APPENDIX F:

County Route 546 Bikeway Planning and Development Study

County Route 546
Bikeway Planning and Development Study

ACTION PLAN

FINAL

July 2010

Prepared for:
Mercer County and
The New Jersey Department of Transportation

Prepared By:
Michael Baker, Jr., Inc.

U.S. Department of Transportation
Federal Highway Administration

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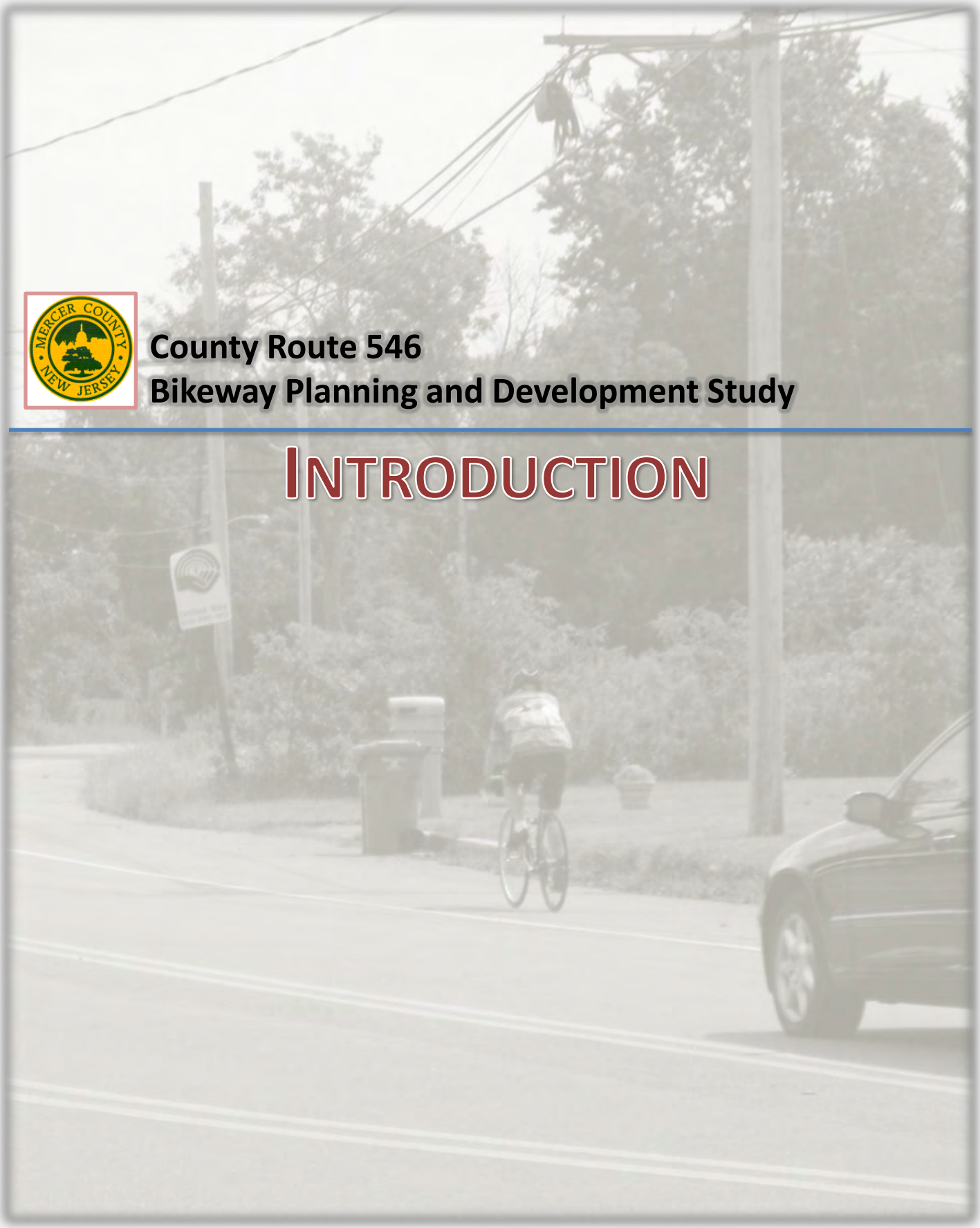

County Route 546
Bikeway Planning and Development Study

Introduction

1. INTRODUCTION

Mercer County requested bicycle planning assistance from the New Jersey Department of Transportation – Office of Bicycle and Pedestrian Programs (NJDOT – OBPP) to assist in the development of a potential designated bikeway on County Route 546 (CR 546). The bikeway would extend between Washington Crossing State Park in Hopewell Township and the Johnson Trolley Line Trail in Lawrence Township. In addition, the bikeway would include a possible connection to the Borough of Pennington via County Route 631 (CR 631), County Route 640 (CR 640), and County Route 632 (CR 632).

NJDOT – OBPP requested Michael Baker Jr. Inc., (Baker) perform bikeway planning and development on CR 546, and the potential connection to Pennington Borough. The purpose of the study was to investigate existing conditions and to develop conceptual improvements for a designated bicycle facility on these roadways, including intersection modifications for bicycle compatibility.

This Action Plan documents the activities, findings, and determinations of the study including the data collection process, existing conditions assessment, and improvement alternatives. The plan also identifies a Preferred Alternative for a designated bikeway on CR 546.

Bicyclist on CR 546, west of Blackwell Road

1.1. Background

A potential bikeway along CR 546 was originally identified through a collaborative effort between Lawrence Township, Hopewell Township, Pennington Borough, and Mercer County and initiated as project by the Mercer County Bicycle and Pedestrian Task Force. The route was identified as a possible connection to existing bicycle facilities and between recreational destinations. At its western end, the proposed bikeway would connect to Washington Crossing State Park. There are trails and roadways for bicycling in the park, and there is a connection through the park, via a pedestrian bridge over Route 29, to the Delaware and Raritan Canal Towpath along the Delaware River. Alternatively at its eastern end, the bikeway would connect to the Johnson Trolley Line Trail. This connection would allow bicyclists to access the trail, which has paved and unpaved sections, and to link to the Lawrence-Hopewell Trail, which a 20-mile shared use loop trail. In addition, the bikeway road would provide a connection to the existing bicycle lane facility on Federal City Road, between CR 546 and Brandon Road in Lawrence.

1.2. Study Area

The Study Area encompasses roadway sections as detailed in **Table 1** below.

Table 1: Study Area

Roadway	From	To
County Route 546 *Washington Crossing – Pennington Road/Blackwell Road/ Lawrenceville Pennington Road*	Washington Crossing State Park	Johnson Trolley Line Trail
	MP 0.38	*MP 7.89*
County Route 631 *Ingleside Avenue*	CR 546	CR 640
	MP 0.00	*MP 0.77*
County Route 640 *South Main Street*	CR 631	CR 640
	MP 0.39	*MP 0.63*
County Route 632 *Lawrenceville – Pennington Road/ Blackwell Road*	CR 640	CR 546
	MP 0.00	*MP 0.66*

Collectively, CR 546, CR 631, CR 640 and CR 632 are referred to as the Study Area Roadways.

Map 1 and **Map 2** on the following pages illustrate the Study Area.

Map 1: CR 546 Bikeway Study Area

U.S. Department of Transportation
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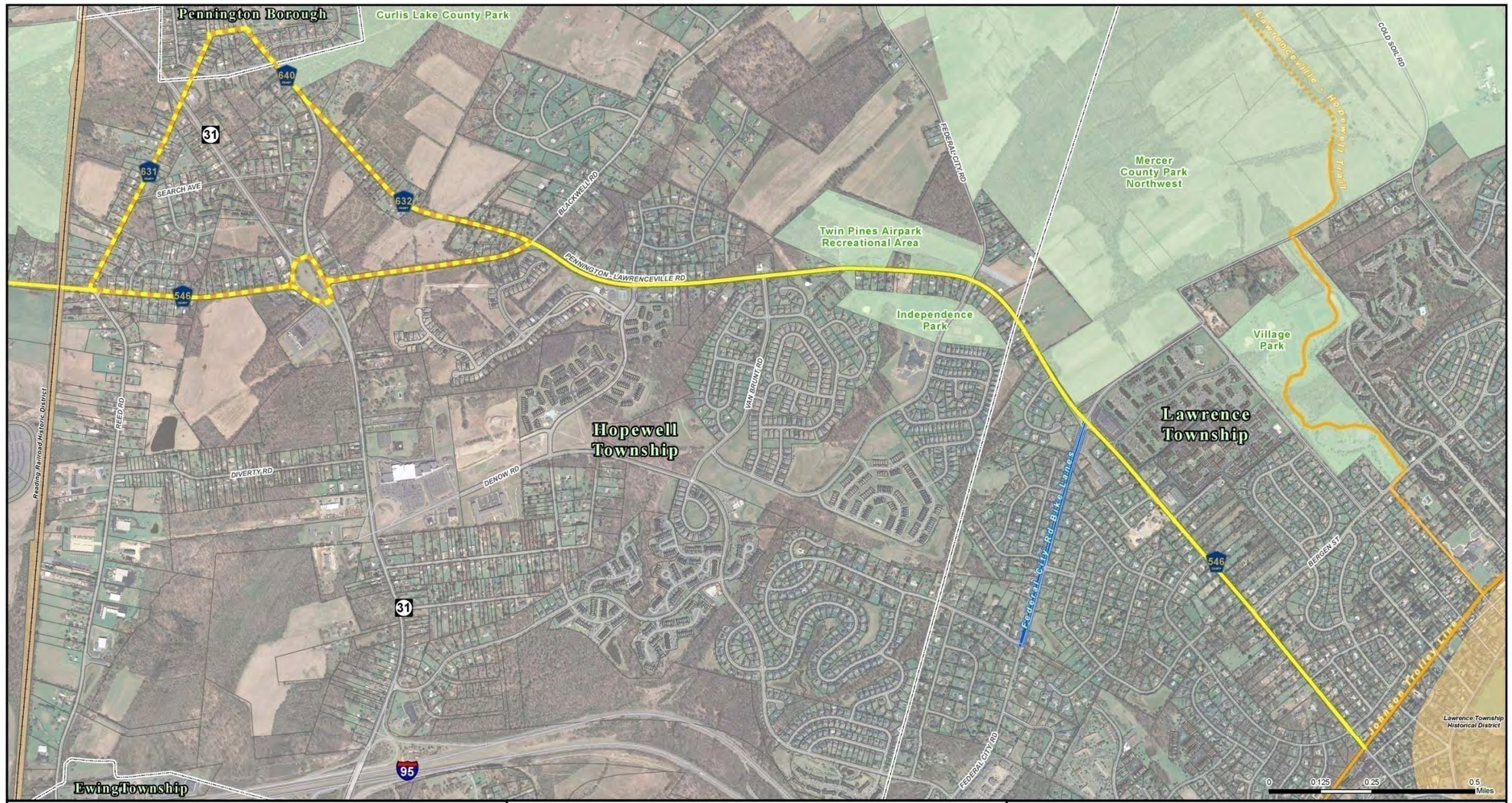
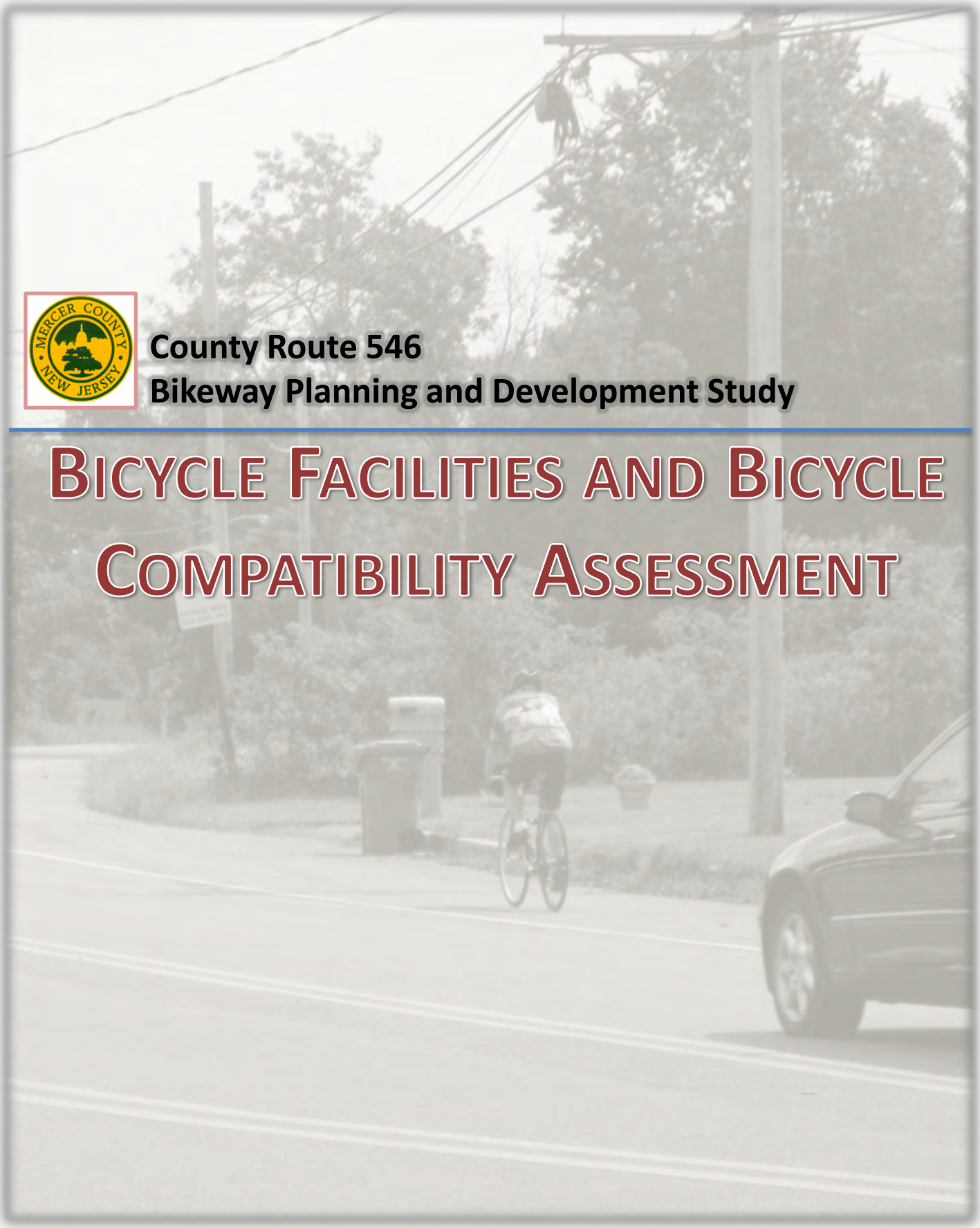
Route 546 Bikeway Planning and Development Study
STUDY AREA MAP
(1 of 2)
September 2009

LEGEND

- Municipal Boundary
- Historic Districts
- Historic Properties
- Open Space
- Local Roads
- Proposed Bikeway
- Rail Lines
- Existing Off-Road Bicycle Facilities

Map 2: CR 546 Bikeway Study Area





County Route 546
Bikeway Planning and Development Study

Bicycle Facilities and Bicycle Compatibility Assessment

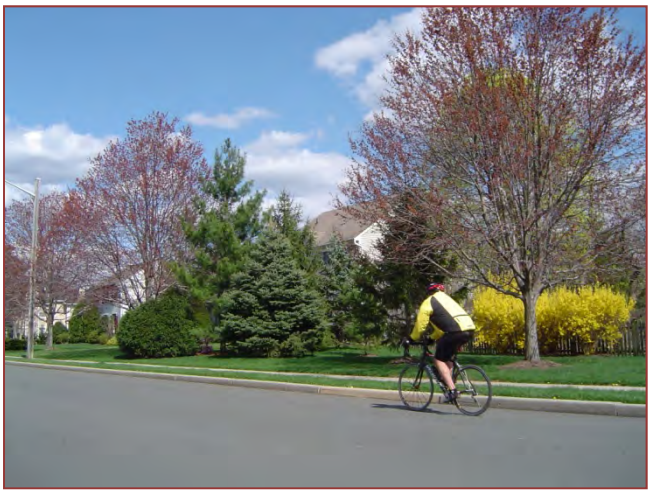
2. BICYCLE FACILITIES AND BICYCLE COMPATIBILITY ASSESSMENT

NJDOT's *Planning and Design Guidelines for Bicycle Compatible Roadways and Bikeways* outline the three (3) types of on-road bicycle facilities that were evaluated for the CR 546 Bikeway. These facilities are intended to enhance on-road conditions for bicycle traffic.

2.1. Bicycle Facility Categories

The three (3) types of on-road bicycle facilities according to NJDOT guidelines are: Shared Lane, Paved Shoulder, and Bicycle Lane. Specific roadway attributes (e.g., parking provisions, traffic volumes, posted speed limit, etc.) are inventoried and assessed to determine the feasibility of each facility. Each on-road facility can serve as a designated bicycle route[1]. Following is a description of each facility.

Shared Lane A shared lane accommodates bicyclists and motorists in the same travel lane. Shared lanes can be located on urban or rural roadways with low vehicular traffic volumes and low posted speeds, and are occasionally supplemented with 'Share the Road' warning signs. Wide (12' – 15') outside travel lanes are often desired for shared lane facilities. A new pavement marking used to guide bicyclists with lateral positioning in a shared travel lane, the shared lane marking (or informally referred to as the 'Sharrow'), is included in the 2009 Manual on Uniform Traffic Control Devices (MUTCD).



Example of a bicyclist travelling on a shared lane roadway

[1] A bicycle route is a signed route used to direct bicyclist on bicycle compatible roadways between local and/or regional destinations.

Paved Shoulder

A paved shoulder accommodates bicyclists on the roadway shoulder adjacent to vehicular travel lanes. Paved shoulders can be located on urban or rural roadways with moderate to high vehicular traffic volumes and moderate to high posted speeds. Paved shoulders for bicyclists, range in width from 3' – 6'+ depending on available width, and are occasionally supplemented with 'Share the Road' warning signs.

Example of a wide paved shoulder with 'Share the Road' signage

Bicycle Lane

Bicycle lanes are designated travel lanes for exclusive or preferential use by bicyclists. Bicycle lanes are typically located on roadways in urban settings with moderate to high vehicular traffic volumes, moderate to high posted speeds and permitted or designated on-street parking. Bicycle lanes include the application of pavement striping, markings and regulatory signage.

Example of a bicycle lane facility in a town center

2.2. Bicycle Compatibility Assessment

Traffic volumes were collected for the Study Area roadways to determine bicycle compatibility based on NJDOT guidelines, which are included in **Appendix A**. Available traffic volume data was collected from NJDOT's Traffic Monitoring System, Mercer County, and the Delaware Valley Regional Planning Commission (DVRPC). Two (2) supplemental traffic counts, using Automatic Traffic Recorders (ATRs), were performed on CR 546 east and west of the Route 31 Circle to obtain additional bi-directional count data.

Site visits were performed to collect roadway attribute data for the Study Area roadways. Data collected included posted speed limit, pavement widths (lane width and shoulder width), pavement condition, on-street parking locations, bicycle compatibility of drainage grates, existing bicycle facilities, bridge locations, and the location of traffic signals.

A matrix was developed to illustrate the compatibility results in accordance with NJDOT guidelines for bicycle compatibility. The Bicycle Compatibility Matrix is presented in **Table 2** and illustrated in **Map 3.**

8' wide paved shoulder on CR 546

12' travel lanes on CR 631

Table 2: Study Area Roadways Bicycle Compatibility Matrix [2]

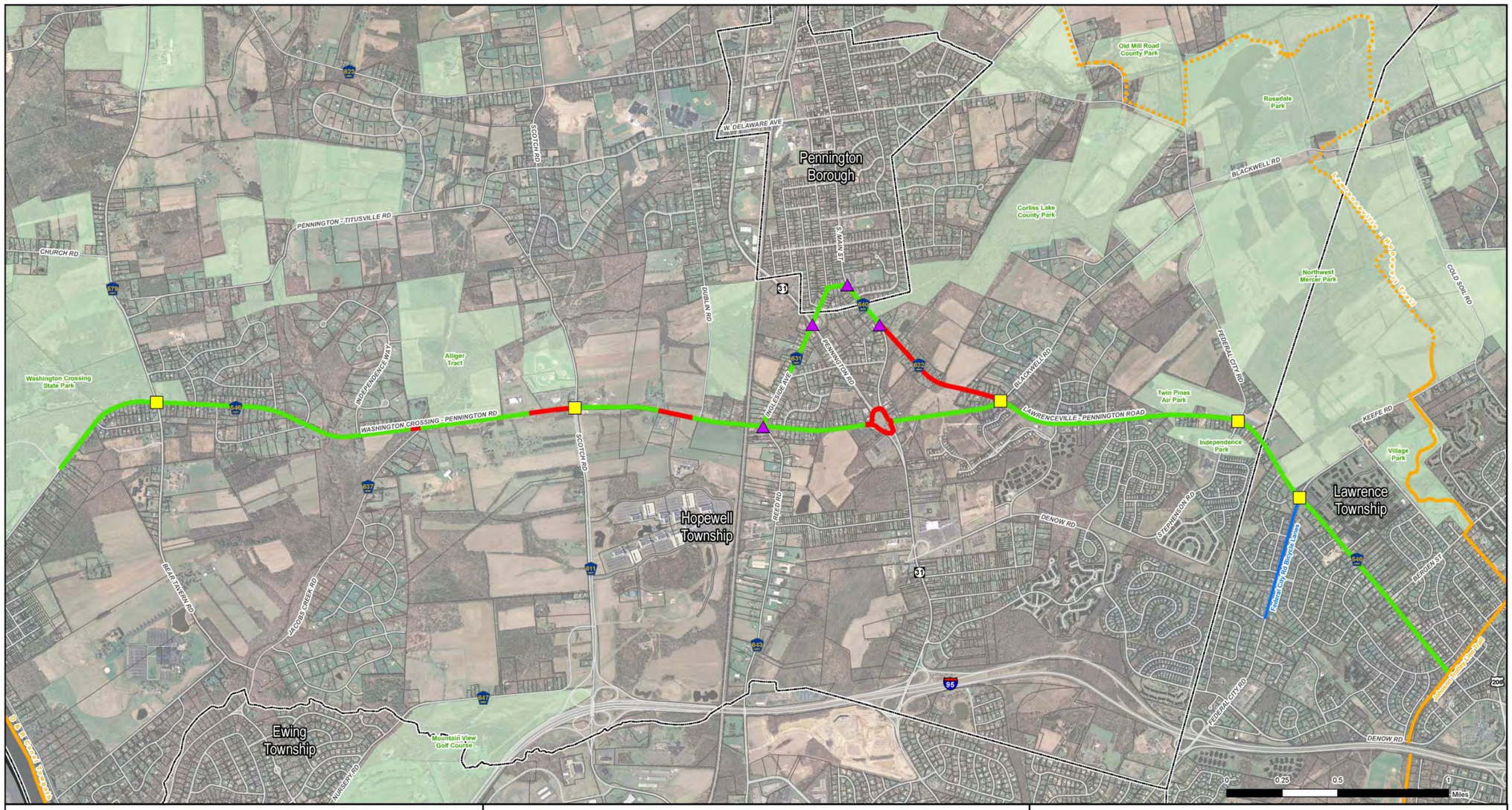
Street	From	To	AADT	Speed Limit	Permitted On Street Parking	Total Pavement Width	Travel Lane Width (EB//WB)	Travel Lane Width (NB//SB)	Median Width	Turn Lane Width	Shoulder Width[3] (EB//WB)	Shoulder Width[3] (NB//SB)	Bicycle Compatible[4]
Washington Crossing – Pennington Road (CR 546)	Washington Crossing State Park	Bear Tavern Road (CR 579)	7,000	40 MPH	No	40’	13’//13’		N/A	N/A	6’//8’		Yes
Washington Crossing – Pennington Road (CR 546)	Bear Tavern Road (CR 579)	250’ west of Jacobs Creek Road (CR 637)	8,200	45 MPH	No	40’	12’//12’		N/A	N/A	8’//8’		Yes
Washington Crossing – Pennington Road (CR 546)	250’ west of Jacobs Creek Road (CR 637)	Jacobs Creek Road (CR 637)	8,200	45 MPH	No	28’	12’//12’		N/A	N/A	3’//1’		No *14’ travel lanes needed*
Washington Crossing – Pennington Road (CR 546)	Jacobs Creek Road (CR 637)	1100‘ west of Scotch Road (CR 611)	10,000	45 MPH	No	38’	12’//12’		N/A	N/A	7’//7’		Yes
Washington Crossing – Pennington Road (CR 546)	1100‘ west of Scotch Road (CR 611)	Scotch Road (CR 611)	10,000	45 MPH	No	45’	17’//12’		6’	N/A	5’//5’		No *6’ shoulder needed*
Washington Crossing – Pennington Road (CR 546)	Scotch Road (CR 611)	2000’ east of Scotch Road (CR 611)	7,000	45 MPH	No	39’	13’//13’		N/A	N/A	7’//6’		Yes
Washington Crossing – Pennington Road (CR 546)	2000’ east of Scotch Road (CR 611)	Hopewell Valley Medical Center Entrance	7,000	45 MPH	No	48’	11’//12’		5’	15’ (Right Turn)	0’//5’		No *14’ travel lanes needed*
Washington Crossing – Pennington Road (CR 546)	Hopewell Valley Medical Center Entrance	150’ west of Dublin Road	7,000	45 MPH	No	40’	11’//11		N/A	11’ (Left Turn)	3.5’//3.5’		No *14’ travel lanes needed*

[2] Compatibility was determined based on the NJDOT Guidelines for Bicycle Compatible Roadways and Bikeways, 1996.
[3] On roadways with an Average Annual Daily Traffic (AADT) greater than 10,000, a shoulder width of 8’ should be provided wherever possible.
[4] Based on national and state best practices, if parking occurs intermittently then bicyclists could share the roadway as few conflicts with vehicles would potentially exist. However, if parking occurs frequently, then the likelihood for potential conflicts increase and sharing the roadways is not recommended.

Street	From	To	AADT	Speed Limit	Permitted On Street Parking	Total Pavement Width	Travel Lane Width (EB//WB)	Travel Lane Width (NB//SB)	Median Width	Turn Lane Width	Shoulder Width[3] (EB//WB)	Shoulder Width[3] (NB//SB)	Bicycle Compatible[4]
Washington Crossing – Pennington Road (CR 546)	150’ west of Dublin Road	Dublin Road	7,000	45 MPH	No	39’	11’//11’		8’	N/A	5’//4’		Yes
Washington Crossing – Pennington Road (CR 546)	Dublin Road	300’ east of Dublin Road	7,000	45 MPH	No	39’	11’//11’		6’	N/A	6’//5’		Yes
Washington Crossing – Pennington Road (CR 546)	300’ east of Dublin Road	Ingleside Avenue (CR 631)	7,000	45 MPH	No	39’	14’//12’		N/A	N/A	5’//7’		Yes
Washington Crossing – Pennington Road (CR 546)	Ingleside Avenue (CR 631)	NJ-31	7,300	40 MPH	No	38’	11’//11’		N/A	N/A	7’//9’		Yes
Blackwell Road (CR 546)	NJ-31	Pennington-Lawrenceville Road (CR 632)	4,700	40 MPH	No	40’	12.5’//12.5’		N/A	N/A	7.5’//7.5’		Yes
Lawrenceville - Pennington Road (CR 546)	Pennington-Lawrenceville Road (CR 632)	Dayna Road	6,800	40 MPH	No	50’	13’//13’		N/A	N/A	12’//12’		Yes
Lawrenceville - Pennington Road (CR 546)	Dayna Road	Federal City Road	9,400	40 MPH	Yes	47’	18’//12’		N/A	N/A	7’//10’		Yes
Lawrenceville - Pennington Road (CR 546)	Federal City Road	Bergen Street	9,000	50 MPH	Yes	50’	14’//14’		N/A	N/A	12’//10’		Yes
Lawrenceville - Pennington Road (CR 546)	Bergen Street	Johnson Trolley Line	7,400	50 MPH	Yes	50’	25’//25’		N/A	N/A	0’//0’		Yes *At current lane width*
Ingleside Avenue (CR 631)	Washington Crossing – Pennington Road (CR 546)	Route 31	1.400	25 MPH	No	28’		15’//13’	N/A	N/A		0’//0’	Yes

Street	From	To	AADT	Speed Limit	Permitted On Street Parking	Total Pavement Width	Travel Lane Width (EB//WB)	Travel Lane Width (NB//SB)	Median Width	Turn Lane Width	Shoulder Width[3] (EB//WB)	Shoulder Width[3] (NB//SB)	Bicycle Compatible[4]
Ingleside Avenue (CR 631)	Route 31	S. Main Street (CR 640)	900	25 MPH	No	28’		12’//12’	N/A	N/A		2’//2’	Yes
Lawrenceville - Pennington Road (CR 632)	S. Main Street (CR 640)	Blackwell Road (CR 546)	3,300	25 MPH	No	26.5’		11’//11	N/A	N/A		2’//2.5’	No *3’ shoulder or 14’ travel lanes needed*
S. Main Street (CR 640)	Ingleside Avenue (CR 631)	Vannoy Avenue	9,300	25 MPH	No	40’		24’//16’	N/A	N/A		0’//0’	Yes
S. Main Street (CR 640)	Vannoy Avenue	Pennington-Lawrenceville Road (CR 632)	9,300	25 MPH/ 35 MPH	No	31’		12’//12’	N/A	N/A		3.5’//3.5’	No *4’ shoulder or 14’ travel lane needed*

Map 3: Study Area Roadways Bicycle Compatibility Map



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Route 546 Bikeway Planning and Development Study

BICYCLE COMPATIBILITY MAP

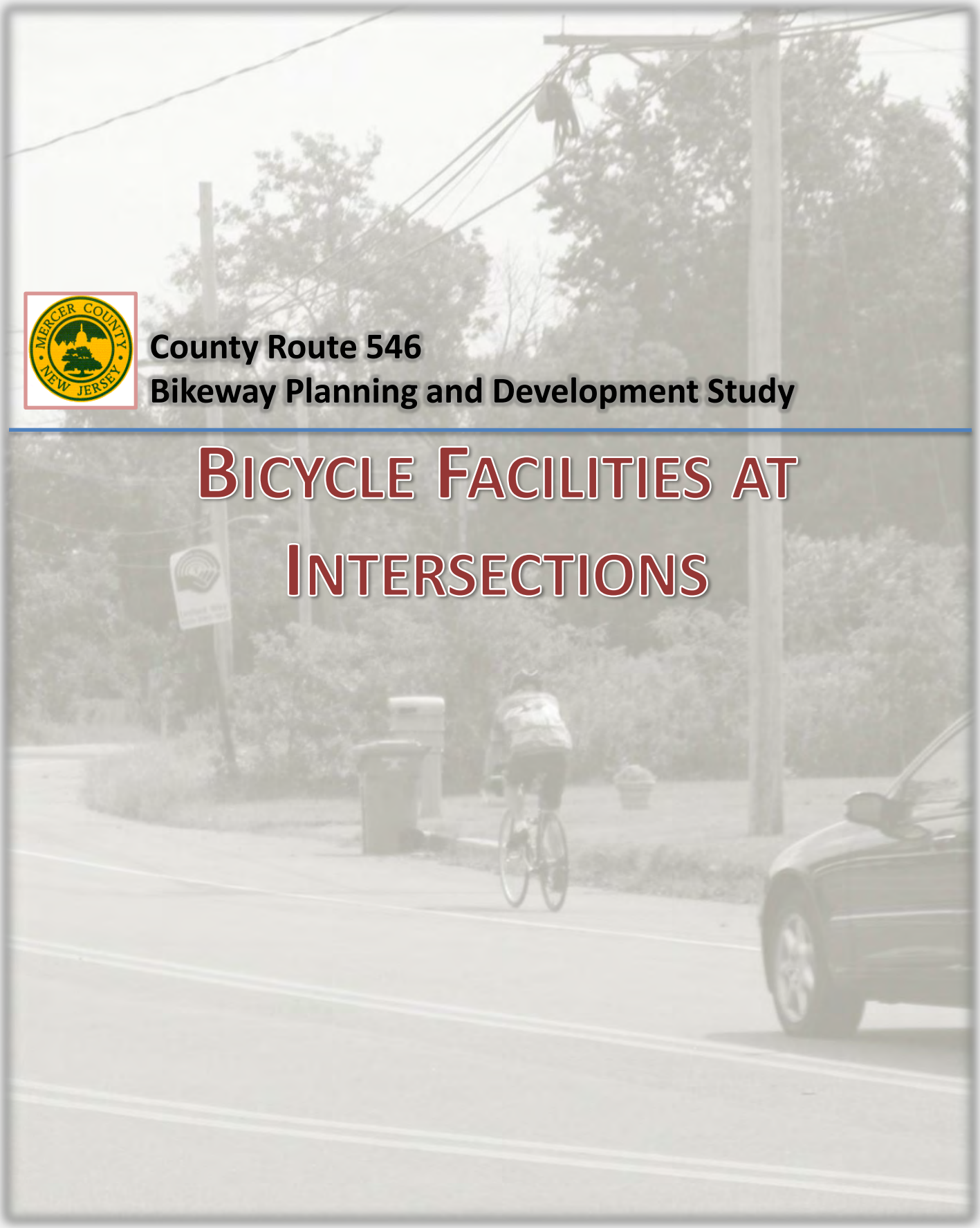
November 2009

Inventoried Roadways
- Roadway Bicycle Compatible[1]
- Roadway Not Bicycle Compatible[1]

Inventoried Intersections
- Signalized Intersection
- Unsignalized Intersection

Existing Conditions
- Proposed Off-Road Bicycle Facilities
- Existing Off-Road Bicycle Facilities
- Existing On-Road Bicycle Facilities
- Municipal Boundary
- Open Space
- Rail Lines

[1] *Bicycle Compatibility was determined based on the NJDOT Guidelines for Bicycle Compatible Roadways and Bikeways. 1996.*



County Route 546
Bikeway Planning and Development Study

Bicycle Facilities at Intersections

3. BICYCLE FACILITIES AT INTERSECTIONS

An important consideration when installing on-road bicycle facilities is accommodations at intersections. Use of design treatments that alert the bicyclist and the motorist to changes in roadway delineation, especially at turning locations, can enhance mobility at intersections, while reducing the potential for conflicts. In general, it is recommended that merging movements occur in advance of an intersection rather than at the intersection.

For bicycle lanes, NJDOT guidelines recommend that solid line bicycle lane striping end approximately 200 feet in advance of the intersection. A broken line can be extended from the end of the solid striping to the intersection stop bar if a bicycle lane is installed adjacent to the vehicular through lane at the intersection. Bicycle lane striping should not be continued across striped crosswalks or across intersections, but striping should resume after the intersection. Appropriate MUTCD signing (e.g. R3-17/17a [Bicycle Lane Ends], R4-4 [Begin Right Turn Lane Yield to Bikes], etc.) should accompany changes in striping.

3.1. Existing Conditions at Inventoried Intersections

Five (5) signalized intersections and four (4) unsignalized intersections were inventoried on Study Area roadways. These intersections, which are also identified in **Map 3**, are:

Signalized Intersections

- CR 546 and Bear Tavern Road (CR 579)
- CR 546 and Scotch Road (CR 611)
- CR 546 and CR 632
- CR 546 and Federal City Road/Stephenson Road
- CR 546 and Federal City Road/Keefe Road

Unsignalized Intersections

- CR 546 and CR 631
- CR 631 and Route 31
- CR 631 and CR 640
- CR 640 and CR 632

The intersection inventory included collecting data on shoulder widths, number of lanes, lane widths, and lane configuration. Information obtained during the intersection inventory is summarized on the following pages.

Existing conditions at the intersection of CR 546 and Bear Tavern Road (CR 579)

Intersection Control:	• Signalized
Eastbound Travel	
Approaching Lanes:	• 12’ Left Turn Lane • 14’ Through and Right Turn Lane • 4’ Shoulder
Receiving Lanes:	• 12’ Through Lane • 4’ Shoulder
Westbound Travel	
Approaching Lanes:	• 12’ Left Turn Lane • 10’ Through Lane • 10’ Right Turn Lane
Receiving Lanes:	• 12’ Through Lane • 4’ Shoulder

Existing conditions at the intersection of CR 546 and Scotch Road (CR 611)

Intersection Control:	• Signalized
Eastbound Travel	
Approaching Lanes:	• 12’ Left Turn Lane • 14’ Through • 12’ Right Turn Lane
Receiving Lanes:	• 12’ Through Lane
Westbound Travel	
Approaching Lanes:	• 12’ Left Turn Lane • 13’ Through and Right Turn Lane
Receiving Lanes:	• 15’ Through Lane

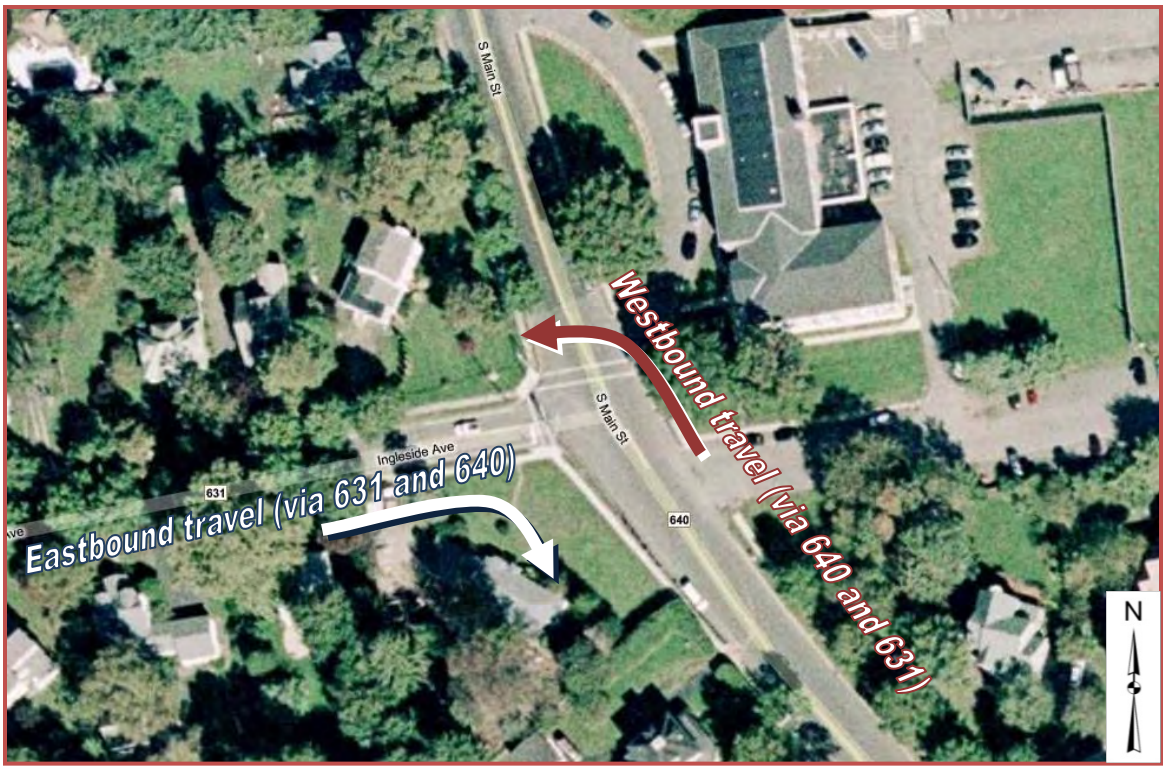
Existing conditions at the intersection of CR 546 and CR 631

Intersection Control:	• Unsignalized • Stop Controlled on CR 631
Eastbound Travel	
Approaching Lanes:	• 14’ Through Lane • 5’ Shoulder
Receiving Lanes: ***(on CR 546)***	• 14’ Through Lane • 6’ Shoulder
Receiving Lanes: ***(on CR 631)***	• 14’ Through Lane
Westbound Travel	
Approaching Lanes: ***(on CR 546)***	• 14’ Through Lane • 6’ Shoulder
Approaching Lanes: ***(on CR 631)***	• 13’ Through Lane
Receiving Lanes:	• 14’ Through Lane • 5’ Shoulder

Existing conditions at the intersection of CR 631 and Route 31

Intersection Control:	• Unsignalized with flashing beacon • Stop- controlled on CR 631 in both directions
Eastbound Travel	
Approaching Lanes:	• 14’ Through Lane
Receiving Lanes:	• 14’ Through Lane
Westbound Travel	
Approach	• 12’ Through Turn Lane
Receiving	• 12’ Through Lane

Existing conditions at the intersection of CR 631 and CR 640

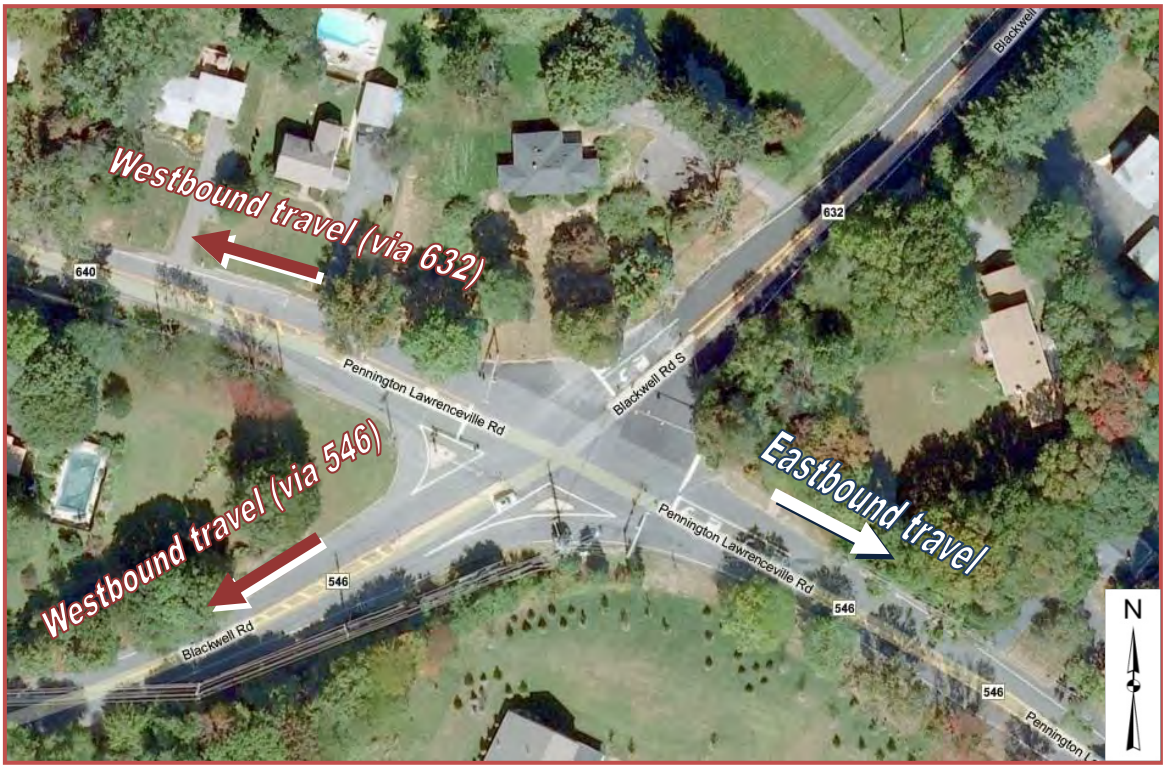


Intersection Control:	• Unsignalized • Stop- controlled for CR 631 on to CR 640
Eastbound Travel	
Approaching Lanes: ***(on CR 631)***	• 12’ Through Lane
Receiving Lanes: ***(on CR 640)***	• 37’ Through Lane
Westbound Travel	
Approaching Lanes: ***(on CR 640)***	• 22’ Through Lane
Receiving Lanes: ***(on CR 631)***	• 12’ Through Lane

Existing conditions at the intersection of CR 640 and CR 632

Intersection Control:	• Unsignalized • Yield-controlled movement from CR 632 to CR 640
Eastbound Travel	
Approaching Lanes: ***(on CR 640)***	• 12’ Through Lane • 3’ Shoulder
Receiving Lanes: ***(on CR 632)***	• 16’ Through Lane
Westbound Travel	
Approaching Lanes: ***(on CR 632)***	• 12’ Through Lane
Receiving Lanes: ***(on CR 640)***	• 12’ Through Lane • 7’ Shoulder

Existing conditions at the intersection of CR 546 and CR 632



Intersection Control:	• Signalized
Eastbound Travel	
Approaching Lanes: ***(on CR 546)***	• 14’ Through and Left Turn Lane • 15’ Channelized Right Turn Lane
Approaching Lanes: ***(on CR 632)***	• 12’ Left Turn Lane • 14’ Through Lane • 18’ Channelized Right Turn Lane
Receiving Lanes: ***(on CR 546)***	• 13’ Through Lane
Westbound Travel	
Approaching Lanes: ***(on CR 546)***	• 13’ Left Turn Lane • 13’ Through and Right Turn Lane
Receiving Lanes: ***(on CR 632)***	• 20’ Through Lane
Receiving Lanes: ***(on CR 546)***	• 17’ Through Lane

Existing conditions at the intersection of CR 546 and Federal City Road/Stephenson Road

Intersection Control:	• Signalized
Eastbound Travel	
Approaching Lanes:	• 12’ Left Turn Lane • 20’ Through and Right Turn Lane
Receiving Lanes:	• 15’ Through Lane
Westbound Travel	
Approach	• 12’ Left Turn Lane • 18’ Through and Right Turn Lane
Receiving	• 15’ Through Lane

Existing conditions at the intersection of CR 546 and Federal City Road/Keefe Road

Intersection Control:	• Signalized
Eastbound Travel	
Approaching Lanes:	• 12’ Left Turn Lane • 18’ Through • 16’ Channelized Right Turn Lane
Receiving Lanes:	• 14’ Through Lane
Westbound Travel	
Approach	• 14’ Left Turn Lane • 18’ Through Lane and Right Turn Lane
Receiving	• 14’ Through Lane

3.2. Intersection Summary

The following summarizes existing conditions at the inventoried intersections:

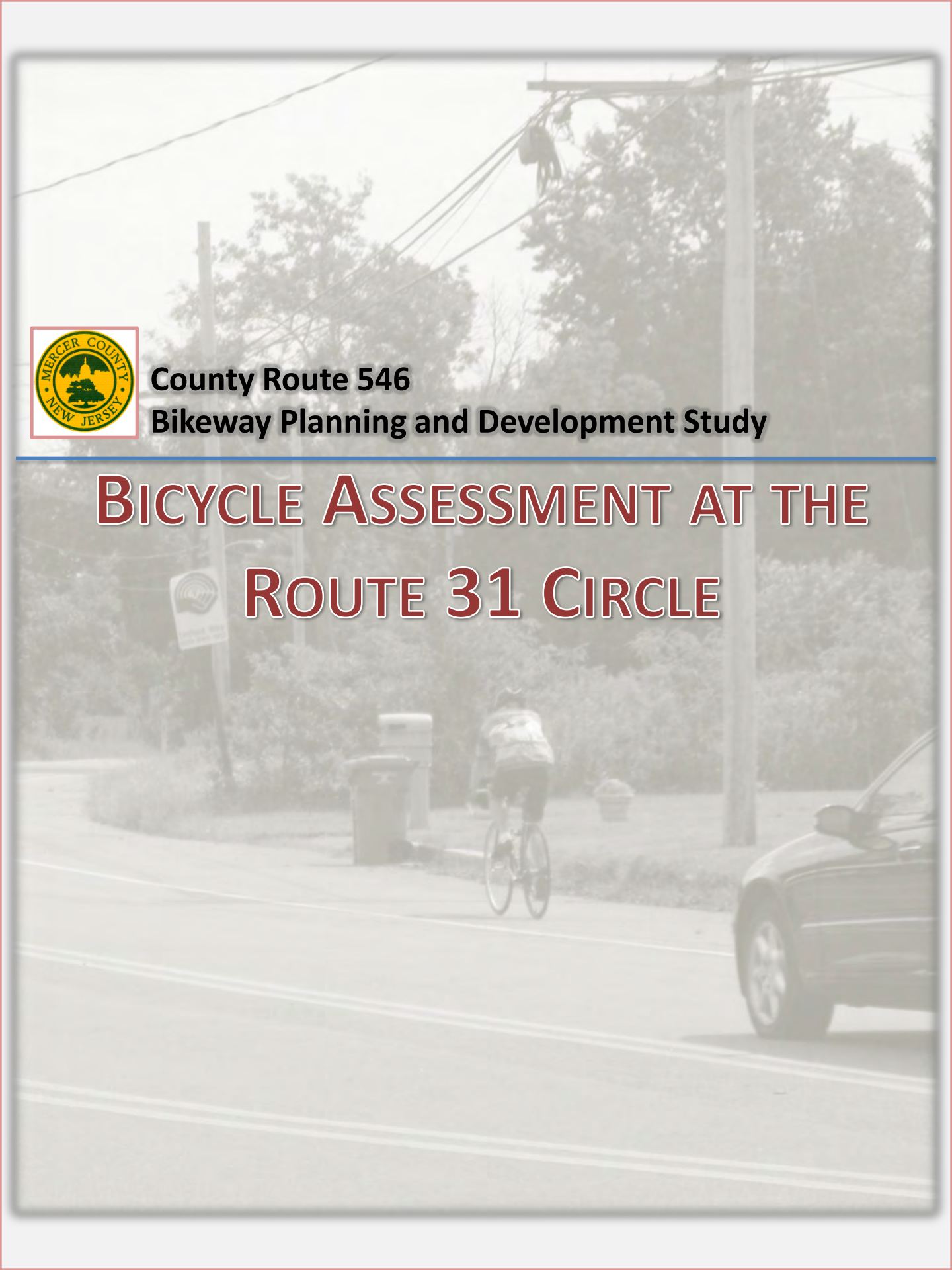
- *Two (2) intersections maintain existing shoulders at the intersection*: CR 546 and Bear Tavern Road (CR 579), and CR 546 and CR 631 (along CR 546 east-west travel lanes).
- *Four (4) intersections have lane configurations that include exclusive right turn, through, and left turn lanes*: CR 546 and Bear Tavern Road (eastern approach); CR 546 and Scotch Road (western approach); CR 546 and CR 632 (eastern approach on CR 546); and CR 546 and Federal City Road/Keefe Road (western approach).
- *Two (2) intersections have channelized right-turn lanes*: CR 546 and CR 632 (western approach of both CR 546 and CR 632), and CR 546 and Federal City Road/Keefe Road (western approach).
- *The intersection of Route 31 and CR 631 is unsignalized with no protected through or turning movements.*
- *There are no existing exclusive turn lanes at the five (5) unsignalized intersections*.

Westbound approach at the intersection of CR 546 and Bear Tavern Road.

Lane configuration on the east side of the intersection of CR 546 and CR 579

County Route 546
Bikeway Planning and Development Study

Bicycle Assessment at the Route 31 Circle



4. BICYCLE ASSESSMENT AT THE ROUTE 31 CIRCLE

A site visit was performed to inventory roadway attributes and traffic control devices for the Route 31 Circle (Pennington Circle). The inventory included existing signage, striping, lane widths, lane configurations, shoulder widths, and driveway locations. Traffic volume data for the circle was developed using traffic count data from NJDOT, Mercer County, DVRPC, and field collected ATR data. Information obtained during the Route 31 Circle inventory is summarized on the following page.

Route 546 to the west of Route 31 Circle

Route 546 to the east of Route 31 Circle

Exit lane from Route 31 Circle to CR 546 WB

Entrance from 546 EB to Route 31 Circle

Existing conditions at CR 546 and the Route 31 Circle

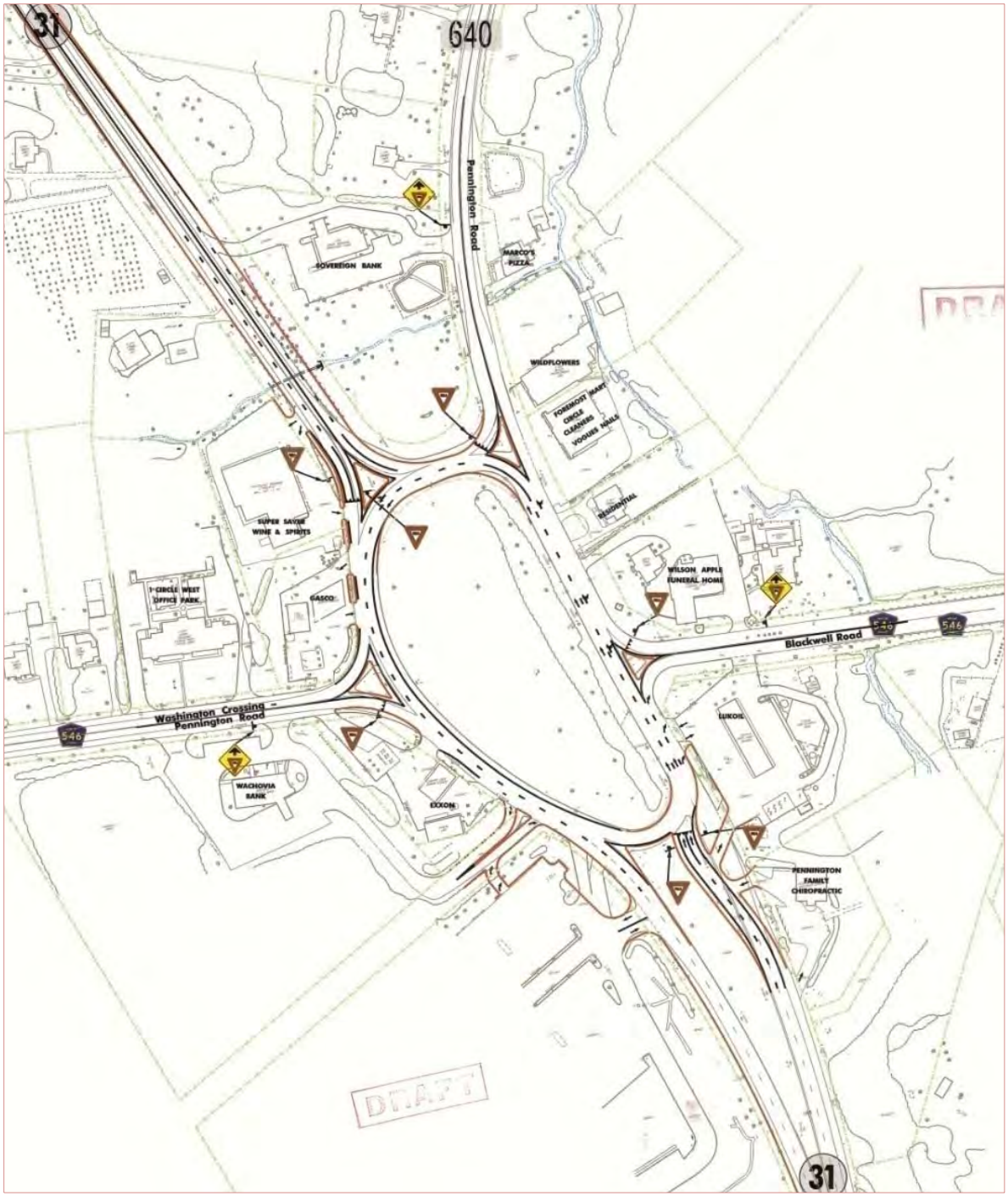
Eastbound Travel			Westbound Travel	
Intersection Control	• Unsignalized • Yield-controlled movement from CR 546 East to Route 31 South • Yield-controlled movement from circle to Route 31 North		*Intersection Control*	• Unsignalized • Yield-controlled movement from CR 546 West to Route 31 North • Yield-controlled movement from circle to Route 31 South
Lane Widths:	1. 19’ entry lane from CR 546 East, with 4’ outside shoulder 2. 35’ travel lane on Route 31 South 3. 28’ yield lane to Route 31 North 4. 38’ travel lane on Route 31 North 5. 16’ exit lane on to CR 546 East, with 6’ outside shoulder		*Lane Widths:*	1. 17’ entry lane from CR 546 West. With 6’ outside shoulder 2. 40’ travel lane on Route 31 North 3. 24’ travel lane on Route 31 North, with 2’outside shoulder 4. 39’ travel lane on Route 31 North 5. 24’ yield lane to Route 31 South, with 2’ outside shoulder 6. 42’ travel lane on Route 31 South 7. 19’ exit lane on to CR 546 East, with 6’ outside shoulder
AADT	• 17,650 on Route 31 South, between CR 546 East entry lane and Route 31 North. • 20,730 on Route 31 North, between Route 31 South and CR 546 East exit lane.		*AADT*	• 16,800 – 20,500 on Route 31 North, between CR 546 West entry lane and Route 31 South. • 20,720 on Route 31 South, between Route 31 North and CR 546 West exit lane.

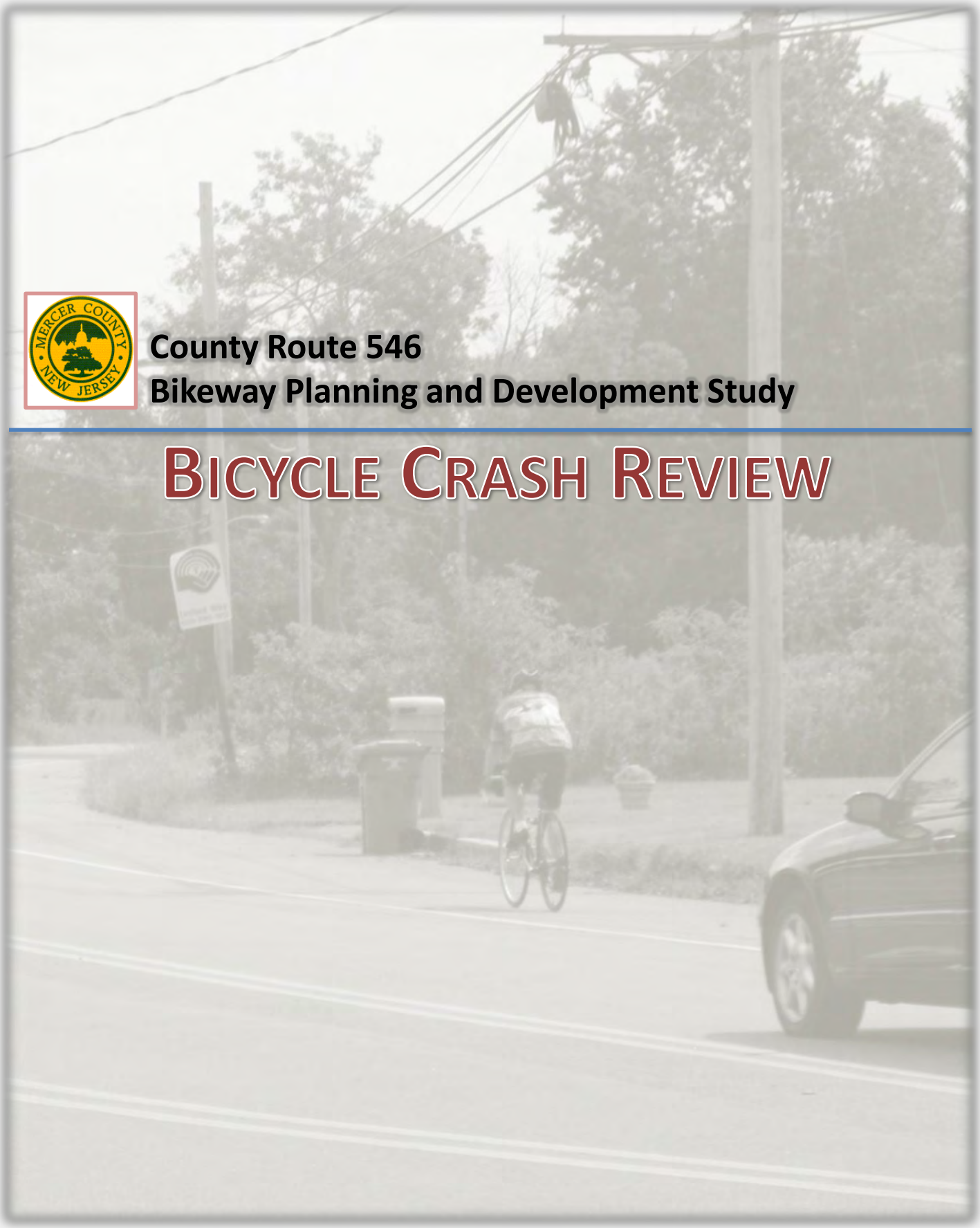
4.1. NJDOT Route 31 Circle Improvements

During data collection for the study, plans for proposed NJDOT improvements at the Route 31 circle were identified in the state Transportation Improvement Program (TIP) and documents from Hopewell Township. A meeting was scheduled with the NJDOT Division of Project Development (NJDOT-DPD) to review and gather materials for the proposed improvements include in the Initially Preferred Alternative (IPA). The IPA included physical changes to reduce vehicle entry speeds into the circle from Route 31 as well as the reduction and relocation of several driveways on the circle. **Figure 1** illustrates the proposed improvements and a plan sheet is included in **Appendix B**.

East-facing oblique aerial view of the Route 31 Circle

Figure 1: NJDOT IPA for the Route 31 Circle





County Route 546
Bikeway Planning and Development Study

Bicycle Crash Review

5. BICYCLE CRASH REVIEW

Bicycle and pedestrian crash reports were received from the NJDOT – Bureau of Safety Programs (NJDOT-BSP) and the Lawrence Township, Hopewell Township, and Pennington Borough Police Departments for the most recent six (6) years available (2004-2009). The reports were requested to determine the crash history for bicyclists on Study Area Roadways.

There were seven (7) reported crashes involving bicyclists between June 2004 and August 2009. Reported crashes are illustrated and referenced in **Map 4**.

1. **June 02, 2004 (7:36pm) –** A motorist was traveling eastbound on CR 546 when it struck a bicyclist traveling eastbound in the shoulder. The vehicle crossed into shoulder, struck the bicyclist and fled the scene of the crash.

2. **July 17, 2008 (5:52am) –** A motorist was traveling east on CR 546 when it struck a deer which entered from the south side of the roadway. Two (2) bicyclists were traveling east along the shoulder when this occurred and both bicyclists collided with the deer after it had collided with the vehicle.

3. **July 25, 2006 (6:48pm) –** A motorist was traveling westbound on CR 546 when it struck a bicyclist at the intersection with Scotch Road (CR 611). The bicyclist crossed the intersection against a red signal.

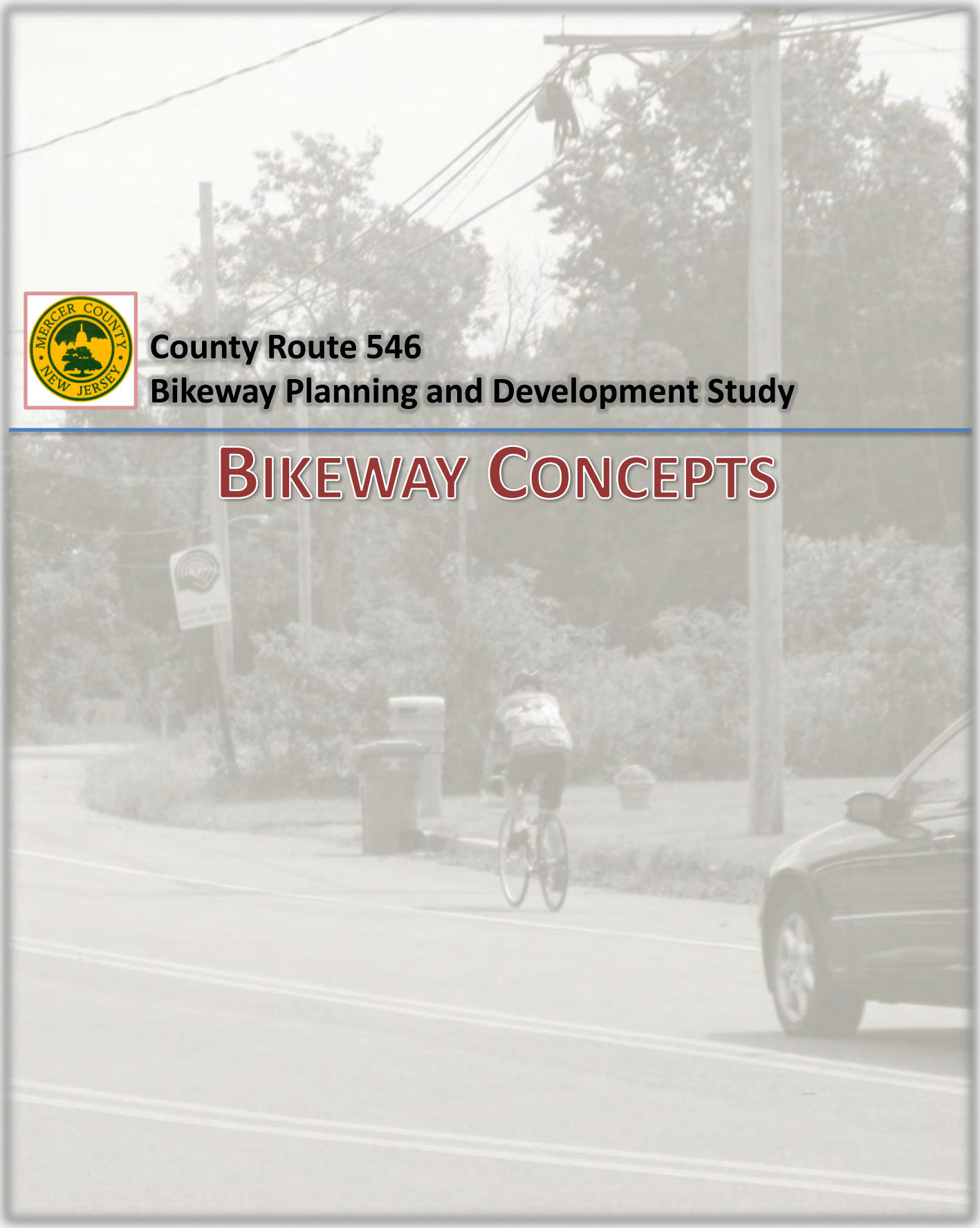
4. **August 10, 2009 (12:57pm) –** A motorist was making a left turn from the southbound lane of Dublin Road onto CR 546 when it struck a bicyclist making the same left turn movement. The bicyclist reported that they had stopped at the intersection, signaled a left hand turn at the intersection and proceeded to cross the roadway when they were struck.

5. **October 22, 2007 (6:30pm) –** A motorist was exiting the Shop Rite parking lot heading to the Route 31 circle when it struck a bicyclist traveling south in the shoulder along southbound Route 31. The motorist fled the scene.

6. **April 27, 2009 (8:05pm) –** A motorist was making a right turn into a driveway at the intersection of CR 640 and CR 632 when it struck a bicyclist traveling south on the northbound side of CR 640. The bicyclist suffered minor injuries and was taken to the hospital.

7. **June 02, 2005 (6:57pm) –** A motorist was traveling north on CR 546 when it made a left turn onto Blackwell Road and struck a bicyclist. The bicyclist was traveling south from CR 632 to CR 546 and had a green signal when the crash occurred.

Map 4: County Route 546 Bicycle Crash Map



County Route 546
Bikeway Planning and Development Study

Bikeway Concepts

6. BIKEWAY CONCEPTS

Three (3) bikeway concepts were developed for the Study Area roadways, including bicycle compatibility enhancements along roadway segments and at intersections. The NJDOT Route 31 Circle IPA was incorporated into each of the bikeway concepts.

The three (3) bikeway concepts are:

- **Concept # 1 – Bicycle Lanes on CR 546**
- **Concept # 2 – Share the Road on CR 546**
- **Concept # 3 – Pennington Signed Bicycle Route**

The bikeway concepts are based on NJDOT guidelines for bicycle facilities (*Bicycle Compatible Roadways and Bikeways, Planning and Design Guidelines* and *Pedestrian Compatible Planning and Design Guidelines*), American Association of State Highway and Transportation Officials (AASHTO) guidelines (*Guide for the Development of Bicycle Facilities*), and the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) 2009 edition.

Specific improvements for each concept are detailed and illustrated in the following pages.

CR 546, between the Route 31 Circle and CR 632

Bicyclist at the intersection of CR 546 and Stephenson Road making a left turn from the left turn lane.

6.1. Concept #1 – Bicycle Lanes on CR 546

Concept #1 proposes the installation of 5' wide bicycle lanes on CR 546. Bicycle lane signs (R3-17) and plaques (R3-17aP and R3-17bP), as well as no parking signs (R7-9a), would be installed in conjunction with the striping and marking of the bicycle lane facility.

6.1.1. Concept #1 – Roadway

Bicycle lanes can be are feasible along a majority of the roadway segments through shoulder restriping. Two (2) locations where bicycle lanes are not feasible are: the Woolsey Creek Bridge and the approaches to the Merrill Lynch/Hopewell Medical Center driveway. The Woolsey Creek Bridge is currently being scoped for reconstruction and the new bridge will have shoulders in each direction that could be re-striped for bicycle lanes in the future. The approaches to the Merrill Lynch/Hopewell Medical Center driveway do not have the existing pavement width needed to accommodate bicycle lanes per NJDOT guidelines. For these approaches, proposed re-striping could provide 14' – 15' shared travel lanes. Additional warning signage (W11-1 and W16-1P) is recommended at these locations to alert bicyclists and motorists of changes in roadway delineation.

Bicycle lanes striping on a county road in Somerset County

6.1.2. Concept #1 – Intersections

For intersections, bicycle lane striping would be recommended to continue up the intersection where existing pavement width allows, per NJDOT guidelines. Broken line striping for the bicycle lane would be recommended at intersections where there is an exclusive or channelized right turn lane.

There are three (3) intersections where the existing pavement width and lane configuration limit the feasibility of bicycle lanes. These intersections are: CR 546 and Bear Tavern Road (CR 579), CR 546 and Scotch Road (CR 611), and CR 546 and CR 632. At these intersections, the following restriping would be proposed to accommodate a shared travel lane:

1. CR 546 and Bear Tavern Road (CR 579): The existing exclusive right turn, through, and left turn lanes on the westbound approach limit the inclusion of a bicycle lane. For this approach, it is recommended that the through travel lane restriped to a width of 12'.
2. CR 546 and Scotch Road (CR 611): Existing exclusive right turn, through, and left turn lanes on the eastern approach, and left turn and through lanes on the western approach limit the inclusion of bicycle lanes. For both approaches, it is recommended that the through travel lanes be restriped to a minimum width of 14' to accommodate a shared travel lane.
3. CR 546 and CR 632: At this intersection, the proposed bikeway bends slightly to follow CR 546. The existing exclusive left turn and through lanes on the western approach of CR 546, and the through and channelized right turn lane on the eastern approach of CR 546 limit the inclusion of bicycle lanes. To follow the bikeway on CR 546, it is recommended that this intersection be restriped for a 14' left turn lane on the eastern approach of CR 546.

Bicycle lane dashed striping at intersection with exclusive right turn lane

Concept #1 is illustrated in **Map 5** and representative cross-sectional graphics are presented in **Figures 2 – 4**. **Figure 5** illustrates striping for bicycle lane treatment at an intersection on CR 546.

Map 5: Concept #1 – Bicycle Lanes on CR 546

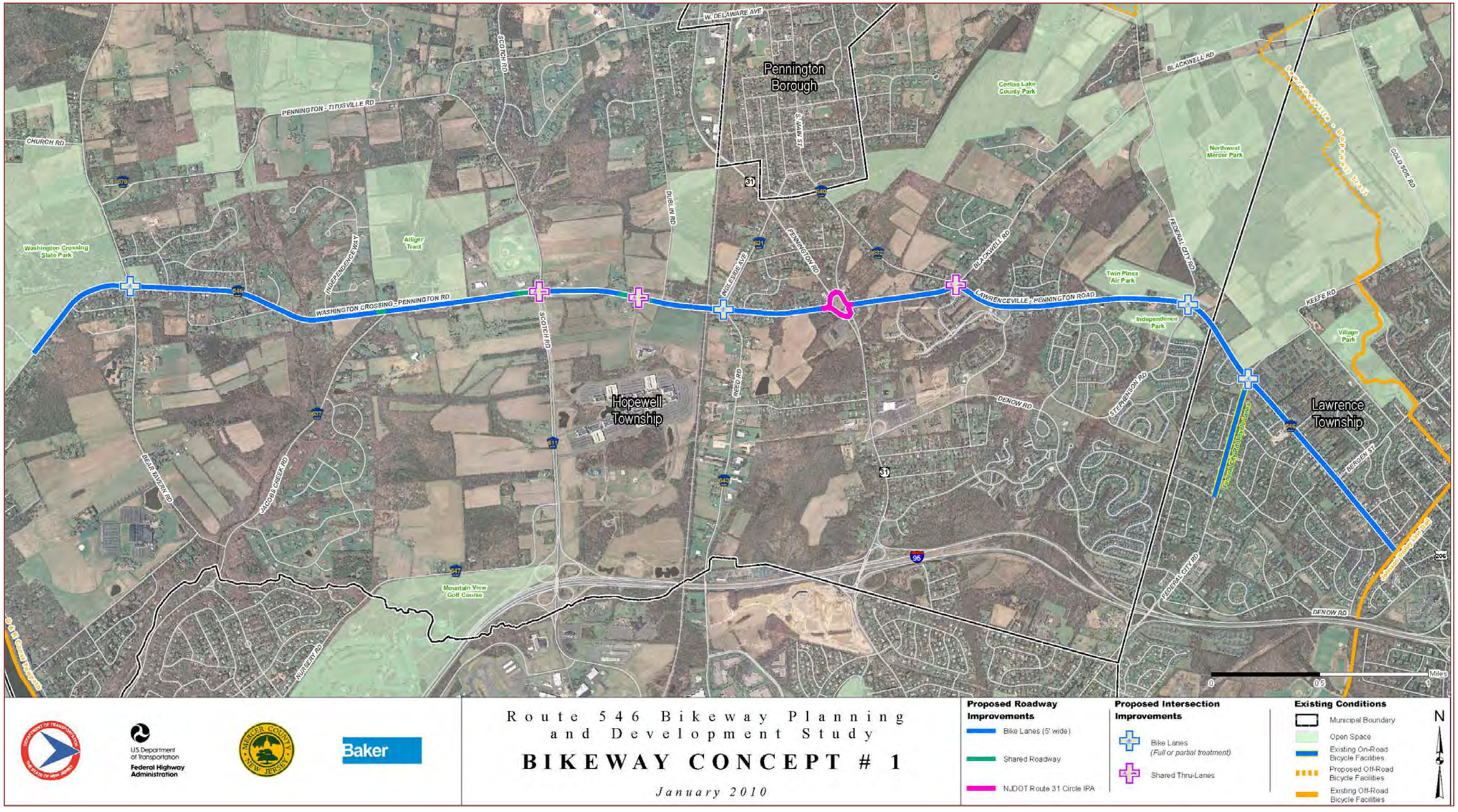


Figure 2: Concept #1 – Bicycle Lanes on CR 546

Cross-Section between Washington Crossing Park and Jacobs Creek Road

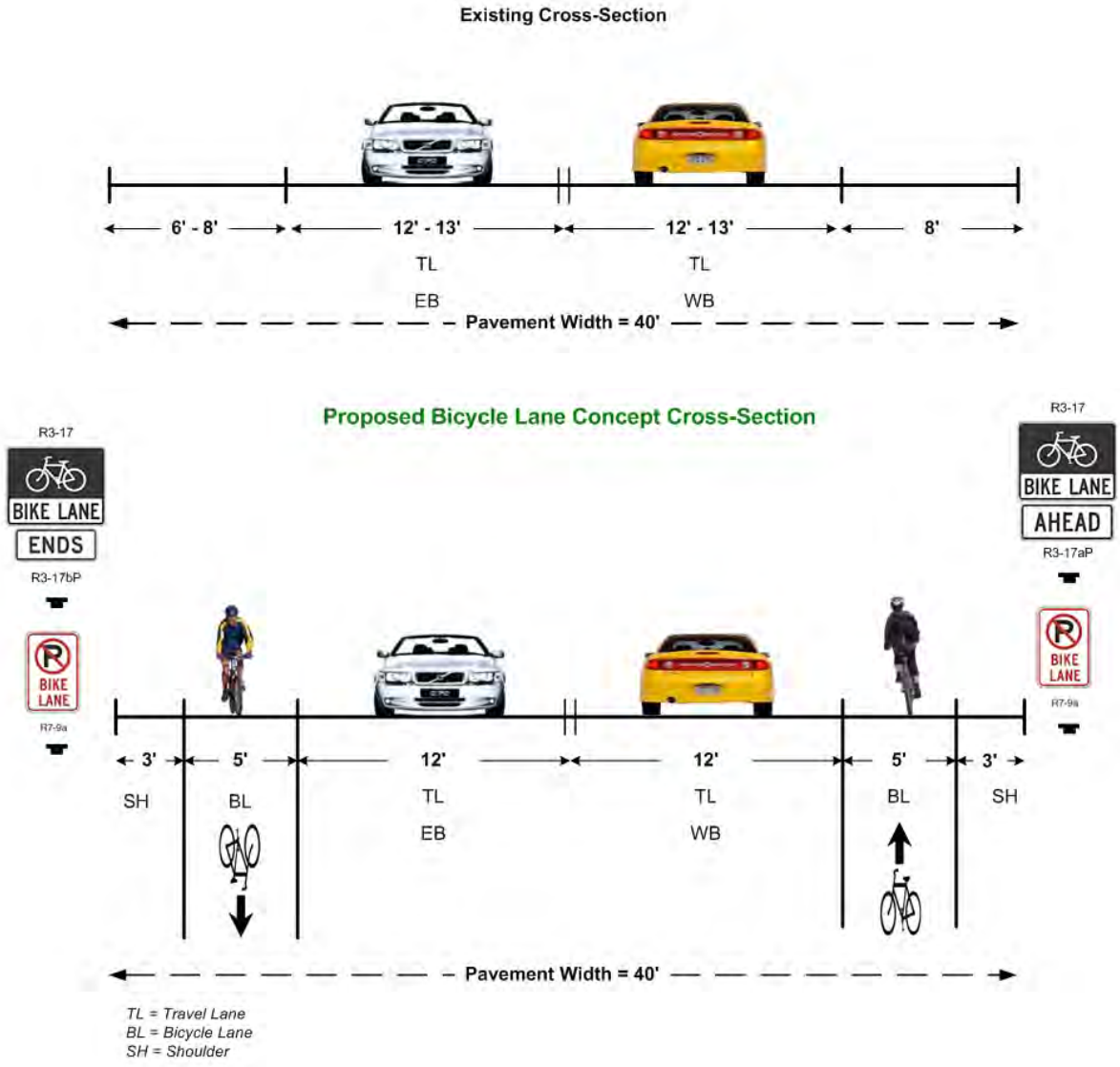


Figure 3: Concept #1 – Bicycle Lanes on CR 546

Cross-Section between Dublin Road and the Route 31 Circle

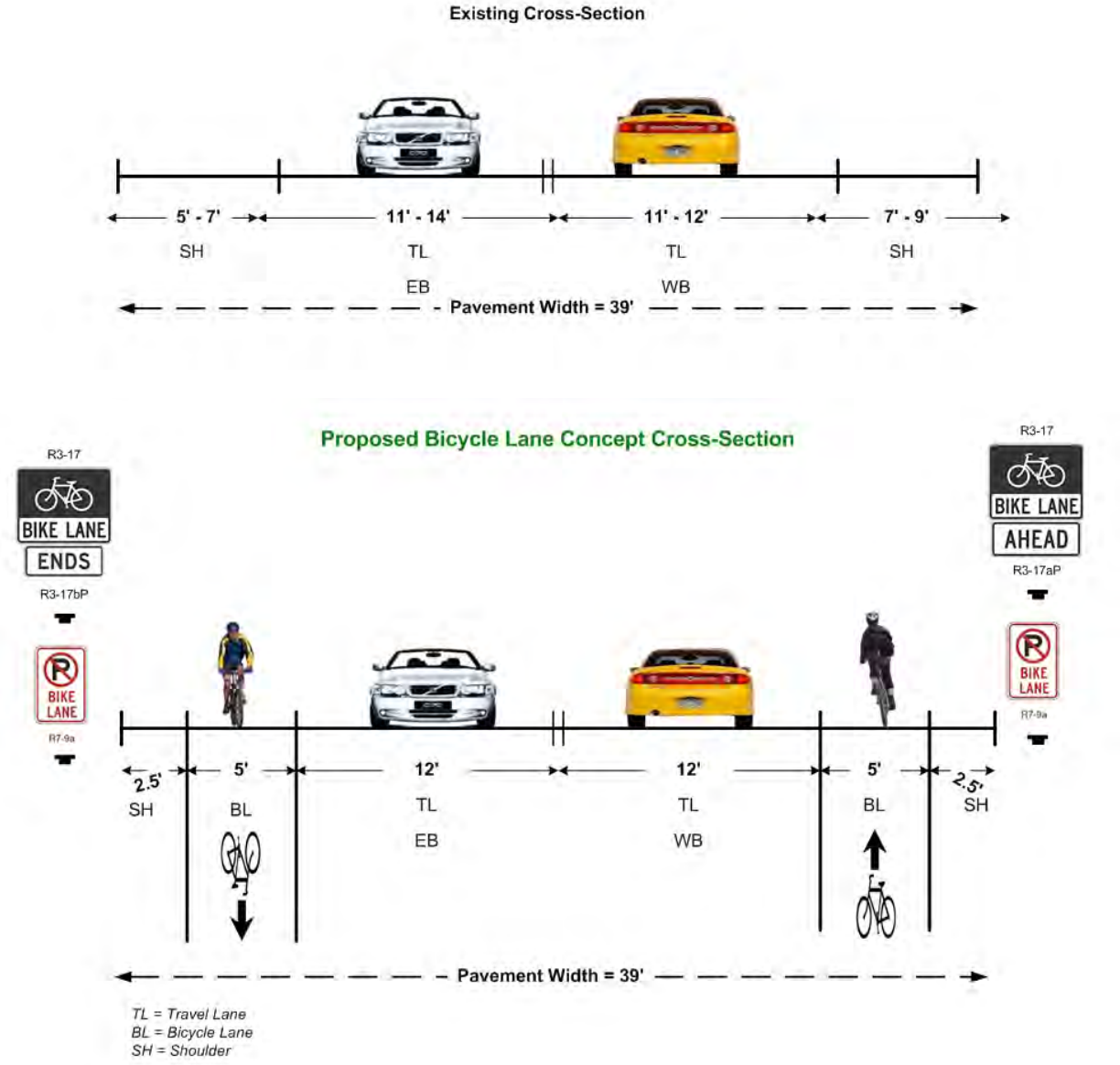


Figure 4: Concept #1 – Bicycle Lanes on CR 546

Cross-Section between CR 632 and Bergen Street

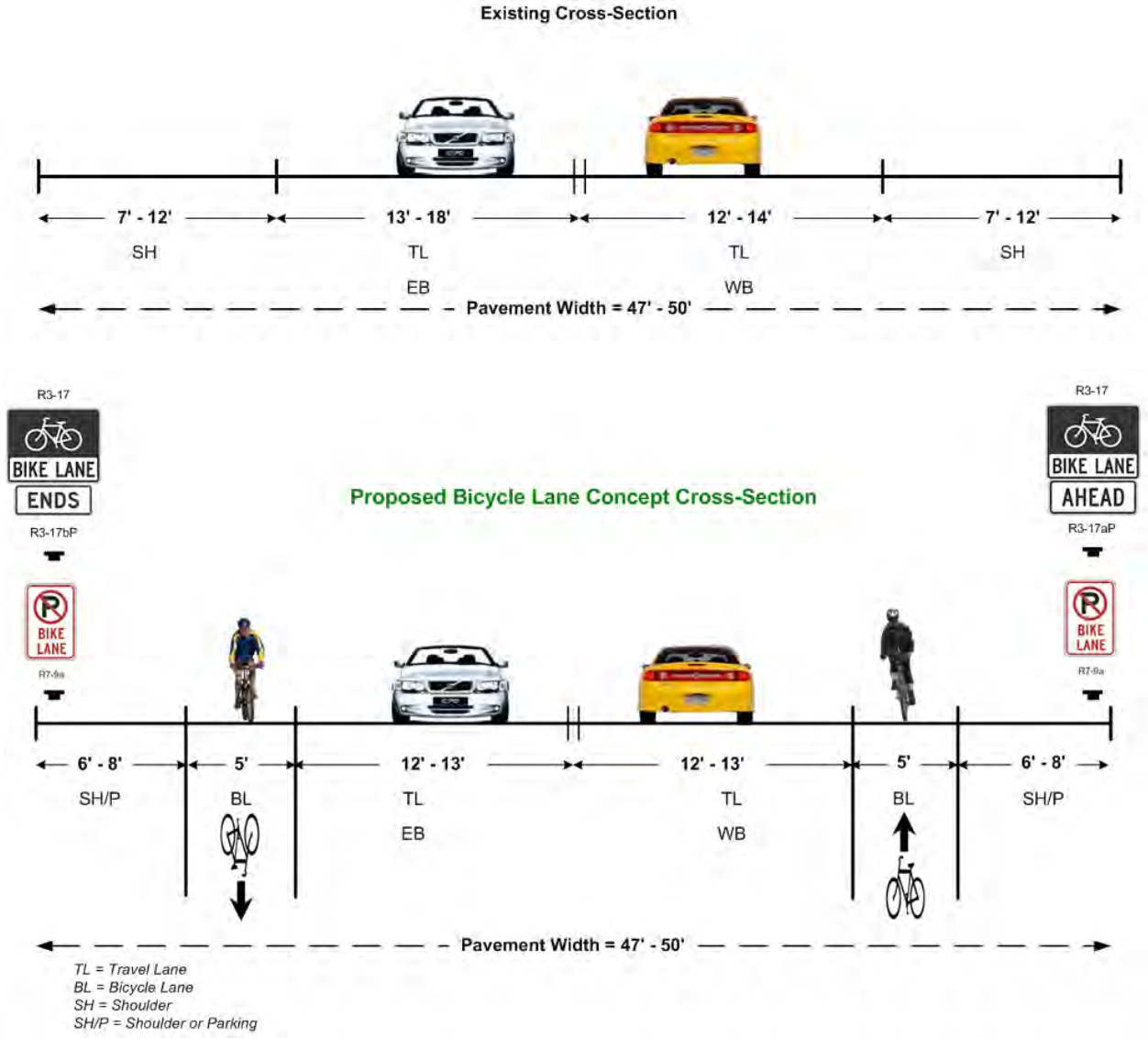


Figure 5: Concept #1 – Bicycle Lanes on CR 546 Intersection Striping

CR 546 and Federal City Road/Stephenson Road

6.2. Concept #2 – Share the Road on CR 546

Concept #2 proposes the installation of bicycle warning signs (W11-1) and "Share the Road" plaques (W16-1P) along CR 546 to develop a 'Share the Road' bicycle facility.

6.2.1. Concept #2 – Roadway

This concept would utilize the existing wide paved shoulders (5' or greater) on the corridor that are currently bicycle compatible based on NJDOT guidelines. Similar to Concept # 1, there are locations where a wide paved shoulder is not present. These locations, which include Woolsey Creek Bridge and the Merrill Lynch/Hopewell Medical Center driveway, would be proposed for re-striping to 14' – 15' shared travel lanes. Additionally, the shoulders included as part of the planned reconstruction of the Woolsey Creek Bridge would be maintained and remove the shared travel lanes at this location.

"Share the Road" treatment on roadway with wide paved shoulder

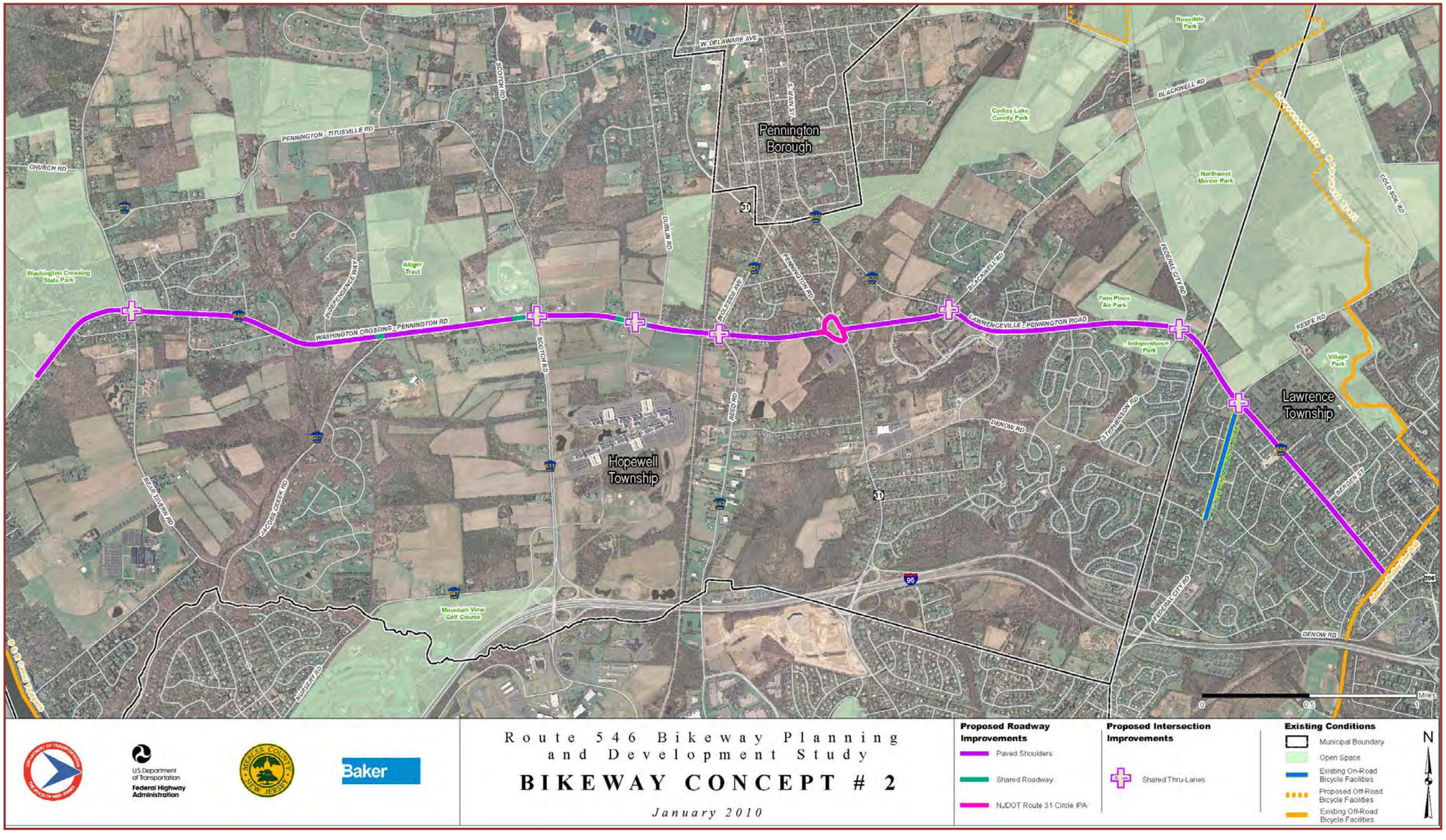
6.2.2. Concept #2 – Intersections

Under Concept #2, it is recommended that existing shoulders at intersections be maintained, and where shoulders are not present, it is recommended that a wide (14' or greater) shared through travel lane be provided. There is one (1) location where neither a shoulder nor wide shared travel lane can be provided: the eastern approach of CR 546 and Bear Tavern Road (CR 579). At this location, which has existing exclusive right turn, through, and left turn lanes, it is recommended that the through travel lane restriped to a width of 12'.

Wide shared through travel lane at intersection

Concept #2 is illustrated in **Map 6** and representative cross-sectional graphics are presented in **Figures 6 – 8**. **Figure 9** illustrates striping wide shared through travel lane treatment at an intersection on CR 546.

Map 6: Concept # 2 – Share the Road on CR 546



Route 546 Bikeway Planning and Development Study

BIKEWAY CONCEPT # 2

January 2010

Proposed Roadway Improvements
- Paved Shoulders
- Shared Roadway
- NJDOT Route 31 Circle IPA

Proposed Intersection Improvements
- Shared Thru-Lanes

Existing Conditions
- Municipal Boundary
- Open Space
- Existing On-Road Bicycle Facilities
- Proposed Off-Road Bicycle Facilities
- Existing Off-Road Bicycle Facilities

Figure 6: Concept #2 – Share the Road on CR 546

Cross-Section between Washington Crossing Park and Jacobs Creek Road

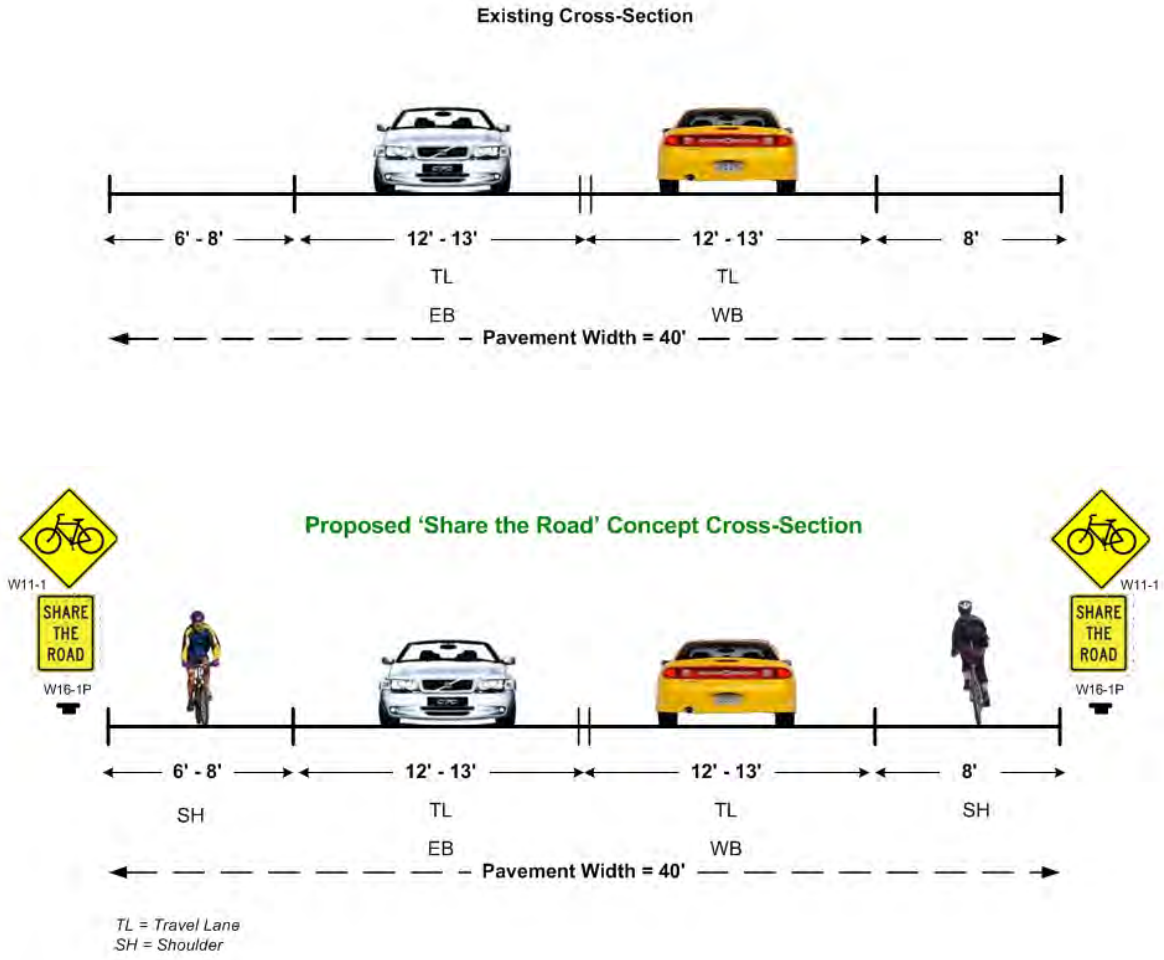


Figure 7: Concept #2 – Share the Road on CR 546

Cross-Section between Dublin Road and the Route 31 Circle

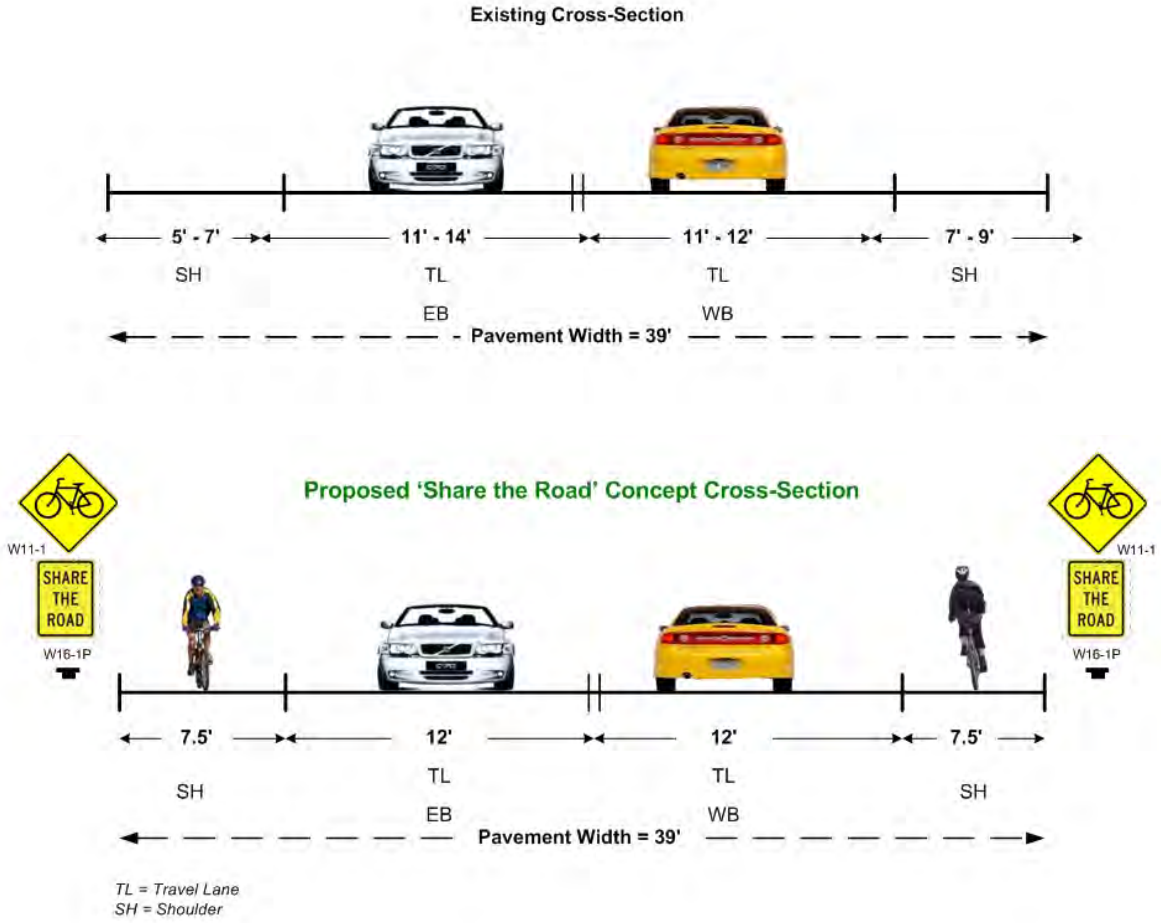


Figure 8: Concept #2 – Share the Road on CR 546

Cross-Section between CR 632 and Bergen Street

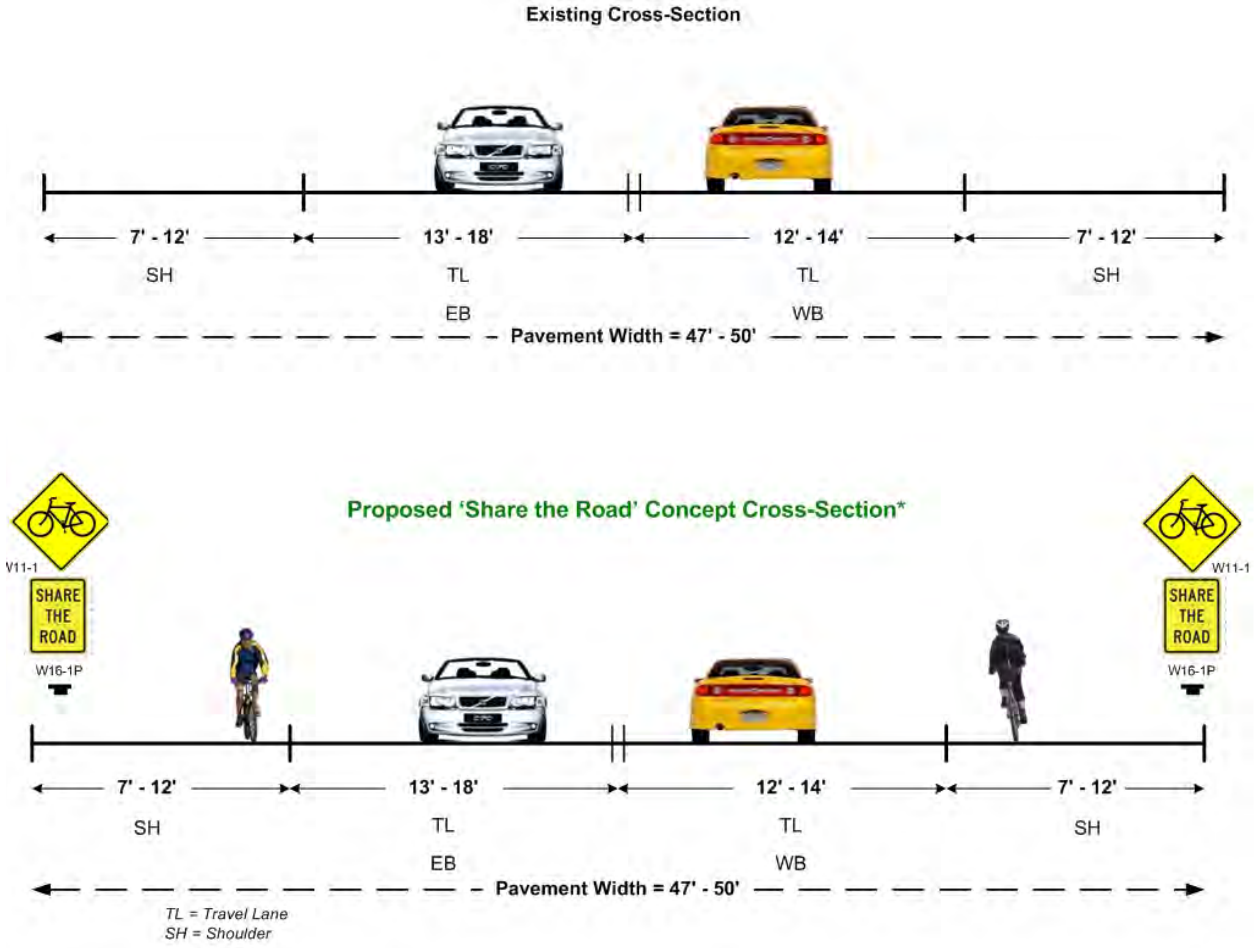
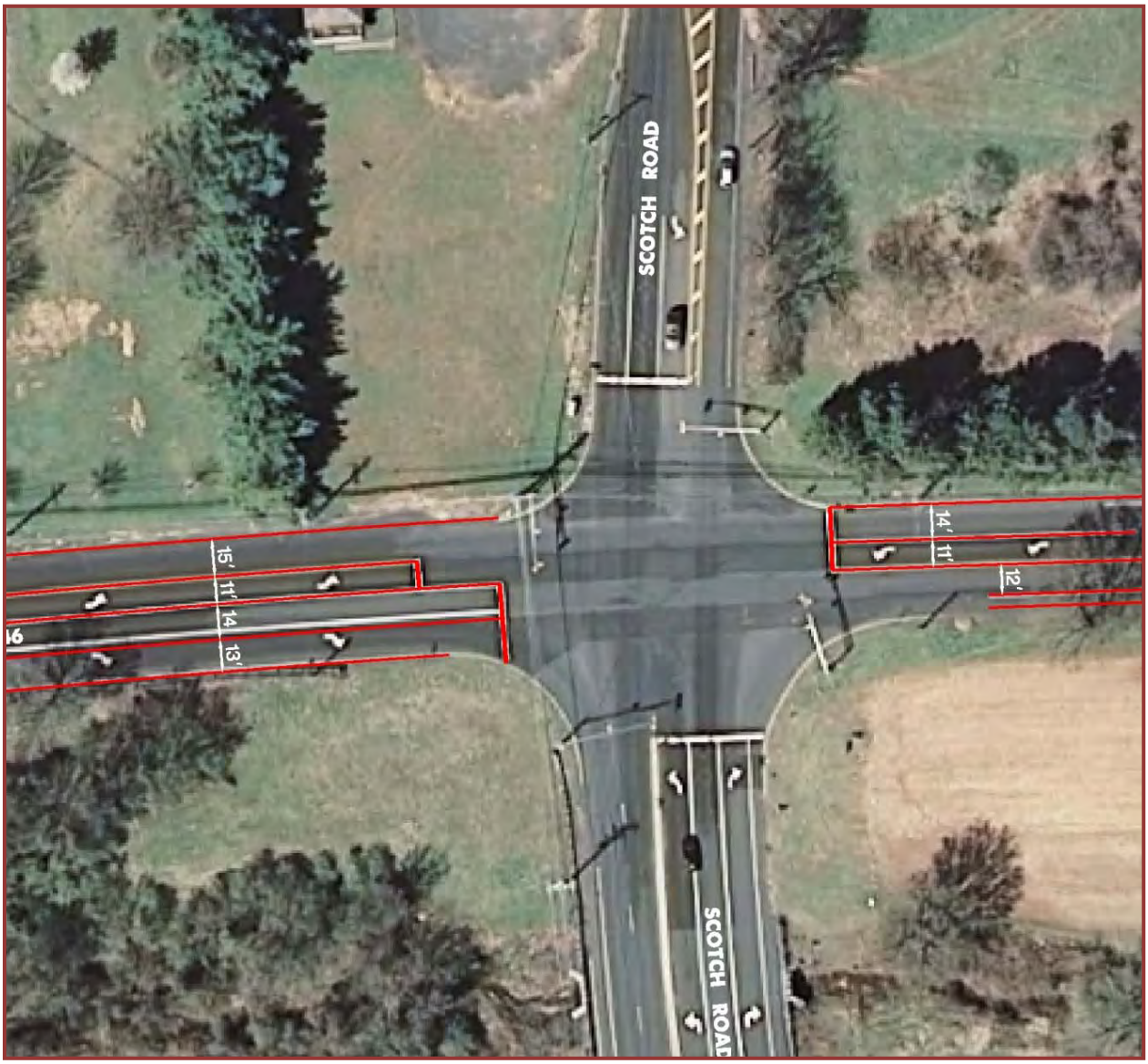


Figure 9: Concept #2 – Share the Road on CR 546 Intersection Striping

CR 546 and Scotch Road (CR 611)



6.3. Concept #3 – Pennington Signed Bicycle Route

Concept #3 proposes a signed bicycle route to guide bicyclists from CR 546 to Pennington Borough. The proposed route would begin at the intersection of CR 546 and CR 631. It would follow CR 631 to the intersection of CR 640 in Pennington Borough, and then follow CR 640 to CR 632. The route would continue on CR 632, which would re-connect the route to the CR 546 Bikeway, east of the Route 31 Circle.

This route would provide an alternative to traversing the Route 31 circle. Bicycle route signage (D11-1, and M4, M5, and M6 series) would be installed on the route and at intersections where route guidance is needed. Plaques to detail destinations could also be included (e.g. "Pennington", etc.).

6.3.1. Concept #3 – Roadways

CR 632 is the only roadway along the proposed route that is currently not bicycle compatible per NJDOT guidelines. Therefore, it is recommended that CR 632 be widened from 26' to 30' to accommodate either 4' shoulders or 14' travel lanes and to improve bicycle compatibility on the route. The proposed widening would not require additional right-of-way.

Signed bicycle route

6.3.2. Concept #3 – Intersections

There are no proposed changes to intersections along the signed bicycle route. Bicycle warning signs (W11-1) are recommended for installation at intersections along the route to supplement the bicycle route signs and to alert motorists to intersection crossings for the route.

The intersection of CR 631 and Route 31 may be a potential location for the application of a Pedestrian Hybrid Beacon, which is a new traffic control device included in the 2009 edition of the MUTCD. The beacon is intended to assist pedestrian crossings at unsignalized locations. If a pedestrian hybrid beacon is desired at this location to replace the existing flashing beacon, it is recommended that vehicular volumes, and bicycle and pedestrian crossing volumes be investigated at this intersection and analyzed according to MUTCD guidance (*Chapter 4F. Pedestrian Hybrid Beacons*). The beacon would also require installation of a crosswalk.

Example of a Pedestrian Hybrid Beacon
Source: www.pedbikeimages.org/MikeCynecki

Concept #3 is illustrated in **Map 7**. An example of Bicycle Route signage and placement is illustrated in **Figure 10** and a representative cross-sectional graphic for the widening of CR 632 is presented in **Figure 11**.

Map 7: Concept # 3 – Pennington Signed Bicycle Route

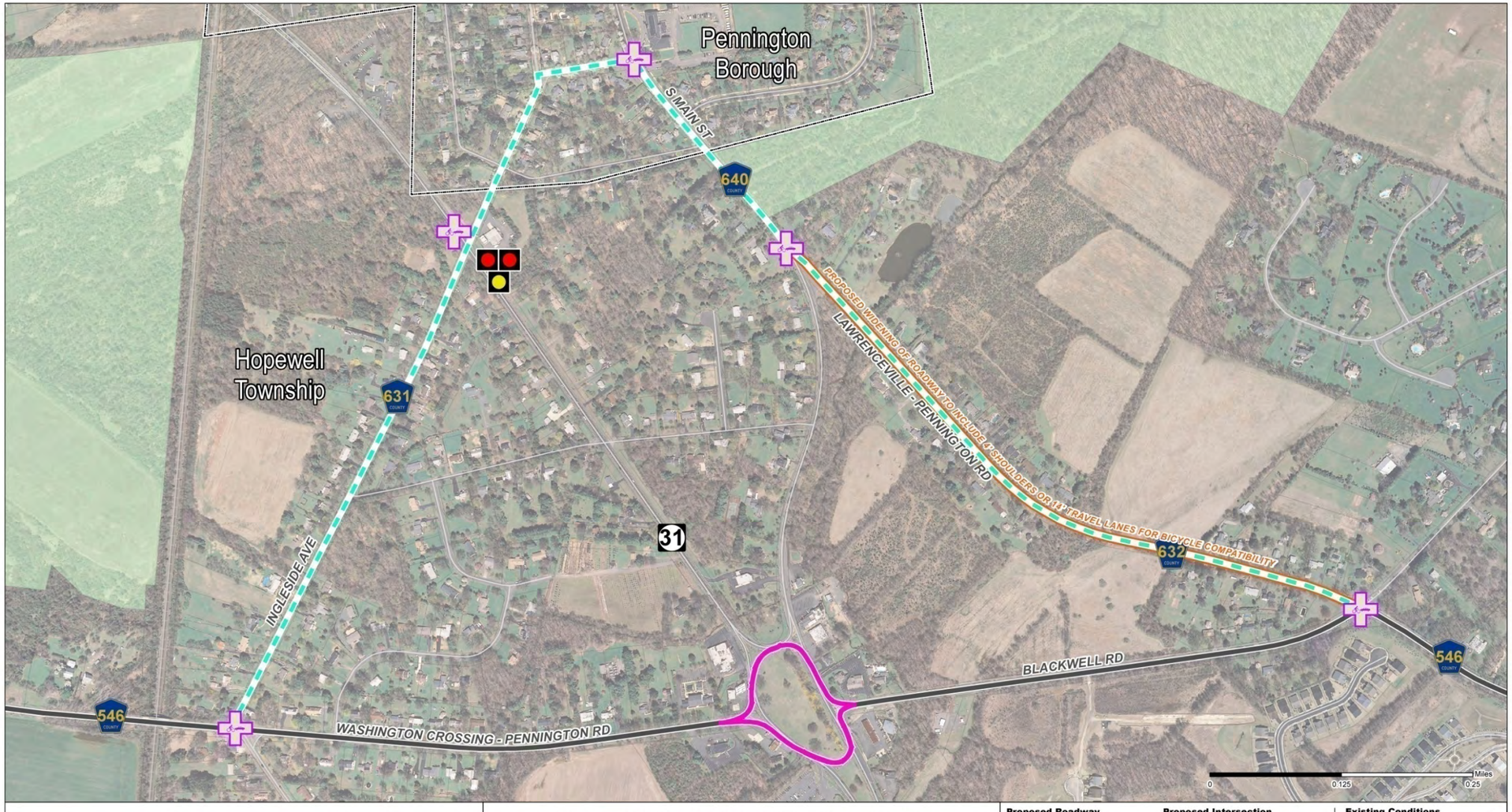


Figure10: Concept #3 – Pennington Signed Bicycle Route

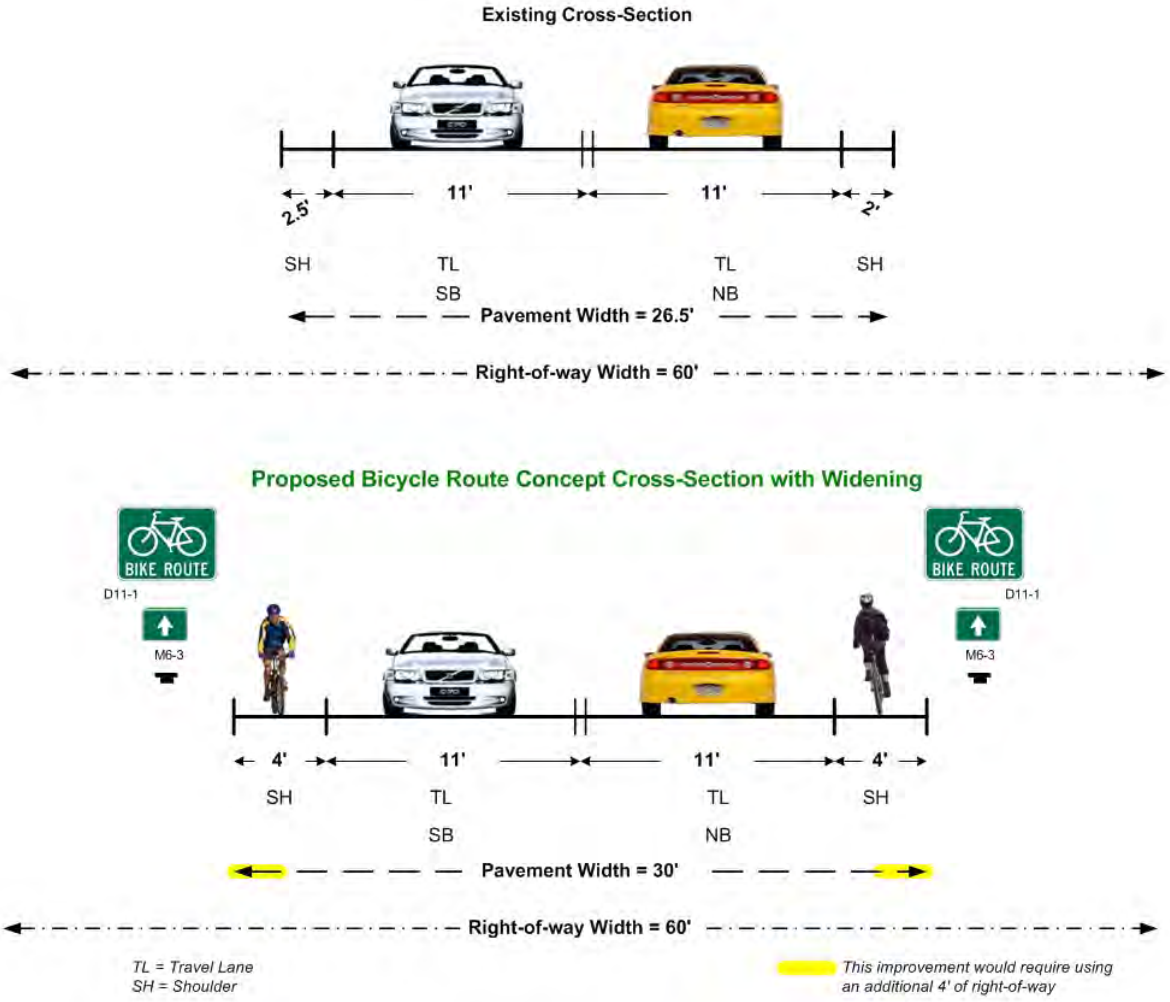
Example of Bicycle Route Signage

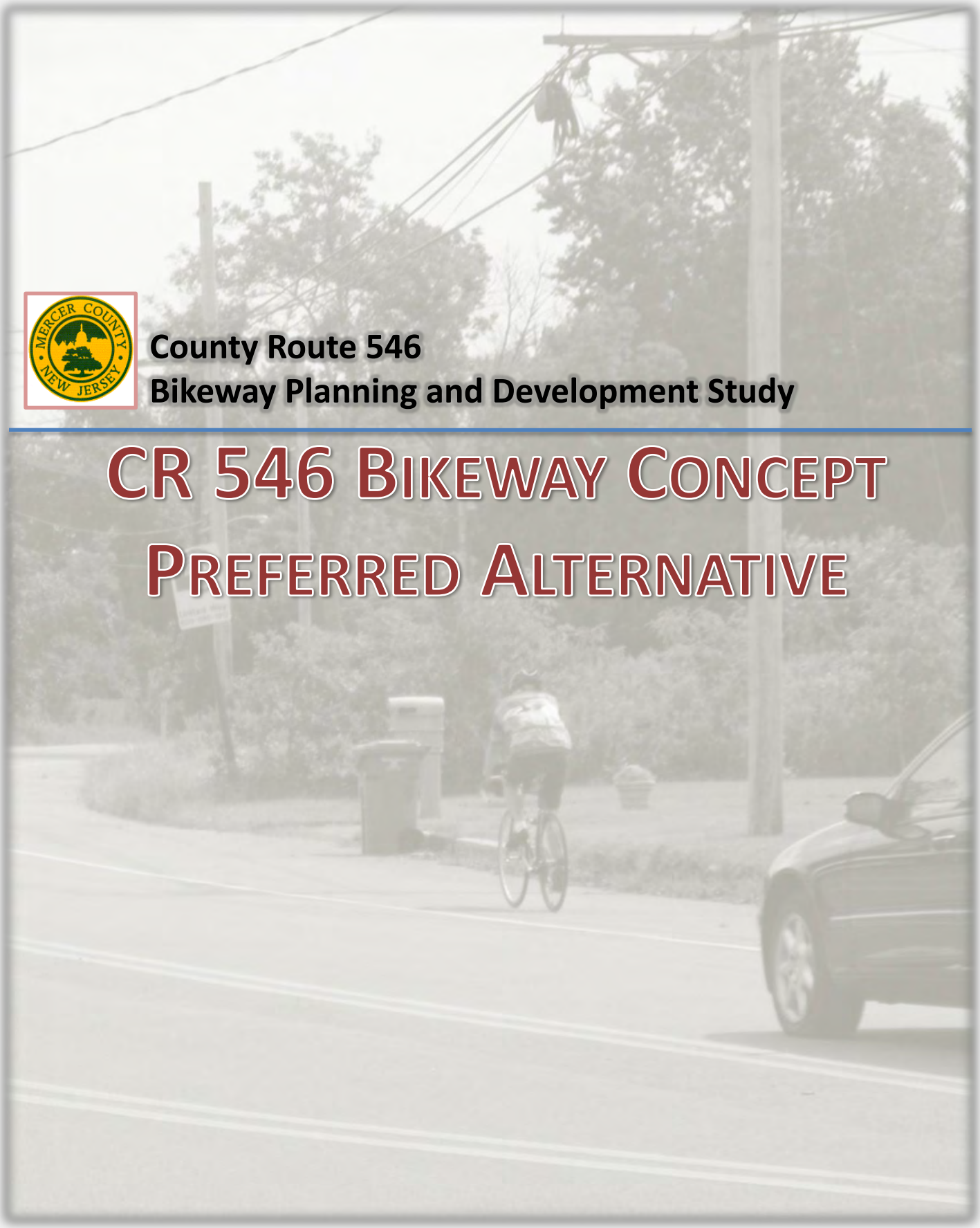
Bicycle Route Signs at the intersection of CR 546 and CR 631

Bicycle Route Signs at the intersection of CR 546 and CR 640

Figure 11: Concept #3 – Pennington Signed Bicycle Route

CR 632 Proposed Widening for Bicycle Compatibility





County Route 546
Bikeway Planning and Development Study

CR 546 Bikeway Concept Preferred Alternative

7. CR 546 BIKEWAY PREFERRED ALTERNATIVE

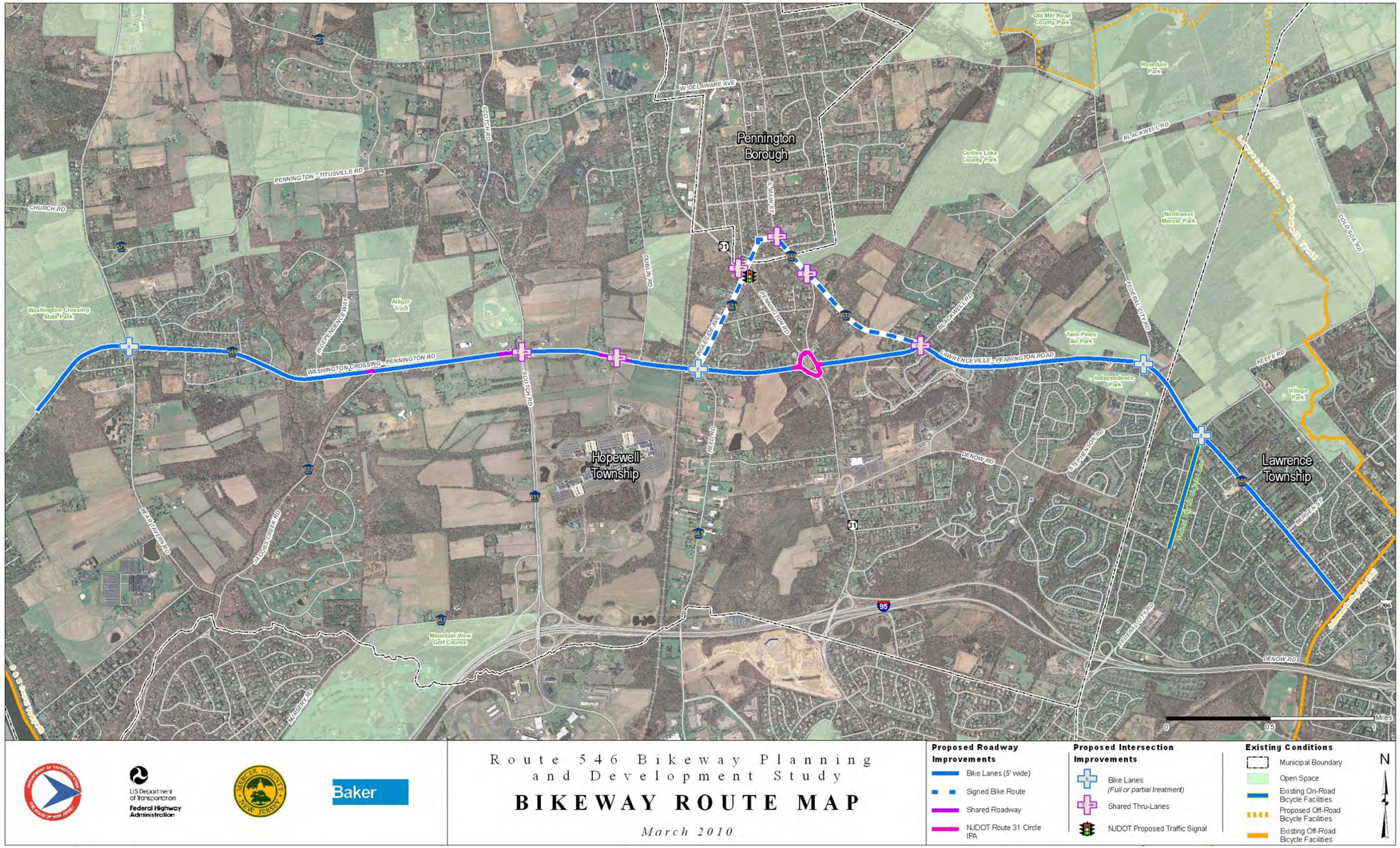
Through coordination with Mercer County, Lawrence Township, Hopewell Township, and the Borough of Pennington, a Preferred Alternative (PA) was identified for the CR 546 Bikeway. Input provided by stakeholders is included in **Appendix C.**

The PA is a combination of Concept #1 (Bicycle Lanes) and Concept #3 (Pennington Signed Bicycle Route), and proposes a feasible set of primarily signing and striping improvements to implement a designated bikeway on CR 546. The PA would be installed within the existing width of roadway sections and intersections, with the exception of a proposed widening on a section of CR 632 in Pennington. The proposed NJDOT improvements for the Route 31 Circle are also included in the PA. The PA is illustrated in **Map 8.**

The PA roadway and intersection improvements for the CR 546 Bikeway are described in the following section and are accompanied by additional graphics and order-of-magnitude costs (preliminary cost estimating spreadsheets are included in **Appendix D**). Recommended improvements identified in this guide were developed in accordance with NJDOT guidelines for bicycle facilities, American Association of State Highway and Transportation Officials (AASHTO) guidelines (*Guide for the Development of Bicycle Facilities*), and the 2009 edition of the MUTCD.

Bicyclist on CR 546 west of Federal City Road/Stephenson Road

Map 8: CR 546 Bikeway - Preferred Alternative



7.1. Bikeway Preferred Alternative – Roadways

The PA for the bikeway includes 5' wide bicycle lanes on CR 546 and a signed bicycle route on CR 632, CR 640, and CR 631 connecting to Pennington Borough. Bicycle lanes on CR 546 would be installed through restriping of existing shoulders and adding MUTCD bicycle lane signage. Outside edge bicycle lane striping would be optional in locations where shoulder width is 7' or less.

The existing centerline of the roadway would be maintained. Bicycle warning signage and a transition from solid line to dashed line striping would be installed to alert bicyclists and motorists at shared lane locations, such as the segment of CR 546 by the Merrill Lynch/Hopewell Medical Center driveway.

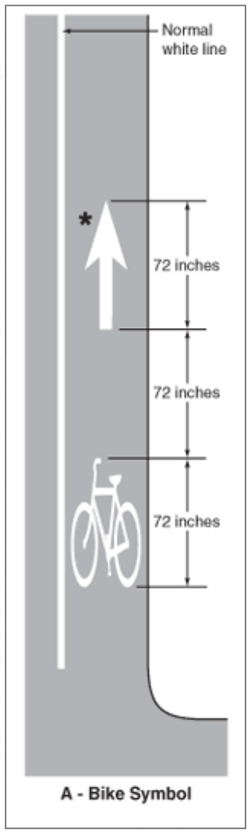
Vehicle travel lanes would be 11' – 12' on average on CR 546, except in locations where 14' – 15' wide shared travel lanes would be provided. On-street parking would not be permitted along CR 546 between Washington Crossing State Park and CR 632 due to limited roadway width. East of CR 632, eight (8)-foot parking would be permitted on CR 546 adjacent to the bicycle lanes, except for a section between Federal City Road and Dayna Road and at intersection approaches. Proposed typical roadway cross-sections, including bicycle lane, travel lane, shoulder, and on-street parking widths, are detailed in **Table 3.**

Through coordination with project stakeholders, a bicycle lane facility on CR 632 was indicated as the preferred treatment, rather than providing a paved shoulder. Per NJDOT guidelines, 4' is the minimal width for a bicycle lane not adjacent to a curb or on-street parking. The proposed widening of CR 632, as described under Concept #3, could include the installation of 4' wide bicycle lanes since there is no existing or proposed curb or on-street parking on this section of the roadway. Additionally, this widening could include possible stormwater mitigation measures since the widening of the roadway would increase impervious surface by more than 0.25 acre. Projects exceeding the 0.25 acre limit qualify as a major development according to the New Jersey Department of Environmental Protection (NJDEP) and are required implement Best Management Practices (BMPs) to reduce adverse affects to water quality, water quantity, and groundwater recharge.

A conceptual sketch of the bikeway is illustrated in **Figure 12**. The order-of-magnitude cost estimate for the PA roadway improvements on CR 546 is approximately $680,000, which includes striping and signing improvements, and approximately $1,800,000 for the Pennington Signed Bicycle Route and widening on CR 632 if advanced as standalone projects. Possible associated stormwater BMPs are not included in the estimate.

Table 3: Proposed Roadway Typical Cross-Sections for the County Route 546 Bikeway Preferred Alternative

From	To	EB Shoulder*	Bike Lane	EB Lane	Median	WB Lane	Bike Lane	WB Shoulder*	Total Width
Washington Crossing State Park	Bear Tavern Road (CR 579)	1	5	13	-	13	5	3	40
Bear Tavern Road (CR 579)	250' West of Jacobs Creek Road (CR 637)	3	5'	12	-	12	5'	3	30
250' West of Jacobs Creek Road (CR 637)	Jacobs Creek Road (CR 637)	1	-	14	-	13	-	-	28
Jacobs Creek Road (CR 637)	1110' West of Scotch Road (CR 611)	2	5	12	-	12	5	2	38
1110' West of Scotch Road (CR 611)	Scotch Road (CR 611)	-	5	17	6	12	5	-	45
Scotch Road (CR 611)	2000' East of Scotch Road (CR 611)	2	5	13	-	13	5	1	39
2000' East of Scotch Road (CR 611)	Hopewell Valley Medical Center Entrance	12' *Right Turn Lane*	-	14	5	14	-	3	48
Hopewell Valley Medical Center Entrance	150' West of Dublin Road	-	-	14	11' *Left Turn Lane*	14	-	-	40
150' West of Dublin Road	Dublin Road	-	5	11	8	14	1	-	39
Dublin Road	300' East of Dublin Road	1	5	11	6	11	5	-	39
300' East of Dublin Road	CR 631	-	5	14	-	11	5	3	38
CR 631	Route 31	2	5	11	-	11	5	4	38
Route 31	CR 632	3	5	12	-	12	5	3	40
CR 632	Dayna Road	8	5	12	-	12	5	8	50
Dayna Road	Federal City Road / Keefe Road	8	5	12	-	12	5	5	47
Federal City Road / Keefe Road	Bergen Street	8	5	13	-	11	5	8	50
Bergen Street	Johnson Trolley Line Trail	8	5	12	-	12	5	8	50



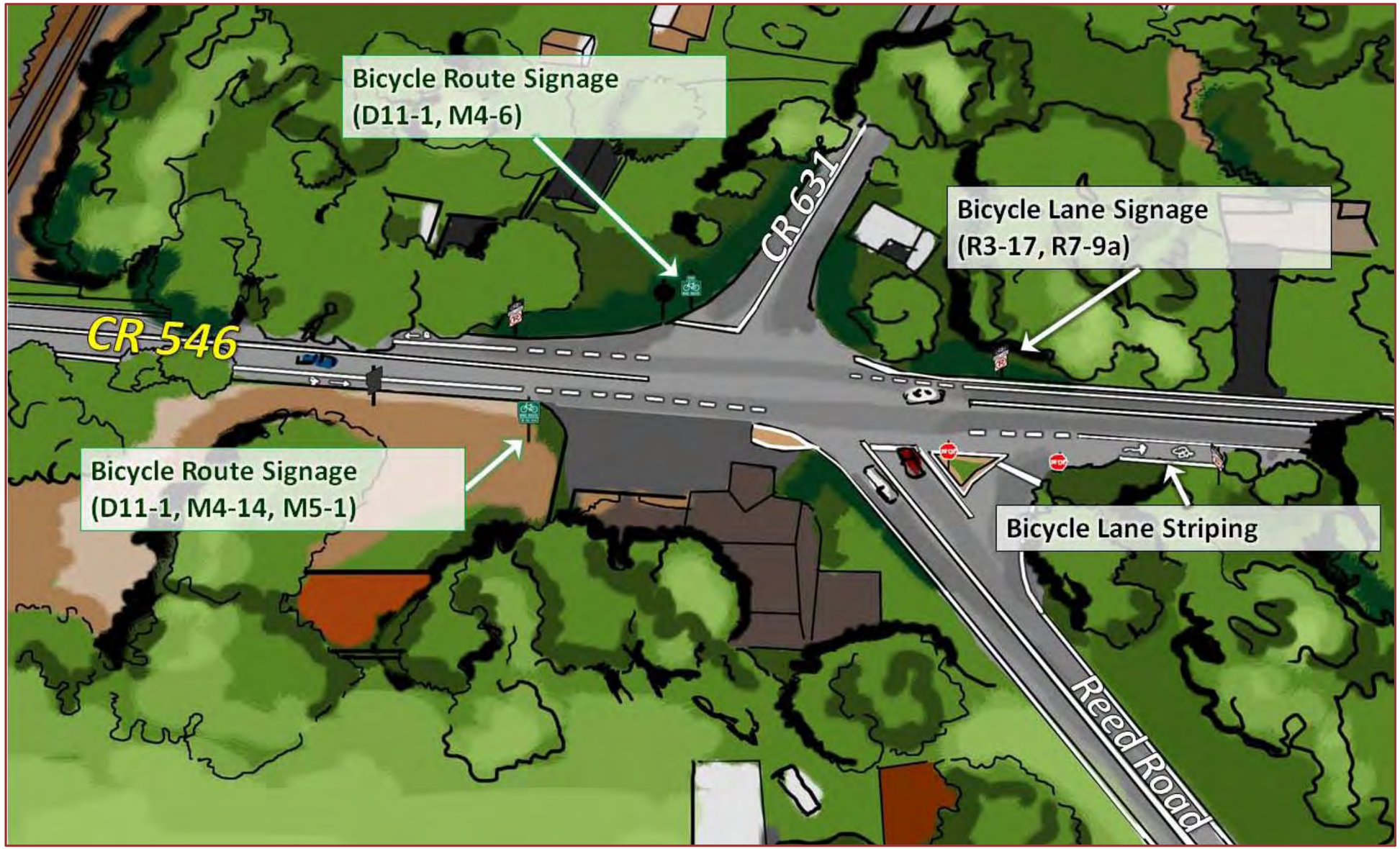
A - Bike Symbol

Travel Lane
Bicycle Lane
Parking Permitted
No Parking
Shared Lane
Median/Centerline

** Outside edge bicycle lane striping would be optional in locations where shoulder width is 7' or less.*

Figure 12: County Route 546 Bikeway - Roadway Sketch

CR 546 at CR 631 (Ingleside Road)



7.2. Bikeway Preferred Alternative – Intersections

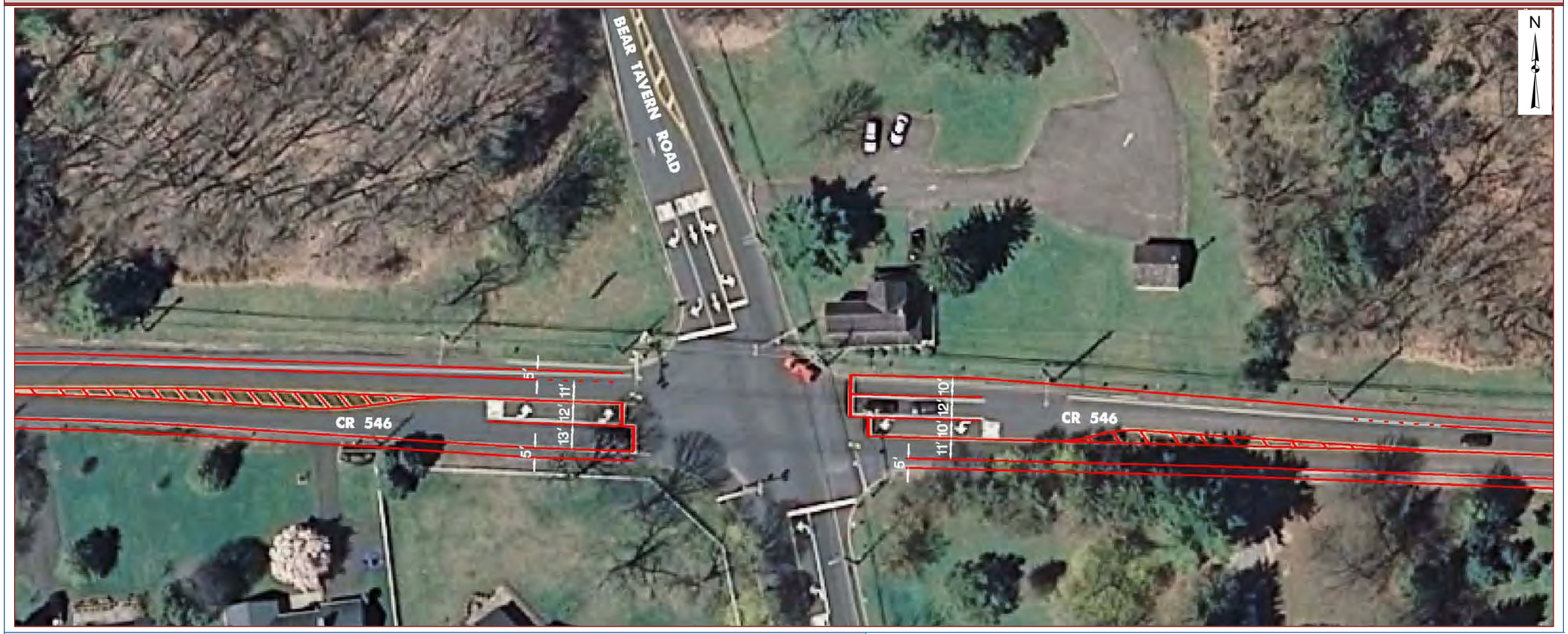
Under the PA, both bicycle lanes and shared travel lanes are proposed for the five (5) signalized intersections. Where there is available roadway width, 5' wide bicycle lanes would be continued to the intersection and will resume immediately following the intersection. Dashed stripes would be used in locations where bicycle lanes are adjacent to an exclusive right turn lane, such as at the intersection of CR 546 and Federal City/Keefe Road. The design and layout of loop detectors may need to be revised in locations where the bicycle lane may impact detector placement relative to vehicles waiting at actuated signals.

At locations where bicycle lanes cannot be accommodated, 14' shared travel lanes would be proposed, with the exception of Bear Tavern Road where a 12' shared travel lane would be provided. Proposed striping at the signalized intersections for the PA is illustrated on the following pages, and a conceptual sketch of a signalized intersection treatment is illustrated in **Figure 13.**

Along the signed bicycle route connecting to Pennington, shared travel lanes would be provided at the intersections. Bicycle route signage would be used direct cyclists and bicycle warning signage would be recommended to alert motorists to the bicycle route crossing the intersections. In addition, although not part of this study, the intersection of CR 631 and Route 31 would be recommended for evaluation as a potential location for a hybrid pedestrian beacon. **Appendix E** includes graphics demonstrating recommended locations of route and warning signage for the signed bicycle route.

The order-of-magnitude cost estimate for the PA intersection improvements is approximately $50,000.

Proposed Striping at the intersection of CR 546 and Bear Tavern Road (CR 579)

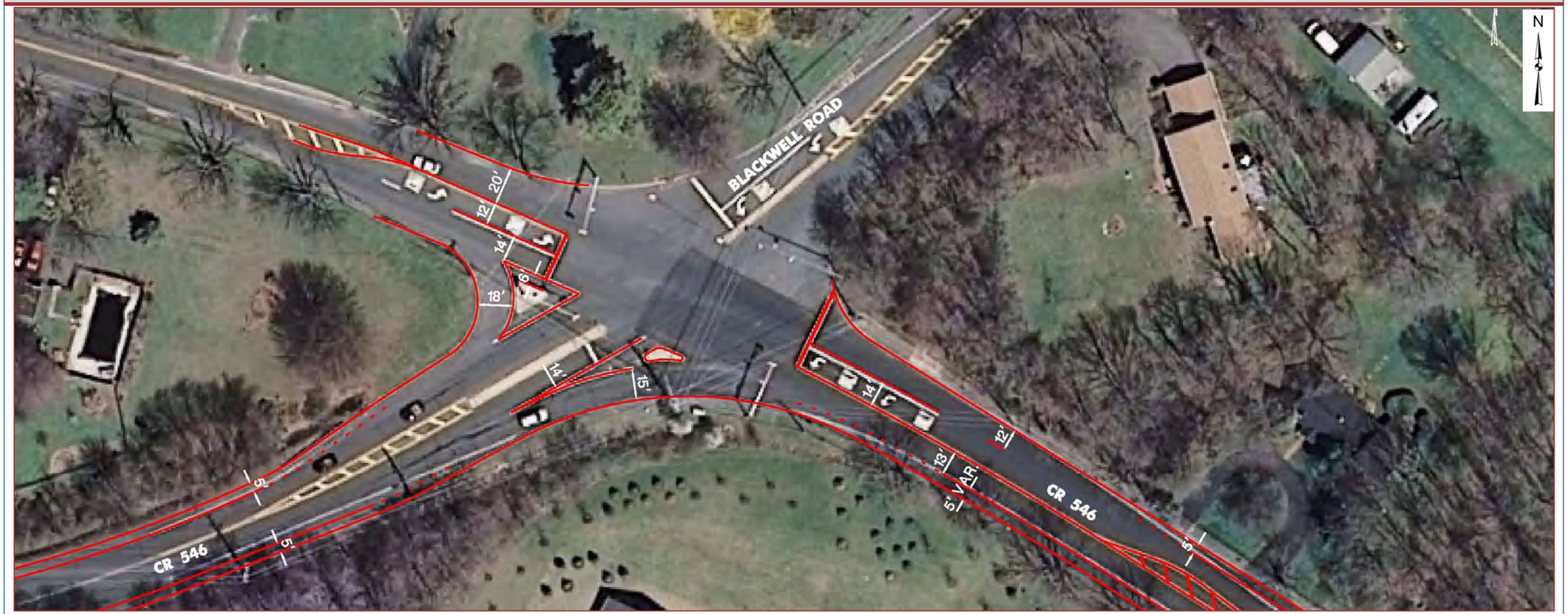


Eastbound Travel	
Approaching Lanes:	• 12’ Left Turn Lane • 13’ Through and Right Turn Lane • 5’ Bicycle Lane
Receiving Lanes:	• 11’ Through Lane • 5’ Bicycle Lane
Westbound Travel	
Approaching Lanes:	• 10’ Left Turn Lane • 12’ Shared Through Lane • 10’ Right Turn Lane
Receiving Lanes:	• 11’ Through Lane • 5’ Bicycle Lane

Proposed Striping at the intersection of CR 546 and Scotch Road (CR 611)

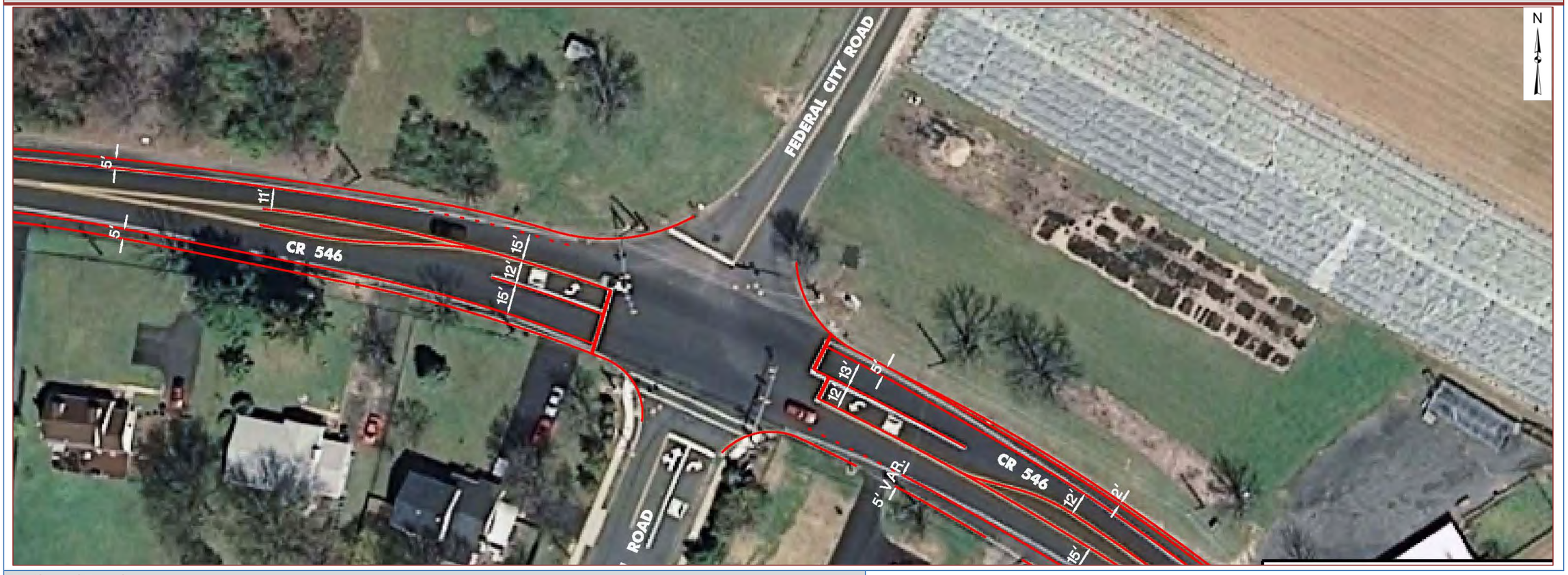
Eastbound Travel	
Approaching Lanes:	• 11’ Left Turn Lane • 14’ Shared Through Lane • 13’ Right Turn Lane
Receiving Lanes:	• 14’ Through Lane
Westbound Travel	
Approaching Lanes:	• 11’ Left Turn Lane • 14’ Shared Through – Right Turn Lane
Receiving Lanes:	• 15’ Shared Through Lane

Proposed Striping at the intersection of CR 546 and Blackwell Road (CR 632)



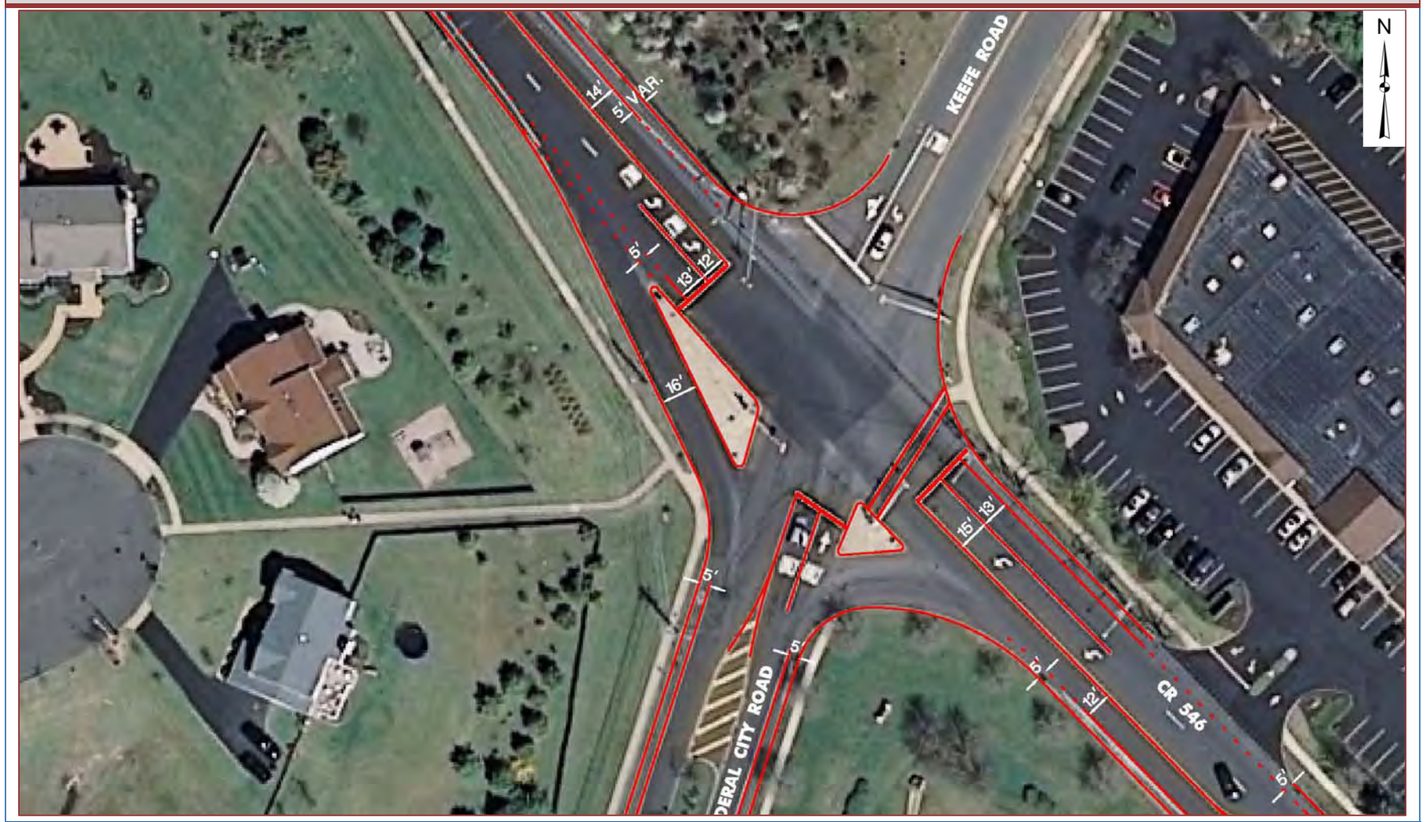
Eastbound Travel	
Approaching Lanes:	• 14' Through – Left Turn Lane • 15' Shared Right Turn Lane
Receiving Lanes:	• 14' Through Lane
Westbound Travel	
Approaching Lanes:	• 14' Shared Left Turn Lane • 12' Shared Through – Right Turn Lane
Receiving Lanes:	• 15' Shared Through Lane

Proposed Striping at the intersection of CR 546 and Federal City/Stephenson Road



Eastbound Travel	
Approaching Lanes:	• 12’ Left Turn Lane • 15’ Through Lane • 5’ Bicycle Lane
Receiving Lanes:	• 12’ Through Lane • 5’ Bicycle Lane
Westbound Travel	
Approaching Lanes:	• 12’ Left Turn Lane • 13’ Through – Right Turn Lane • 5’ Bicycle Lane
Receiving Lanes:	• 11’ Through Lane • 5’ Bicycle Lane

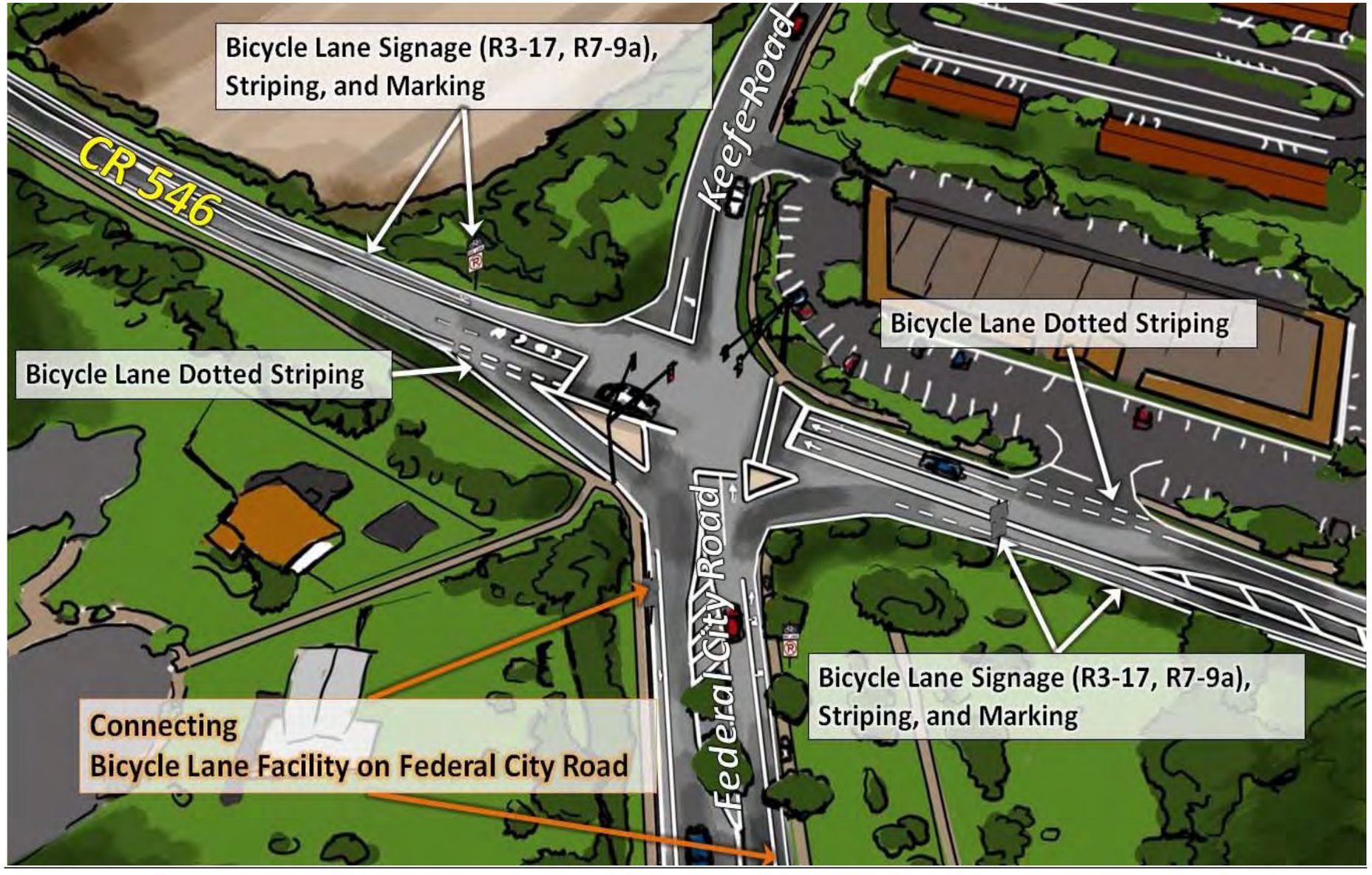
Proposed Striping at the intersection of CR 546 and Federal City/Keefe Road

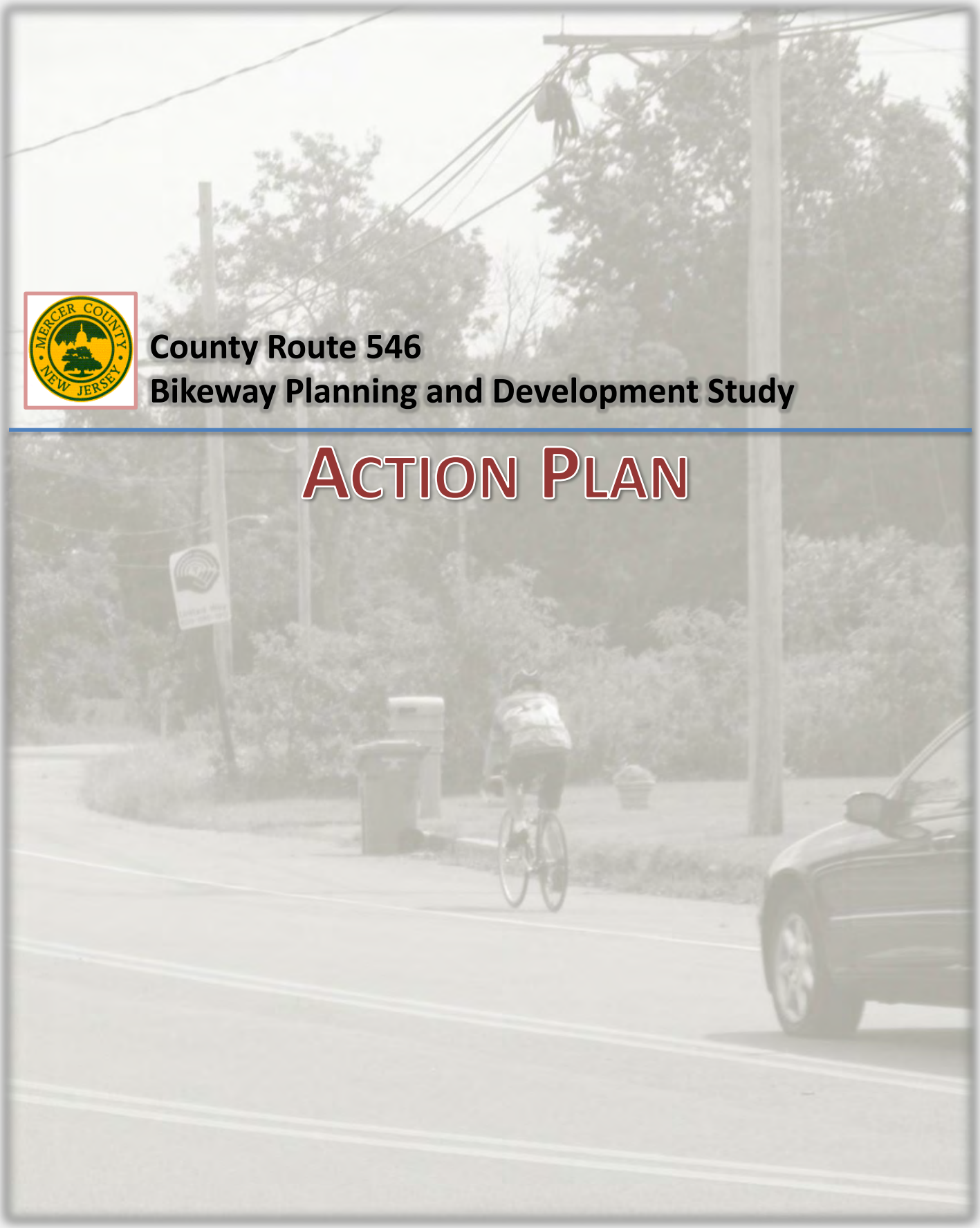


Eastbound Travel	
Approaching Lanes:	• 12’ Left Turn Lane • 13’ Through Lane • 5’ Bicycle Lane • 16’ Channelized Right Turn Lane
Receiving Lanes:	• 11’ Through Lane • 5’ Bicycle Lane
Westbound Travel	
Approaching Lanes:	• 12’ Shared Left Turn Lane • 13’ Through – Right Turn Lane • 5’ Bicycle Lane
Receiving Lanes:	• 14’ Through Lane • 5’ Bicycle Lane

Figure 13: County Route 546 Bikeway – Intersection Sketch

CR 546 at CR 631 (Ingleside Road)





County Route 546
Bikeway Planning and Development Study

Action Plan

8. ACTION PLAN

The CR 546 Bikeway PA should be advanced through coordination between Mercer County, Lawrence Township, Hopewell Township, and Pennington Borough. Through this coordination, opportunities for installing the elements of the bikeway can be identified and supported collectively. In addition, responsibility can be shared regarding future maintenance for the bikeway.

The following sections provide guidance on coordination, planning, and funding sources that can serve as a resource for developing the CR 546 Bikeway.

Federal City Road bicycle lane

8.1. Action Items

The CR 546 Bikeway PA covers a seven (7)-mile corridor. The elements of the bikeway (e.g., lane striping, pavement markings, route signs, etc.) will likely need to be installed in phases based on the availability of resources, shared priorities, and performance of scheduled roadway improvements (e.g., re-striping, repaving, reconstruction, etc). Consequently, there may be thresholds for when to install the different elements of the designated bikeway.

The following are recommended action items in support of implementing the CR 546 Bikeway PA:

- Approach the bikeway PA as two (2) distinct segments, separated by Route 31, that could be advanced incrementally. East of Route 31, an initial bicycle lane connection could be installed from the Johnson Trolley Line Trail to the proposed Twin Pines Recreational Area, and then a secondary connection installed out to Route 31 following NJDOT improvements at the circle. In the same way, bicycle lanes on the western section could be installed initially between Washington Crossing State Park and the Alliger Tract, and then between Scotch Road and Route 31 as the circle is improved.
- Install 'Share the Road' signage along bicycle compatible roadway segments that are secondary sections for bikeway installation. See **Map 3** for reference.
- Coordinate with NJDOT regarding the Route 31 Circle improvements to enhance an east-west bicycle connection on CR 546. Explore opportunities for inclusion of warning signage on approaches to circle to alert motorists to potential bicycle travel, as well as use of regulatory signage (e.g., R4-11: Bicycle May Use Full Lane) to alert cyclists to the merging traffic and recommended travel behavior.
- Perform a study of the Route 31 and CR 631 intersection to determine the range of enhancements that could be implemented at this location. A pedestrian hybrid beacon, or another traffic control device, could enhance non-motorized crossings at this location while managing impacts to vehicle traffic flow on Route 31.
- Evaluate preliminary bicycle improvements for the connection along Lawrenceville-Pennington Road in to Pennington Borough. Shared lane markings (also known as 'Sharrows') could be installed along CR 632 and CR 640 to alert motorists and bicyclists to the potential for shared travel on these roadways prior to additional roadway improvements (e.g., widening).

8.2. County and Municipal Coordination

Coordination between Mercer County and the identified municipalities should continue to advance the CR 546 Bikeway PA. Following this study, a potential step could be the formation of a working group to pursue opportunities and resources to support design and implementation of the designated bikeway.

Coordination with future public and private developments could also assist in the development of the bikeway PA. Future projects, such as the Woolsey Brook Bridge reconstruction and the Twin Pines Recreational Area development, will require changes to the roadway, and plans should be reviewed for compatibility with the proposed CR 546 Bikeway PA. It is recommended that bicycle lanes be maintained as part of future developments; however if the roadway width is constrained, a shared travel lane with a minimum width of 14' should be provided per NJDOT guidelines. Similarly, as other projects occur, such as office expansions and commercial developments, opportunities to advance the bikeway PA should be pursued.

8.3. Existing and Future Bicycle Network Connections

As described earlier, the proposed CR 546 Bikeway has the potential to connect with existing bicycle facilities and recreational destinations. Washington Crossing State Park and the Johnson Trolley Line Trail are located at either end of the bikeway, and an on-road connection is possible with the existing bicycle lanes on Federal City Road. Development of the bikeway will provide enhanced bicycle access to these destinations and facilities as well as other locations, such as the residential and village centers of Main Street Lawrenceville, Brandon Farms, and Pennington, along the CR 546 corridor.

An alternate connection for the bikeway was identified through coordination with project stakeholders. This connection would begin on CR 546, west of Route 31 Circle, and utilize Reed Road, a proposed new shared use path along a utility corridor, Denow Road, and Wellington Road, to connect to back to CR 546. This routing was not evaluated through this study but could be included in future bicycle planning efforts in Mercer County.

Entrance to Washington Crossing State Park

Johnson Trolley Line trail historical sign

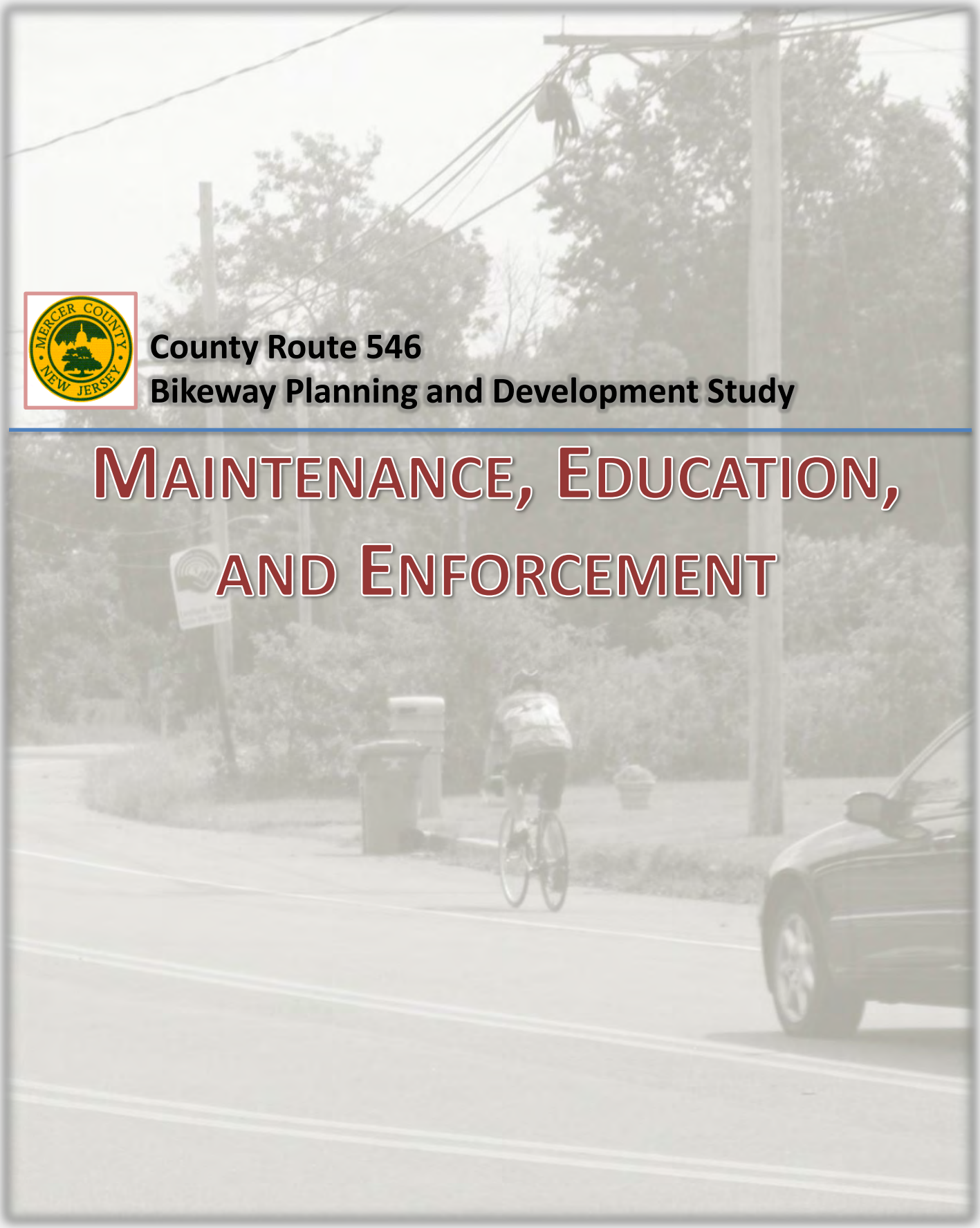
8.4. Integration into County and Municipal Plans

The CR 546 Bikeway PA should be integrated with county and local planning documents such as the Mercer County Transportation Master Plan, and the Hopewell, Lawrence, and Pennington Master Plans to assist in its development. Furthermore, it is recommended that other ongoing planning efforts, such as the Mercer County Transportation Plan and the Mercer County Bicycle and Pedestrian Planning Study, include the proposed CR 546 Bikeway PA into bicycle improvement recommendations.

8.5. Funding the Bikeway

Costs associated with implementing the improvements as standalone projects will vary as noted in **Section 7** and detailed on the cost estimating spreadsheets in **Appendix D**. Interim improvements (e.g., restriping shoulders for future installation of bicycle lanes on CR 546) will involve less design and therefore could be quicker to implement than an improvement requiring feasibility assessment and design before construction (e.g., roadway widening on CR 632). In addition, installation of elements of the bikeway using existing county and local staff and equipment in connection with scheduled roadway restriping, repaving, or reconstruction projects could provide the ability to lower implementation costs.

Funding sources for bicycle and pedestrian improvements are contained in **Appendix F** "Funding Pedestrian and Bicycle Planning, Programs and Projects." The funding sources identified in that document were compiled by NJDOT to identify major funding sources for bicycle and pedestrian planning and project development activities.



County Route 546
Bikeway Planning and Development Study

Maintenance, Education, and Enforcement

9. MAINTENANCE, EDUCATION, AND ENFORCEMENT

Maintenance of roadways, including on-road bicycle facilities; education of bicyclists and motorists; and enforcement of traffic laws and statues are important considerations as the CR 546 Bikeway PA improvements are advanced.

9.1. Roadway Maintenance

The condition, specifically smoothness, of a roadway's surface is an important factor in bicycle comfort and safety. When a surface is irregular it not only causes an unpleasant ride, but also poses risk to the bicyclist as these potholes, cracking, heaving, and other roadway deterioration may cause a bicyclist to swerve into motor vehicle traffic to avoid the obstacle. NJDOT and AASHTO bicycle guidelines recommend the routine maintenance of roadways to provide good riding conditions for bicycle traffic. In addition, efforts should be made to prohibit and remove debris in the roadway, especially along the outside edge of roadways where bicyclists often ride. Debris can impact bicycle operations and increase maintenance needs of roadway facilities over time.

9.2. Education

To properly plan for future growth of bicycle use, it is key to implement educational programs that encourage lawful and safe practices among bicyclists 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, schools, and libraries, education programs have the potential of reaching a broader audience and cross section of the community.

The following four (4) primary groups should be educated about bicycle safety and awareness:

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

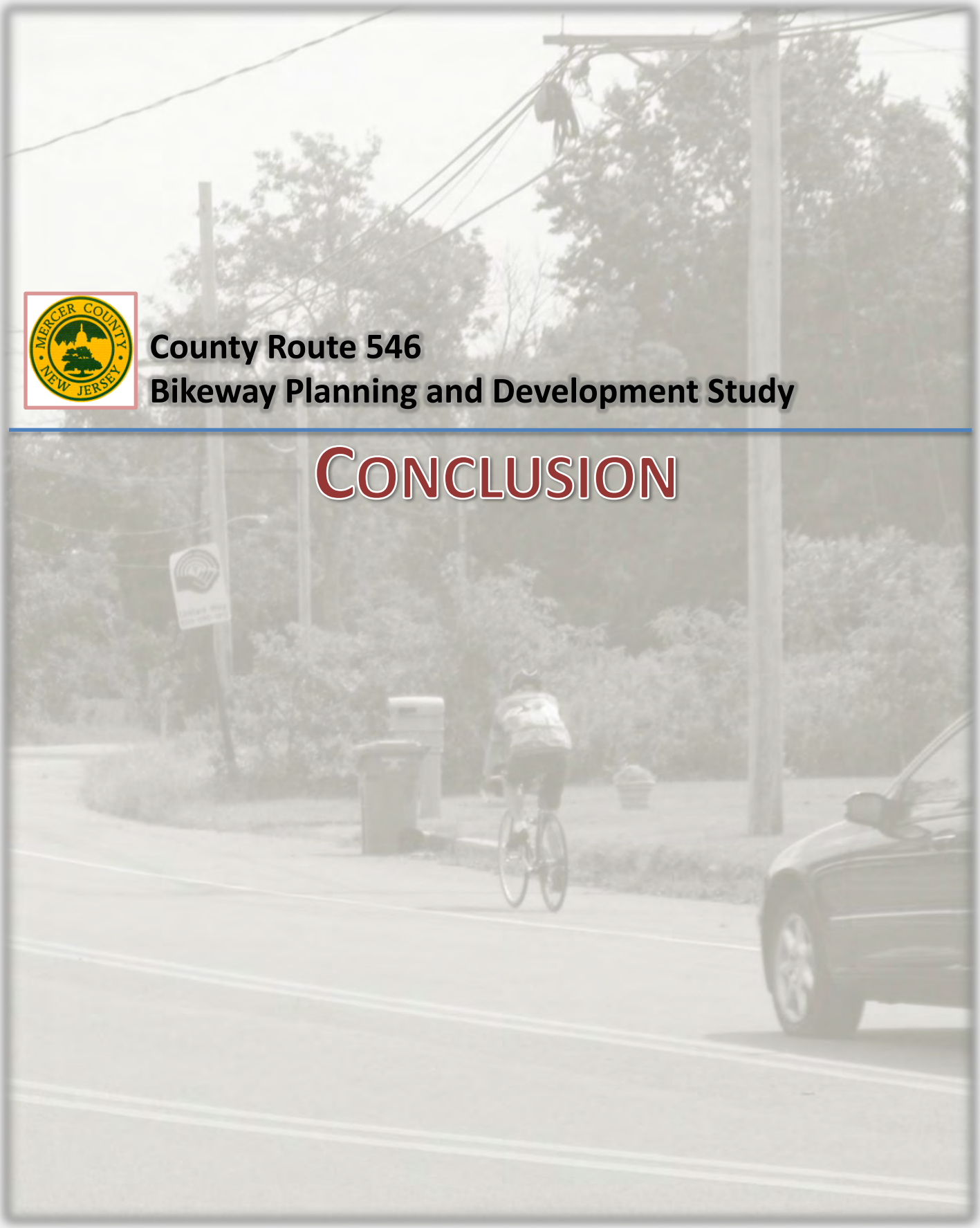
Educational materials regarding recommended bicycle travel practices and behavior can be accessed at the following locations:

- **NJDOT – Biking in New Jersey**
  http://www.state.nj.us/transportation/commuter/bike/
  Touring Tips
  http://www.state.nj.us/transportation/commuter/bike/tourtips.shtm
- **FHWA – Bicycle Safety Education Resource Center**
  http://www.bicyclinginfo.org
  Good Practices Guide
  http://www.bicyclinginfo.org/education/resource/bestguide.cfm

9.3. Enforcement

The key to encouraging a safe and well traveled transportation system is an enforcement program for traffic regulations as they apply to all roadway users: motorists, bicyclists, and pedestrians. Lawrence Township, Hopewell Township, and Pennington Borough can reduce poor travel behavior and encourage beneficial travel habits through enforcement. This process should include reviewing current ordinances and traffic regulations to identify elements that may unnecessarily affect certain roadway users, such as bicyclists. As bicycle lanes and other designated bicycle facilities are installed, it is recommended that local ordinances and regulations be developed or revised to clarify items such as: application of vehicle laws to bicyclists, permitted movements on and across bicycle facilities (e.g. permitted motor vehicle movements across bicycle lanes), bicycling on sidewalks, and bicycle parking requirements. Possible sources for reference include the California Vehicle Code (Division 11, Chapter 1), the Pennsylvania Consolidated Statutes (Title 75, Chapter 35), and the City of Cambridge, MA Traffic regulations (Article XII).

In addition, a review of enforcement regulations and practices may assist in identifying opportunities to partner with community, county, or state organizations to inform users about safe bicycle travel behavior, such as the required use of helmets by bicyclists under the age of 17 (N.J.S.A 39:4-10.1). Outreach and promotion through community channels and events is a critical piece in reminding all roadway users of existing laws and recommended travel practices.



County Route 546
Bikeway Planning and Development Study

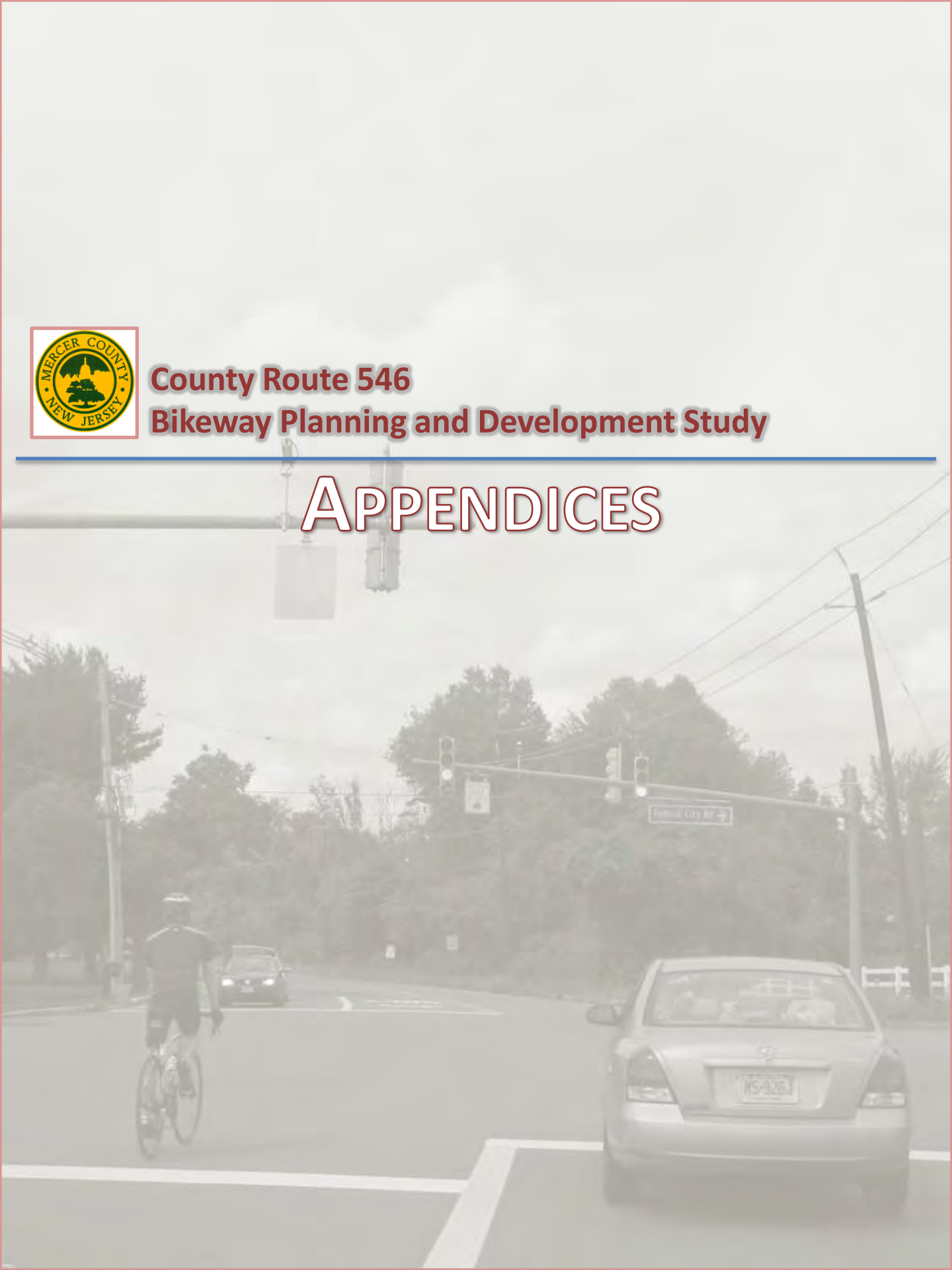
Conclusion

10. CONCLUSION

CR 546 presents an opportunity for the first county-level designated bicycle facility in Mercer County. The Preferred Alternative for the CR 546 Bikeway, including bicycle lanes and a signed bicycle route, could be accommodated in the existing roadway width through signing and striping improvements, with a minor exception on CR 632. Continued coordination and cooperation between Mercer County, Hopewell Township, Pennington Borough, and Lawrence Township is essential to the progress of the bikeway and maintenance of future improvements. If advanced, the CR 546 bikeway would be an initial step towards enhancing bicycle accessibility and mobility throughout Mercer County.

County Route 546
Bikeway Planning and Development Study

APPENDICES



County Route 546
Bikeway Planning and Development Study

Appendix A

NJDOT Bicycle Compatible Roadway Pavement Widths

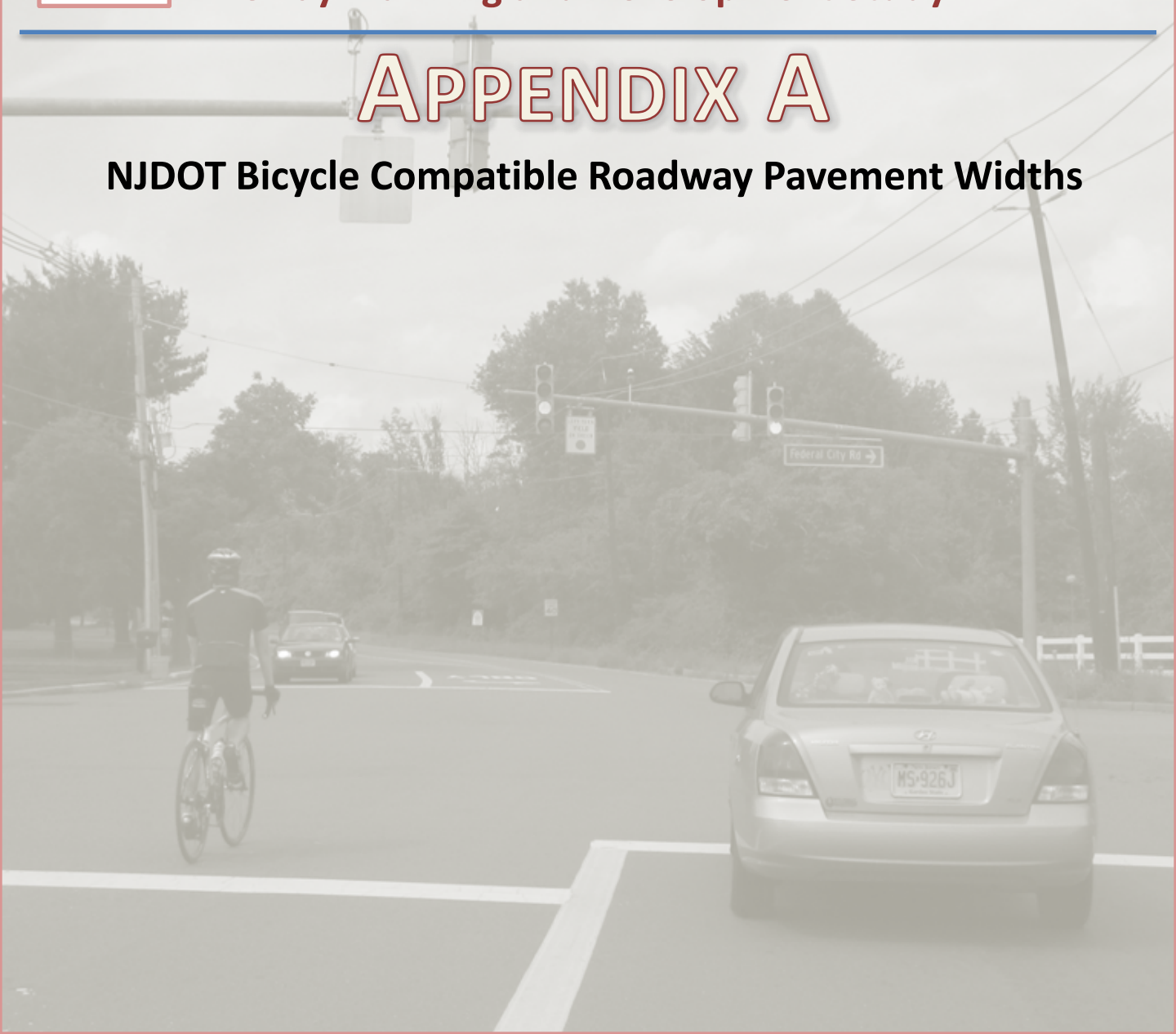


Table 1
Bicycle Compatible Roadway Pavement Widths

Condition I
AADT 1200 -2000*

	URBAN W/PARKING	URBAN W/O PARKING	RURAL
<50 km/h (30 mph)	SL 3.6m (12 ft.)	SL 3.3m (11 ft.)	SL 3.0m (10 ft.)
50 km/h-65 km/h (31-40 mph)	SL 4.2m (14 ft.)	SL 4.2m (14 ft.)	SL 3.6m (12 ft.)
65 km/h-80 km/h (41-50 mph)	SL 4.5m (15 ft.)	SL 4.5m (15 ft.)	SH 0.9m (3 ft.)
>80 km/h (50 mph)	NA	SH 1.2m (4 ft.)	SH 1.2m (4 ft.)

* For volumes less than 1200 a shared lane is acceptable.

KEY: SH=shoulder SL=shared lane

Condition II
AADT 2000-10,000

	URBAN W/PARKING	URBAN W/O PARKING	RURAL
<50 km/h (30 mph)	SL 4.2m (14 ft.)	SL 3.6m (12 ft.)	SL 3.6m (12 ft.)
50 km/h-65 km/h (31-40 mph)	SL 4.2m (14 ft.)	SL 4.2m (14 ft.)	SH 0.9m (3 ft.)
65 km/h-80 km/h (41-50 mph)	SL 4.5m (15 ft.)	SL 4.5m (15 ft.)	SH 1.2m (4 ft.)
>80 km/h 50 mph	NA	SH 1.8m (6 ft.)	SH 1.8m (6 ft.)

Condition III
AADT over 10,000 or Trucks over 5%

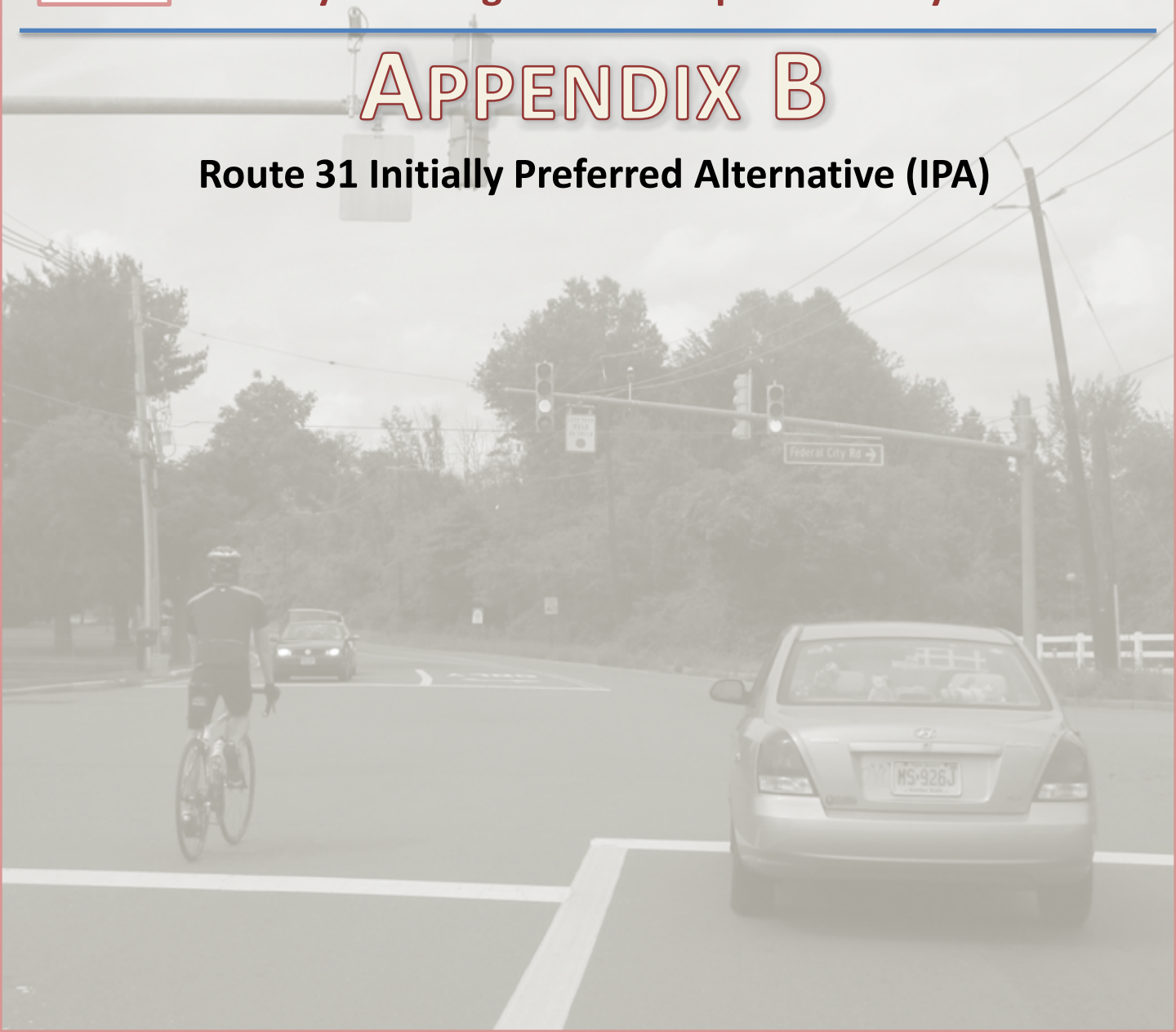
	URBAN W/PARKING	URBAN W/O PARKING	RURAL
<50 km/h (30 mph)	SL 4.2m (14 ft.)	SL 4.2m (14 ft.)	SL 4.2m (14 ft.)
50 km/h-65 km/h (31-40 mph)	SL 4.2m (14 ft.)	SH 1.2m (4 ft.)	SH 1.2m (4 ft.)
65 km/h-80 km/h (41-50 mph)	SL 4.5m (15 ft.)	SH 1.8m (6 ft.)	SH 1.8m (6 ft.)
>80 km/h (50 mph)	NA	SH 1.8m (6 ft.)	SH 1.8m (6 ft.)

NOTE: NJDOT minimum shoulder width of 2.4 meters (8 feet) should be provided wherever possible on roadways having an AADT greater than 10,000 vehicles.

County Route 546
Bikeway Planning and Development Study

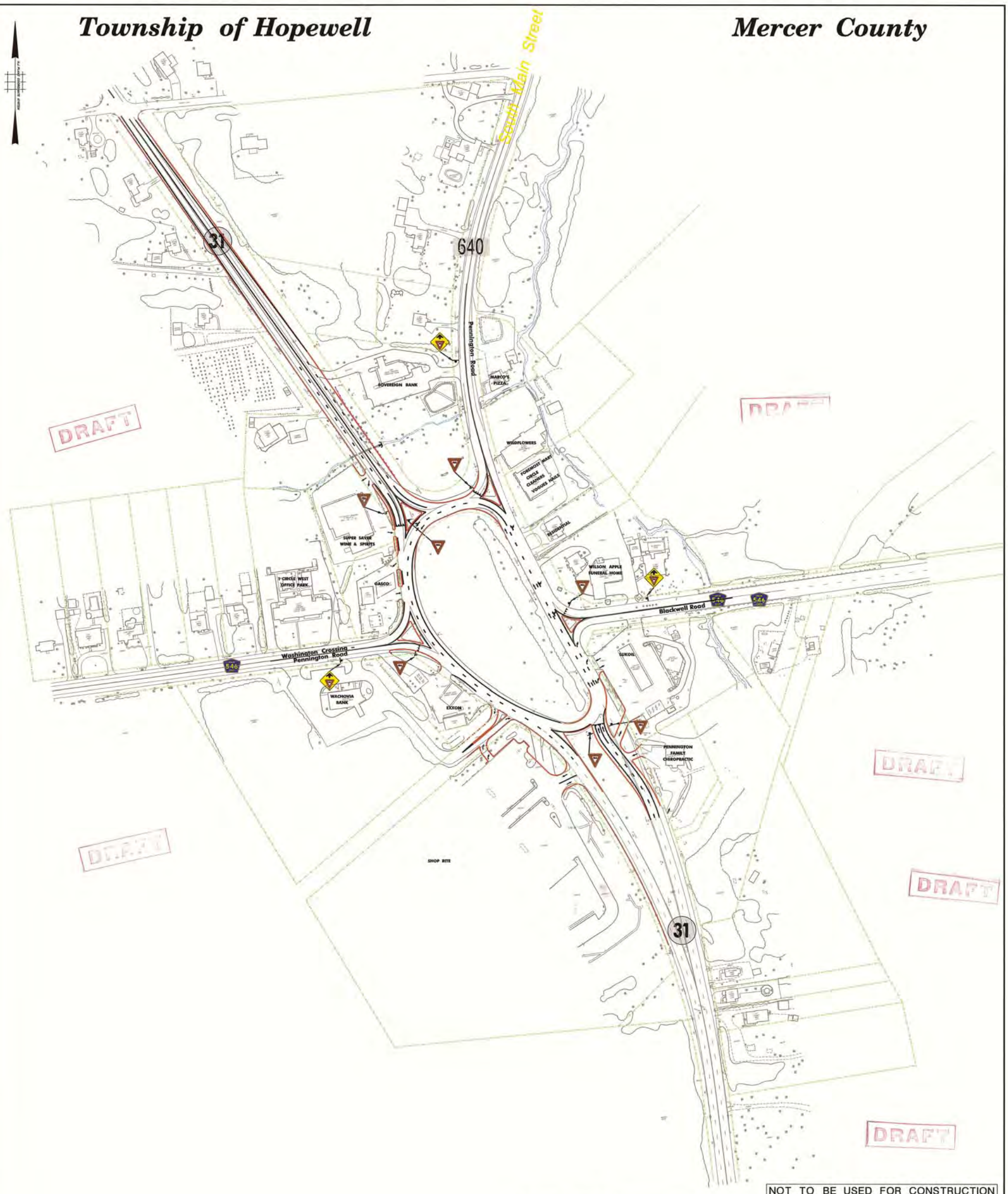
Appendix B

Route 31 Initially Preferred Alternative (IPA)



Township of Hopewell

Mercer County



NOT TO BE USED FOR CONSTRUCTION

DATE	REVISED BY	REASON

NEW JERSEY DEPARTMENT OF TRANSPORTATION

Route 31 Pennington Circle
(M.P. 6.09)

DRAFT **CONCEPT 5 6**

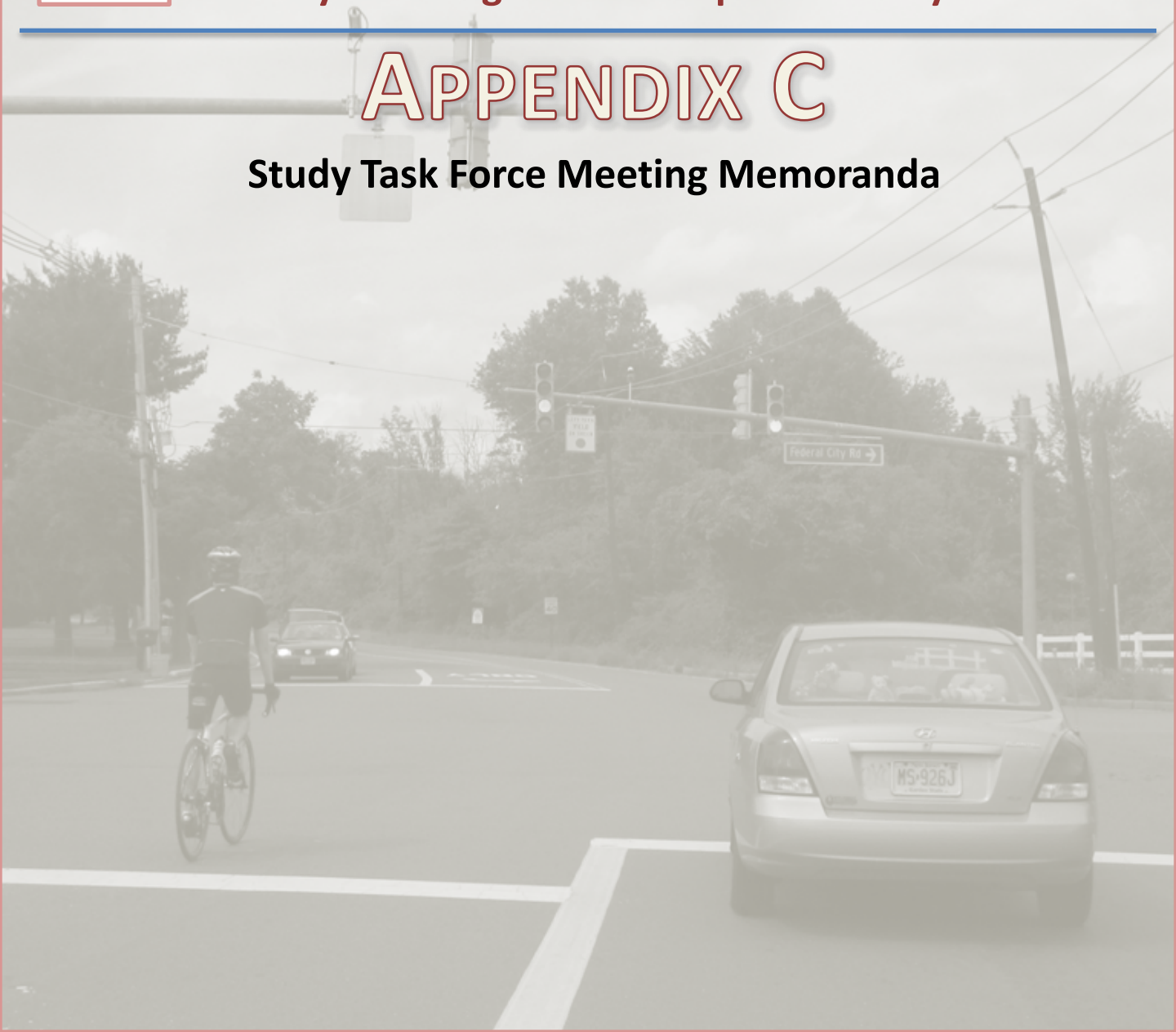
Hopewell Township **Mercer County**

Scale: 1" = 80' **July 13, 2009**

County Route 546
Bikeway Planning and Development Study

Appendix C

Study Task Force Meeting Memoranda



MEMORANDUM OF MEETING

Project:	Route 546 Bikeway Planning and Development Study	**S.O. No:**	2007BPP643C T.O. #11
Date:	December 2, 2009	**Time:**	9:00 - 11:00 AM
Place:	Room 212, Mc Dade Administration Building	**By:**	James Van Schoick
Purpose:	Study Coordinating Committee Meeting #1		

Attending:

Name		**Representing**
Pam	Mount	Mayor, Lawrence Township
Richard	Krawczun	Municipal Manager, Lawrence Township
Jim	Parvesse	Township Engineer, Lawrence Township
Paul	Pogorzelski	Township Administrator/Engineer, Hopewell Township
David	Dafilou	Township Committee Member, Hopewell Township
Tom	Ogren	Pennington Borough Council, Pennington Borough
Matthew	Lawson	Principal Planner, Mercer County Planning Division
Greg	Sandusky	County Engineer, Mercer County Engineering Division
George	Fallat	County Traffic Engineer, Mercer County Engineering Division
Cheryl	Kastrenakes	Transportation Planner, Greater Mercer TMA
Daniel	Nemiroff	Transportation Planner, DVRPC
William	Riviere	NJDOT - Office of Bicycle and Pedestrian Programs (NJDOT-OBPP)
Regina	Del Vecchio	Michael Baker Jr. Inc. (Baker)
Barry	Keppard	Michael Baker Jr. Inc. (Baker)
Jim	Van Schoick	Michael Baker Jr. Inc. (Baker)

The meeting began with Regina Del Vecchio welcoming everyone to the first Study Coordinating Committee (SCC) Meeting for the Route 546 Bikeway Planning and Development Study. Ms. Del Vecchio introduced William Riviere (NJDOT-OBPP), Barry Keppard, and Jim Van Schoick. Introductions by attendees followed.

Ms. Del Vecchio explained that the purpose of the first SCC meeting is to confirm the bicycle needs in the Study Area as identified through the tasks completed to date, and to present findings from the existing conditions assessment. Ms. Del Vecchio then stated that a *Feedback Form* has been provided for attendees to use during the meeting to record their questions and comments.

Scope of Work

Ms. Del Vecchio briefly summarized the tasks in the Scope of Work which included: 1) Data Collection, 2) Bikeway Inventory and Analysis, 3) Concept Development, 4) County and Local Officials Coordination, and 5) Bikeway Action Plan and Route Map. Mr. Keppard and Mr. Van Schoick then presented the findings from Tasks 1 and 2.

Data Collection

Mr. Van Schoick reviewed the data collected to date, which included bicycle crash reports, a review of proposed projects in the Study Area, GIS data, traffic volumes and roadway cross sectional characteristics. Attendees were informed that three (3) field visits were performed to identify existing conditions of Study Area roadways, intersections, and the Route 31 Circle. The following comment was received:

- Paul Pogorzelski mentioned that striping changes are proposed at the entrance to the Twin Pines Airport Recreation Facility and that the roadway cross section will change in this area. Mr. Keppard responded that the Study team was aware of the proposed plan and the new striping will be considered during concept development.

Mr. Van Schoick reported that bicycle crash reports were provided by the NJDOT Bureau of Safety Programs and by the Lawrence Township, Hopewell Township and Pennington Borough Police Departments. Reported crashes were reviewed and mapped. The crash map was then presented to attendees. The following comments were received:

- Mr. Pogorzelski asked if the bicyclist fatality involving a deer on Route 546 from Summer 2009 was reported. Mr. Van Schoick responded that the crash was reported, but it was not reported as a fatality in the crash report. Mr. Keppard added that if the fatality occurred after the police report was issued, a follow up report was not received.
- Pam Mount asked if the number of crashes along the Study Area could be considered high. Ms. DelVecchio responded that since the seven (7) crashes occurred over a five (5) year period that it is not considered “high” per se. However, the data does indicate that bicyclists are using the route under the conditions that presently exist.

Mr. Van Schoick then turned the presentation over to Mr. Keppard to present the roadway bicycle compatibility assessment findings, intersection inventory and assessment, and the Route 31 Circle inventory and assessment.

Roadway Bicycle Compatibility Assessment

Mr. Keppard stated that roadways in the Study Area with existing traffic volumes were assessed for bicycle compatibility. A matrix was created to summarize the data collected and bicycle compatibility was determined using NJDOT guidelines. The Bicycle Compatibility Map was presented to illustrate compatible and non-compatible sections of roadway in the Study Area. The following comments were noted:

- It was asked why sections of the roadway were deemed not compatible. Mr. Keppard responded that the Study Team utilized the bicycle compatible roadway pavement widths table included in the NJDOT guidelines to assess compatibility. He explained that the guidelines use a combination of existing traffic volumes, posted speed limits, observed presence of truck traffic, lane widths, and shoulder widths to determine a roadway’s ability to accommodate bicycles. Roadways identified as not compatible did not meet recommended travel lane or shoulder widths under the guidelines.
- Ms. Mount requested that a copy of the compatibility table from the guidelines be provided to the SCC. Mr. Keppard stated that the table and a link to the guidelines on the NJDOT website would be provided.

- It was asked if parking on the shoulders would interfere with bicycle use of the shoulder. Mr. Keppard responded that if parking occurs intermittently then bicyclists could share the roadway, as few conflicts with vehicles would potentially exist. However, if parking occurs frequently, then the likelihood for potential conflicts increase and sharing the roadway may require additional width. Also, if bicycle lanes were installed, parking locations may change depending on the available roadway width.
- Richard Krawczun stated that a previous attempt by Lawrence Township to restrict parking along Route 546 resulted in public opposition by nearby residents.
- It was asked if restriping the incompatible roadway section west of Scotch Road could result in bicycle compatibility of this section. Mr. Keppard responded that restriping could result in compatibility, but this would need to be determined in concept development.

Intersection Inventory and Assessment

An intersection inventory and assessment was performed for five (5) signalized and four (4) unsignalized intersections. Mr. Keppard summarized the results of the intersection assessment including details on shoulder widths, striping, lane widths, intersection controls, intersection approaches, and turning movements. The results from the inventory and assessment include:

- *Signalized Intersections*
  1. Route 546 and Route 579 – 4' shoulders present except for shoulder on NE side of intersection.
  2. Route 546 and Route 611 - Eastbound separated through, right and left turn lanes, Westbound shared through/ right turn and left turn lanes.
  3. Route 546 and Route 632 – Channelized right turn lanes present on Route 546 and Route 632.
  4. Route 546 and Federal City/Stephenson Road – Shared through/right turn lane present on both sides of the intersection.
  5. Route 546 and Federal City/Keefe Road – Eastbound channelized turn lane present, channelized turn lane from Federal City Road to Route 546.
- *Unsignalized Intersections*
  1. Route 631 and Route 31 – Stop controlled intersection on Route 631 with flashing beacon.
  2. Route 640 and Route 631 – Stop controlled intersection on Route 631 with no separate turn lanes on either roadway.
  3. Route 640 and Route 632 – Skewed intersection, yield controlled merge on Route 632 with wide paved unstriped gore.
  4. Route 546 and Route 631 – Shoulders present on both sides of intersection on Route 546 but are not present on Route 631; stop controlled movement on Route 631.

Aerial photographs displayed the nine (9) inventoried intersections.

Route 31 Circle Inventory and Assessment

An inventory and assessment was also performed for the Route 31 Circle. Mr. Keppard summarized the results of the assessment which included an inventory of shoulder widths, movements through the circle, and posted speed limits. The following comments were received:

- Mr. Pogorzelski stated that the proposed safety improvements to occur at the Route 31 circle will include driveway consolidation.
- Ms. Mount asked if a bikeway could be installed through the circle.
- It was suggested that an alternate route may be possible by using Reed Road, a new shared use path, Denow Road, and Wellington Road to connect to Route 546 East of Route 31.

Working Group Discussion

A general discussion with the group followed the presentation. The following comments were received during the discussion:

- Visibility of bike lanes are beneficial to the community.
- The eastern terminus of the proposed route may present an issue for eastbound riders accessing the Johnson Trolley Line Trail.
- The goal of the bikeway should be to accommodate bicyclists in a convenient and consistent manner.
- There are some historical constraints located along the proposed route.
- An increase in impervious coverage along the route may require NJ Department of Environmental Protection (DEP) approval.
- Some attendees indicated a preference to have bike lanes instead of shared lanes or bicycle compatible shoulders where possible.
- If a bicycle facility is installed it would likely influence a future cross section of the roadway if new development occurs.
- As part of the railroad bridge replacement scoping project, a new traffic signal is proposed at Ingleside Avenue and Route 546 and a reduction in the speed limit (45 MPH → 35 MPH) is proposed between Ingleside Avenue and the Route 31 Circle.
- Study participants asked about where cyclists were observed travelling on Route 546.
- A traffic signal warrant study was performed by NJ DOT for the intersection of Route 31 and Ingleside Avenue.
- A High-intensity activated crosswalk (HAWK) signal was suggested for the intersection at Route 31 and Ingleside Avenue.
- It was asked if a disabled vehicle in a bike lane would impact liability if the vehicle causes a crash between a vehicle and a bicyclist.
- Projected traffic volumes from approved developments should be considered.
- It is important to connect Pennington on the bikeway due to observations by SCC attendees that it is a route currently used by cyclists.

Next Steps/Schedule

Ms. Del Vecchio informed attendees about the next steps in the study, which include:

- Concept Development,
- Study Coordinating Committee Meeting # 2, and
- Final Action Plan and Bikeway Route Map.

The meeting then concluded with attendees being thanked for their time and input.

Handouts at Meeting:	Study Folder Containing: Agenda, Fact Sheet, Feedback Form, and Route 546 Bikeway-SCC#1 Presentation
Next Steps:	Concept Development (January), SCC Meeting # 2 (January/Early Feb.)
Follow up Materials Provided to SCC Attendees via Email	NJDOT-Bicycle Compatible Roadway Pavement Widths Matrix, Route 546 Bikeway-Bicycle Compatibility Matrix, and Route 546 Bikeway-SCC#1 Presentation

MEMORANDUM OF MEETING

Project:	Route 546 Bikeway Planning and Development Study	**S.O. No:**	2007BPP643C T.O. #11
Date:	February 4, 2010	**Time:**	2:00 - 4:00 PM
Place:	Room 212, Mc Dade Administration Building	**By:**	Jim Van Schoick
Purpose:	Study Coordinating Committee Meeting #2		

Attending:

Name		**Representing**
Pam	Mount	Councilwoman, Lawrence Township
Jim	Parvesse	Township Engineer, Lawrence Township
Tom	Ogren	Councilman, Pennington Borough
Leslie	Floyd	Assistant Director, Mercer County Planning Division
Matthew	Lawson	Principal Planner, Mercer County Planning Division
George	Fallat	County Traffic Engineer, Mercer County Engineering Division
William	Riviere	NJDOT - Office of Bicycle and Pedestrian Programs (NJDOT-OBPP)
Regina	Del Vecchio	Michael Baker Jr. Inc.
Barry	Keppard	Michael Baker Jr. Inc.
Jim	Van Schoick	Michael Baker Jr. Inc.

The meeting began with Regina Del Vecchio welcoming everyone to the second Study Coordinating Committee (SCC) Meeting for the Route 546 Bikeway Planning and Development Study. Ms. Del Vecchio introduced William Riviere (NJDOT-OBPP), Barry Keppard, and Jim Van Schoick. Introductions by attendees followed.

Ms. Del Vecchio stated that the purpose of the second SCC meeting was to present and review preliminary recommendations resulting from earlier tasks, and to identify an Initial Preferred Alternative (IPA) for Route 546. Ms. Del Vecchio added that Baker had also followed up with Somerset and Burlington Counties regarding bicycle lane maintenance costs and with the NJDOT-Department of Project Development (NJDOT-DPD) regarding proposed improvements at the Route 31 Circle. Ms. Del Vecchio then stated that a *Feedback Form* had been provided for attendees to record their questions and comments during the meeting.

Ms. Del Vecchio introduced Mr. Keppard to review the Study Scope of Work and present the preliminary recommendations resulting from the Concept Development task.

Study Scope of Work

Mr. Keppard briefly reviewed the Study Area and described the work performed according to the Scope of Work, including: 1) Data Collection, 2) Bikeway Inventory and Analysis, 3) Concept Development, and 4) County and Local Officials Coordination.

Mr. Keppard stated that concepts, which included roadway improvements, intersection Improvements, and improvements at the Route 31 Circle, were developed as a result of the previous tasks and input received at the first SCC meeting.

Proposed Bikeway Improvement Concepts

Mr. Keppard presented the roadway improvements, which included the three (3) following concepts:

- **Route 546**
  - **Concept #1:** Bicycle Lanes

    Concept #1 proposes 5' bicycle lanes along most of Route 546 between Washington Crossing State Park and the Johnson Trolley Line Trail. Sections where bicycle lanes can not be accommodated are: the Woolsey Creek Bridge, the approaches to Route 611 (Scotch Road), and the approaches to the Merrill Lynch/Hopewell Medical Center driveway. The Woolsey Creek Bridge is planned for future reconstruction with shoulders in each direction. At Route 611 and the Merrill Lynch/Hopewell Medical Center driveway, re-striping is proposed to provide 14' shared travel lanes.

  - **Concept #2:** "Share the Road"

    Concept #2 proposes installing bicycle warning signs and share the road plaques along Route 546. Most of the corridor is currently bicycle compatible based on to NJDOT guidelines since there are wide paved shoulders (5' or wider). In locations where there is no existing shoulder present, such as at Route 611 and the Merrill Lynch/Hopewell Medical Center driveway, 14' shared travel lanes are proposed.

- **Pennington Route**
  - **Concept #3:** Signed Bike Route

    Concept #3 proposes a signed bicycle route to guide bicyclists from Route 546 through Pennington Borough. Bicycle route signage would be installed at the intersections of Route 546, Route 631 (Ingleside Avenue), Route 640 (S. Main Street) and Route 632 (Lawrenceville-Pennington Road).

Mr. Keppard stated that the bicycle lane improvements (Concept #1) could be accommodated through re-striping, while the "Share the Road" improvements (Concept #2) could be accommodated through existing striping along the corridor. For the signed bike route (Concept #3), a minor road widening (approximately 4') on Route 632 is proposed to improve bicycle compatibility.

The following comments were received regarding the proposed roadway improvements:

- Pam Mount asked why the "Share the Road" concept was suggested. Mr. Keppard responded that the different concepts were included to present multiple bikeway options, especially since capital and maintenance costs can vary depending on the improvement.

- Tom Ogren asked if there was the potential for bicycle lanes on Route 632 if the roadway was widened. Mr. Keppard responded that as proposed, the minor widening would increase the shoulder width on either side to 4'. This width may allow for bicycle lanes, which will be confirmed following the meeting. *Follow up was performed after the meeting and identified that AASHTO bicycle facility guidelines state that 4' is the minimum width for a bicycle lane facility. A wider bicycle lane (e.g., 5' wide) is recommended for roadways with high volumes, high travel speeds, and/or on-street parking.*

- George Fallat asked how long the section of Route 632 was that would need to be widened. Mr. Keppard responded that the distance from Route 640 to Route 546 was between ¾ of a mile and one (1) mile. *Follow up was performed after the meeting and identified that the length of segment on Route 632 was approximately 0.6 miles.*

- Jim Parvesse asked if the cross-section of Route 546 between Dayna Lane and Bergen Street in Lawrence Township was 50' wide. Mr. Keppard responded that the width measurements varied from 47' – 50'. Ms. DelVecchio added that the cross-sections may become narrower at the major intersections, and that the widths were measured for typical cross-sectional characteristics. *Follow up is being performed to confirm width between Dayna Lane and the Johnson Trolley Line Trail.*

- Mr. Fallat asked about where parking would not be permitted if the proposed improvements were advanced. Mr. Keppard responded that parking in bicycle lanes is prohibited, except in the event of an emergency. He then stated that parking would be permitted where roadway widths and a municipality would allow.

Intersection Improvements

Mr. Keppard stated that signalized and un-signalized intersection improvements are proposed. Five (5)-foot bicycle lanes are proposed at intersections along Route 546 as part of Concept #1 where pavement width allows. When a bicycle lane cannot be accommodated at the intersection, a 14' wide through lane (approach or receiving) exists or is proposed at the intersection. The one exception is the approach of Route 546 westbound at Route 579 (Bear Tavern Road), where a 12' through lane can be accommodated due to the presence of right- and left-turn lanes.

Mr. Keppard stated that shared travel lanes can be provided at intersections under Concept #2, and striping and signage is proposed to alert motorists and bicyclists to the merging traffic. The following comments were received:

- Ms. Mount asked how new development near the intersection of Route 611 would address bicycle compatibility. Mr. Keppard responded that bicycle compatible improvements, such as widening the through travel lane could be made in advance of the development or incorporated as part of the development.

Mr. Keppard then turned the presentation over to Ms. DelVecchio to present the findings regarding the Route 31 Circle and bicycle facility maintenance costs.

Route 31 Circle

Ms. DelVecchio stated that to improve bicycle travel through the circle, Baker developed a concept for converting the Route 31 Circle to a modern roundabout. A meeting was then scheduled with NJDOT-DPD to review this concept and learn more about proposed improvements at the circle. In the meeting, it was identified that the NJDOT IPA for the circle was a modern roundabout. The NJDOT IPA was presented for the SCC participants, and the proposed geometric, access and signage improvements proposed for the circle were reviewed. Ms. Del Vecchio noted that installation of a traffic signal was planned for the intersection of Route 31 and Route 631 based on a traffic signal warrant analysis performed by NJDOT.

The following comments were noted regarding the proposed improvements at the Route 31 Circle:

- Mr. Ogren asked about the potential traffic impacts of the roundabout configuration given the high volume of vehicles that use the circle. Ms. DelVecchio responded that Baker performed a preliminarily review of volumes at the circle to identify potential impacts. She also stated that the NJDOT IPA was primarily focused on safety improvements at the circle, such as slowing vehicle entry into the circle from Route 31 and reducing and relocating access for several driveways on the circle.

- Mr. Ogren stated both Pennington and Hopewell preferred installation of a pedestrian hybrid beacon (i.e., high-intensity activated crosswalk |HAWK| signal) at the intersection of Route 31 and Ingleside Avenue rather than the full signal proposed by the NJDOT.

Bicycle Route Maintenance Costs

Ms. DelVecchio stated that Burlington County and Somerset County were contacted to identify potential capital and maintenance costs associated with bicycle facilities. She stated that Burlington County referred to local transportation plans when roadway repaving or restriping was planned. If the plans included a bicycle lane, the County would then install the lanes if existing roadway width allowed. Somerset County consults with municipalities about including bicycle lanes and, if requested by the town, the County would install bicycle lanes if the existing roadway width allowed. Burlington County continues to maintain the approximately 40 miles of bicycle lanes, and stated that the additional maintenance costs are minimal; Somerset County hands over maintenance of the bicycle lanes to the town.

Ms. DelVecchio also recommended the use of long life epoxy resin for bicycle lane striping.

Working Group Discussion

A general discussion with the group followed the presentation. The following comments were received during the discussion regarding the preferred concept for Route 546:

- Several participants expressed preference for bicycle lanes along Route 546. Mr. Fallat also nominated the bicycle lanes as the preferred alternative for the proposed bikeway.

- Ms. Mount asked whether costs would be included in the final report. Ms. DelVecchio responded that preliminary cost estimates would be prepared.

- Mr. Ogren suggested splitting the bikeway into two phases, with Pennington as a midpoint between the phases. It was agreed that the bikeway could proceed in two phases if there were logical end points for each phase.

- Ms. Mount suggested that Mercer County, along with the municipalities, develop standards for intersections and lane widths relative to bicycle accommodations (e.g., shared travel lanes, bicycle lanes, etc.).

- Mr. Fallat stated that that Mercer County typically performs paving projects in segments, and not for entire corridors. It is preferred that improvements use existing pavement widths and occur through re-striping. Federal funding for widening projects is more difficult to obtain and requires more environmental review.

- Matt Lawson asked if a roadway section does not have sufficient pavement width for bicycle compatibility could it still be designated as a bicycle route. Ms. DelVecchio responded that for long sections of roadway that are not compatible, designation would not be recommended.

Next Steps/Schedule

Ms. DelVecchio informed attendees that the next step for the study was drafting the Final Action Plan and supporting Bikeway Route Map. A draft of the plan and map would be sent out to Mercer County and stakeholders for review and comment prior to it being finalized.

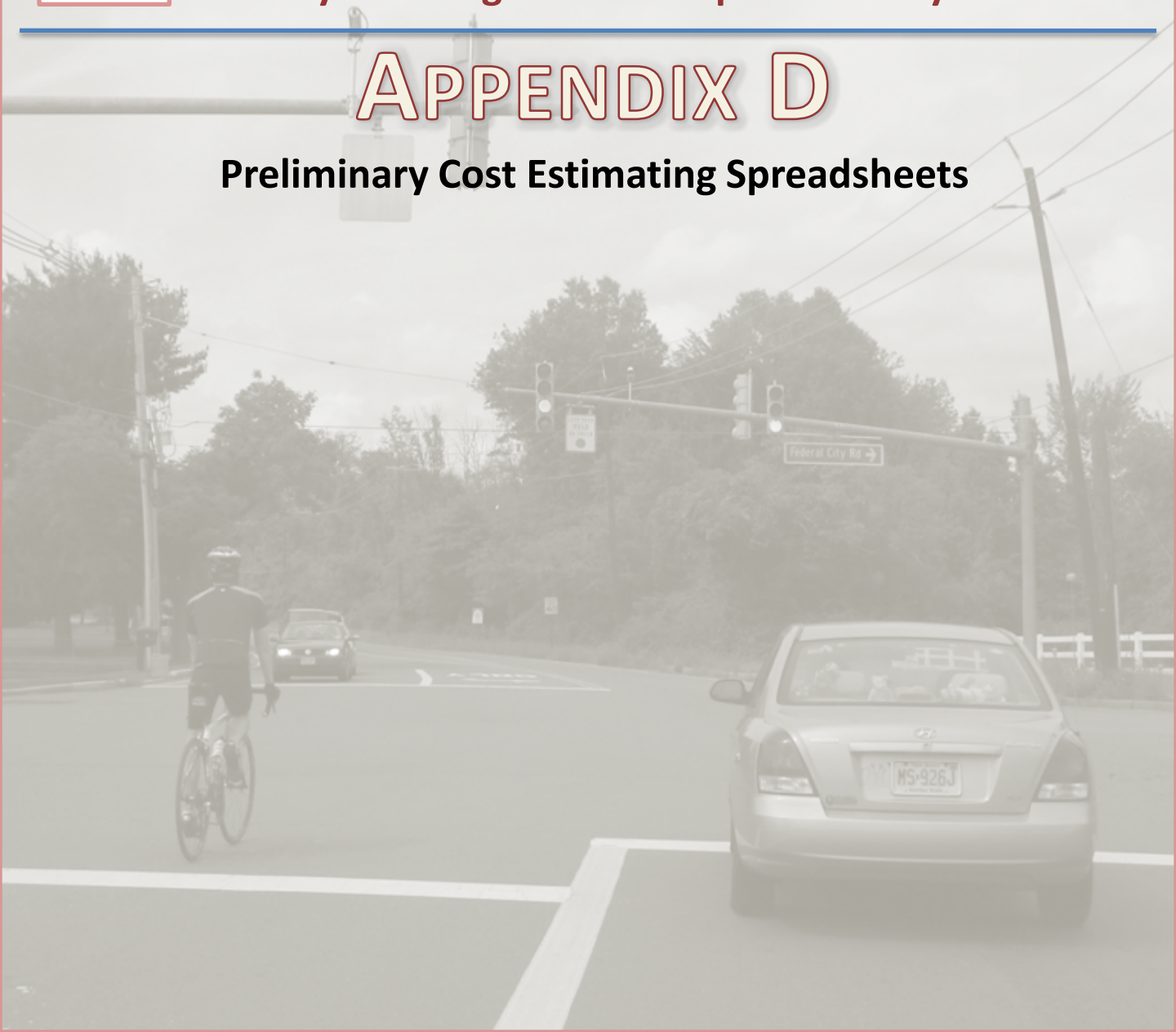
The meeting then concluded with attendees being thanked for their time and input.

Handouts at Meeting:	Agenda, Fact Sheet, Feedback Form, and Route 546 Bikeway-SCC#2 Presentation
Next Steps:	Final Action Plan and Bikeway Route (March)
Follow up Materials:	Route 546 Bikeway-SCC#2 Presentation

County Route 546
Bikeway Planning and Development Study

Appendix D

Preliminary Cost Estimating Spreadsheets



Classification Number 2 - RECONSTRUCTION, WIDENING & DUALIZATION - English

Township	Hopewell/Lawrence	Section/Contract #	2007BPP643C Bike Ped T.O. #11	(118183)
PM	Del Vecchio	UPC No.	CR 546 Bicycle Lane Striping	

EARTHWORK (must be calculated)

		Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)		Acre	0	4,050	0
Roadway Exc. Unclassified, **See (J)**		C.Y.	0	85	0
Removal of Conc. Base & Conc. Surface Courses		S.Y.	0	15	0
Channel Excavation		C.Y.	0	12.25	0
Ditch Excavation		C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**		C.Y.	0	20	0
			0		0
EARTHWORK TOTAL		=			0

Suggested procedure for calculating earthwork:
A) Determine Typical section (number of lanes, median widths, side slopes, etc.).
B) Get latest topography map available.
C) Plot proposed alignment on topo map.
D) Develop profile using topo controls such as existing roads, streams, rivers and design manual.
E) Calculate Areas for the typical section in 1 foot increments of cut or fill.
F) At 10 to 60 foot intervals (depending on frequency of X-section changes) calculate the earthwork.
G) Calculate any other significant earthwork (ramps, cross-roads, etc.).
H) Make appropriate earthwork corrections for the pavement box and striping. Use 21 inch depth for rigid pavement, 26 inch depth for all flexible pavement and 4 inch depth for stripping.
I) Deduct any roadway excavation from borrow required to calculate Borrow Excavation Zone 3.

J) See Construction Cost Estimate Work Sheet (Section 3.1). This worksheet must be utilized for the most recent price information.

PAVEMENT

12 FOOT WIDE LANE (from subgrade up)

Pav't. Type		Description of Pavement	Cost/Linear Foot
A		10 inch R.C. Pavement	156
B		2 inch HMA Surf. Crs. & 8 inch HMA	61
C		3 inch HMA Surf. Crs. & 4 inch HMA	46
D		2 inch HMA Surf. Crs. & 2 inch HMA	22
E		Bridge Approach & Transition Slabs	156
		(Resurfacing Portion only F & G)	
F		2 inch HMA Surface Course	8.25
G		3 inch HMA Surface Course	12
H		Milling 2 inch	3

Computation Table for Pavement. Cost

Type		Cost from table above	x Length	x Pavement *W.F.	= Amount
					0
					0
					0
					0
					0
					0
					0
					0
					0
PAVEMENT TOTAL				=	0

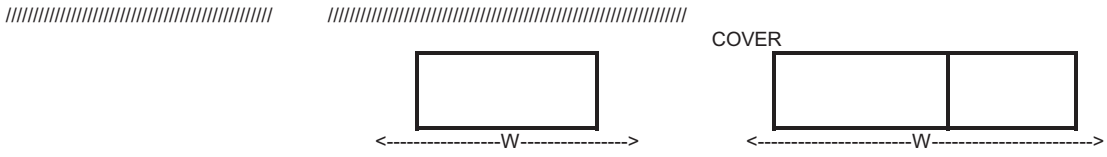
*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

Example = actual pavement width = 25 foot = 25/12 = 2.08 W.F.

CONTEXT SENSITIVE DESIGN

Attach additional sheet detailing items and costs of context sensitive design work =

CULVERTS



Type 1 W< 20 Feet

Type 2 W> 20 Feet

Type		Layout (3)	Skew (1)	Cover (2)	Cost Per Sq. Foot
Type 1		Area w x L exceeds 1000 Sq. Feet	0-60 degrees	0 to 10'	114.75
				10' to 20'	147.25
		Short Culverts Difficult Conditions under 1000 Square Feet	0-60 degrees	0 to 10'	203.50
				10' to 20'	235.00
Type 2		Area w x L exceeds 1000 Sq. Feet	0-60 degrees	0 to 10'	121.75
				10' to 20'	152.50
		Short Culverts Difficult Conditions under 1000 Square Feet	0-60 degrees	0 to 10'	203.50
				10' to 20'	235.00

For skews over 60 degrees it will be necessary to make a special analysis and establish a square meter price comparable to above.

Description		Area Computation	x Cost per Sq. Foot	= Amount
				0
				0
				0
				0
			Culvert Total =	0

BRIDGES

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 3 spans and 2 side spans (Max. Span 100 feet)
H = Clear Height 14 To 23 feet (4)
L = 100 to 400 feet & all viaducts over 400 feet (5)

Class		Layout	Skew (1)	Foundation (2)	Cost per Sq.Foot
I		Width at Least 45 feet	0 to 40 Degrees	No Piles	134.75
				Piles at Stub Abut.	159.75
				Piles at Piers & Stu	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stu	181.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 3 spans and 2 side spans (Max. Span 100 feet) (3)
H = Clear Height 14 feet (4)
L = under 400 feet

Class		Layout	Skew (1)	Foundation (2)	Cost per Sq.Foot
II		L exceeds W Area L x W exceeds 4500 Sq. Feet	0 to 40 Degrees	No Piles	176.5
				On Piles	187.25
			40 to 60 Degrees	No Piles	219.75
				On Piles	273.25
III		W exceeds L Area L x W	0 to 40 Degrees	No Piles	226.75
				On Piles	299.25

		exceeds 4500 Sq. Feet	40 to 60 Degrees	No Piles	241.5
				On Piles	310
IV		Width 30 - 45 feet	0 to 40 Degrees	No Piles	295.5
				On Piles	396.75
		Area W x L under 4500 Sq. Foot	40 to 60 Degrees	No Piles	318.25
				On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout		Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet		0 to 40 Degrees	No Piles	157.00
			Piles at Semi-Stub Abut.	182.00
			Piles at Piers & Semi-Stub Abut.	204.50
Minimum Length 100 feet		40 to 60 Degrees	No Piles	166.50
			Piles at Semi-Stub Abut.	194.75
			Piles at Piers & Semi-Stub Abut.	217.50

				0
Length	Width	Cost per SF	Bridge Total	

1. For skews over 60 degrees it will be necessary to make a special analysis and establish a square foot price comparable to above.

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description		Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
			Sub Total	0
Clearing Site Bridge *0-3% of Sub Total				0
		%		
			BRIDGE TOTAL	0

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

Rural		0	364356	0
		project length (miles	x cost per mile	= Amount
Urban		0	544280	0
		project length (miles	x cost per mile	= Amount

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

	0	55	0
length of ramp or frontage rd. in feet		x cost per foot	= Amount

DRAINAGE TOTAL = 0

INCIDENTAL ITEMS

Item	Units	Cost	x Quantity	= Amount
Removal of Shoulder Striping	LF	4.5	28950	130275
Removal of Median Striping	LF	4.5	150	675
Traffic Stripes, Long Life Epoxy	LF	4	60100	240400
Traffic Markings, Long Life (Bicycle Lane)	SQFT	6	248	1488
R3-17 (Bicycle Lane) - 28	SQFT	35	84	2940
R3-17aP (Ahead Plaque) - 8	SQFT	35	11	385
R3-17bP (End Plaque) - 8	SQFT	35	11	385
W11-1 (Bicycle Warning Sign) - 6	SQFT	35	24	840
W16-1P (Share the Road plq.) - 6	SQFT	35	18	630
R7-9a (Bicycle Lane) - 20	SQFT	35	30	1050
			0	0
INCIDENTAL ITEMS TOTAL		=		379068

LANDSCAPE

		Quantity	x Unit Prices	= Amount
Topsoil and Seeding (Mainline) Length of Project in miles		0	112,815	0
Planting (Mainline) Length of Project in miles		0	64,500	0
Topsoil, Seeding, Planting (Finger Ramp Number of Finger Ramps		0	12,500	0
Topsoil, Seeding, Planting (Loop Ramp) Number of Loop Ramps		0	20,000	0
Topsoil, Seeding (Access Road) Length of Access Road in Feet		0	7.9	0
LANDSCAPE TOTAL		=		0

NOISE ABATEMENT

		Unit	Quantity	x Cost	= Amount
				305	0
					0
					0
					0
NOISE ABATEMENT TOTAL		=			0

GENERAL ITEMS

Item		Project Length (mile	x Cost/Mile	= Amount
Field Office		0	44,260	0
Materials Field Laboratory		0	28,970	0
Erosion Control during Construction		0	64,375	0
GENERAL ITEMS TOTAL		=		0

SUMMARY

Route	Hopewell/Lawrence	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #11 (118183)

PM	Del Vecchio	UPC No.	CR 546 Bicycle Lane Striping

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	379068
Landscape	0
Noise Abatement	0
General Items	0
PROJECT SUBTOTAL	379068

Other Items		Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators			1% of Proj. Subtotal	3790.68	
Maintenance of Traffic			10% of Proj. Subtotal	37907	
Training			1% of Proj. Subtotal	3790.68	
Mobilization				34116.12	
		Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		34116
		Project Cost 5.0 & above	10% of Proj. Subtotal		0
Progress Schedule		Project Cost(Mil.)	$	0	
		Less than 2.0	0		0
		2.0 to 5.0	6,000		0
		5.0 to 10.0	8,000		0
		10.0 to 20.0	15,000		0
		20.0 to 30.0	30,000		0
		30.0 to 40.0	40,000		0
		40.0 & above	58,000		0
Clearing Site		Project Cost (Mil.)	$	5000	
		Less than 1.0	15,000		15000
		1.0 to 2.0	30,000		0
		2.0 to 5.0	45,000		0
		5.0 to 10.0	115,000		0
		10.0 to 20.0	220,000		0
		20.0 to 30.0	240,000		0
		30.0 to 40.0	250,000		0
		40.0 & above	490,000		0
Construction Layout		Project Cost(Mil.)	$	2000	
		Less than 1.0	7,000		7000
		1.0 to 2.0	20,000		0
		2.0 to 5.0	42,000		0
		5.0 to 10.0	87,000		0
		10.0 to 20.0	160,000		0
		20.0 to 30.0	220,000		0
		30.0 to 40.0	490,000		0
		40.0 & above	890,000		0
			PROJECT TOTAL	465672	

CONTINGENCIES & ESCALATION			Y			
Y = Number of Years until midpoint of construction duration plus number of years until construction start. If midpoint is less than 2 years from the date of this estimate, no escalation is required. Maximum value = 10%			3.00		3.00	1.04
465672.28		1.030	1.04	498828		
Project Total		Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD		

Project Cost(Mil.)		Contingencies (C) Percent	Average Construction Duration in Years	
0-10		3%	1	0.030
10-20		2.50%	2	0.000
Over 20		2%	3	0.000

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)			% of Construction Cost	
Less than 1.0			31.10%	155136
1.0 to 5.0			20.30%	0.00
5.0 to 10.0			16.20%	0.00
10.0 & above			12.20%	0

CONSTRUCTION ENGINEERING AMOUNT $155,135.55

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	25000
0.5 to 5.0	25,000 + 4% of amount in excess of $500,000	0
5.0 to 10.0	205,000 + 3% of amount in excess of $5,000,000	0
10.0 to 15.0	355,000 + 2% of amount in excess of $10,000,000	0
15.0 and above	455,000 + 1.5% of amount in excess of $15,000,000 - max $	0
		0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = 25000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

Construction Cost for Initial Estimate		Use % or utilities detailed estimate for Urban use 0.12, Rural 0.055 or + Estimate	= Utility Relocation Cost for Initial Estimate
498828		0	NO UTILITIES

If there are no utility relocations on the project indicate “No Utilities” in the box above.

RIGHT OF WAY COST NO ROW

If there is no ROW cost on the project indicate “No ROW” the box

SUMMARY

Construction Estimate for Initial	498828
Construction Engineering (CE)	155136
Contingencies	25000
Utilities Relocations	NO UTILITIES
Total Construction Cost	678964

Right of Way Cost	NO ROW

Classification Number 2 - RECONSTRUCTION, WIDENING & DUALIZATION - English

Township	Hopewell/Lawrence	Section/Contract #	2007BPP643C Bike Ped T.O. #11 (118183)
PM	Del Vecchio	UPC No.	Pennington Signed Bicycle Route

EARTHWORK (must be calculated)

		Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)		Acre	0	4,050	0
Roadway Exc. Unclassified, **See (J)**		C.Y.	2247	25	56175
Removal of Conc. Base & Conc. Surface Courses		S.Y.	0	15	0
Channel Excavation		C.Y.	0	12.25	0
Ditch Excavation		C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**		C.Y.	0	20	0
			0		0
EARTHWORK TOTAL		=			56175

Suggested procedure for calculating earthwork:
A) Determine Typical section (number of lanes, median widths, side slopes, etc.).
B) Get latest topography map available.
C) Plot proposed alignment on topo map.
D) Develop profile using topo controls such as existing roads, streams, rivers and design manual.
E) Calculate Areas for the typical section in 1 foot increments of cut or fill.
F) At 10 to 60 foot intervals (depending on frequency of X-section changes) calculate the earthwork.
G) Calculate any other significant earthwork (ramps, cross-roads, etc.).
H) Make appropriate earthwork corrections for the pavement box and striping. Use 21 inch depth for rigid pavement, 26 inch depth for all flexible pavement and 4 inch depth for stripping.
I) Deduct any roadway excavation from borrow required to calculate Borrow Excavation Zone 3.
J) See Construction Cost Estimate Work Sheet (Section 3.1). This worksheet must be utilized for the most recent price information.

PAVEMENT

12 FOOT WIDE LANE (from subgrade up)

Pav't. Type		Description of Pavement	Cost/Linear Foot
A		10 inch R.C. Pavement	156
B		2 inch HMA Surf. Crs. & 8 inch HMA	61
C		3 inch HMA Surf. Crs. & 4 inch HMA	46
D		2 inch HMA Surf. Crs. & 2 inch HMA	22
E		Bridge Approach & Transition Slabs	156
		(Resurfacing Portion only F & G)	
F		2 inch HMA Surface Course	8.25
G		3 inch HMA Surface Course	12
H		Milling 2 inch	3

Computation Table for Pavement. Cost

Type		Cost from table above	x Length	x Pavement *W.F.	= Amount
B		96	3500	0.6667	224011.2
					0
					0
					0
					0
					0
					0
					0
					0
PAVEMENT TOTAL				=	224011.2

*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

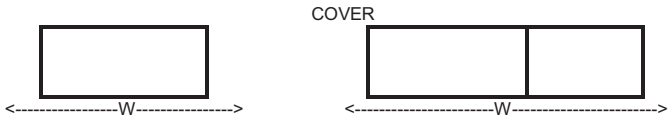
Example = actual pavement width = 25 foot = 25/12 = 2.08 W.F.

CONTEXT SENSITIVE DESIGN

Attach additional sheet detailing items and costs of context sensitive design work =

CULVERTS

// //



Type 1 W< 20 Feet

Type 2 W> 20 Feet

Type		Layout (3)	Skew (1)	Cover (2)	Cost Per Sq. Foot
Type 1		Area w x L exceeds 1000 Sq. Feet	0-60 degrees	0 to 10'	114.75
				10' to 20'	147.25
		Short Culverts Difficult Conditions under 1000 Square Feet	0-60 degrees	0 to 10'	203.50
				10' to 20'	235.00
Type 2		Area w x L exceeds 1000 Sq. Feet	0-60 degrees	0 to 10'	121.75
				10' to 20'	152.50
		Short Culverts Difficult Conditions under 1000 Square Feet	0-60 degrees	0 to 10'	203.50
				10' to 20'	235.00

For skews over 60 degrees it will be necessary to make a special analysis and establish a square meter price comparable to above.

Description		Area Computation	x Cost per Sq. Foot	= Amount
				0
				0
				0
				0
			Culvert Total =	0

BRIDGES

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual

1 to 3 spans and 2 side spans (Max. Span 100 feet)

H = Clear Height 14 To 23 feet (4)

L = 100 to 400 feet & all viaducts over 400 feet (5)

Class		Layout	Skew (1)	Foundation (2)	Cost per Sq.Foot
I		Width at Least 45 feet	0 to 40 Degrees	No Piles	134.75
				Piles at Stub Abut.	159.75
				Piles at Piers & Stu	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stu	181.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual

1 to 3 spans and 2 side spans (Max. Span 100 feet) (3)

H = Clear Height 14 feet (4)

L = under 400 feet

Class		Layout	Skew (1)	Foundation (2)	Cost per Sq.Foot
II		L exceeds W Area L x W exceeds 4500 Sq. Feet	0 to 40 Degrees	No Piles	176.5
				On Piles	187.25
			40 to 60 Degrees	No Piles	219.75
				On Piles	273.25
III		W exceeds L Area L x W exceeds 4500 Sq. Feet	0 to 40 Degrees	No Piles	226.75
				On Piles	299.25
			40 to 60 Degrees	No Piles	241.5
				On Piles	310
IV		Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.5
				On Piles	396.75
			40 to 60 Degrees	No Piles	318.25
				On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout		Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least		0 to 40	No Piles	157.00
40 feet		Degrees	Piles at Semi-Stub Abut.	182.00
			Piles at Piers & Semi-Stub Abut.	204.50
		40 to 60	No Piles	166.50
Minimum Length		Degrees	Piles at Semi-Stub Abut.	194.75
100 feet			Piles at Piers & Semi-Stub Abut.	217.50

			0
Length	Width	Cost per SF	Bridge Total

1. For skews over 60 degrees it will be necessary to make a special analysis and establish a square foot price comparable to above.

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description		Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
			Sub Total	0
Clearing Site Bridge *0-3% of Sub Total				0
		%		
			BRIDGE TOTAL	0

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

Rural		0	364356	0	5280	3500	0.662879
		project length (miles	x cost per mile	= Amount			0.331439
Urban		0.66	544280	359224.8			
		project length (miles	x cost per mile	= Amount			

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

0	55	0
length of ramp or frontage rd. in feet	x cost per foot	= Amount

DRAINAGE TOTAL =	359224.8

INCIDENTAL ITEMS

Item	Pay Item	Cost	x Quantity	= Amount
D11-1 (Bike Route Sign) - 12	SF	35	24.00	840
M4-14 (Begin Aux. Sign) - 2	SF	35	1.00	35
M4-6 (End Aux. Sign) - 2	SF	35	1.00	35
M5-1 (Left Turn Arrow Sign) - 2	SF	35	1.50	53
M6-1 (Turn Arrow Sign) - 3	SF	35	2.25	79
M6-3 (Straight Arrow Sign) - 2	SF	35	1.50	53
M5-2 (Bear Left Arrow Sign) - 1	SF	35	0.75	26
W11-1 (Bicycle Warning Sign) - 6	SQFT	35	24	840
Traffic Stripes, Long Life Epoxy	LF	4	7000	28000
INCIDENTAL ITEMS TOTAL		=		29960.00

LANDSCAPE

		Quantity	x Unit Prices	= Amount
Topsoil and Seeding (Mainline) Length of Project in miles		0.66	112,815	74457.9
Planting (Mainline) Length of Project in miles		0	64,500	0
Topsoil, Seeding, Planting (Finger Ramp Number of Finger Ramps		0	12,500	0
Topsoil, Seeding, Planting (Loop Ramp) Number of Loop Ramps		0	20,000	0
Topsoil, Seeding (Access Road) Length of Access Road in Feet		0	7.9	0
LANDSCAPE TOTAL		=		74457.9

NOISE ABATEMENT

		Unit	Quantity	x Cost	= Amount
				305	0
					0
					0
					0
NOISE ABATEMENT TOTAL		=			0

GENERAL ITEMS

Item		Project Length (mile	x Cost/Mile	= Amount
Field Office		0	44,260	0
Materials Field Laboratory		0	28,970	0
Erosion Control during Construction		0.66	64,375	42487.5
GENERAL ITEMS TOTAL		=		42487.5

SUMMARY

Route	Hopewell/Lawrence	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #11 (118183)
PM	Del Vecchio	UPC No.	Pennington Signed Bicycle Route

Work Type	Totals from other pages
Earthwork	56175
Pavement	224011.2
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	359224.8
Incidental Items	29960
Landscape	74457.9
Noise Abatement	0
General Items	42487.5

PROJECT SUBTOTAL	786316.4

Other Items		Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators			0% of Proj. Subtotal	0	
Maintenance of Traffic			10% of Proj. Subtotal	78632	
Training			1% of Proj. Subtotal	7863.164	
Mobilization				70768.476	
		Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		70768
		Project Cost 5.0 & above	10% of Proj. Subtotal		0
Progress Schedule		Project Cost(Mil.)	$	0	
		Less than 2.0	0		0
		2.0 to 5.0	6,000		0
		5.0 to 10.0	8,000		0
		10.0 to 20.0	15,000		0
		20.0 to 30.0	30,000		0
		30.0 to 40.0	40,000		0
		40.0 & above	58,000		0
Clearing Site		Project Cost (Mil.)	$	15000	
		Less than 1.0	15,000		15000
		1.0 to 2.0	30,000		0
		2.0 to 5.0	45,000		0
		5.0 to 10.0	115,000		0
		10.0 to 20.0	220,000		0
		20.0 to 30.0	240,000		0
		30.0 to 40.0	250,000		0
		40.0 & above	490,000		0
Construction Layout		Project Cost(Mil.)	$	7000	
		Less than 1.0	7,000		7000
		1.0 to 2.0	20,000		0
		2.0 to 5.0	42,000		0
		5.0 to 10.0	87,000		0
		10.0 to 20.0	160,000		0
		20.0 to 30.0	220,000		0
		30.0 to 40.0	490,000		0
		40.0 & above	890,000		0
			PROJECT TOTAL	965580	

CONTINGENCIES & ESCALATION

	Y			
Y = Number of Years until midpoint of construction duration plus number of years until construction start. If midpoint is less than 2 years from the date of this estimate, no escalation is required. Maximum value = 10%	4.00			4.00 1.10
965579.68	1.030	1.10	1094002	
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD	

Project Cost(Mil.)		Contingencies (C) Percent	Average Construction Duration in Years	
0-10		3%	1	0.030
10-20		2.50%	2	0.000
Over 20		2%	3	0.000

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)			% of Construction Cost	
Less than 1.0			31.10%	0
1.0 to 5.0			20.30%	222082.36
5.0 to 10.0			16.20%	0.00
10.0 & above			12.20%	0
CONSTRUCTION ENGINEERING AMOUNT			$222,082.36	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount

$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
0.5 to 5.0	25,000 + 4% of amount in excess of $500,000	48800
5.0 to 10.0	205,000 + 3% of amount in excess of $5,000,000	0
10.0 to 15.0	355,000 + 2% of amount in excess of $10,000,000	0
15.0 and above	455,000 + 1.5% of amount in excess of $15,000,000 - max $	0
		0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = 48800

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

1094002		0.12	131280	CHECK
		for Urban use 0.12, Rural 0.055 or + Estimate	=	
Construction Cost for Initial Estimate		Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate	

If there are no utility relocations on the project indicate “No Utilities” in the box above.

RIGHT OF WAY COST NO ROW

If there is no ROW cost on the project indicate “No ROW” the box

SUMMARY

Construction Estimate for Initial	1094002
Construction Engineering (CE)	222082
Contingencies	48800
Utilities Relocations	131280
Total Construction Cost	1496164
Planning Contigencies (20%)	299233
Right of Way Cost	NO ROW
TOTAL COST	**1795397**

Classification Number 2 - RECONSTRUCTION, WIDENING & DUALIZATION - English

Township	Hopewell/Lawrence	Section/Contract #	2007BPP643C Bike Ped T.O. #11 (118183)
PM	Del Vecchio	UPC No.	CR 546 Intersection Striping

EARTHWORK (must be calculated)

		Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)		Acre	0	4,050	0
Roadway Exc. Unclassified, **See (J)**		C.Y.	0	85	0
Removal of Conc. Base & Conc. Surface Courses		S.Y.	0	15	0
Channel Excavation		C.Y.	0	12.25	0
Ditch Excavation		C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**		C.Y.	0	20	0
			0		0
EARTHWORK TOTAL		=			0

Suggested procedure for calculating earthwork:
A) Determine Typical section (number of lanes, median widths, side slopes, etc.).
B) Get latest topography map available.
C) Plot proposed alignment on topo map.
D) Develop profile using topo controls such as existing roads, streams, rivers and design manual.
E) Calculate Areas for the typical section in 1 foot increments of cut or fill.
F) At 10 to 60 foot intervals (depending on frequency of X-section changes) calculate the earthwork.
G) Calculate any other significant earthwork (ramps, cross-roads, etc.).
H) Make appropriate earthwork corrections for the pavement box and striping. Use 21 inch depth for rigid pavement, 26 inch depth for all flexible pavement and 4 inch depth for stripping.
I) Deduct any roadway excavation from borrow required to calculate Borrow Excavation Zone 3.

J) See Construction Cost Estimate Work Sheet (Section 3.1). This worksheet must be utilized for the most recent price information.

PAVEMENT

12 FOOT WIDE LANE (from subgrade up)

Pav't. Type		Description of Pavement	Cost/Linear Foot
A		10 inch R.C. Pavement	156
B		2 inch HMA Surf. Crs. & 8 inch HMA	61
C		3 inch HMA Surf. Crs. & 4 inch HMA	46
D		2 inch HMA Surf. Crs. & 2 inch HMA	22
E		Bridge Approach & Transition Slabs	156
		(Resurfacing Portion only F & G)	
F		2 inch HMA Surface Course	8.25
G		3 inch HMA Surface Course	12
H		Milling 2 inch	3

Computation Table for Pavement. Cost

Type		Cost from table above	x Length	x Pavement *W.F.	= Amount
					0
					0
					0
					0
					0
					0
					0
					0
					0
PAVEMENT TOTAL				=	0

*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

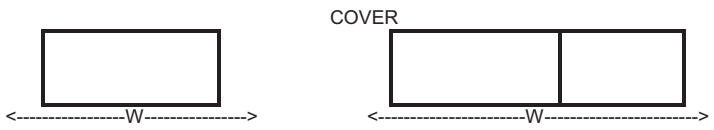
Example = actual pavement width = 25 foot = 25/12 = 2.08 W.F.

CONTEXT SENSITIVE DESIGN

Attach additional sheet detailing items and costs of context sensitive design work =

CULVERTS

// //



Type 1 W< 20 Feet

Type 2 W> 20 Feet

Type		Layout (3)	Skew (1)	Cover (2)	Cost Per Sq. Foot
Type 1		Area w x L exceeds 1000 Sq. Feet	0-60 degrees	0 to 10'	114.75
				10' to 20'	147.25
		Short Culverts Difficult Conditions under 1000 Square Feet	0-60 degrees	0 to 10'	203.50
				10' to 20'	235.00
Type 2		Area w x L exceeds 1000 Sq. Feet	0-60 degrees	0 to 10'	121.75
				10' to 20'	152.50
		Short Culverts Difficult Conditions under 1000 Square Feet	0-60 degrees	0 to 10'	203.50
				10' to 20'	235.00

For skews over 60 degrees it will be necessary to make a special analysis and establish a square meter price comparable to above.

Description		Area Computation	x Cost per Sq. Foot	= Amount
				0
				0
				0
				0
			Culvert Total =	0

BRIDGES

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 3 spans and 2 side spans (Max. Span 100 feet)
H = Clear Height 14 To 23 feet (4)
L = 100 to 400 feet & all viaducts over 400 feet (5)

Class		Layout	Skew (1)	Foundation (2)	Cost per Sq.Foot
I		Width at Least 45 feet	0 to 40 Degrees	No Piles	134.75
				Piles at Stub Abut.	159.75
				Piles at Piers & Stu	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stu	181.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 3 spans and 2 side spans (Max. Span 100 feet) (3)
H = Clear Height 14 feet (4)
L = under 400 feet

Class		Layout	Skew (1)	Foundation (2)	Cost per Sq.Foot
II		L exceeds W Area L x W exceeds 4500 Sq. Feet	0 to 40 Degrees	No Piles	176.5
				On Piles	187.25
			40 to 60 Degrees	No Piles	219.75
				On Piles	273.25
III		W exceeds L Area L x W exceeds 4500 Sq. Feet	0 to 40 Degrees	No Piles	226.75
				On Piles	299.25
			40 to 60 Degrees	No Piles	241.5
				On Piles	310
IV		Width 30 - 45 feet Area W x L under	0 to 40 Degrees	No Piles	295.5
				On Piles	396.75
			40 to 60	No Piles	318.25

		4500 Sq. Foot	Degrees	On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout		Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least		0 to 40	No Piles	157.00
40 feet		Degrees	Piles at Semi-Stub Abut.	182.00
			Piles at Piers & Semi-Stub Abut.	204.50
		40 to 60	No Piles	166.50
Minimum Length		Degrees	Piles at Semi-Stub Abut.	194.75
100 feet			Piles at Piers & Semi-Stub Abut.	217.50

				0
Length	Width	Cost per SF	Bridge Total	

1. For skews over 60 degrees it will be necessary to make a special analysis and establish a square foot price comparable to above.

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description		Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
			Sub Total	0
Clearing Site Bridge *0-3% of Sub Total				0
		%		
			BRIDGE TOTAL	0

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

Rural		0	364356	0
		project length (miles	x cost per mile	= Amount

Urban		0	544280	0
		project length (miles	x cost per mile	= Amount

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

	0	55	0
length of ramp or frontage rd. in feet		x cost per foot	= Amount

DRAINAGE TOTAL = 0

INCIDENTAL ITEMS

Item	Units	Cost	x Quantity	= Amount
Removal of Striping - CR546 + BTR (CR579)	LF	4.5	440	1980
Removal of Pavement Markings - CR546 +BTR	SQFT	8	62	496
Traffic Stripes, Long Life Epoxy	LF	4	440	1760
Traffic Markings (Bicycle, Stop Bar, Turn Arrows)	SQFT	6	71.25	427.5
Removal of Striping - CR546 + SR (CR611)	LF	4.5	590	2655
Removal of Pavement Markings	SQFT	8	46	368
Traffic Stripes, Long Life Epoxy	LF	4	703	2812
Traffic Markings (Bicycle, Stop Bar, Turn Arrows)	SQFT	6	57	342
Removal of Striping - CR546 + CR 632	LF	4.5	130	585
Removal of Pavement Markings	SQFT	8	112	896
Traffic Stripes, Long Life Epoxy	LF	4	165	660
Traffic Markings (Bicycle, Stop Bar, Turn Arrows)	SQFT	6	112	672
Removal of Striping - CR546 + FCR/STPH	LF	4.5	250	1125
Removal of Pavement Markings	SQFT	8	0	0
Traffic Stripes, Long Life Epoxy	LF	4	250	1000
Traffic Markings (Bicycle, Stop Bar, Turn Arrows)	SQFT	6	23	138
Removal of Striping - CR546 + FCR/KEEFE	LF	4.5	160	720
Removal of Pavement Markings	SQFT	8	365	2920
Traffic Stripes, Long Life Epoxy	LF	4	160	640
Traffic Markings (Bicycle, Stop Bar, Turn Arrows)	SQFT	6	23	138
				0
INCIDENTAL ITEMS TOTAL		=		20334.5

LANDSCAPE

		Quantity	x Unit Prices	= Amount
Topsoil and Seeding (Mainline) Length of Project in miles		0	112,815	0
Planting (Mainline) Length of Project in miles		0	64,500	0
Topsoil, Seeding, Planting (Finger Ramp Number of Finger Ramps		0	12,500	0
Topsoil, Seeding, Planting (Loop Ramp) Number of Loop Ramps		0	20,000	0
Topsoil, Seeding (Access Road) Length of Access Road in Feet		0	7.9	0
LANDSCAPE TOTAL		=		0

NOISE ABATEMENT

		Unit	Quantity	x Cost	= Amount
				305	0
					0
					0
					0
NOISE ABATEMENT TOTAL		=			0

GENERAL ITEMS

Item		Project Length (mile	x Cost/Mile	= Amount
Field Office		0	44,260	0
Materials Field Laboratory		0	28,970	0
Erosion Control during Construction		0	64,375	0
GENERAL ITEMS TOTAL		=		0

SUMMARY

Route	Hopewell/Lawrence	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #11 (118183)
PM	Del Vecchio	UPC No.	CR 546 Intersection Striping

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	20334.5
Landscape	0
Noise Abatement	0
General Items	0
PROJECT SUBTOTAL	20334.5

Other Items		Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators			0% of Proj. Subtotal	0	
Maintenance of Traffic			10% of Proj. Subtotal	2033	
Training			1% of Proj. Subtotal	203.345	
Mobilization				1830.105	
		Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		1830
		Project Cost 5.0 & above	10% of Proj. Subtotal		0
Progress Schedule		Project Cost(Mil.)	$	0	
		Less than 2.0	0		0
		2.0 to 5.0	6,000		0
		5.0 to 10.0	8,000		0
		10.0 to 20.0	15,000		0
		20.0 to 30.0	30,000		0
		30.0 to 40.0	40,000		0
		40.0 & above	58,000		0
Clearing Site		Project Cost (Mil.)	$	5000	
		Less than 1.0	15,000		15000
		1.0 to 2.0	30,000		0
		2.0 to 5.0	45,000		0
		5.0 to 10.0	115,000		0
		10.0 to 20.0	220,000		0
		20.0 to 30.0	240,000		0
		30.0 to 40.0	250,000		0
		40.0 & above	490,000		0
Construction Layout		Project Cost(Mil.)	$	2000	
		Less than 1.0	7,000		7000
		1.0 to 2.0	20,000		0
		2.0 to 5.0	42,000		0
		5.0 to 10.0	87,000		0
		10.0 to 20.0	160,000		0
		20.0 to 30.0	220,000		0
		30.0 to 40.0	490,000		0
		40.0 & above	890,000		0
			PROJECT TOTAL	31401	

CONTINGENCIES & ESCALATION			Y			
Y = Number of Years until midpoint of construction duration plus number of years until construction start. If midpoint is less than 2 years from the date of this estimate, no escalation is required. Maximum value = 10%			3.00		3.00	1.04
31401.4		1.030	1.04	33637		
Project Total		Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD		

Project Cost(Mil.)		Contingencies (C) Percent	Average Construction Duration in Years	
0-10		3%	1	0.030
10-20		2.50%	2	0.000
Over 20		2%	3	0.000

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)			% of Construction Cost	
Less than 1.0			31.10%	10461
1.0 to 5.0			20.30%	0.00
5.0 to 10.0			16.20%	0.00
10.0 & above			12.20%	0
CONSTRUCTION ENGINEERING AMOUNT			$10,461.16	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	6000
0.1 to 0.5	25,000	25000
0.5 to 5.0	25,000 + 4% of amount in excess of $500,000	0
5.0 to 10.0	205,000 + 3% of amount in excess of $5,000,000	0
10.0 to 15.0	355,000 + 2% of amount in excess of $10,000,000	0
15.0 and above	455,000 + 1.5% of amount in excess of $15,000,000 - max $	0
		0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = 6000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

Construction Cost for Initial Estimate		Use % or utilities detailed estimate	for Urban use 0.12, Rural 0.055 or + Estimate = Utility Relocation Cost for Initial Estimate
33637		0	NO UTILITIES

If there are no utility relocations on the project indicate “No Utilities” in the box above.

RIGHT OF WAY COST NO ROW

If there is no ROW cost on the project indicate “No ROW” the box

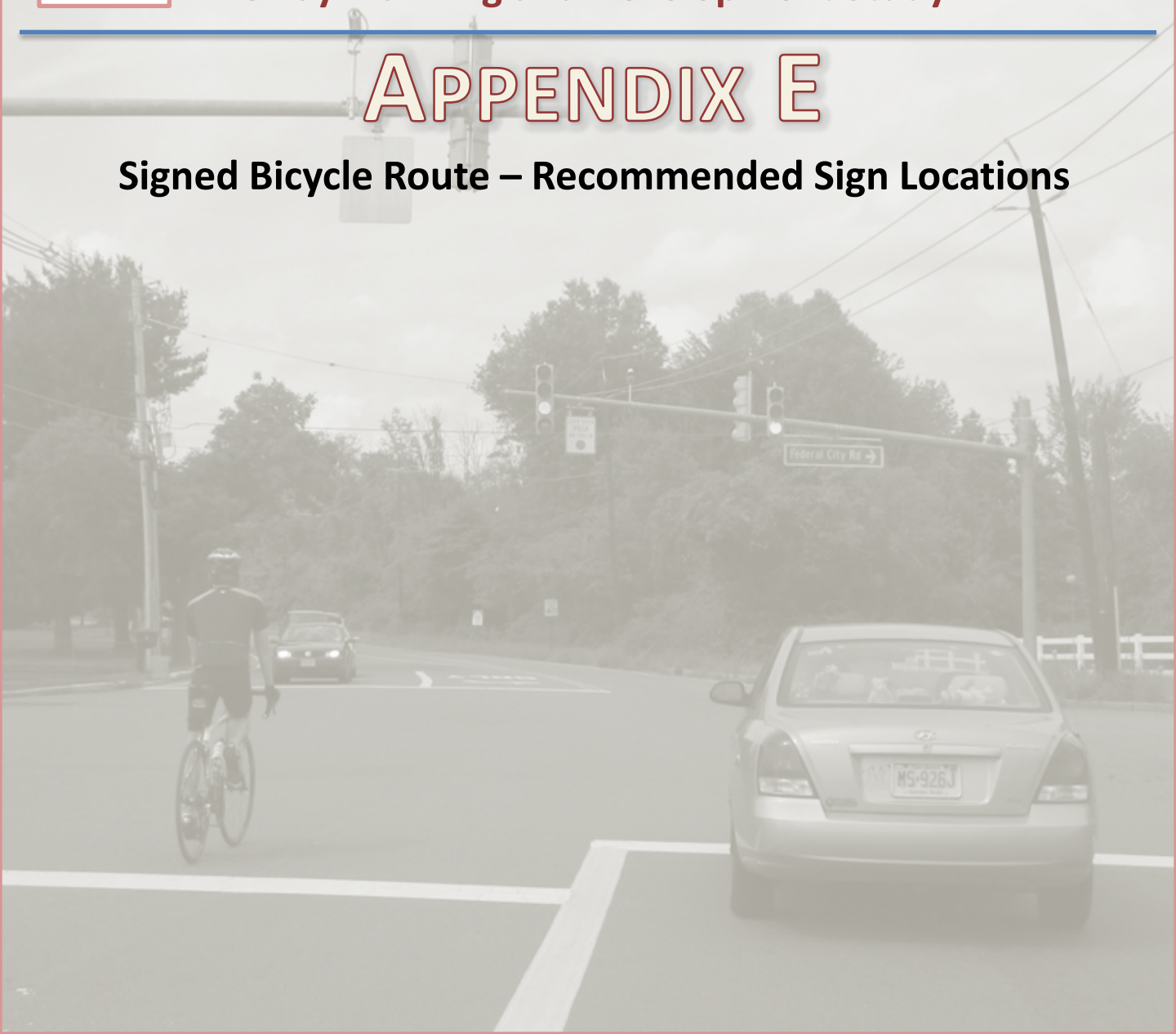
SUMMARY

Construction Estimate for Initial	33637
Construction Engineering (CE)	10461
Contingencies	6000
Utilities Relocations	NO UTILITIES
Total Construction Cost	50098
Right of Way Cost	NO ROW

County Route 546
Bikeway Planning and Development Study

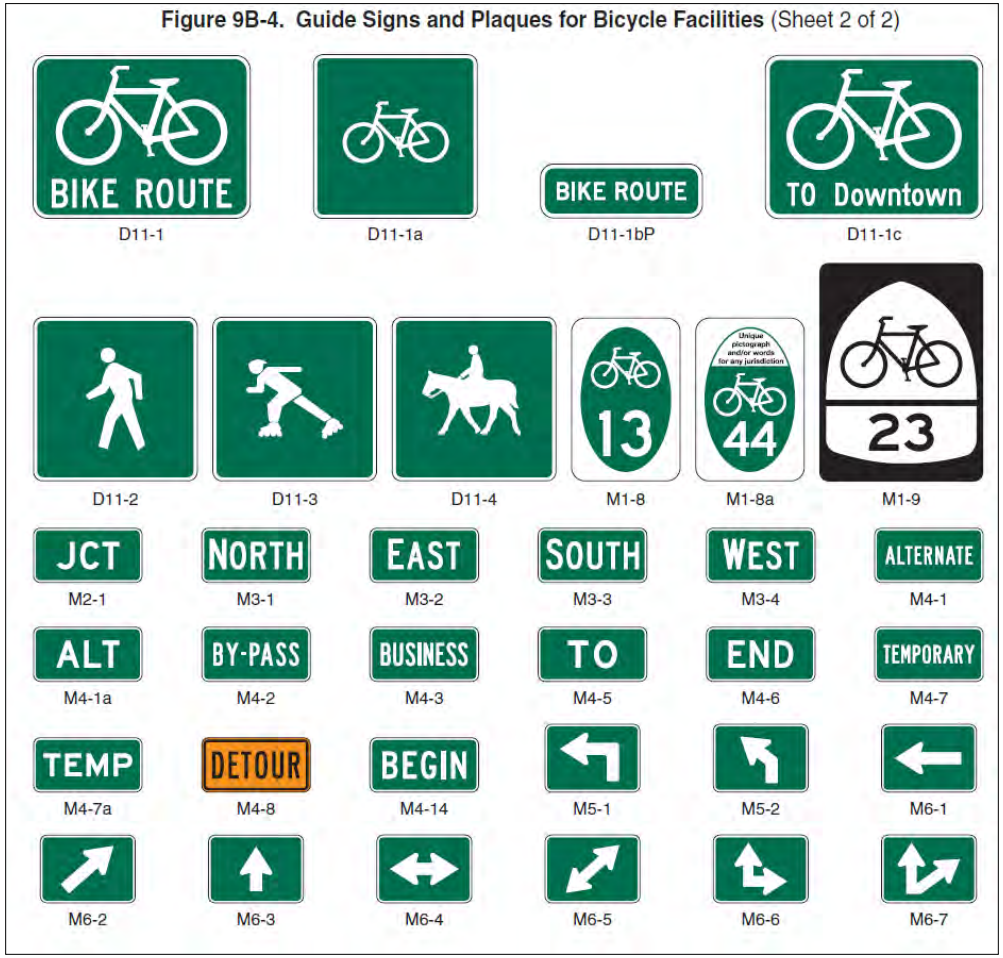
Appendix E

Signed Bicycle Route – Recommended Sign Locations



The signed bicycle route on CR 632, CR 640, and CR 631 connecting to Pennington Borough would utilize bicycle guide signs as detailed in 2009 MUTCD Section 9B.20. The guide signs are included below and illustrated in graphics on the following pages.

Additionally, the 'Begin' and 'End' plaques on the guide signs could be replaced with specific destination information. Examples of this sign treatment are also included below.



Bicycle Guide Signs from 2009 MUTCD Section 9B.20 (pg. 799)

Example of Bicycle Guide Signs with Destination Information


INSTALL BICYCLE ROUTE SIGNAGE
(D11-1, M4-6)
631
COUNTY
INGLESIDE AV
BIKE ROUTE
END
WASHINGTON CROSSING-
PENNINGTON RD
546
COUNTY
BIKE ROUTE
BEGIN
INSTALL BICYCLE ROUTE SIGNAGE
(D11-1, M4-14, M5-1)
REED RD


INSTALL BICYCLE ROUTE SIGNAGE
(D11-1, M4-6)
631
COUNTY
INGLESIDE AV
BIKE ROUTE
END
WASHINGTON CROSSING-
PENNINGTON RD
546
COUNTY
BIKE ROUTE
BEGIN
INSTALL BICYCLE ROUTE SIGNAGE
(D11-1, M4-14, M5-1)
REED RD


INSTALL BICYCLE ROUTE SIGNAGE
(D11-1, M6-3)
31
BIKE ROUTE
INGLESIDE
INSTALL BICYCLE WARNING SIGNAGE
(W11-1)
INSTALL BICYCLE WARNING SIGNAGE
(W11-1)
BIKE ROUTE
631
COUNTY
NJ 31
INSTALL BICYCLE ROUTE SIGNAGE
(D11-1, M6-3)


BURD ST
INSTALL BICYCLE ROUTE SIGNAGE
(D11-1, M6-1)
BIKE ROUTE
INGLESIDE AV
BIKE ROUTE
INSTALL BICYCLE ROUTE SIGNAGE
(D11-1, M6-1)
631
COUNTY


INSTALL BICYCLE WARNING SIGNAGE (W11-1)
640 COUNTY
S. MAIN ST
INSTALL BICYCLE ROUTE SIGNAGE (D11-1, M5-1)
BIKE ROUTE
INSTALL BICYCLE WARNING SIGNAGE (W11-1)
631 COUNTY
INGLESIDE AV
BIKE ROUTE
INSTALL BICYCLE ROUTE SIGNAGE (D11-1, M6-1)

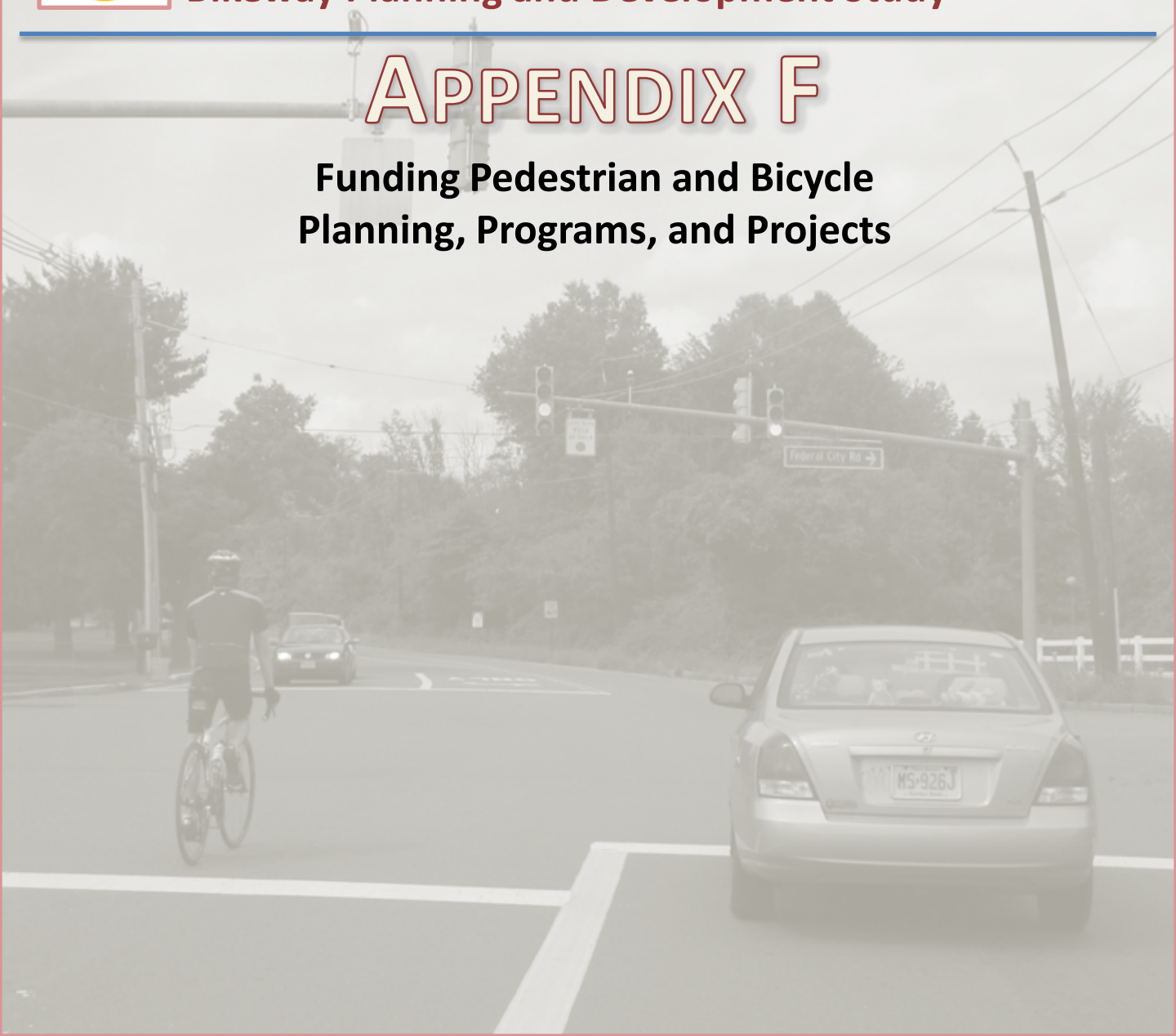

INSTALL BICYCLE WARNING SIGNAGE (WI11-1)
S. MAIN ST
640 COUNTY
BIKE ROUTE
INSTALL BICYCLE ROUTE SIGNAGE (D11-1, M5-2)
INSTALL BICYCLE ROUTE SIGNAGE (D11-1, M6-3)
BIKE ROUTE
INSTALL BICYCLE WARNING SIGNAGE (WI11-1)
632 COUNTY
LAWRENCEVILLE-PENNINGTON RD
INSTALL BICYCLE WARNING SIGNAGE (WI11-1)


INSTALL BICYCLE ROUTE SIGNAGE
(D11-1, M4-14, M6-3)
BLACKWELL RD
632
COUNTY
LAWRENCEVILLE-
PENNINGTON RD
BIKE ROUTE
END
BIKE ROUTE
BEGIN
INSTALL BICYCLE ROUTE SIGNAGE
(D11-1, M6-3)
546
COUNTY
546
COUNTY

County Route 546
Bikeway Planning and Development Study

Appendix F

Funding Pedestrian and Bicycle Planning, Programs, and Projects



Alan M. Voorhees Transportation Center

Funding Pedestrian and Bicycle Planning, Programs and Projects:

A Compilation of Funding Sources

prepared by:
New Jersey Bicycle and Pedestrian Resource Center

prepared for:
New Jersey Department of Transportation

funded by:
Federal Highway Administration

January 2009

RUTGERS
Edward J. Bloustein School of Planning and Public Policy

Introduction/Acknowledgements

This paper presents a compilation and brief description of sources of funding that have been used, or could be, to fund pedestrian and bicycle improvements in New Jersey. The list is not exhaustive, but there has been an attempt to identify all major funding sources that can be utilized to fund bicycle and pedestrian planning and project development activities, as well as construction. In some cases these funds may also be used to fund programmatic activities. The paper emphasizes those funding sources that have been utilized in, or are unique to, New Jersey.

Much of the material for the original version of this paper was taken directly from a previous draft called, "Funding Pedestrian and Bicycle Planning, Programs and Projects" that was originally taken from both the "Memorandum on Funding Sources for Innovative Local Transportation Projects" prepared by the Tri-State Transportation Campaign, and a paper on bicycle and pedestrian funding within ISTEA prepared by the Bicycle Federation of America. Virtually all of the funding sources that were available for bicycle or pedestrian projects or planning under ISTEA and TEA-21 have been continued under the new federal transportation funding legislation, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Additional material has been taken from the USDOT publication "A Summary: Bicycle and Pedestrian Provisions of the Federal-Aid Program" and from the Alan M. Voorhees Transportation Center "NJ Walks and Bikes!: A Partner's Guide to Who's Who in Walking and Biking in New Jersey."

This paper is a work in progress to be updated as new sources are identified.

Table of Contents

Funding of *Planning and Programmatic Activities*

Federal and/or State Funded Programs

Subregional Studies Program
This program provides federal grants for consultant-based planning, engineering, design, and evaluation of transportation projects. The funding is for studies, not capital improvements or operating costs. Applicants for grants can include state or local governmental entities. Funding can be, and has been, used to fund pedestrian and bicycle planning activities. For example, Monmouth County has received approval to carry out a planning study to address pedestrian needs and opportunities in several major corridors in the County. Additionally, Somerset County has received funding for a traffic calming study of selected locations in the county. Contact your regional MPO for more information. The North Jersey Transportation Planning Authority subregions served are the counties of Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union and Warren as well as Jersey City and Newark. More information is available at www.njtpa.org. The South Jersey Transportation Planning Authority serves Atlantic, Cape May, Cumberland and Salem counties and is available at www.sjtpo.org. The Delaware Valley Regional Planning Commission serves Burlington, Camden, Gloucester and Mercer counties and is available at www.dvrpc.org.

Supportive Task Grants
A portion of funds given to NJTPA to support planning activities are passed through to the sub-regions (counties) to fund staff planning activities. The Subregional Study Program funds studies assessing accessibility and mobility issues. For fiscal year 2008-2009 grants totaled approximately $2.4 million. Somerset County has used this to fund the "Somerset County Regional Center Pedestrian, Bicycle and Greenway Systems Connection Plan", intended to improve pedestrian, bike and greenway connections between community facilities.

Transportation Management Associations (TMAs)
In New Jersey, Transportation Management Associations receive substantial funding assistance through the Department of Transportation. In recent years, these funds have been from federal sources (CMAQ, or STP) although in the past, funding came from state sources. TMAs have considerable latitude in developing annual work programs to implement Travel Demand Management strategies. TMAs have carried out and are encouraged to continue to develop and undertake work program elements involving the promotion of bicycling and walking including development of bicycling suitability maps, promotional efforts aimed at increasing bicycling and walking, effective cycling presentations and other activities. For example, Keep Middlesex Moving sponsors the annual Bike to Work Week.

New Jersey TMA Contact Information

CROSS COUNTY CONNECTION TMA
Greentree Executive Campus
2002D Lincoln Drive West
Marlton, NJ 08053

Ph: 856-596-8228
Fax: 856-983-0388
Email: ccctma@driveless.com
www.driveless.com

GREATER MERCER TMA
15 Roszel Road South, Suite 101
Princeton, NJ 08540
Ph: 609-452-1491
Fax: 609-452-0028
www.gmtma.org

HUDSON TMA
574 Summit Avenue
5th Floor
Jersey City, NJ 07306
Ph: 201-792-2825
Fax: 201-795-0240
Email: info@hudsontma.org
www.hudsontma.org

HART COMMUTER INFORMATION SERVICES
84 Park Avenue, Suite E-104
Flemington, NJ 08822
Ph: 908-788-5553
Fax: 908-788-8583
Email: info@hart-tma.com
www.hart-tma.com

KEEP MIDDLESEX MOVING
100 Bayard Street, 2nd Floor, Suite 202
New Brunswick, NJ 08901
Ph: 732-745-4465
Fax: 732-745-7482
Email: kmm@kmm.org
www.kmm.org

MEADOWLINK RIDESHARING
C/O Meadowlands Regional Chamber of Commerce
201 Route 17 N
Rutherford, NJ 07070
Ph: 201-939-4242
Fax: 201-939-2630
Email: info@meadowlink.org
www.meadowlink.org

RIDEWISE OF RARITAN VALLEY
360 Grove Street
Bridgewater. NJ 08807
Ph: 908-704-1011
Email: staff@ridewise.org
www.ridewise.org

TRANSOPTIONS
2 Ridgedale Avenue, Suite 200
Cedar Knolls, NJ 07927
Ph: 973-267-7600
Fax: 973-267-6209
www.transoptions.org

Local Transportation Planning Assistance Program (LTPA)
This program makes professional transportation planning consultants available to municipalities wishing to implement the State's Smart Growth land use and transportation policies. The program is designed to help municipalities and counties with planning initiatives that will preserve the long term integrity of the state transportation system, as well as to enhance community quality of life objectives. Through the transportation and land use planning experts under contract with the Department, municipalities are able to develop or update local circulation elements, conduct downtown traffic calming and parking management studies, develop access management plans, and plan for improved bicycle, pedestrian and local transit services. Potential and designated Transit Villages, Transit Oriented Developments, and municipalities participating in the State's Office of Smart Growth Plan Endorsement Process receive highest priority.

The LTPA program is administered by the Division of Local Aid and Economic Development, Local Transportation Planning Assistance Unit. For more information please contact Helene Rubin, Section Chief, LTPA Unitat 609-530-2869, Helene.Rubin@dot.state.nj.us or Mike Russo, Director, Local Aid and Economic Development
at 609-530-3640, Michael.Russo@dot.state.nj.us.

Bicycle/Pedestrian Planning Assistance
This program provides NJDOT consultant support designed to develop local pedestrian/bicycle circulation plans and facility inventories. The program provides municipalities with consultant expertise in the professional disciplines of transportation and pedestrian/bicycle planning to develop local circulation elements and other transportation related planning initiatives. Potential and designated State Development and Redevelopment Plan Centers, target neighborhoods under the Urban Strategies Initiatives and improving bicycle and pedestrian access and safety locations receive priority. Assistance is to be provided under a partnership arrangement, and applicants must commit staff and or/financial resources to these efforts. All studies undertaken must have a public outreach aspect, including continuing involvement by both the official representatives of the municipality as well as participation by local citizens. This program is administered by the Division of Statewide Planning, Bureau of Commuter Mobility Strategies.

For more information please contact Sheree Davis, Manager of Commuter Mobility Strategies via email at sheree.davis@dot.state.nj.us.

Smart Future Planning Grants
The Smart Future Planning grant program, formerly known as Planning Assistance for Counties and Local Agencies, is administered through the Department of Community Affairs, Office of Smart Growth. The program provides money for municipalities, counties and regional organizations to develop plans that lead to smart growth objectives and create investment opportunities for communities. The grants are designed to promote the principles of smart growth by providing funding and technical assistance so that a county or municipality can develop and implement plans that add to the overall value of their communities. The value added comes from coordinating land use, transportation, parks and recreation, environmental protection, farmland preservation, health, schools and other land uses, so that communities can deliver services more efficiently as well as take full advantage of their positions in the region. Hudson County received a Smart Future grant in 2001 to support a Regional Strategic and Open Space Action Plan to focus on construction of the Waterfront Walkway along the Hudson River through seven Hudson County towns. Similar planning projects to improve the pedestrian or bicycle environment could be proposed by other counties or municipalities.
Each year, our grant categories change. For more information, visit http://www.nj.gov/dca/divisions/osg/programs/grants.html; visit SAGE at https://njdcasage.state.nj.us/portal.asp or call 609-292-7156.

Small Cities Development Block Grant
This grant provides funds for economic development, housing rehabilitation, community revitalization, and public facilities designed to benefit people of low and moderate income or to address recent local needs for which no other source of funding is available. For further information, visit http://www.state.nj.us/dca/dcr/sccdbg/index.shtml or contact Richard Z. Osworth at rosworth@dca.state.nj.us or (609) 633-6263.

New Jersey Historic Trust
The Historic Trust provides matching grants, loans and protection for New Jersey's historic resources. Funding assistance is limited to certified nonprofit organizations and units of local or county governments. Funding programs include, the Garden State Historic Preservation Fund, Revolving loan fund and the Cultural Trust Capital Preservation Grant Program. Private owners of historic resources may benefit from the Trust's easement or New Jersey Legacies programs. For more information, visit: http://www.njht.org or telephone (609) 984-0473.

New Jersey Redevelopment Authority (NJRA)
The New Jersey Redevelopment Authority (NJRA) is committed to revitalizing urban New Jersey as demonstrated in Governor Jon S. Corzine's Economic Growth Strategy. This strategy ensures that economic growth benefits all cities and regions of the state creating new economic opportunities for New Jersey citizens.

The mission of the New Jersey Redevelopment Authority (NJRA) supports the Governor's goal to support the resurgence of the state's cities by providing the necessary financial and technical tools to grow and revitalize neighborhoods.

It is NJRA's unique approach to revitalization that allows for the creation of programs and resources that improve the quality of life by creating value in urban communities. NJRA makes it mark in cities throughout the state by investing in comprehensive redevelopment projects that contribute to an improved quality of life.

The NJRA provides many resources, critical to the redevelopment process in the form of loans, loan guarantees, bond financing, and equity investments. The NJRA's remains flexible and responsive to ensure successful redevelopment throughout New Jersey. To date the NJRA has committed to invest more than $330 million in New Jersey's urban communities, leveraging over $2.9 billion in private sector investments.

Authority Resources

NJRA Pre-Development Fund ("NJRA PDF")
The NJRA PDF is a $2.5 million financing pool that provides funding to cover various predevelopment activities, including feasibility studies, architectural costs, environmental and engineering studies, legal and other related soft costs for development to occur. This program offers the flexibility to structure financing at the early stages of development. The NJRA PDF increases the availability of funding for community economic development projects within the NJRA's eligible municipalities.

New Jersey Urban Site Acquisition Program ("NJUSA")
The NJUSA Program is a $20 million revolving loan fund that facilitates the acquisition, site preparation and redevelopment of properties, which are components of an urban redevelopment plan in NJRA-eligible communities. Acting as a catalyst to jump-start urban revitalization efforts, the NJUSA Program provides for-profit and nonprofit developers and municipalities with a form of bridge financing to acquire title to property and for other acquisition-related costs.

NJRA Bond Program
The NJRA issues bonds at attractive interest rates to a broad range of qualified businesses and nonprofit organizations. The NJRA has the ability to issue both taxable and tax-exempt bonds to stimulate revitalization in New Jersey's urban areas.

New Jersey Redevelopment Investment Fund ("RIF")
The NJRA manages this flexible investment fund that provides debt and equity financing for business and real estate ventures. Through the RIF Program, the NJRA offers direct loans, real estate equity, loan guarantees and other forms of credit enhancements.

NJRA Environmental Equity Program ("E^2P")
The E^2P Program advances brownfields efforts by providing up-front capital to assist with the predevelopment stages of brownfields redevelopment projects. E^2P funds assist with site acquisition, remediation, planning, and demolition costs associated with brownfields redevelopment projects.

Working in Newark's Neighborhoods ("WINN")
WINN is a $10 million revolving loan program focused on redevelopment efforts in the City of Newark's neighborhoods. Funds from WINN can be used for commercial and mixed-use projects directly related to comprehensive redevelopment initiatives including: pre-development, site preparation, acquisition, demolition, permanent financing, loan guarantees and construction financing.

NJRA Redevelopment Training Institute
The NJRA Redevelopment Training Institute (NJRA RTI) offers intensive intermediate-level training courses that focus on the redevelopment of New Jersey's communities. NJRA RTI is designed to provide nonprofit and for-profit developers, professional consultants, entrepreneurs and city/county staff with a body of knowledge of the redevelopment and real estate development process. The goal of NJRA RTI is to provide classroom instruction outlining the nuances of the redevelopment planning process in New Jersey, to focus on the real estate development process and to unlock the key to understanding real estate finance.

Contact: New Jersey Redevelopment Authority
150 West State Street, Second Floor
P.O. Box 790
Trenton, NJ 08625
Phone: 609-292-3739
Fax: 609-292-6070
Web site: www.njra.us
E-mail: njra@njra.state.nj.us

Freshwater Wetlands Mitigation Council
The Freshwater Wetlands Mitigation Council's role in the state's wetland mitigation program is to serve as a repository for land donations and monetary contribution collected as a result of freshwater wetlands/state open water impacts that cannot be mitigated for on-site, off-site, or at a wetland mitigation bank. The Council also reviews and approves freshwater wetland mitigation banks. Furthermore, the Council is responsible for the management and disbursement of dollars from the Wetland Mitigation Fund to finance mitigation projects. With those funds, the council has the power to purchase land to provide areas for enhancement or restoration of degraded freshwater wetlands, to engage in the enhancement or restoration of degraded freshwater wetlands and transition areas determined to be of critical importance in protecting freshwater wetlands. For more information, contact the council at (609)777-0454 or Jill.Aspinwall@dep.state.nj.us or visit www.nj.gov/dep/landuse/fww/mitigate/mcouncil.html.

Other sources of funding

Bicycle and pedestrian planning activities and programs can and have been funded through local funds budgeted through county and municipal budgets.

Funding of *Projects*

Federal Funding Under SAFETEA-LU

All the major funding programs under SAFETEA-LU include bicycle and pedestrian facilities and programs as eligible activities.

Division of Local Aid and Economic Development
The Division of Local Aid and Economic Development oversees the development and authorization of funds in the Capital Program, Statewide Transportation Improvement Program, and Study and Development Program. The division also manages problem statements for NJDOT. Staff members work with county and municipal government officials to improve the efficiency and effectiveness of the state's transportation system. The SAFETEA-LU legislation has provided funding assistance to local governments for roads, bridges, and other transportation projects. For more information, telephone (609) 530-3640 or visit http://www.state.nj.us/transportation/business/localaid/funding.shtm.

National Highway System (NHS)
The NHS is comprised of the 42,000-mile Interstate system and another 113,000 miles of roads identified by the states based on their importance to the national and regional economy, defense and mobility. NHS funding for projects on NHS roadways can be used for bicycle and pedestrian improvements on NHS systems highways, or on land adjacent to any NHS system highway, including interstate highways. This includes incidental improvements within larger projects which enable bicycle compatibility such as paved shoulders and bicycle safe drainage grates, designated bicycle facilities such as bikeways, signed routes, bike lanes and paths, and pedestrian accommodations such as sidewalks, signals, overpasses and crosswalks. It also includes funding of independent bicycle and pedestrian projects (projects that are initiated primarily to benefit bicycle and pedestrian travel) along or in the vicinity of NHS roadways. Projects could include shoulder paving, bicycle safe drainage grates, construction of sidewalks or bikeways, installation of pedestrian signals, crosswalks or overpasses.

Surface Transportation Program (STP) Funds
The program is broadly defined and gives states flexibility to invest in a wide variety of transportation activities. Bicycle and pedestrian facilities and walkways are specifically listed as eligible activities under this program. As with NHS, pedestrian and bicycle improvements may be incidental improvements within larger projects which establish bicycle compatibility or designated bicycle and pedestrian accommodations. The funds can also be used for independent bicycle and pedestrian projects along or in the vicinity of roadways. Projects could include shoulder paving, bicycle safe drainage grates, construction of sidewalks or bikeways, installation of pedestrian signals, crosswalks or overpasses. Under SAFETEA-LU, it is specified that these funds may be used for the modification of sidewalks to comply with the Americans with Disabilities Act.

It should be noted that STP funds may be used for non-construction projects (such as maps,

brochures and public service announcements) related to safe bicycle use and walking. These funds are administered partially through NJDOT and partially through the state's Metropolitan Planning Organizations (MPOs).

STP Resources

Local Scoping and Local Lead Projects
The Local Scoping program (in the MPOs) provides a set aside of federal (STP) funds directly to the sub regions for the advancement of project proposals through the NEPA process, ultimately making that project eligible for inclusion in the Statewide Transportation Improvement Program, STIP (as a Local Lead project). The Local Lead Program provides funding to move projects from final design to construction. Local Scoping and Lead projects are selected via a competitive selection process.

Municipalities are eligible for the Local Scoping Program but must work through their appropriate sub region. Projects must be part of the National Highway System or be designated a Federal Aid route. A project is considered to be "Scoped" when it has received an approved environmental document, and a scoping Report including any design exceptions and that the preliminary engineering is completed. An important aspect of Scoping is the public involvement process that is required under NEPA. A decision to either advance a project for inclusion in the STIP and an eventual final design, right-of-way purchase and construction, or a decision to discontinue the project will be the result of the Scoping process. If a decision is made to advance the project to construction, funding will be provided either through the Local Lead Program, the New Jersey Department of Transportation, or other sources. A completed Scoping project does not guarantee construction funding.

The Local Lead program is an opportunity for sub regions to apply for federal funding for the advancement of projects through final design, right-of-way, and/or construction. This is a highly competitive program. The MPOs select the projects for inclusion in the Program. Applications are evaluated on a myriad of factors including but not limited to whether the project improves air quality, reduces travel time, reduces congestion, optimizes capacity, creates a community of place, etc.

Each of these sources of funds can be used to advance bicycle or pedestrian projects. As yet, only a handful of Local Scoping/Local Lead projects have directly addressed non-motorized needs as independent projects. Local Scoping/Local Lead projects can also benefit the non-motorized modes if they incorporate, incidentally, features that address bicycle and pedestrian travel needs. Contact your MPO for more information.

Transportation Enhancement Program
Ten percent of annual STP funds are set aside to support non-traditional transportation projects whose objectives support more livable communities, enhance the travel experience, and promote new transportation investment partnerships. The Transportation Enhancement Program links state and federal policy. It focuses on transportation projects

designed to preserve and protect environmental and cultural resources, and to promote alternative modes of transportation.

The grants are used to help local governments creatively integrate transportation facilities into their local surroundings. Two of the possible kinds of projects that can be funded with these grants are directly related to pedestrian and bicycle facilities and activities, and several others are indirectly related. The types of projects that can qualify include "provision of facilities for pedestrians and bicycles" and "provision of safety and educational activities for pedestrians and bicyclists." Others include "acquisition of scenic easements and scenic or historic sites," which could be used to enhance the pedestrian experience, "landscaping and other scenic beautification", which might be part of a streetscape project that can be beneficial to pedestrians and "preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian and bicycle trails)." The grants can also be used for other types of projects, which may have a more indirect or secondary benefit for bicyclists and pedestrians.

Several restrictions apply to the grants. Proposals must be for a complete, identifiable, and usable facility or activity. Funds are used for design, property acquisition or construction of projects. The proposed bicycle and pedestrian facilities cannot be solely for recreation; they must be proposed as transportation facilities. The projects must be ready for implementation or construction within two years after the project is selected for a grant. The proposal must also show, through an attached resolution or letter, that the facility or project will be maintained for at least 20 years. The proposal should show that the entire project would be wholly funded, either in combination with other funding sources, or solely through this grant program. Grants from this program can be used as matching funds; projects with supplemental funding will be given higher priority. Work that is performed before the project is formally approved by the Federal Highway Administration (FHWA), such as surveys, preliminary engineering or final design, will not be funded through the program.

Additionally, NJDOT analyzes user impact when evaluating proposals. Especially helpful to communities that are trying to make their environments more pedestrian and bicyclist friendly is the fact that NJDOT takes into consideration how the project would promote the use of non-automotive forms of transportation. Furthermore, the projects' urgency will be taken into consideration, such as a project that will lose other funding sources should it not receive matching funds. Finally, Urban Aid communities, proposals that include letters of community support and projects that have an economic benefit or have value as a cultural resource will also be given additional consideration.

Local agencies and non-profit groups can also apply for grants, but they need to have their projects endorsed by the governing board in the municipality in the form of a resolution. Regional projects must have both municipal and county endorsement. The projects must also conform to the National Environmental Policy Act, the National Historic Preservation Act and the Department of Transportation Act, Section 4(f). The projects must also be designed to meet American Association of State Highway and

Transportation Officials (AASHTO) standards and NJDOT's Planning and Design Guidelines for Bicycle and Pedestrian Facilities, the American Disabilities Act, state and local building codes, and other applicable professional design standards. All projects funded through this program are subject to the NJDOT policy requiring that bicycle and pedestrian traffic should be incorporated into the planning, design, construction and operation of all projects and programs funded or processed by the NJDOT.

These grants are funded through the federal SAFETEA-LU Act. Applications are submitted to the New Jersey Department of Transportation (DOT) and reviewed by several state agencies, including the DOT and the Department of Environmental Protection, as well as the Metropolitan Planning Organizations (MPOs) and representatives from outside the traditional transportation group. This committee reviews the applications and creates a short list to be submitted to the Commissioner of Transportation. Those applications that pass the basic eligibility part of the screening process are sent to the county planning department for the county perspective. Applicants should notify the county planning department about the proposed project. The funds are distributed on a reimbursement basis.

Hazard Elimination Program

Ten percent of the STP program is to be used to fund safety projects. The Local Safety Program provides $3 M ($1 M per MPO) annually to counties and municipalities for the improvement of known safety hazards on local and county roadways. Projects will focus on crash prone locations and may include but not be limited to intersections and other road improvements including installation and replacement of guide rail and pavement markings to enhance pedestrian and vehicular safety. These safety improvements are construction ready and can be delivered in a short period of time. Funding is provided for safety-oriented improvements. Improvements that either directly or indirectly improve conditions for pedestrians can be funded. In New Jersey, the program is administered by the NJDOT Bureau of Traffic Engineering and Safety (in the near future it will be transferred to a new Bureau of Safety Programs). In general, projects are selected on the basis of excessive occurrence of a particular accident type at a given location. This often involves some sort of intersection modification, such as resurfacing with a skid resistant pavement surface. In some cases safety improvements have included the installation of pedestrian signal heads. NJDOT is revising its project selection process. The new process will include specific accident categories for which projects are to be funded. One of these categories will be pedestrian-related accidents.

Sources: "Funding Bicycle and Pedestrian Projects in New Jersey: A guide for Citizens, Cities and Towns" by the Tri-State Transportation Campaign- October 1999;
http://www.fhwa.dot.gov/environment/bikeped/bp-broch.htm

Safe Routes to School
Safe Routes to School (SRTS) is a Federal-Aid program created in SAFETEA-LU and administered by State Departments of Transportation. The program provides funds to the States to substantially improve the ability of primary and middle school students to walk and bicycle to school safely. The purposes of the program are to enable and encourage children to walk and bicycle to school, to make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age; and to facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity (approximately 2 miles) of primary and middle schools (Grades K-8). The program encompasses a comprehensive approach that includes the five E's: Engineering, Education, Enforcement, Encouragement, and Evaluation. Counties and municipalities, school districts, and non-profit organizations will be eligible to apply. The New Jersey Department of Transportation awarded the first SRTS grants in July 2007 and announced the second round of grant applications in January 2008. For more information, contact Elise Bremer-Nei, New Jersey Safe Routes to School Coordinator, at (609) 530-2765.

Local Aid for Designated Transit Villages
NJDOT and NJ TRANSIT spearhead a multi-agency Smart Growth partnership known as the Transit Village Initiative. The Transit Village Initiative helps to redevelop and revitalize communities around transit facilities to make them an appealing choice for people to live, work and play, thereby reducing reliance on the automobile. The Transit Village Initiative is an excellent model for Smart Growth because it encourages growth in New Jersey where infrastructure and public transit already exist. Aside from Smart Growth community revitalization, two other goals of the Transit Village Initiative are to reduce traffic congestion and improve air quality by increasing transit riders.

Studies have shown that an increase in residential housing options within walking distance of a transit facility, typically a one quarter to one half mile radius, does more to increase transit ridership than any other type of development. Therefore, it is a goal of the Transit Village Initiative to bring more housing, more businesses and more people into communities with transit facilities. Programs include bicycle/pedestrian paths, bike routes signs, bicycle parking, and storage and bicycle/pedestrian safety education program. For more information, visit http://www.state.nj.us/transportation/community/village or contact Monica Etz at (609) 530-5957.

The Congestion Mitigation and Air Quality Improvement Program (CMAQ*)*
Authorized by SAFETEA-LU, The Congestion Mitigation and Air Quality Improvement Program provides funds for surface transportation and other projects that help to reduce congestion and improve air quality. The funds are mainly used to help communities in non-attainment areas and maintenance areas to reduce emissions. Non-attainment areas are those areas designated by the Environmental Protection Agency as not meeting the National Ambient Air Quality Standards (NAAQS). A maintenance area was once a non-attainment area but has now reached NAAQS. The SAFETEA-LU CMAQ program provides more than $8.6 billion in funds to State Departments of Transportation (DOT), Metropolitan Planning Organizations

(MPO), and transit agencies to invest in emissions-reducing projects. Pedestrian and Bicycle Programs are two kinds of many programs that can be funded using CMAQ funds.

Bicycle and pedestrian programs that can be funded under this program can come in one of many forms. Some include creating trails or storage facilities or marketing efforts designed to encourage bike riding and walking as forms of transportation. Education and outreach programs are also eligible for CMAQ funds and could be used to increase public knowledge about the benefits of biking and walking.

The funds are made available through the MPOs and NJDOT to local governments and non-profit organizations, as well as to private organizations as part of a public-private partnership CMAQ funds are only released as reimbursement payments for completed work. CMAQ funds require a state or local match. Usually, this breaks to 80% federal funding, subject to sliding scale, and 20% state or local funding.
Source: "The Congestion Mitigation and Air Quality Improvement Program" by the U.S. Department of Transportation, FHWA, Federal Transit Administration

National Recreational Trails Program (Symms Trails System Act)
An annual sum is apportioned to the states for use in developing trails related projects, many of which benefit bicyclists and pedestrians. Funding is from federal motor fuels taxes collected on sale of fuel for motorized recreational vehicles (ATVs, off road motorcycles, snowmobiles) and is administered through the Federal Highway Administration. In New Jersey, the program, including solicitation of projects and project selection, is administered by the Office of Natural Lands Management in the Division of Parks and Forestry. State, county, and local governments and non-profit organizations are eligible for funds.

In 2008, New Jersey will receive approximately $1,000,000 for trail projects. The deadline for submitting applications for 2008 was December 15, 2007. Next year's application and additional information can be obtained from Larry Miller at 609-984-1339, larry.miller@dep.state.nj.us or http://www.state.nj.us/dep/parksandforests/natural/njtrails.html.

Scenic Byways
This program recognizes roads having outstanding scenic, historic, cultural, natural, recreational, and archaeological qualities and provides for designation of these roads as National Scenic Byways, All-American Roads or America's Byways. Funds for this program can also be used in the development and provision of tourist implementation; and construction of bicycle and pedestrian facilities, interpretive facilities, overlooks and other enhancements for byway travelers. Designation of the scenic byway must be in accordance with a Scenic Byways program developed and adopted by the state.

Benefits of adoption as a Scenic Byway under the Program could include direct funding of projects and preferential treatment in the funding/selection process for other funding sources administered by the Department.

Section 402 Safety Funds
These funds are administered jointly by the National Highway Traffic Safety Administration

(NHTSA) and the Federal Highway Administration (FHWA) to be spent on non-construction activities to improve the safety of the traveling public. Pedestrian and bicycle projects are on the NHTSA priority list. In each state, the program is administered by a designated Highway Safety representative. In New Jersey, the designated representative is the Director of the Division of Highway Traffic Safety in the Department of Law and Public Safety.

Federal Transit Administration Funds
Title 49 U.S.C. (as amended by TEA-21) allows the Urbanized Area Formula Grants, Capital Investment Grants and Loans, and Formula Program for Other than Urbanized Area transit funds to be used for improving bicycle and pedestrian access to transit facilities and vehicles.

SAFETEA-LU continues the Transit Enhancement Activity program with a 1% set-aside of Urbanized Area Formula Grant funds designated for, among other things, pedestrian access and walkways and bicycle access, including storage equipment and installing equipment for transporting bicycles on mass transit vehicles.

Federal Community Development Block Grant (CDBG) Program

Community Development Block Grants (CDBG) are for the use of local communities serving low- to moderate-income people. These grants are funded through the U.S. Department of Housing and Urban Development and administered by the Office of Block Grant Assistance in HUD's Office of Community Planning and Development (CPD). The grants are most often used for projects such as rehabilitating or constructing affordable housing or for job-creating economic development, but they can also be used for projects that would benefit low- and moderate- income pedestrians and bicyclists. Several of the types of projects that can be funded with these grants could be used for pedestrian and bicycle activities. These include acquisition of land for some public purpose, building public improvements or facilities, including sidewalks and recreational facilities, and also the costs associated with administrating or planning these projects.

Not all local governments are eligible to apply for CDBG. The local government must have at least 50,000 residents or be designated a central city of a metropolitan area. Urban counties with at least 200,000 residents may also apply (these local governments are called entitlement communities). The local governments can spend the money themselves or distribute it to local non-profit or for-profit organizations or entities. Additionally, a portion of the funds is distributed to states, which can then distribute the funds as they see fit, including to non-entitlement communities. The most central restriction on the use of CDBG funds is that at least 70% of the money must be used for activities that primarily benefit low- to moderate-income people. In the case of building sidewalks or other pedestrian facilities, this usually means that these funds can only be used in areas where at least 70% of the residents have low to moderate incomes.

Importantly, a community must also prepare a Consolidated Plan in order to be eligible for the funds. This plan contains an action plan, which specifies how the community will use the funds,

as well as fulfills the reporting and application requirements for entitlement communities.

For more information on the federal CDBG program contact Kathleen Naymola of HUD at 973-776-7288 or kathleen_a._naymola@hud.gov. For information on New Jersey's Small Cities CDBG program please contact Richard Osworth at (609) 633-6263 or rosworth@dca.state.nj.us

Fairview, in Bergen County, used $449,000 in CDBG funds to make sidewalk and intersection improvements, including crosswalk striping and Guttenberg, in Hudson County, used $234,770 in CDBG funds for the Bergenline Avenue streetscape project and sidewalk improvements. Several other New Jersey communities have used the funds in a similar fashion.
Sources: http://www.hud.gov/offices/cpd/communitydevelopment/programs/cdbg.cfm *and Pedestrian and Bicycle Resource Project database.*

State Funding

Local Aid for Centers of Place
Currently, the Centers of Place program is designed to assist municipalities that have formally participated in implementation of the New Jersey State Development and Redevelopment Plan (SDRP). The program provides funds to non-traditional transportation improvements that advance municipal growth management objectives. NJDOT notifies eligible municipalities about the application process.

The funding from this program is meant to help communities in New Jersey make non-traditional transportation improvements that are meant to aid in managing growth. The funds can only be used by those communities that have formally participated in implementing the New Jersey State Development and Redevelopment Plan (SDRP). The State Planning Commission designates these communities as Centers (Urban, Regional, Town, or Village Center) as part of this process and the Centers prepare a Strategic Revitalization Plan and Program, approved by the Commissioner of Transportation or enter into an officially recognized Urban Complex. If a project is selected for funding, it must follow certain standards, including the NJDOT Bicycle Compatible Roadways Planning and Design Guidelines and the AASHTO Guide for the Development of New Bicycle Facilities.

The current categories of projects include, pedestrian and bicycle facilities, scenic or historic transportation programs, parking and circulation management, landscaping/beautification of transportation related facilities, and rehabilitation of transportation structures. Eligible pedestrian and bicycling projects include strategies which enable mixed use of a "Main Street" as both a public space and a transportation link, traffic calming improvements, bicycle lockers at transportation facilities, retail complexes, public buildings and public and mid-block connections/paths to ease bicycle and pedestrian circulation

The grants can be used for project-related activities including preliminary or final design (for Urban Aid or Depressed Rural Centers according to the Transportation Trust Fund Authority Act) and/or construction, including construction inspection and material testing according to the

Transportation Trust Fund Authority Act. These grants cannot be used for roadway projects that are eligible for funding though NJDOT's State Aid to Counties and Municipalities Program, such as resurfacing, rehabilitation or reconstruction, and signalization. They also cannot be used for right-of-way purchases or for operating costs associated with any project.

Priority is given to projects that meet several criteria, including that the project is transportation related, construction ready, compatible with the State Development and Redevelopment Plan, located in an Urban Coordinating Council target area, has local commitment, has supplemental funds, has community support and is coordinated with other funding sources or programs. Form SA-96 must be submitted to the Division of Local Government Services District Office to apply for funding. Supplemental materials, including photographs and maps, are encouraged.

Municipalities that want to make improvements on county or state roads must have the appropriate resolution or permission to proceed. Applications are evaluated by the Centers of Place Review Committee, which includes representatives from several state offices, including the DOT, the Office of State Planning, the Economic Development Authority and Downtown New Jersey. This committee makes recommendations to the Commissioner of Transportation.

Several New Jersey communities have received funding from NJDOT through this program for local pedestrian- and bicycle-oriented projects. 2007-2008 grant recipients include Palmyra Burrough of Burlington County which received $90,000 for their Palmyra Pathway Project. North Bergen Township of Hudson county received $400,000 for their JFK Boulevard East Streetscape while ten other municipalities received from $150,000 and $400,000 for a myriad of projects.

Contact your local Division of Local Government Services District Office for additional information. Visit http://www.state.nj.us/transportation/business/localaid/office.shtm.
Sources: "New Jersey Department of Transportation Centers of Place Handbook: Procedures for Local Aid for Centers of Place Program, November 1998" and http://www.state.nj.us/transportation/lgs/.

County Aid Program
Currently, County Aid is used for the improvement of public roads and bridges under county jurisdiction. Public transportation, bicycle and pedestrian projects, and other transportation initiatives are eligible for funds.

This program provides funding to counties for transportation projects. These funds are allocated to New Jersey's 21 counties by a formula that takes into account road mileage and population. Annually, each county develops an Annual Transportation Program that identifies all projects to be undertaken and their estimated cost. Projects may include improvements to public roads and bridges under county jurisdiction, public transportation or other transportation related work. Funding can be used for design, ROW, and construction.

Independent pedestrian and bicycle projects can be funded under the County Aid program; however, few independent pedestrian and bicycle projects have been funded.

As state funded projects, all projects funded under the county aid program are subject to the

NJDOT policy that requires that all bicycle and pedestrian traffic should be incorporated into the planning, design, construction and operation of all projects and programs funded or processed by the NJDOT. The Department of Transportation will continue efforts to encourage counties to comply with this policy mandate. For more information, visit their website at http://www.state.nj.us/transportation/business/localaid/countyaid.shtm.

Municipal Aid Program
Currently, funds are appropriated by the legislature for municipalities in each county based on a formula contained in legislation. These funds can be used for a variety of transportation projects including bicycle and pedestrian related projects. Additional funds are allotted for municipalities that qualify for Urban Aid.

The Municipal Aid program provides funding to municipalities for transportation projects. Funding is made available for municipalities in each county based on a formula that takes into account municipal road mileage within the county and county population. These funds are allocated to individual projects within various municipalities through a competitive process. Funding is allotted to municipalities that qualify for Urban Aid under N.J.S.A. 52:D-178 et seq. All 566 municipalities may apply. Projects may be improvements to public roads and bridges under municipal jurisdiction. Applications are submitted to the Division of Local Aid and Economic Development District Office. The results are presented to a Screening Committee comprised of Municipal Engineers and NJDOT staff, appointed by the Commissioner. The Committee evaluates the projects and makes recommendations to the Commissioner for approval.

NJDOT will pay 75% of the award amount at the time that the award of construction is approved by the NJDOT. The remaining amount is paid upon project completion.

As is the case with the County Aid program, independent pedestrian and bicycle projects can be funded under the Municipal Aid program; however, few if any independent pedestrian and bicycle projects have been funded through this program.

As with county aid projects, all projects funded under the Municipal Aid program are subject to NJDOT policy that requires that all bicycle and pedestrian traffic be incorporated into the planning, design, construction and operation of all projects and programs funded or processed by the NJDOT. More information is located at http://www.state.nj.us/transportation/business/localaid/municaid.shtm.

Discretionary Funding/Local Aid Infrastructure Fund
Currently, subject to funding appropriations, a discretionary fund is established to address emergencies and regional needs throughout the state. Any county or municipality may apply at any time. Under this program, a county or municipality may apply for funding for pedestrian safety and bikeway projects.

The Discretionary Aid program provides funding to address emergency or regional needs throughout the state. Any county or municipality may apply at any time. These projects are

approved at the discretion of the Commissioner.

As state funded projects, all projects funded under the discretionary aid program are subject to NJDOT policy which requires that all bicycle and pedestrian traffic should be incorporated into the planning, design, construction and operation of all projects and programs funded or processed by NJDOT.

NJDOT will pay 75% of the award amount at the time of the award of construction with the remaining amount to be paid upon project completion. To gain more information, visit their website at http://www.state.nj.us/transportation/business/localaid/descrfunding.shtm.

Safe Routes to School
This program is funded at $612 million over federal fiscal years 2005-2009 to fund projects that improve safety for school children walking or bicycling to school. New Jersey will receive approximately $15 million for fiscal years 2005-2009. It focuses on projects that create safer walkwats and bikeways, safer street crossings, and improve motorists' awareness of school children. For more information visit their website at www.state.nj.us/transportation/community/srts.

Bikeways Projects
This program provides funds for municipalities and counties for the construction of bicycle projects. These could include roadway improvements, which enable a roadway or street to safely accommodate bicycle traffic, or designated bikeways (signed bike routes, bike lanes or multi-use trails). The solicitation for project applications occurs at the same time as the solicitation for municipal aid projects. Special consideration will be given to bikeways that are physically separated from motorized vehicle traffic by an open space or barrier. 2008 recipients included Bordentown Township in Burlington County for the Joseph Lawrence Park Pedestrian/Bike Path as well as Princeton Township in Mercer County for their Stony Brook Regional Bicycle and Pedestrian Pathway. The program is administered by NJDOT's Division of Local Government Services. For more information, their website is http://www.state.nj.us/transportation/business/localaid/bikewaysf.shtm

Urban Enterprise Zones (UEZ)
Several communities in New Jersey have used Urban Enterprise Zones to fund pedestrian and bicycle facilities. The Urban Enterprise Zone Program (UEZ), enacted by the State Legislature in 1983, is meant to revitalize the State's most distressed urban communities through the creation of private sector jobs and public and private investment in targeted areas within these communities. The UEZ Authority usually designates around 30% of a city as a UEZ. New Jersey has established 32 UEZs covering 37 economically distressed cities.

More information is available at http://www.newjerseycommerce.org/about_uez_program.shtml or by calling (609) 777-0885.

Office of Green Acres
The Green Acres program provides loans and grants to counties, towns and nonprofit land trusts

to preserve land and develop parks for recreation and conservation purposes. (In a separate part of the program, Green Acres also directly purchases land for the state to increase the state's ownership of open space). The open space land that is purchased by the local government or nonprofit can be used for outdoor recreation, which is why the program is important for funding pedestrian and bicycle projects. The development of bikeways, trails, and other outdoor recreation is eligible for Green Acres funding.

Currently, the mission of the Office of Green Acres is to achieve, in partnership with others, a system of interconnected open spaces that protect, preserve, and enhance New Jersey's natural environment, which serves the historic, scenic, and recreational needs of the public through use and enjoyment. Green Acres' primary focus is acquiring land that creates linkages between existing protected lands to form open space corridors. These corridors provide linear habitat for wildlife to move through, parkland for recreation, and areas of scenic beauty between towns and urban centers. Recreation needs are as diverse as the people who play. To meet these needs, Green Acres funds different types of parks in a variety of settings. Whether in rural, suburban, or urban areas, parks play an important role in sustaining New Jersey's high quality of life. Increasingly, Green Acres gathers other public and private partners together to assist in buying and managing open space. The Program works with municipal and county governments, nonprofit organizations, and the state Farmland Preservation Program to meet compatible conservation goals. To gather more information, visit http://www.nj.gov/dep/greenacres/ or call Deputy Administrator Gary M. Rice at 609-984-0500.

County or Municipal Capital (Public Works) Funding

County or municipal funding can be used to fund pedestrian improvements including sidewalks, trails, crosswalks signals, traffic calming and other projects on rights of way under county or municipal jurisdiction, by including the project in the municipal (or county) budget, or bonding for it in the same way bonds are used to fund the construction and rehabilitation of roadway improvements for cars. Pedestrian improvements can be fully or partially assessed against the property owners along whose frontage the improvement (most commonly, a sidewalk) is placed. As with other categories of funding, bicycle and pedestrian improvements may be incidental to larger roadway projects, or they can be independent.

Even small amounts of funding from the county or municipality can be very important since they may be used to leverage or show local commitment in applications for other funding sources (e.g., TE, Local Aid For Centers, etc.).

Special Improvement Districts (SIDs)

Another form of municipal funding is through the creation of a local Special Improvement District. The funding is used for infrastructure improvements, including pedestrian improvements within the district. This form of funding can be used to leverage or show local commitment in applications for other funding sources. Impetus for SID usually comes from

business and property owners hoping to attract new customers by cleaning up sidewalks, improving parks, etc. Property owners within the District are assessed a special fee to cover the cost of the improvements.

Transportation Development Districts (TDD)

TDDs are joint state/county programs in New Jersey in which transportation improvements within a defined growth area are funded through a combination of public funding and developer contributions (for new developments) within the district. Independent pedestrian improvements can be included in the infrastructure improvement plan developed through a joint planning process for the district, and funded through the TDD. TDDs must have a plan of development consistent with other land use and development plans. They are a convenient and lawful method by which municipalities and counties can agree together on methods to raise revenue to fund infrastructure and other development related costs.

Developer Provided Facilities

The Residential Site Improvement Standards currently in effect in New Jersey require new residential developments to include sidewalks.

Other municipal and state zoning or access code regulations have been used to require developers to provide both onsite and offsite improvements to benefit bicycle and pedestrian traffic.

Open Space Trust Funds

Many counties have established open space trust funds, which can be used to purchase land for bicycle and pedestrian facilities. For example, Atlantic County used $459,000 from the Atlantic County Open Space Trust Fund to help pay for the Atlantic County Bikeway East. Other counties also have open space trust funds or an open space tax, including Bergen, Burlington, Camden, Cape May, Cumberland, Essex, Gloucester, Hunterdon, Mercer, Middlesex, Morris, Ocean, Passaic, Somerset, Sussex, Union and Warren.

The Bergen County Open Space, Recreation, Farmland and Historic Preservation Trust fund is funded through an annual property tax assessment and is used to preserve land, improve and develop outdoor recreation opportunities, preserve farmland, and improve historic areas. At least thirty percent of the money is distributed to municipalities to support their efforts in these areas. Additional information can be obtained from Mr. Robert Abbatomarco at 201-336-6446, rabbatomarco@co.bergen.nj.us, or Open Space, Recreation, Farmland & Historic Preservation Trust Fund, Bergen County Department of Planning & Economic Development, ONE Bergen County Plaza, Fourth Floor, Hackensack, New Jersey 07601-7000.

The Hunterdon County Open Space, Farmland and Historic Preservation Trust Fund is funded through property taxes and funds the preservation of lands for many purposes, including recreation, conservation, farmland and general open space and historic preservation. The funds can also be distributed to municipalities or charitable organizations for similar preservation purposes. The current fund does not provide for development of any facilities. Additional information about this fund can be obtained at www.co.hunterdon.nj.us/openspachtm, the Planning Board at (908)788-1490 , or Hunterdon County Open Space Trust Fund Program, Route 12 County Complex, Building #1, PO Box 2900, Flemington, New Jersey, 08822-2900.

Many municipal governments also have open space funding programs. Counties and municipalities with open space taxes can receive more money in matching grants than local governments that do not, as described in the Green Acres section of this document above. Manalapan is one of many townships with an open space tax and an open space element in their comprehensive plan. The open space element lays out the properties that the township hopes to acquire. Part of the open space element includes an "Action Plan" to apply for funds from the Green Acres program to buy their proposed open space lands.

Some private organizations also have established open space trust funds, including the Passaic River Coalition, which has established a Land Trust. Among other activities, the Land Trust acquires land for recreation.
Source: Pedestrian Bicycle Resource Project database; municipal and county websites; Passaic River Coalition website.

Other Funding Sources

Bicycles Belong
The Bicycles Belong Coalition is sponsored by member companies of the American bicycle industry. The Coalition's stated goal is to put more people on bikes more often through the implementation of TEA-21. One of the Coalition's primary activities is the funding of local bicycle advocacy organizations that are trying to ensure that TEA-21-funded bicycle or trail facilities get built. They concentrate efforts in 4 areas: federal policy, national partnerships, community grants and promoting bicycling. Grants are awarded for up to $10,000 on a rolling basis. Between 2002 and 2005, bicycles belong invested $1 million in a lobbying effort that involved several national bicycle advocacy groups. Information about the Coalition, including grant applications and related information, is on the web at www.bikesbelong.org. They can also be contacted at:

Bikes Belong
1368 Beacon Street, Suite 102
Brookline, MA 02446-2800
617-734-2800 Fax: 617-734-2810

Local School Districts
Local communities with bicycle/pedestrian plans that effect schools or will serve schools can

approach local school districts or private schools about funding those projects. The Phillipsburg Board of Education in Lopatcong Township, Warren County, has pledged to build trails near a proposed new high school, which would be built adjacent to a Lopatcong Township recreation center. As part of the discussions with the Board of Education concerning the new high school, the Board agreed to construct part of a proposed bikeway on the Board of Education property. Another example is in Hightstown, in Mercer County. The borough, the county, the state and the Peddie School are sharing the costs of engineering and constructing pedestrian improvements to a bridge that, in part, connects faculty housing to the school.

General Mills Foundation

The foundation provides grants through the Champions Youth Nutrition and Fitness program. The foundation awards 50 grants, each for up to $10,000. Applicants must be a non-profit organization of agency. The American Dietetic Association will assist in evaluating proposals along with the General Mills Foundation and other qualified nutrition and fitness experts. The application is available at http://www.generalmills.com/corporate/commitment/2006ChampionsApplicationOverview.pdf .

Source: http://www.generalmills.com/corporate/about/community/#Nutrition