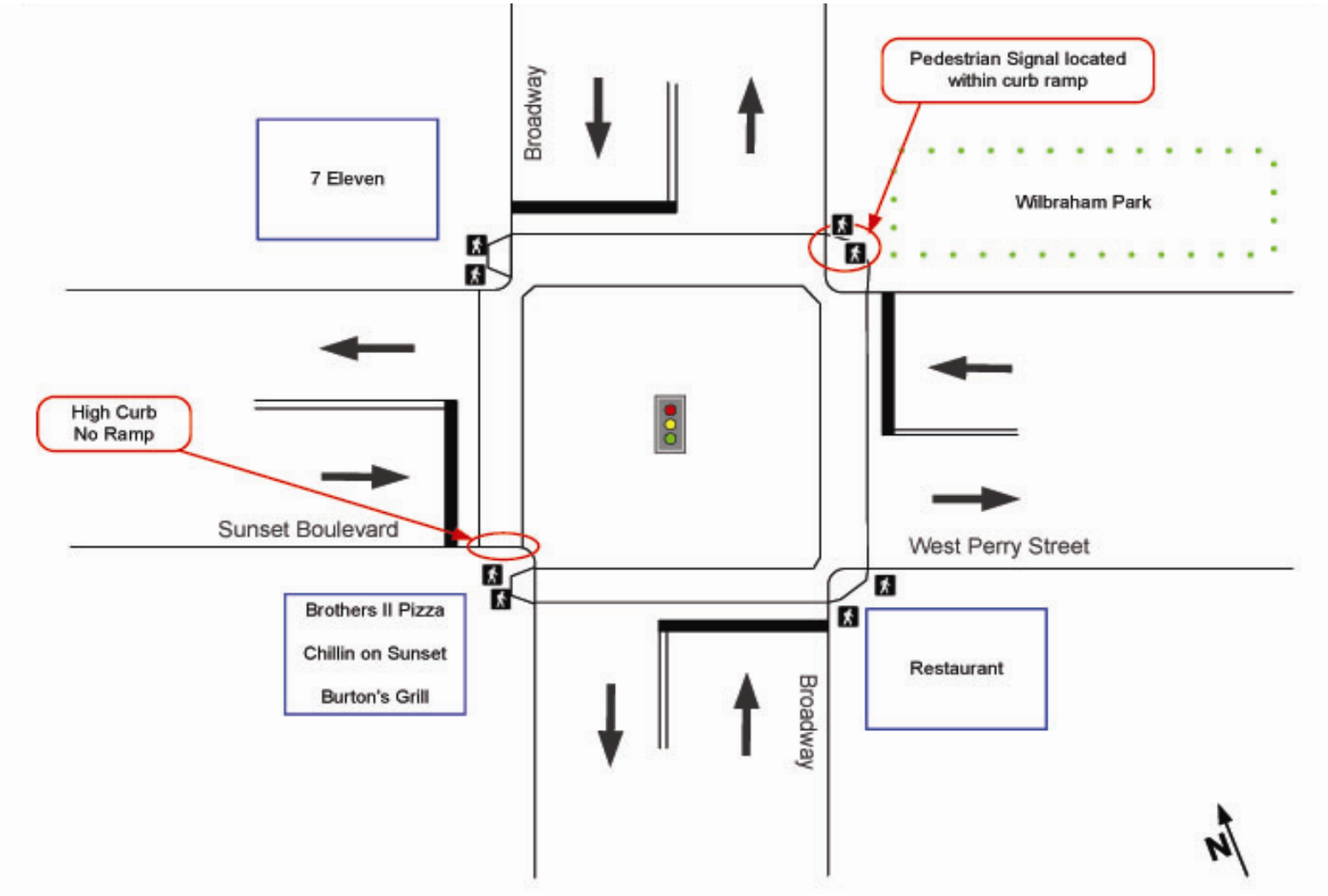
There were two reported crashes at or in the vicinity of this intersection in the most recent three years. One crash involved a bicycle and a car and occurred on Sunset Boulevard east of Fow Avenue (near 7-11). This crash occurred when a bicyclist entered the westbound travel lane from between two stopped cars in the eastbound lane and hit a moving car. The other crash involved a pedestrian who was hit as she was crossing Broadway. The pedestrian was in the crosswalk, traveling northbound, when she was struck by a vehicle making a left turn from Broadway onto Sunset Boulevard.

*Recommendations to upgrade pedestrian facilities at the intersection of Broadway and Sunset Boulevard were not considered as part of this study, since Cape May County is currently redesigning the intersection.*

A Business District Urban Design Plan dated January, 2008 prepared by Rhodeside & Harwell of Alexandria, Va. and Newark, NJ contains design concepts for improvements to this intersection. The report is being forwarded to the county engineer and funding for improvements to this intersection along the lines of the urban design plan are being determined.

6 "NJDOT Pedestrian Compatible Planning and Design Guidelines." 1997.

**FIGURE 3: EXISTING CONDITIONS – INTERSECTION OF BROADWAY AND SUNSET BOULEVARD**



**Intersection of West Perry Street, Myrtle Avenue and Park Boulevard**

The West Perry Street, Myrtle Avenue and Park Boulevard intersection is stop-controlled (**Figure 4)**. Stop signs control vehicular movements along Park Boulevard and Myrtle Avenue, while West Perry Street maintains free flow traffic. On the west side of the intersection, Myrtle Avenue permits travel only in the westbound direction.

There are three crosswalks at the intersection: two across Park Boulevard and one across West Perry Street. All the crosswalks have standard striping. This intersection is only partially served by crosswalks since it lacks a crosswalk across the western side of the intersection along Park Boulevard. A crosswalk here would provide pedestrians with a connection to Wilbraham Park, which has an existing curb ramp at its entrance. The crosswalks that are present do not meet the minimum NJDOT recommended crosswalk width of six (6) feet. Of note, the stop bar on Park Boulevard is located at West Perry Street, not Myrtle Avenue.

Curb ramps for the crosswalks were observed to be in fair condition. The crosswalk across Park Boulevard, on the north side of the intersection, has one diagonal curb ramp at the northwest corner, while the south side crosswalk has diagonal curb ramps on the southeast and southwest corners. The crosswalk across West Perry Street is on the east side of the intersection and has a one diagonal curb ramp on the southeast corner. None of the curb ramps have detectable warning strips.

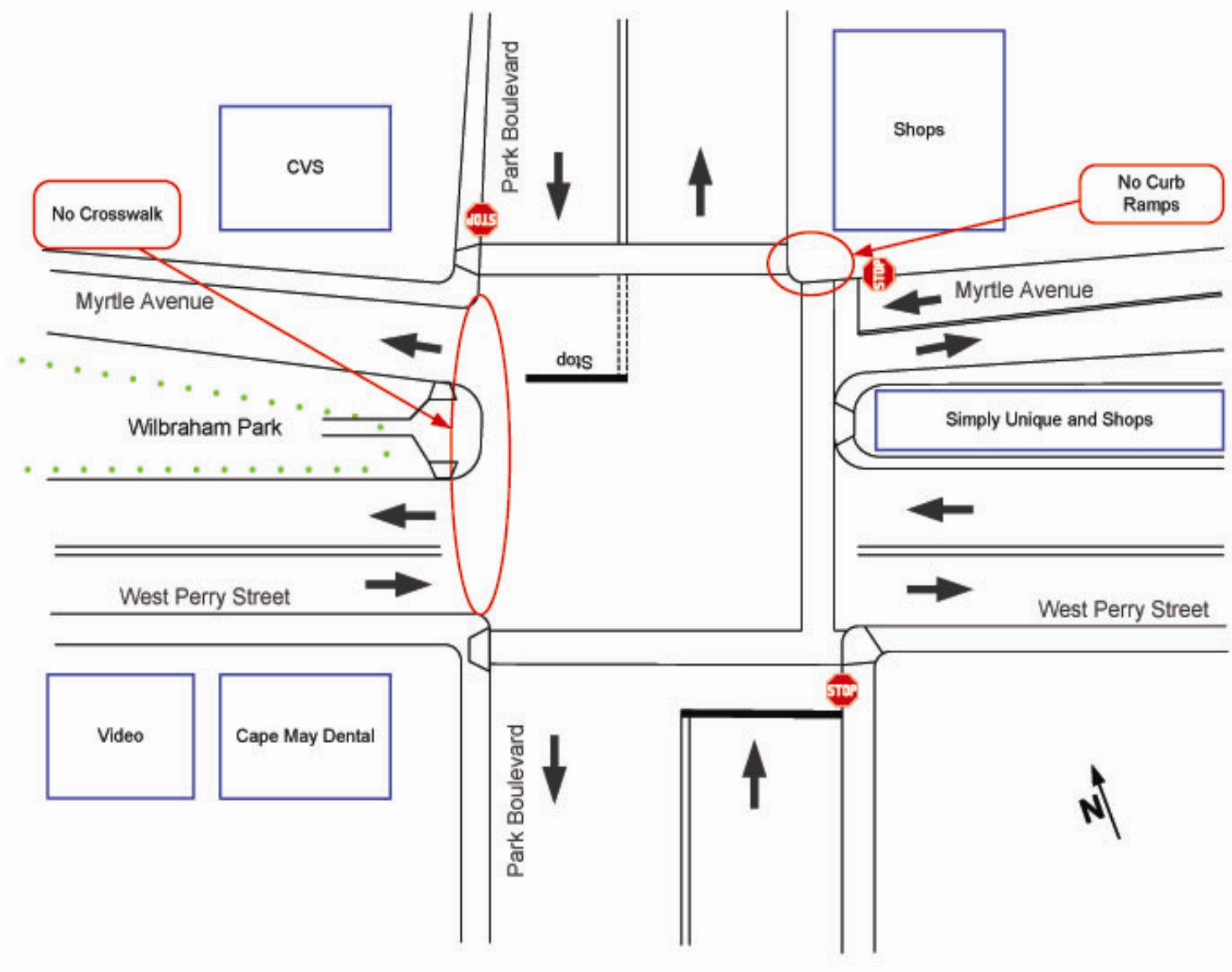
There are no pedestrian signals at this intersection and no pedestrian signage was observed in the vicinity of the intersection. The addition of pedestrian signage at the intersection and along each approach should be investigated. West Perry Street is not stop controlled and motorists may fail to yield to pedestrian movements across the road.

There was one reported crash at this intersection for the most recent three years according to crash reports received from the Cape May Police Department. This crash involved a bicycle and a car. It occurred when the bicyclist failed to yield at a stop sign while traveling north on Park Boulevard and was hit by a car traveling westbound along West Perry Street.

*Recommendations to upgrade pedestrian facilities at the intersection of West Perry Street, Myrtle Avenue and Park Boulevard were not considered as part of this study, since Cape May County is currently redesigning the intersection.*

Of note, the Rhodeside & Harwell Business District Urban Design Plan also recommends a traffic circle for the intersection of West Perry Street, Myrtle Avenue and Park Boulevard.

**FIGURE 4: EXISTING CONDITIONS – INTERSECTION OF WEST PERRY STREET, MYRTLE AVENUE AND PARK BOULEVARD**



## D. Bicycle Environment and Facilities

Site visits to West Cape May were performed to observe bicycle travel patterns and inventory the existing conditions on roadways to determine bicycle compatibility. Bicycle travel patterns are illustrated on Map 1.

Existing conditions on roadways in West Cape May were then compared to NJDOT guidelines for compatible roadway widths to determine the roadway's suitability to accommodate bicycle traffic. Only roadways with available traffic volumes were assessed for compatibility. To supplement the existing traffic volume data obtained from NJDOT, Cape May County and West Cape May, Baker performed traffic counts on Sixth Avenue and Stevens Street on Thursday, June 7, 2007 between 11:00 AM and 5:00 PM. The results of the traffic count are included in **Appendix F**.

NJDOT's *Planning and Design Guidelines for Bicycle Compatible Roadways and Bikeways* provides guidelines in the form of a table (**Appendix G**) to assist in determining compatible pavement widths and recommended bikeway types based on a roadway's speed limit, Annual Average Daily Traffic (AADT), functional classification, parking facilities and lane widths. Roadways with a speed limit less than 30mph and traffic volumes under 1,200 AADT are considered bicycle compatible regardless of pavement width. The majority of local roadways (e.g., Atlantic Avenue) in West Cape May are placed in this category. For roadways having an AADT greater than 10,000 vehicles per day (vpd), NJDOT recommends that a minimum shoulder width of eight (8) feet be provided. Roadways with higher speed limits and/or higher motor vehicle volumes need to provide more space (a wide lane to be shared) or a separate space for bicyclists (shoulder or bicycle lane). If a roadway is not bicycle compatible and there is bicycle activity present, consideration should be given to re-striping, narrowing lane widths, reducing the speed limit or constructing a separate parallel bicycle path.

Data collected for County roadways in West Cape May included: speed limit, AADT, lane widths, shoulder widths and roadway classification. The data was then imported into a table to present the bicycle compatibility assessment results. No roadways assessed as part of this study were found to be non-compatible for bicycle traffic. **Table 1** summarizes the data collected and overall bicycle compatibility of roadways in West Cape May. **Map 4** illustrates the results of the bicycle compatibility assessment.

**TABLE 1: BICYCLE COMPATIBILITY ASSESSMENT**

| Street | AADT | Total Pavement Width | Lane Width NB/SB | Shoulder Width NB/SB | Lane Lane EB/WB | Shoulder Width EB/WB | Speed Limit | On Street Parking | Bicycle Compatible |
|---|---|---|---|---|---|---|---|---|---|
| **Broadway, County Route 626 between Farmdale and Landis** | **11,954** (2005) | 40' | 13.5'/13' | 7'/7.5' | X | X | 30mph | Permitted | YES |
| **Broadway, County Route 626 between Landis and Sunset** | **11,954** (2005) | 34' | 20'/14' | 0'/0' | X | X | 30mph | Permitted NB | YES |
| **3rd Avenue** | **29** (June 2000) | 30' | X | X | X | X | 25mph | Permitted | YES |
| **4th Avenue, County Route 635** | **322** (2005) | 24' | X | X | 11.5'/12.5' | 6'/6' | 30-35mph | Permitted | YES |
| **5th Avenue** | **476** (Oct. 2000) | 32' | X | X | X | X | 25mph | Permitted | YES |
| **Sunset Boulevard, County Route 606** | **5,204** (2003) | 34' | X | X | 11'/10' | 7'/6' | 35mph | Not Permitted | YES |
| **Bayshore Road, County Route 607 at 3rd Avenue** | **1,224** (2003) | 26' | 10'/11' | 3'/2' | X | X | 40mph | Permitted | YES |
| **Bayshore Road, County Route 607 at County Route 635** | **1,224** (2003) | 29' | 11'/11' | 3.5'/3.5' | X | X | 40mph | Permitted | YES |
| **Perry Street, County Route 633** | **10,700 W. of Park** (2006)<br>**8,800 E. of Park** (2006) | 37' | X | X | 18.5'/18.5' | 0'/0' | 25mph | Permitted | YES |
| **6th Avenue** | **340** (2007) | 25' | X | X | X | X | 25mph | Permitted | YES |
| **Stevens Street** | **640** (2007) | 22.5' | X | X | 11'/11.5' | 0'/0' | 25mph | Permitted | YES |
| **Park Boulevard** | Not Available | 32' | 17'/15' | 0'/0' | X | X | 25mph | Permitted | Cannot Determine |
| **Central Avenue** | Not Available | 26' | X | X | 12.5'/13.5' | 0'/0' | 25mph | Permitted | Cannot Determine |
| **Eldredge Avenue** | Not Available | 28' | X | X | X | X | 25mph | Permitted | Cannot Determine |
| **East Mechanic Street** | Not Available | 27.5' | X | X | X | X | 25mph | Permitted | Cannot Determine |
| **6th Avenue** | Not Available | 23' | X | X | X | X | 25mph | Permitted | Cannot Determine |
| **West Drive** | Not Available | 23' | X | X | X | X | 25mph | Permitted | Cannot Determine |
| **2nd Avenue** | Not Available | 25' at Bayshore<br>30' at Pacific | X | X | X | X | 25mph | Permitted | Cannot Determine |
| **Pacific Avenue** | Not Available | 36' | X | X | X | X | 25mph | Permitted | Cannot Determine |

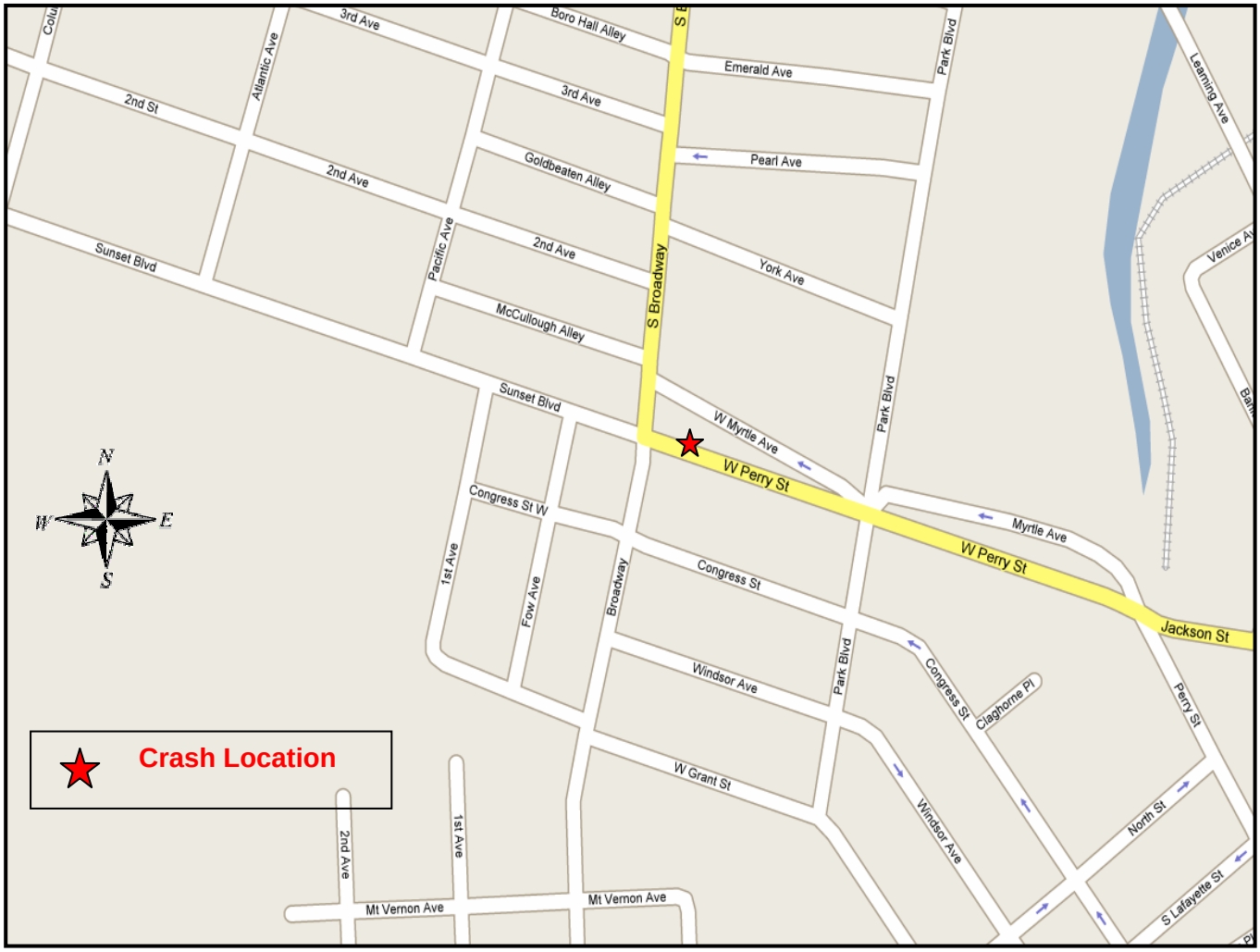
## IV. Crash Analysis

Bicycle and pedestrian crash reports were requested from the West Cape May Police Department for the most recent three years (2003-2006). The reports were requested to determine the crash history of bicyclists and pedestrians in the Borough of West Cape May. A summary of the crash data received is detailed below.

### A. Pedestrian Crash History

There was only one (1) pedestrian crash reported between 2003 and 2006. The crash occurred at the intersection of Sunset Boulevard and Broadway on September 3, 2006 at 3:15pm. A car was turning left from Broadway onto Sunset Boulevard when it struck a pedestrian in the crosswalk. The pedestrian suffered moderate injuries.

**FIGURE 5: PEDESTRIAN CRASH LOCATION**



## B. Bicycle Crash History

There were nine (9) crashes involving bicycles between 2003 and 2006. All of the crashes occurred during summer months (June through September) and six (6) of the crashes involved bicyclists who were 18 years old or younger. The crash locations are illustrated in **Figure 6**.

- **July 22, 2003 (11:49am) –** A crash involving a bicycle and a moped occurred at Broadway Avenue and Central Avenue. The bicyclist was struck by the moped as the bicyclist was making a left turn from Broadway Avenue onto Central Avenue. The bicyclist was issued a citation for failing to yield. The bicyclist suffered moderate injuries from this crash, but was wearing a helmet.
- **August 29, 2003 (2:30pm) –** A crash involving a bicycle and a car occurred on Broadway Avenue north of Pearl Avenue. The bicyclist and car were both traveling northbound when the bicyclist veered into the path of the car and was struck. The bicyclist was not wearing a helmet and was under the age of 18. The bicyclist suffered moderate injuries.
- **July 10, 2004 (12:07pm) –** A crash involving a bicycle and car occurred at the intersection of Broadway Avenue and York Avenue. The car was traveling north on Broadway Avenue when a bicycle entered the northbound travel lane and was struck by the car. The bicyclist was not wearing a helmet and was under the age of 18. The bicyclist suffered moderate injuries.
- **July 21, 2004 (2:59pm) –** A crash involving a bicycle and car occurred along Sunset Boulevard east of Broadway Avenue. The car was traveling west on Sunset Boulevard when a bicycle entered the westbound travel lane from between two stopped cars in the eastbound lane and struck the car. The bicyclist was not wearing a helmet and was under the age of 18. The bicyclist suffered moderate injuries.
- **August 12, 2005 (11:41pm) –** A crash involving a bicycle and car occurred on Stevens Street east of Bayshore Avenue. A bicyclist was traveling east on Stevens Street and struck a car parked along the eastbound lane. The bicyclist suffered moderate injuries.
- **June 15, 2006 (12:45pm) –** A crash involving a bicycle and a 3-axle truck occurred at the intersection of Broadway Avenue and Congress Street. The bicyclist was traveling north on Broadway Avenue when the truck pulled over to pick up trash and struck the bicyclist. The bicyclist suffered moderate injuries.
- **July 28, 2006 (1:47pm) –** A crash involving a bicycle and a car occurred at the intersection of Stevens Street and West Drive. A car was traveling eastbound on Stevens Street when a bicyclist entered the eastbound lane of Stevens Street from West Drive. The bicyclist failed to yield to the car and was struck. The bicyclist was not wearing a helmet and was under the age of 18. The bicyclist was severely injured and left incapacitated from the crash.
- **August 11, 2006 (5:32pm) –** A crash involving a bicycle and a car occurred at the intersection of Park Boulevard and West Perry Street. A bicyclist traveling north on Park Boulevard failed to yield at a stop sign and was struck by a car traveling westbound along West Perry Street. The bicyclist was under the age of 18 and was not injured in the crash.

- **September 9, 2006 (5:01pm) –** A crash involving a bicyclist and a car occurred along Sunset Boulevard east of Sea Grove Avenue. The bicyclist was traveling east on Sunset Boulevard in the shoulder when a car struck the bicyclist. The car left the crash scene but was later stopped and the driver charged with a DWI. The bicyclist suffered moderate injuries from this crash.

**FIGURE 6: BICYCLE CRASH LOCATIONS**

## V. Conceptual Improvements

Recommendations to upgrade and enhance bicycle and pedestrian facilities in the Borough of West Cape May were determined based on findings from data collection, the sidewalk inventory, a bicycle compatibility assessment, regional trail network review and through public outreach. Improvements are detailed in this section with their respective estimated construction cost and time to implement.

### A. Pedestrian Facility Improvements

Recommendations for sidewalk installation and complimentary facilities including curb, curb ramps and crosswalks have been categorized by potential trip purpose to assist in prioritizing the sidewalk improvements once funding becomes available. The following trip purpose categories are detailed below: **West Cape May Elementary School**, **Business/Downtown**, **Recreational** and **Residential**. Sidewalk improvements are listed by trip purpose category in **Figure 7** and illustrated on **Map 5**. Funding sources for bicycle and pedestrian improvements are contained in **Appendix H**.

*West Cape May Elementary School Sidewalk Network*

The West Cape May Elementary School, located on Moore Street at Fifth Avenue has existing sidewalk around the perimeter. However, there is no sidewalk between residential areas and the school. To that end, sidewalk is recommended on adjacent and parallel streets including Columbia Avenue and Fourth Avenue. Sidewalk recommended for installation in the West Cape May Elementary School trip purpose category accounts for the smallest percentage (4.6%) of overall recommended sidewalk improvements.

*Business/Downtown Sidewalk Network*

The business/downtown area is where the majority of existing sidewalk is located. Sidewalk is present on the west side of Broadway from West Grant Avenue to Central Avenue. Sidewalk recommended in this category will improve the link between major retail and commercial areas on Sunset Boulevard, Broadway and Park Boulevard. Sidewalk recommended for installation in the Business/Downtown trip purpose category accounts for approximately 19% of the total recommended sidewalk.

*Recreational Sidewalk Network*

Recommended sidewalk in this category has the potential to provide access to open space and recreational areas in, and in the vicinity of, the Borough of West Cape May. Sidewalk recommendations in this category were based on pedestrian observations performed during sidewalk inventory and the proximity to natural and agricultural areas of interest. Sidewalk recommendations in this category account for over 22% of the total recommended sidewalk.

*Residential*

The majority of the residential streets in the Borough of West Cape May do not have existing sidewalk, and therefore this category accounts for over half (54%) of the total recommended sidewalk. Sidewalk in this category has the potential to link residential areas to other residential areas, and residential areas to other land uses. In some cases, sidewalk recommended in this category closes the gap on streets with a partial network in place. Before installing sidewalk in residential areas, homeowners should be notified of the potential installation and have opportunity to provide feedback as they will ultimately be responsible for maintenance of the facility.

In addition to the installation of sidewalks throughout the Borough, crosswalks are recommended in several locations to enhance pedestrian safety. Proposed crosswalks are illustrated on Map 5 with proposed new sidewalk. An order-of-magnitude cost estimate, prepared using NJDOT's 2005 Bid Price Report and Preliminary Estimate Spreadsheet, for each trip purpose category (not including crosswalks) are provided on pages 24 through 27. Although crosswalk striping isn't included in the cost estimates, based on an approximate roadway width of 36 feet, one (1) ladder striped crosswalk (without linear striping) would cost approximately $650.00. Since there are 31 crosswalks recommended for installation in the Borough, the approximate total cost is $20,150.00. The cost is based on the 2005 Bid Price of one (1) linear foot of striping equaling $1.20. The Preliminary Estimate Spreadsheets for cost estimates in this Action Plan are contained in **Appendix I**. The estimated time to design and construct sidewalk should be determined during the design phase, and will be dependent on the quantity of sidewalk being installed and if utility or environmental constraints exist.

## FIGURE 7: SIDEWALK IMPROVEMENTS BY TRIP PURPOSE CATEGORY

| Roadway | Direction | Between | Feet | Classification |
|---|---|---|---|---|
| Atlantic Avenue | SB | Fifth Avenue and Fourth Avenue | 300 | 1 |
| Columbia Avenue | NB | Fourth Avenue and Fifth Avenue | 340 | 1 |
| Columbia Avenue | SB | Fifth Avenue and Fourth Avenue | 380 | 1 |
| Fifth Avenue | WB | Atlantic Avenue and Brown Street | 120 | 1 |
| Fourth Avenue, CR 635 | WB | Atlantic Avenue and Columbia Avenue | 570 | 1 |
| Moore Street | EB | Columbia Avenue and Atlantic Avenue | 270 | 1 |
| | | | **1980** | |
| Broadway | NB | Leaming Avenue and Central Avenue | 500 | 2 |
| Broadway | NB | Myrtle Street and York Avenue | 355 | 2 |
| Broadway | NB | York Avenue and Pearl Street | 165 | 2 |
| Broadway | SB | Farmdale Drive and Leaming Avenue | 280 | 2 |
| Eldredge Avenue | EB | Broadway and Park Boulevard | 130 | 2 |
| Eldredge Avenue | WB | Park Boulevard and Broadway | 140 | 2 |
| Fifth Avenue | WB | Broadway and Pacific Avenue | 300 | 2 |
| Pacific Avenue | NB | Sunset Boulevard and Second Avenue | 320 | 2 |
| Pacific Avenue | NB | Second Avenue and Third Avenue | 320 | 2 |
| Pacific Avenue | NB | Third Avenue and Fourth Avenue | 310 | 2 |
| Pacific Avenue | NB | Fourth Avenue and Fifth Avenue | 310 | 2 |
| Pacific Avenue | NB | Fifth Avenue and Sixth Avenue | 70 | 2 |
| Pacific Avenue | SB | Second Avenue and Sunset Boulevard | 340 | 2 |
| Park Boulevard | NB | Perry Street and Leaming Avenue | 1,600 | 2 |
| Park Boulevard | SB | Leaming Avenue and East Mechanic Street | 220 | 2 |
| Park Boulevard | SB | East Mechanic Street and Eldredge Avenue | 110 | 2 |
| Park Boulevard | SB | Eldredge Avenue and Emerald Avenue | 100 | 2 |
| Park Boulevard | SB | Pearl Street and York Avenue | 320 | 2 |
| Park Boulevard | SB | York Avenue and Myrtle Street | 180 | 2 |
| Pearl Street | EB | Broadway and Park Avenue | 120 | 2 |
| Sunset Boulevard, CR 606 | EB | Pacific Avenue and First Avenue | 100 | 2 |
| Sunset Boulevard, CR 606 | EB | Fow Avenue and Broadway | 170 | 2 |
| Sunset Boulevard, CR 606 | WB | Broadway and Pacific Avenue | 190 | 2 |
| Sunset Boulevard, CR 606 | WB | Pacific Avenue and Atlantic Avenue | 570 | 2 |
| Sunset Boulevard, CR 606 | WB | Atlantic Avenue and Columbia Avenue | 570 | 2 |
| Third Avenue | EB | Pacific Avenue and Broadway | 165 | 2 |
| York Avenue | EB | Broadway and Park Avenue | 125 | 2 |
| York Avenue | WB | Park Avenue and Broadway | 305 | 2 |
| | | | **8385** | |
| Bayshore Road | NB | Sunset Boulevard and Second Avenue | 350 | 3 |
| Bayshore Road | NB | Second Avenue and Fourth Avenue | 1,300 | 3 (paved path, asphalt) |
| Fourth Avenue, CR 635 | EB | Bayshore Road and Columbia Avenue | 2,000 | 3 (paved path, asphalt) |
| Leaming Avenue | EB | Park Boulevard and Venice Avenue | 1,200 | 3 (paved path, asphalt) |
| Leaming Avenue | WB | Venice Avenue and Park Boulevard | 1,250 | 3 (paved path, asphalt) |
| Park Boulevard | SB | Central Avenue and Leaming Avenue | 770 | 3 |
| Sunset Boulevard, CR 606 | EB | West Drive and Bird Santuary | 270 | 3 (paved path, asphalt) |
| Sunset Boulevard, CR 606 | WB | Columbia Avenue and Bayshore Road | 1,580 | 3 |
| Sunset Boulevard, CR 606 | WB | Bayshore Road and West Drive | 885 | 3 |
| | | | **9,605** | |
| Atlantic Avenue | NB | Sunset Boulevard and Second Avenue | 340 | 4 |
| Atlantic Avenue | NB | Second Avenue and Third Avenue | 340 | 4 |
| Atlantic Avenue | NB | Third Avenue and Fourth Avenue | 330 | 4 |
| Atlantic Avenue | NB | Fourth Avenue and Fifth Avenue | 310 | 4 |
| Atlantic Avenue | SB | Fourth Avenue and Third Avenue | 310 | 4 |
| Atlantic Avenue | SB | Third Avenue and Second Avenue | 340 | 4 |
| Atlantic Avenue | SB | Second Avenue and Sunset Boulevard | 340 | 4 |
| Bayshore Road | SB | Second Avenue and Sunset Boulevard | 350 | 4 |
| Broadway | SB | Stimpson's Lane and Farmdale Drive | 140 | 4 |
| Central Avenue | EB | Broadway and Park Boulevard | 900 | 4 |
| Columbia Avenue | NB | Sunset Boulevard and Second Avenue | 340 | 4 |
| Columbia Avenue | NB | Second Avenue and Third Avenue | 340 | 4 |
| Columbia Avenue | NB | Third Avenue and Fourth Avenue | 340 | 4 |
| Columbia Avenue | SB | Fourth Avenue and Third Avenue | 340 | 4 |
| Columbia Avenue | SB | Third Avenue and Second Avenue | 340 | 4 |
| Columbia Avenue | SB | Second Avenue and Sunset Boulevard | 340 | 4 |
| Congress Street? | EB | First Avenue and Broadway | 370 | 4 |
| Congress Street? | WB | Fow Avenue and First Avenue | 180 | 4 |
| E. Mechanic Street | EB | Broadway and Park Boulevard | 770 | 4 |
| E. Mechanic Street | WB | Park Boulevard and Broadway | 800 | 4 |
| First Avenue | NB | W. Grant Avenue and Sunset Boulevard | 580 | 4 |
| Fourth Avenue, CR 635 | EB | Columbia Avenue and Atlantic Avenue | 570 | 4 |
| Fourth Avenue, CR 635 | EB | Atlantic Avenue and Pacific Avenue | 540 | 4 |
| Fourth Avenue, CR 635 | WB | Pacific Avenue and Atlantic Avenue | 525 | 4 |
| Fow Avenue | SB | Sunset Boulevard and W. Grant Avenue | 480 | 4 |
| Leaming Avenue | EB | Stewart Lane and Broadway | 190 | 4 |
| Leaming Avenue | EB | Broadway and Park Boulevard | 730 | 4 |
| Leaming Avenue | WB | Park Boulevard and Broadway | 840 | 4 |
| Pacific Avenue | SB | Fourth Avenue and Third Avenue | 340 | 4 |
| Pacific Avenue | SB | Third Avenue and Second Avenue | 340 | 4 |
| Pearl Street | EB | Broadway and Park Boulevard | 130 | 4 |
| Second Avenue | EB | Atlantic Avenue and Pacific Avenue | 570 | 4 |
| Second Avenue | WB | Pacific Avenue and Bayshore Road | 2810 | 4 |
| Second Avenue | WB | Bayshore Road and West Drive | 750 | 4 |
| Sixth Avenue | WB | Broadway and Stewart Lane | 540 | 4 |
| Stewart Lane | NB | Sixth Avenue and Leaming Avenue | 190 | 4 |
| Stimpson Lane | EB | Shun Pkie Road and Broadway | 2325 | 4 |
| Third Avenue | EB | Atlantic Avenue and Pacific Avenue | 510 | 4 |
| Third Avenue | WB | Pacific Avenue and Morrison Avenue | 2110 | 4 |
| West Drive | NB | Sunset Boulevard and Second Avenue | 370 | 4 |
| West Grant Avenue | WB | Fow Avenue and First Avenue | 200 | 4 |
| | | | **23500** | |

1 = School
2 = Business/Downtown
3 = Recreation
4 = Residential/Network Connection

## Preliminary Cost Estimate for Sidewalk by Trip Purpose Category

Cost Estimate for **School** Sidewalk Installation[7]

| | |
|---|---|
| Sidewalk | $76,000 |
| Curb Ramps (5) | $6,000 |
| Curb | $67,000 |
| *Incidental Items* | *$149,000* |
| | |
| Earthwork | $7,000 |
| Drainage | $69,000 |
| Landscape | $21,000 |
| Erosion Control | $12,000 |
| *Incidental Items* | *$149,000* |
| *Project Subtotal* | *$258,000* |
| | |
| Lighting, Striping, Signs (0% of Project Subtotal) | $0 |
| Training (0% of Project Subtotal) | $0 |
| Mobilization (9% of Project Subtotal) | $23,000 |
| Maintenance of Traffic (0% of Project Subtotal) | $0 |
| Progress Schedule | $0 |
| Construction Layout | $7,000 |
| Clearing Site | $15,000 |
| *Project Subtotal (from above)* | *$258,000* |
| *Project Total* | *$303,000* |
| | |
| Construction Estimate with Escalation* | $313,000 |
| Construction Engineering (31.10% of Const. Est.) | $97,000 |
| Change Order Contingencies | $25,000 |
| Right of Way | $0[8] |
| Utility Relocations | $0[9] |
| *Total Construction Cost* | *$435,000* |
| *Contingencies (20% of Total Construction Cost)* | *$87,000* |
| | |
| *Approximate Total Project Cost* | *$522,000* [10] |

* Escalation based upon completion of construction within two years.

[7] Cost estimates were calculated using NJDOT's Preliminary Engineering Cost Estimating worksheets and NJDOT 2005 Bid Price Reports.

[8] Right of way impacts have not been investigated for associated costs.

[9] Utility impacts have not been investigated for associated costs.

[10] Cost estimate does not include engineering design costs.

Cost Estimate for **Business/Downtown** Sidewalk Installation[11]

| | |
|---|---|
| Sidewalk | $324,000 |
| Curb Ramps (36) | $43,000 |
| Curb | $282,000 |
| *Incidental Items* | *$649,000* |
| | |
| Earthwork | $30,000 |
| Drainage | $288,000 |
| Landscape | $89,000 |
| Erosion Control | $51,000 |
| *Incidental Items* | *$649,000* |
| *Project Subtotal* | *$1,107,000* |
| | |
| Lighting, Striping, Signs (0% of Project Subtotal) | $0 |
| Training (0% of Project Subtotal) | $0 |
| Mobilization (9% of Project Subtotal) | $100,000 |
| Maintenance of Traffic (0% of Project Subtotal) | $0 |
| Progress Schedule | $0 |
| Construction Layout | $20,000 |
| Clearing Site | $30,000 |
| *Project Subtotal (from above)* | *$1,107,000* |
| *Project Total* | *$1,257,000* |
| | |
| Construction Estimate with Escalation* | $1,300,000 |
| Construction Engineering (20.30% of Const. Est.) | $263,000 |
| Change Order Contingencies | $57,000 |
| Right of Way | $0[12] |
| Utility Relocations | $0[13] |
| *Total Construction Cost* | *$1,620,000* |
| *Contingencies (20% of Total Construction Cost)* | *$324,000* |
| | |
| *Approximate Total Project Cost* | *$1,944,000* [14] |

***** Escalation based upon completion of construction within two years.

[11] Cost estimates were calculated using NJDOT's Preliminary Engineering Cost Estimating worksheets and NJDOT 2005 Bid Price Reports.

[12] Right of way impacts have not been investigated for associated costs.

[13] Utility impacts have not been investigated for associated costs.

[14] Cost estimate does not include engineering design costs.

Cost Estimate for **Recreation** Sidewalk/Paved Path Installation[15]

| | |
|---|---|
| Sidewalk | $139,000 |
| Asphalt Paved Path | $222,000 |
| Curb Ramps (11) | $17,000 |
| Curb | $323,000 |
| *Incidental Items* | *$701,000* |
| | |
| Earthwork | $29,000 |
| Drainage | $332,000 |
| Landscape | $37,000 |
| Erosion Control | $21,000 |
| *Incidental Items* | *$701,000* |
| *Project Subtotal* | *$1,120,000* |
| | |
| Lighting, Striping, Signs (0% of Project Subtotal) | $0 |
| Training (0% of Project Subtotal) | $0 |
| Mobilization (9% of Project Subtotal) | $101,000 |
| Maintenance of Traffic (0% of Project Subtotal) | $0 |
| Progress Schedule | $0 |
| Construction Layout | $20,000 |
| Clearing Site | $30,000 |
| *Project Subtotal (from above)* | *$1,120,000* |
| *Project Total* | *$1,271,000* |
| | |
| Construction Estimate with Escalation* | $1,307,000 |
| Construction Engineering (20.30% of Const. Est.) | $265,000 |
| Change Order Contingencies | $57,000 |
| Right of Way | $0[16] |
| Utility Relocations | $0[17] |
| *Total Construction Cost* | *$1,629,000* |
| *Contingencies (20% of Total Construction Cost)* | *$326,000* |
| | |
| *Approximate Total Project Cost* | *$1,955,000* [18] |

* Escalation based upon completion of construction within two years.

[15] Cost estimates were calculated using NJDOT's Preliminary Engineering Cost Estimating worksheets and NJDOT 2005 Bid Price Reports.

[16] Right of way impacts have not been investigated for associated costs.

[17] Utility impacts have not been investigated for associated costs.

[18] Cost estimate does not include engineering design costs.

Cost Estimate for **Residential** Sidewalk Installation[19]

| | |
|---|---|
| Sidewalk | $909,000 |
| Curb Ramps (45) | $54,000 |
| Curb | $790,000 |
| *Incidental Items* | *$1,753,000* |
| | |
| Earthwork | $52,000 |
| Drainage | $802,000 |
| Landscape | $248,000 |
| Erosion Control | $142,000 |
| *Incidental Items* | *$1,753,000* |
| *Project Subtotal* | *$2,997,000* |
| | |
| Lighting, Striping, Signs (0% of Project Subtotal) | $0 |
| Training (0% of Project Subtotal) | $0 |
| Mobilization (9% of Project Subtotal) | $270,000 |
| Maintenance of Traffic (0% of Project Subtotal) | $0 |
| Progress Schedule | $6,000 |
| Construction Layout | $42,000 |
| Clearing Site | $45,000 |
| *Project Subtotal (from above)* | *$2,997,000* |
| *Project Total* | *$3,360,000* |
| | |
| Construction Estimate with Escalation* | $3,459,000 |
| Construction Engineering (20.30% of Const. Est.) | $700,000 |
| Change Order Contingencies | $143,000 |
| Right of Way | $0[20] |
| Utility Relocations | $0[21] |
| *Total Construction Cost* | *$4,302,000* |
| *Contingencies (20% of Total Construction Cost)* | *$860,000* |
| | |
| *Approximate Total Project Cost* | *$5,162,000* [22] |

* Escalation based upon completion of construction within two years.

[19] Cost estimates were calculated using NJDOT's Preliminary Engineering Cost Estimating worksheets and NJDOT 2005 Bid Price Reports.

[20] Right of way impacts have not been investigated for associated costs.

[21] Utility impacts have not been investigated for associated costs.

[22] Cost estimate does not include engineering design costs.

## B. Bicycle Facility Improvements

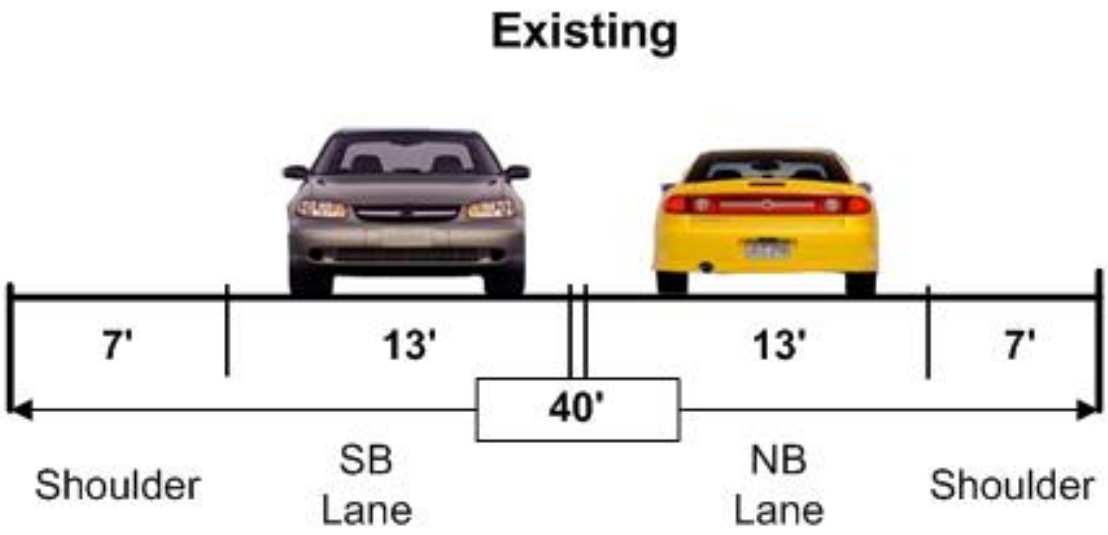
Borough roadways evaluated for bicycle compatibility were found to be compatible by NJDOT guidelines. However, despite compatibility, two (2) roadways were identified through field visits and the public as being heavily traveled by bicyclists and could therefore benefit from designated bicycle facilities. Recommended improvements for the two roadways, Broadway and Sunset Boulevard, are detailed in this section.

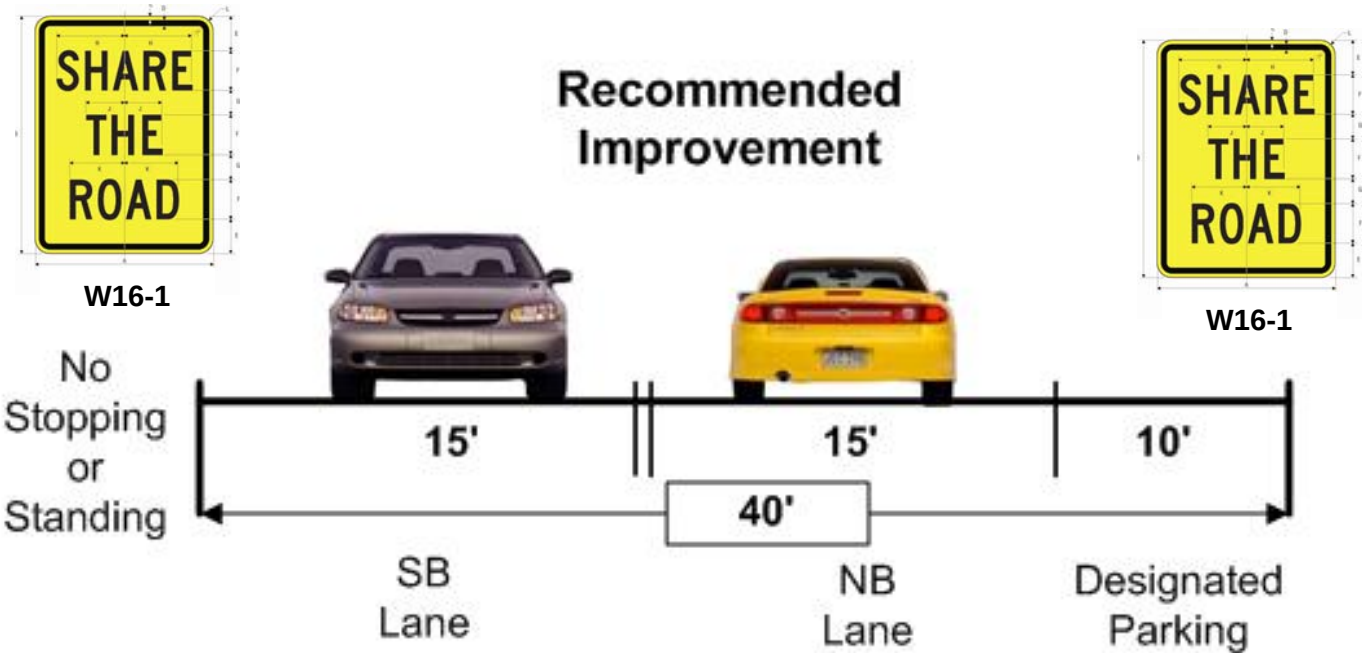
*Broadway*

Broadway, County Route 626, is a two (2)-lane Urban Collector in the Borough of West Cape May running south to north from County Route 604 in the City of Cape May to County Route 645 on the municipal boundary with Lower Township, where it becomes Seashore Road. The posted speed limit is 30mph. The pavement width on Broadway was measured at 40 feet wide, with a typical cross section comprising of 13-foot wide northbound and southbound lanes with 7-foot wide shoulders. Broadway had an AADT of 11,954 vpd in the year 2005 between Farmdale Drive and Sunset Boulevard according to data obtained from NJDOT. Since parking is permitted in the shoulder, bicyclists were observed sharing the 13-foot wide travel lanes with motor vehicles.

It is recommended that Broadway be restriped between Stimpson Avenue, and Myrtle Avenue to provide 15-foot wide travel lanes, eliminating parking southbound and providing a 10-foot wide parking lane northbound. Although a 13-foot wide lane is compatible on Broadway according to NJDOT guidelines, restriping to provide a 15-foot wide lane would increase the level of comfort for bicyclists. “No Standing” signs (MUTCD R7-4) would be installed southbound and parking stalls could be striped northbound to designate parking. “Share the Road” signs (MUTCD W16-1) are recommended for installation both northbound and southbound to increase awareness that bicycle traffic will be sharing the travel lane with motor vehicles. The recommended improvements are shown in **Figure 8**. An order-of-magnitude cost estimate for the improvements is provided on page 31. Since the recommendation only includes striping and signing Broadway, impacts to utilities or right-of-way are not anticipated. Cape May County has jurisdiction of Broadway in the Borough of West Cape May and would therefore be responsible for implementing any improvements to the roadway.

**FIGURE 8: RECOMMENDED IMPROVEMENTS TO BROADWAY**



**Preliminary Cost Estimate for Improvements to Broadway**

Cost Estimate for **Broadway Share the Road Facility**[23]

| | |
|---|---|
| Traffic Stripes Long Life Epoxy Resin | $15,000 |
| Removal of Existing Traffic Stripes | $15,000 |
| "Share the Road" Signs (10) | $2,500 |
| "Bicycle Warning" Signs (10) | $3,200 |
| "No Standing Anytime" Signs (8) | $600 |
| *Incidental Items* | *$36,300* |
| | |
| Lighting, Striping, Signs (0% of Project Subtotal) | $0 |
| Training (0% of Project Subtotal) | $0 |
| Mobilization (9% of Project Subtotal) | $3,200 |
| Maintenance of Traffic (13% of Project Subtotal) | $4,600 |
| Progress Schedule | $0 |
| Construction Layout | $7,000 |
| Clearing Site | $15,000 |
| *Project Subtotal (from above)* | *$36,300* |
| *Project Total* | *$66,100* |
| | |
| Construction Estimate with Escalation* | $68,000 |
| Construction Engineering (20.30% of Const. Est.) | $21,000 |
| Change Order Contingencies | $6,000 |
| Right of Way | $0[24] |
| Utility Relocations | $0[25] |
| *Total Construction Cost* | *$95,000* |
| *Contingencies (20% of Total Construction Cost)* | *$19,000* |
| | |
| *Approximate Total Project Cost* | *$114,000* [26] |

* Escalation based upon completion of construction within two years.

[23] Cost estimates were calculated using NJDOT's Preliminary Engineering Cost Estimating worksheets and NJDOT 2005 Bid Price Reports.

[24] Right of way impacts have not been investigated for associated costs.

[25] Utility impacts have not been investigated for associated costs.

[26] Cost estimate does not include engineering design costs.

*Sunset Boulevard*

Sunset Boulevard, County Route 606, is a two (2)-lane Urban Collector in the Borough of West Cape May running west to east from Sunset Beach and the Delaware Bay in Lower Township to Broadway, County Route 626. The posted speed limit on Sunset Boulevard is 40 mph in Lower Township and 35 mph in the Borough of West Cape May. The pavement width on Sunset Boulevard was measured at 34 feet wide comprising of an 11-foot wide eastbound travel lane with 7-foot shoulder and a 10-foot wide westbound travel lane with 7-foot shoulder for a typical cross section. Sunset Boulevard had an AADT of 5,204 vpd in the year 2003 according to data obtained from NJDOT.

It is recommended that Sunset Boulevard be restriped to provide consistent 11-foot travel lanes and dedicated 6-foot bicycle lanes both eastbound and westbound from Sunset Beach to Broadway (Lower Township and West Cape May). "Bike Route" (MUTCD D11-1) and/or "Bike Lane" (MUTCD R3-17) signs are recommended for installation on Sunset Boulevard at periodic intervals dependent on block length and horizontal or vertical curvature (e.g., every 2,000 feet). Bicycle lanes should be striped and pavement markings should be consistent with MUTCD guidelines for bicycle facilities (Chapter 9). Pavement markings should include word legends "BIKE LANE" with bicycle symbol. Bicycle symbol should be six (6)-feet in height as directed by MUTCD Section 9C.06. It is recommended that parking restrictions are maintained on Sunset Boulevard and parking be eliminated on road at Sunset Beach to continue the striped bicycle lanes, as a new surface parking lot was recently installed. It is further recommended that existing "No Parking" signs be replaced with "No Parking Bike Lane" (MUTCD R7-9) signs both eastbound and westbound. Ordinance No. 70-83 (contained in **Appendix J**) details parking restrictions on Sunset Boulevard in the Borough of West Cape May.

**Figures 9 and 10** illustrate the recommended improvements to Sunset Boulevard. Cost estimates for the improvements are detailed on page 35. Since the recommendation only includes striping and signing on Broadway, impacts to utilities or right-of-way are not anticipated. Cape May County has jurisdiction of Sunset Boulevard and would therefore be responsible for implementing any improvements to the roadway.

## FIGURE 9: RECOMMENDED IMPROVEMENTS TO SUNSET BOULEVARD

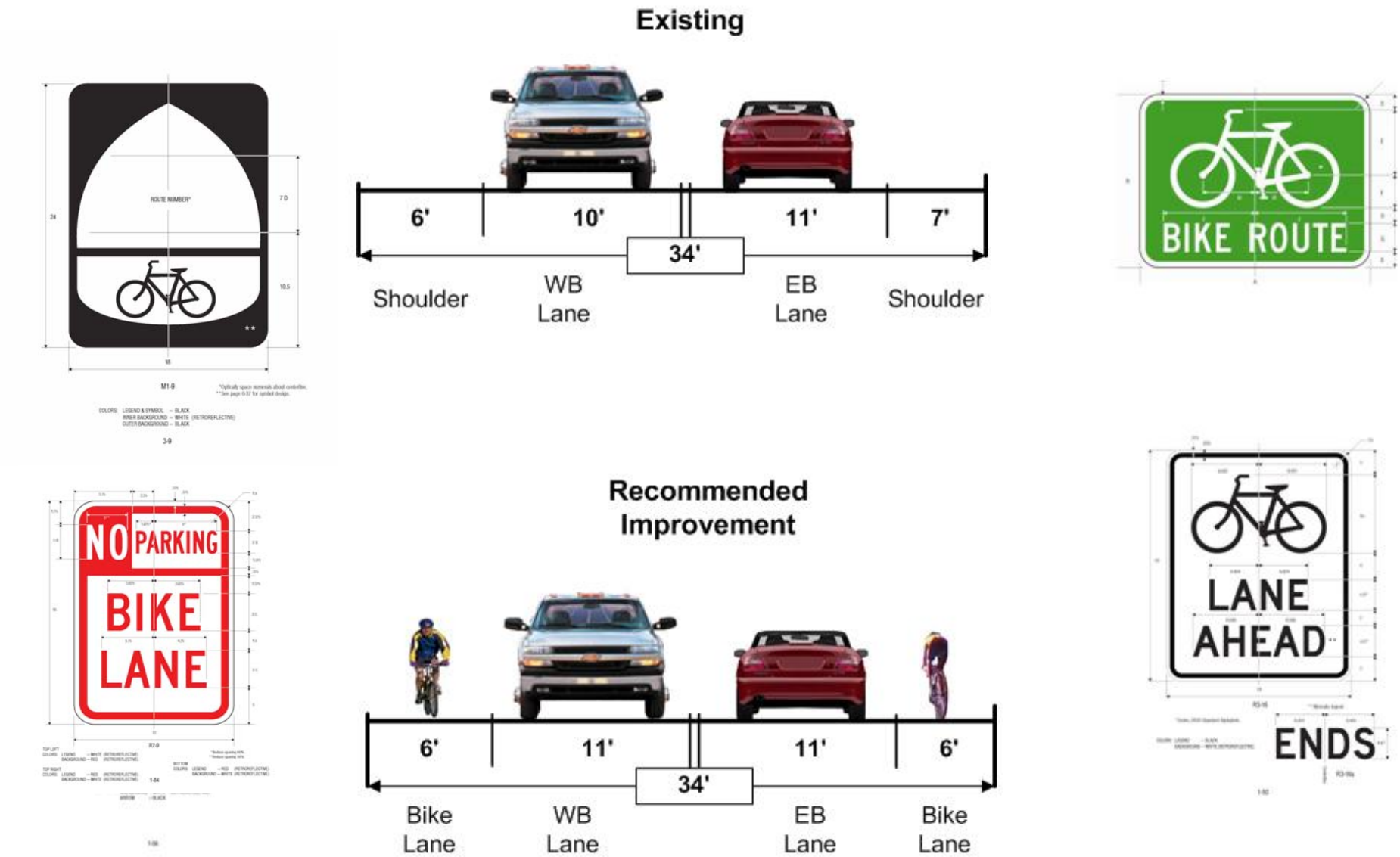


**FIGURE 10: ARCHITECTURAL SKETCH OF RECOMMENDED IMPROVEMENTS TO SUNSET BOULEVARD**

## Preliminary Cost Estimate for Improvements to Sunset Boulevard

Cost Estimate for **Sunset Boulevard Bicycle Lanes**[27]

| | |
|---|---|
| Traffic Stripes Long Life Epoxy Resin | $78,000 |
| Removal of Existing Traffic Stripes | $78,000 |
| Traffic Markings, Symbols, Therm. | $5,300 |
| "Bicycle Lane" Signs (14) | $3,600 |
| "No Parking Bike Lane" Signs (14) | $1,100 |
| *Incidental Items* | *$166,000* |
| | |
| Lighting, Striping, Signs (0% of Project Subtotal) | $0 |
| Training (0% of Project Subtotal) | $0 |
| Mobilization (9% of Project Subtotal) | $14,900 |
| Maintenance of Traffic (5% of Project Subtotal) | $8,300 |
| Progress Schedule | $0 |
| Construction Layout | $7,000 |
| Clearing Site | $15,000 |
| *Project Subtotal (from above)* | *$166,000* |
| *Project Total* | *$211,200* |
| | |
| Construction Estimate with Escalation* | $217,000 |
| Construction Engineering (20.30% of Const. Est.) | $67,000 |
| Change Order Contingencies | $25,000 |
| Right of Way | $0[28] |
| Utility Relocations | $0[29] |
| *Total Construction Cost* | *$309,000* |
| *Contingencies (20% of Total Construction Cost)* | *$62,000* |
| | |
| *Approximate Total Project Cost* | *$371,000* [30] |

***** Escalation based upon completion of construction within two years.

[27] Cost estimates were calculated using NJDOT's Preliminary Engineering Cost Estimating worksheets and NJDOT 2005 Bid Price Reports.

[28] Right of way impacts have not been investigated for associated costs.

[29] Utility impacts have not been investigated for associated costs.

[30] Cost estimate does not include engineering design costs.

### C. Regional Trail Network Connections

Existing regional trail facilities were evaluated for gaps in the network. Potential connections in the trail network were proposed and roughly screened for feasibility. Cost estimates were not prepared as potential environmental constraints and surface materials were not evaluated. New construction of regional trails or connections in the regional trail network should be evaluated as opportunities arise and property or easements are purchased. The evaluation should include a complete screening of environmental impacts (e.g., wetlands), as well as an in depth evaluation of the potential mobility benefits.

*Seashore Road Bicycle Lane Gap*

Bicycle lanes on Seashore Road currently begin prior to the bridge over the Cape May Canal and continue south to the municipal boundary of West Cape May. Public outreach performed as part of this study identified the need for the bicycle lanes to continue north between the bridge over the Cape May Canal to Route 9, closing the gap.

*Public Works Shared Use Path*

Through two (2) Study Advisory Committee Meetings, held as part of this study, committee members expressed their desire for a shared use path to begin at the northern terminus of Park Boulevard and continue north adjacent to the Public Works property to the Cape May Canal. An informal path currently exists. The Borough of West Cape May has identified this path as a proposed off road shared use facility.

## VI. Policy and Education Recommendations

### A. Policy

West Cape May local officials, through their application for local bicycle and pedestrian planning assistance under the *Local Assistance Program*, have demonstrated their dedication and support for bicycle and pedestrian access and mobility improvements in their community.

General policy should require new development to install sidewalks and new commercial properties to install bicycle racks as a contribution to a community trying to achieve a bicycle and pedestrian safe, and friendly, environment.

### B. Education

To properly plan for future growth of bicycle and pedestrian use in a community, it is important to implement educational programs that encourage proper safety techniques among bicyclists, pedestrians and motorists. When educating a community it is important to dispel myths, encourage courteous and lawful behavior, and enhance awareness. By utilizing the resources of the local police, school and library, education programs have the potential of reaching a broader audience and cross section of the community.

Members of the Study Advisory Committee informed the Study Team on a number of occasions that visitors to Cape Island, including West Cape May, ride their bicycles improperly and unlawfully. The following safety concerns were identified by committee members:

- Bicyclists are riding against traffic, rather than with traffic.
- Bicyclists are using the sidewalk.
- Bicyclists are not using helmets.
- Bicyclists are riding side-by-side in groups, rather than single file.

To discourage the behavior above, signs can be installed instructing bicyclists to "ride single file with traffic." However, these signs are not MUTCD approved.

The following four primary groups should be educated about bicycle safety and awareness:

1) Young bicyclists
2) Parents of young bicyclists
3) Adult bicyclists
4) Motorists.

It is important to educate each group on the most frequent causes of crashes and injuries.

*Resources*

The National Highway Traffic Safety Administration (NHTSA) distributes a packet called "Getting to School Safely Community Action Kit." Within the packet there are fact sheets about bicycle and pedestrian safety. Another organization that distributes a guide about how to properly walk to school is the Department of Health and Human Services, Center for Disease Control and Prevention (CDC). The CDC gives parents fun tips for teaching their children the proper way to walk to school.

NJDOT uses several messages to educate citizens about bicycle and pedestrian safety. The two (2) messages used primarily for pedestrian safety education include: "Cross the street where you can see and be seen" (intended to encourage pedestrians to be aware of motorists) and "Yield to Pedestrians" (intended to encourage motorists to stop for pedestrians in a crosswalk).

## VII. Funding and Implementation

Costs associated with implementing the improvements will vary. Interim improvements (e.g., bicycle lanes on Sunset Boulevard) will have less design requirements and will therefore be lower in cost than an improvement that would need to go through feasibility assessment and design before obtaining funding for construction (e.g., sidewalk installation on Sunset Boulevard). Preliminary cost estimates for each improvement concept are detailed with a description of the recommended improvement in this Action Plan. Cost estimates were not prepared for every recommended section of sidewalk due to the quantity of sidewalk recommended. However, sidewalk installation was priced by trip purpose category for an overall understanding of the cost. To supplement the cost estimates prepared by trip purpose category, 2005 bid prices (supplied by NJDOT) for striping and curb ramps are also provided.

Funding sources for bicycle and pedestrian improvements are contained in Appendix H "Funding Pedestrian and Bicycle Planning, Programs and Projects." The funding sources identified in that document were compiled by NJDOT in an attempt to identify major funding sources that can be used to fund bicycle and pedestrian planning and project development activities.

## VIII. Photograph Log

Photographs obtained in West Cape May, as part of this study, are contained in **Appendix K** for reference.