



# Morristown Bicycle Plan Addendum



## Final Report August 2010



Prepared For:  
The Town of Morristown and  
The New Jersey Department of Transportation

Prepared By:  
Michael Baker Jr., Inc.



**Baker**



# Morristown Bicycle Plan Addendum

## *Table of Contents*

<b>1. INTRODUCTION.....</b>	<b>1</b>
<b>2. STUDY AREA.....</b>	<b>2</b>
<b>3. BICYCLE FACILITIES AND COMPATIBILITY ASSESSMENT.....</b>	<b>3</b>
3.1. Facility Categories.....	3
3.2. Innovative Facilities.....	4
3.3. Compatibility Assessment.....	6
<b>4. BICYCLE ASSESSMENT AT INTERSECTIONS and BRIDGES.....</b>	<b>17</b>
4.1. Existing Conditions at the Inventoried Intersections and Bridges.....	17
4.2. Intersection and Bridge Summary.....	24
<b>5. BICYCLE CRASH REVIEW .....</b>	<b>25</b>
<b>6. RECOMMENDED BICYCLE FACILITY IMPROVEMENTS.....</b>	<b>30</b>
6.1. Bicycle Facility Roadway Improvements.....	30
6.1.1. Concept Template #1 – Paved Shoulders “Share the Road” .....	33
6.1.2. Concept Template #2 – Shared Lane with Shared Lane Marking.....	36
6.1.3. Concept Template #3 – Centerline Restriping.....	44
6.1.4. Concept Template #4 – Bicycle Route Designation.....	45
6.1.5. Further Study.....	47
6.2. Facility Improvements at Intersections and Bridges.....	49
<b>7. IMPLEMENTATION PLAN.....</b>	<b>51</b>
7.1. Implementation Items.....	51
7.2. Coordination Efforts.....	53
7.3. Funding Improvements.....	53
<b>8. MAINTENANCE, EDUCATION, and ENFORCEMENT.....</b>	<b>54</b>
8.1. Maintenance.....	54
8.2. Education.....	54
8.3. Enforcement.....	56
<b>9. CONCLUSION.....</b>	<b>57</b>

## ***Figures***

---

- [Figure 1:](#) Concept Template #1 – Paved Shoulders “Share the Road”  
[Figure 2:](#) Concept Template #2 – Shared Lane with Shared Lane Markings  
[Figure 3:](#) Concept Template #2 – Shared Lane with Shared Lane Markings  
[Figure 4:](#) Concept Template #2 – Shared Lane with Shared Lane Markings  
[Figure 5:](#) Concept Template #4 – Bicycle Route Designation  
[Figure 6:](#) Cross Section prior to Road Diet  
[Figure 7:](#) Cross Section following Road Diet  
[Figure 8:](#) Proposed Signing and Striping at Sussex Avenue and Speedwell Avenue

## ***Tables***

---

- [Table 1:](#) Existing Conditions at the Intersection of Lafayette Avenue and Ridgedale Avenue  
[Table 2:](#) Existing Conditions at the Intersection of Morris Street and Elm Street  
[Table 3:](#) Existing Conditions at the Intersection of Pine Street and Morris Street  
[Table 4:](#) Existing Conditions at the Intersection of Morris Street and Spring Street  
[Table 5:](#) Existing Conditions at the Intersection of Sussex Avenue and Speedwell Avenue  
[Table 6:](#) Existing Conditions at the Madison Avenue Bridge Over I-287  
[Table 7:](#) Bicycle Crash Review – Study Area Roadways  
[Table 8:](#) Morristown Bicycle Plan Addendum Implementation Matrix

## ***Maps***

---

- [Map 1:](#) Morristown Land Use with Observed Bicycle Activity Map  
[Map 2:](#) Morristown Bicycle Compatibility Map  
[Map 3:](#) Morristown Bicycle Crash Map  
[Map 4:](#) Morristown Bicycle Concept Application Map

## ***Appendices***

---

- [Appendix A:](#) NJDOT Bicycle Compatible Roadway Pavement Widths  
[Appendix B:](#) Bicycle Compatibility Assessment – Study Area Roadways Matrix  
[Appendix C:](#) Meeting Minutes and Public Comments  
[Appendix D:](#) Roadway Concept Application Table  
[Appendix E:](#) Preliminary Cost Estimating Spreadsheets  
[Appendix F:](#) Funding Pedestrian and Bicycle Planning, Programs and Projects  
[Appendix G:](#) Promoting Pedestrian and Bicyclist Safety to Hispanic Audiences  
[Appendix H:](#) Marketing Plan and Outreach Materials that Promote Pedestrian and Bicyclist Safety to Different Hispanic Populations in the United States

# Introduction

I.





## 1. INTRODUCTION

The Town of Morristown requested bicycle planning assistance from the New Jersey Department of Transportation – Office of Bicycle and Pedestrian Programs (NJDOT – OBPP) to assist in the further development of their draft Bicycle Plan created in March 2009. The draft Bicycle Plan was advanced under the direction of the Morristown Environmental Commission, to accommodate the growing bicycle community in Morristown, reduce traffic congestion, and create a plan to improve bicycle facilities throughout the town.

NJDOT – OBPP requested that Michael Baker Jr. Inc., (Baker) assist Morristown in developing an Addendum to supplement the existing draft Bicycle Plan through a bicycle compatibility assessment of roadways and intersections using NJDOT guidelines, an analysis of reported bicycle crashes, and the identification of regional and local bicycle facilities and trip generators. From this analysis, recommended on-road bicycle facility improvements, with preliminary cost estimates, and an implementation plan were developed.

This Addendum documents the activities, findings, and determinations from the Bicycle Plan Addendum Study, including the data collection process, assessment of existing transportation facilities, and feedback received through the public outreach process. The Addendum presents a range of improvements to address the complex and constrained characteristics of Morristown's roadway network which include cartway width constraints, high traffic volumes, and urban densities. The primary goal of the Addendum is to advance the implementation of bicycle facility improvements in Morristown.



*Bicyclist stopped at the intersection of Atno Ave. & Washington Ave.*



*Bicyclist riding in the crosswalk at the intersection of Speedwell Avenue and Early Street*

# Introduction

I.





The Study Area was limited to key corridors and roadways within the Morristown which would provide bicycle connections to major trip generators, attractors, and destinations, including schools, commercial/retail centers, and parks. Highlighted on **Map 1** below are land uses, trip generators, and observed bicycle activity found in Morristown.



# Bicycle Facilities and Compatibility Assessment

III.



## 3. BICYCLE FACILITIES AND BICYCLE COMPATIBILITY ASSESSMENT

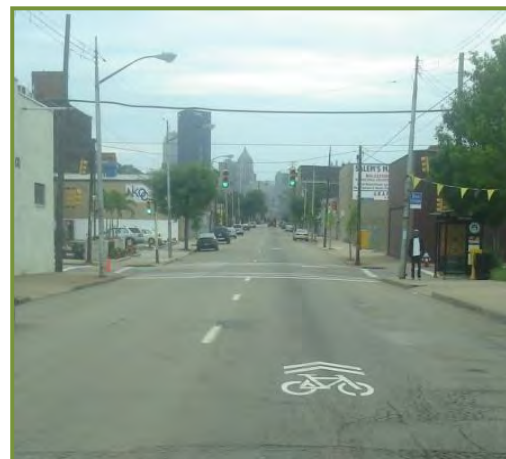
NJDOT's *Planning and Design Guidelines for Bicycle Compatible Roadways and Bikeways* outline the three (3) types of on-road bicycle facilities that were considered for Morristown's roadway network. These facilities are intended to enhance on-road conditions and accommodate bicycle traffic. Advancements in the provision of on-road bicycle accommodations through the use of shared lane markings or contra-flow bicycle lanes have also been considered. These enhancements have been applied on urban roadway networks in an attempt to address current increases in bicycle travel. These new facilities, although not yet supported by the Federal Highway Administration (FHWA) or the American Association of State Highway and Transportation Officials (AASHTO) have proven to be successful when applied throughout Europe and in several major American cities.

### 3.1. 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<sup>1</sup>. 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, especially in locations with on-street parking, is the shared lane marking (informally referred to as 'Sharrows'), which is included in the 2009 Manual on Uniform Traffic Control Devices (MUTCD).



Shared Lane w/ Shared Lane Marking

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

## **Paved Shoulder**

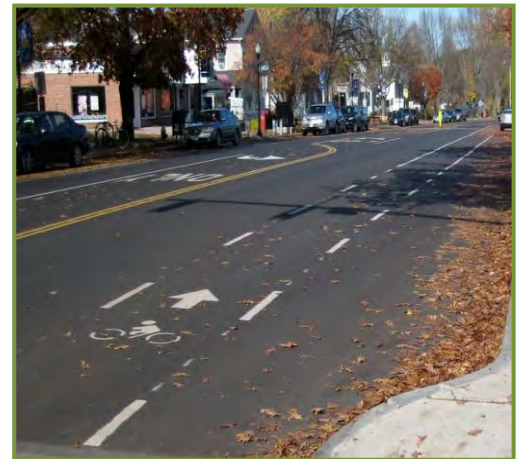
A paved shoulder accommodates bicyclists on the roadway shoulder adjacent to vehicular travel lanes. Paved shoulders can be located on urban or rural roadways with moderate to high vehicular traffic volumes and moderate to high posted speeds. Paved shoulders for bicyclists, range in width from 4' – 6'+ depending on available width, and are occasionally supplemented with 'Share the Road' warning signs.



*Paved Shoulder*

## **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.



*Bicycle Lane*

### **3.2. Innovative Bicycle Facilities**

In certain situations, traditional bicycle facilities (e.g. bicycle lanes) may not achieve desired results due to the nature of the existing roadway network. For this reason, the application of innovative facilities can be utilized to make important connections that would otherwise be unavailable through traditional means. Three (3) examples of innovative facilities are presented below since they may be applicable in the future to bicycle compatibility improvements in Morristown. These facilities have been evaluated by the Institute of Transportation Engineers (ITE) and have successfully been implemented in many cities throughout the United States.



**Cycle Track** A cycle track is a bicycle facility that is adjacent to the roadway but separated by a physical barrier. Physical barriers can include the addition of concrete islands or the movement of the parking lane away from the curb, where space permits. Cycle tracks often require right of way of up to fourteen (14) feet but can be constructed in situations with a much as nine (9) feet of additional right of way. Cycle tracks would be applied where significant demand for cycling exists, and often permit bi-directional travel, eliminating the need for accommodations on both sides of the roadway.



*Cycle track installed inside the parking lane in Montreal, Quebec*

**Contraflow Bicycle Lanes** Contraflow bicycle lanes are similar to traditional bicycle lanes, with the exception that they provide for travel down a one way street against the flow of traffic. This application is best utilized in extraordinary circumstances when vital connections are excluded from a bicycle route network. Prior to application, significant study should be performed to attempt to identify alternate routes which follow existing travel lane directions. In many cases, alternate routing through the use of shared use paths and parallel roadways will exist. Applications of contra-flow bicycle lanes often include the use of bollards or permanent physical barriers as a means of physical separation from oncoming vehicular traffic.



*Contraflow bike lane installed on 15<sup>th</sup> Street in Washington D.C.*

## High Visibility Bicycle Lanes

High visibility bicycle lanes are similar to traditional bicycle lanes with the exception that the entire lane is painted to differentiate it from vehicular travel lanes. This application provides an additional layer of visibility which will alert motorists to the presence of cyclists. Prominent examples include New York City's Class 1 and 2 bicycle lanes which utilize the color green, while Portland, Oregon has utilized blue as their color of choice. Despite this difference, the application of the high visibility bicycle lanes have produced favorable results by way of bringing attention to the presence of cyclists and additional traffic calming effects to the roadway.



Source: NYC Street Design Manual

*High visibility bicycle lane installed on Broadway in New York City*

## Advance Stop Line "Bicycle Box"

The Advance Stop Line or "Bicycle Box" is a roadway treatment developed to provide cyclist with the space to position themselves for turning movements at signalized intersections. This treatment marks an area for bicyclists in front of stopped vehicles at signalized intersections. Similar High Visibility Bicycle Lanes, current applications use a contrasting surface color to mark the entire area occupied by the bicycle box and to enhance visibility. A prominent example of this treatment currently in use and under evaluation is Portland, Oregon.



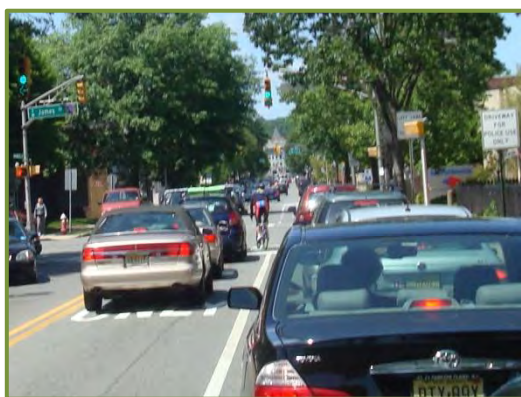
Source: BikePortland.org

*Bicycle Box installed at the intersection of SE Hawthorne Blvd and SE 7<sup>th</sup> Avenue, Portland, Oregon.*

## 3.3. Bicycle Compatibility Assessment

The draft Morristown Bicycle Plan included a bicycle compatibility assessment of town roadways based on a qualitative analysis, which was quantified under this study. The additional quantitative assessment was performed for roadways in Morristown with available traffic volumes to determine bicycle compatibility based on NJDOT guidelines, which have been included in **Appendix A**.

Available traffic volume data was collected from NJDOT's Traffic Monitoring System, Morris County, and Morristown. Site visits were also performed to collect roadway attributes, including posted speed limits, pavement widths (lane and shoulder width), pavement condition, on-street parking locations and widths, bicycle compatibility of drainage grates, existing bicycle facilities, bridge locations, and traffic control devices.



*Bicyclist on South Street preparing to make a left turn onto James Street.*



*Morris Street, looking east towards Lafayette Avenue*

Additional roadways and roadway segments without available traffic volumes were inventoried based on the input from Morristown officials and stakeholders. Since volumes were not available for these roadways, they were assessed under Condition III (AADT over 10,000) under NJDOT guidelines for bicycle compatible roadways. When volumes are obtained for these locations, it is recommended that these roadways be assessed for compatibility based on NJDOT guidelines.

A matrix was developed to assist in assessing the compatibility of roadways in Morristown. The complete matrix has been included in **Appendix B**.



## Morristown Bicycle Plan Addendum

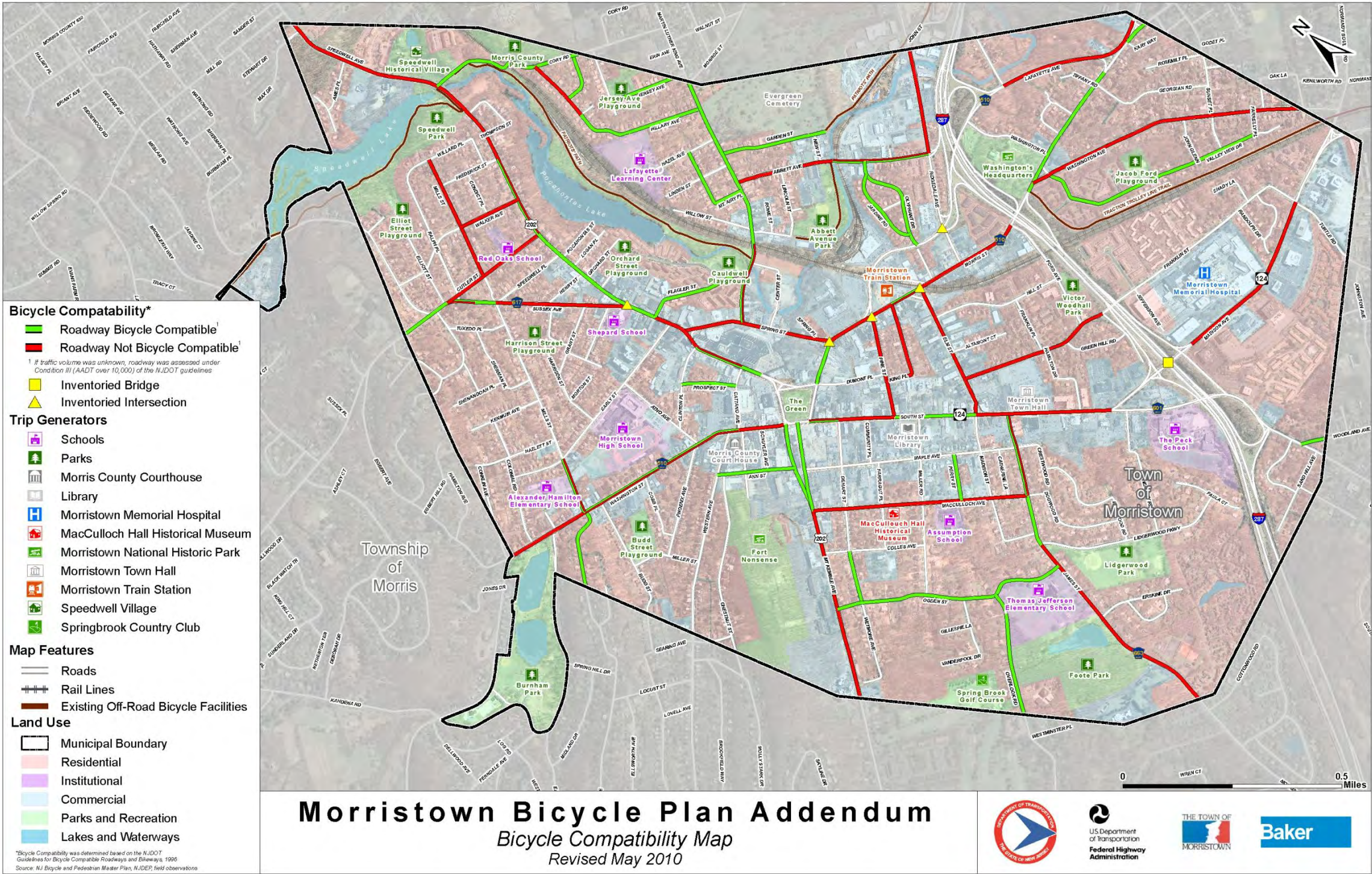
The following list identifies roadways where compatible segments were identified:

- Speedwell Avenue (US 202)
- Bank Street (US 202)
- South Street (NJ 124)
- Morris Avenue (CR 510)
- Morris Street (CR 510)
- Washington Street (CR 510)
- Sussex Avenue (CR 617)
- Abbett Avenue
- Ann Street
- Cory Road
- Doughty Street
- Flagler Street
- Garden Street
- Gregory Terrace
- Hillairy Avenue
- Hillcrest Avenue
- James Street
- Jardine Road
- Jersey Avenue
- Market Street
- Martin Luther King Avenue
- Mills Street
- Mt. Airy Place
- Ogden Place
- Olyphant Drive
- Overlook Road
- Perry Street
- Prospect Street
- Valley View Drive
- Wetmore Avenue
- Woodland Avenue

These roadways are also illustrated in **Map 2**.



Map 2: Morristown Bicycle Compatibility Map





# Bicycle Assessment at Intersections and Bridges

IV.





#### 4. BICYCLE ASSESSMENT AT INTERSECTIONS AND BRIDGES

An important consideration for on-road bicycle travel is accommodations at intersections and on bridges. Use of design treatments at intersections alert bicyclists and motorists to changes in roadway delineation, especially at turning locations, and can enhance mobility at intersections, while reducing the potential for conflicts.

The application of bicycle signage in advance of intersections is intended to alert motorists to the presence of bicyclists. Applicable signs include the MUTCD bicycle warning sign combined with the 'Share the Road' placard (W11-1, W16-1P). The 'Bicycle may use full lane' sign (R4-11) may also be used if shared lanes (where the bicyclist would occupy the travel lane) are proposed. Striping at intersections should be clearly marked so lane edges are defined. In general, it is recommended that treatments guide merging movements to occur in advance of, rather than at, intersections.

Bridges can present bicyclists with mobility and accessibility issues when they lack compatible roadway widths due to the narrowing of travel lanes, lack of shoulders, and expansion joints along the surface of the bridge deck. In New Jersey, sidewalks on bridges may be used by bicyclists, but signing and curb ramp accommodations should be provided to assist and direct cyclists in using these facilities.

##### 4.1 Existing Conditions at the Inventoried Intersections and Bridges

Five (5) signalized intersections and one (1) bridge identified by Morristown were inventoried to expand the bicycle compatibility assessment of town roadways. The intersections, which are also illustrated in **Map 2**, are:

###### Signalized Intersections

- Lafayette Avenue (CR 510) and Ridgedale Avenue
- Elm Street and Morris Street (CR 510)
- Pine Street and Morris Street (CR 510)
- Spring Street and Morris Street (CR 510)
- Sussex Avenue (CR 617) and Speedwell Avenue (US 202)

###### Bridge Location

- Madison Avenue (NJ 124) Bridge over I-287

The intersection and bridge inventory included shoulder widths, number of lanes, lane widths, traffic control devices, pavement markings, and lane configuration. Information obtained during the intersection inventory is illustrated in **Tables 1 – 6** on the following pages.



Table 1: Existing conditions at the intersection of Lafayette Avenue and Ridgedale Avenue



Intersection Inventory	
Intersection Control:	<ul style="list-style-type: none"> <li>Signalized</li> </ul>
Westbound Travel	
Receiving Lanes:	<ul style="list-style-type: none"> <li>13' Through Lane</li> <li>13' Through Lane</li> <li>13' Through Lane</li> </ul>
Northbound Travel	
Approach Lanes:	<ul style="list-style-type: none"> <li>11' Through and Left Turn Lane</li> <li>11' Right Turn Lane</li> </ul>
Receiving Lanes:	<ul style="list-style-type: none"> <li>24' Through Lane</li> </ul>
Southbound Travel:	
Approach Lanes:	<ul style="list-style-type: none"> <li>11' Through and Left Turn Lane</li> <li>11' Right Turn Lane</li> </ul>
Receiving Lanes:	<ul style="list-style-type: none"> <li>24' Through Lane</li> </ul>



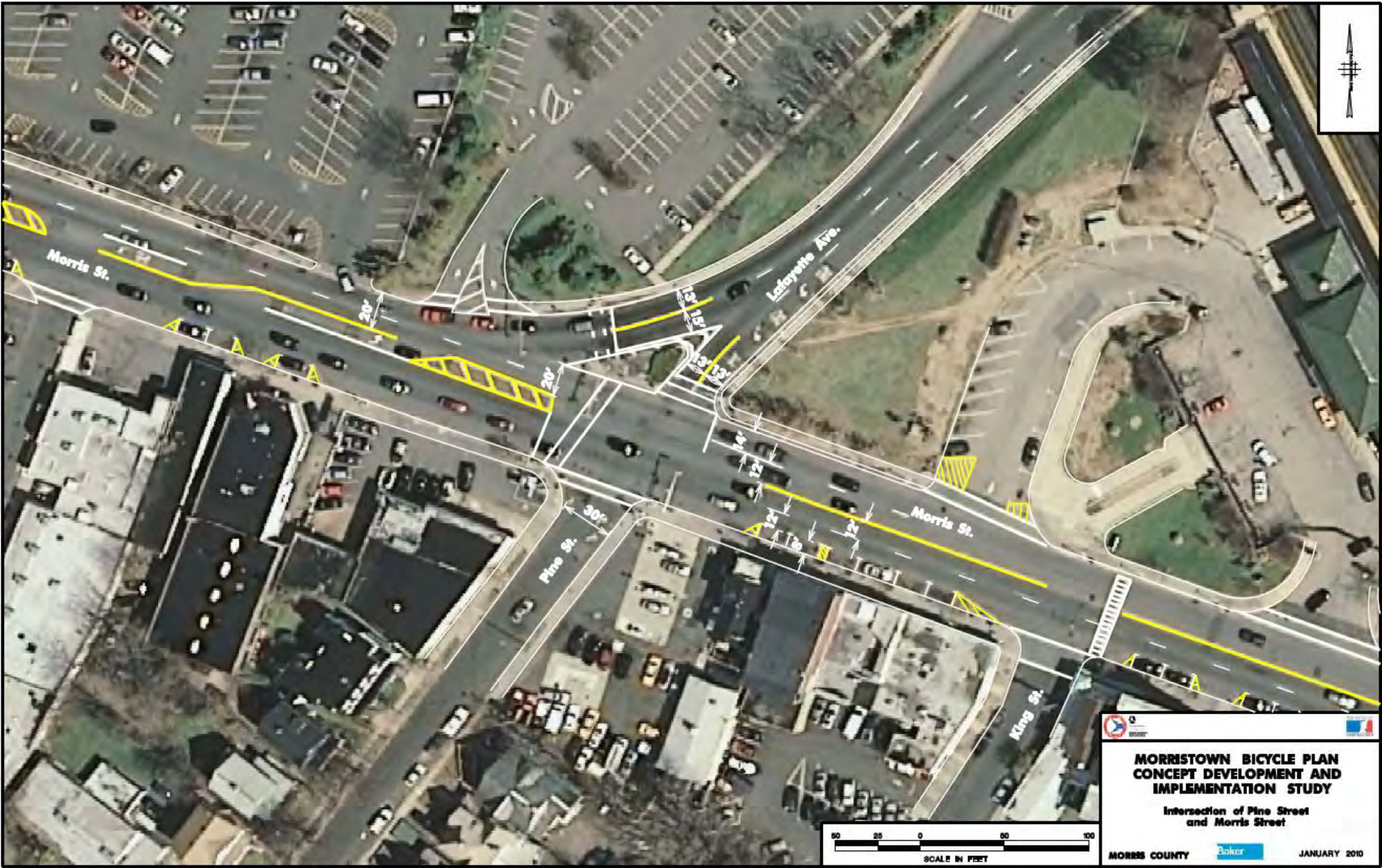
Table 2: Existing conditions at the intersection of Morris Street and Elm Street



Intersection Inventory	
Intersection Control:	<ul style="list-style-type: none"> <li>• Signalized</li> </ul>
Eastbound Travel	
Approach Lanes:	<ul style="list-style-type: none"> <li>• 12' Through Lane</li> <li>• 16' Through and Right Turn Lane</li> </ul>
Receiving Lanes:	<ul style="list-style-type: none"> <li>• 12.5' Through Lane</li> <li>• 12.5' Through Lane</li> </ul>
Westbound Travel	
Approach Lanes:	<ul style="list-style-type: none"> <li>• 21' Through, Right, and Left Turn Lane</li> </ul>
Receiving Lanes:	<ul style="list-style-type: none"> <li>• 19' Through Lane</li> </ul>
Northbound Travel	
Approach Lanes:	<ul style="list-style-type: none"> <li>• 10' Left Turn Lane</li> <li>• 15' Through and Right Turn Lane</li> </ul>
Receiving Lanes:	<ul style="list-style-type: none"> <li>• 9' Through Lane</li> </ul>
Southbound Travel:	
Approach Lanes:	<ul style="list-style-type: none"> <li>• 9' Through, Right, and Left Turn Lane</li> </ul>
Receiving Lanes:	<ul style="list-style-type: none"> <li>• 20' Through Lane</li> </ul>



Table 3: Existing conditions at the intersection of Pine Street and Morris Street



Intersection Inventory	
Intersection Control:	<ul style="list-style-type: none"> <li>• Signalized</li> </ul>
Eastbound Travel	
Approach Lanes:	<ul style="list-style-type: none"> <li>• 12' Through Lane</li> <li>• 20' Through and Right Turn Lane</li> </ul>
Receiving Lanes:	<ul style="list-style-type: none"> <li>• 12' Through Lane</li> <li>• 12' Through Lane</li> </ul>
Westbound Travel	
Approach Lanes:	<ul style="list-style-type: none"> <li>• 14' Through Lane</li> <li>• 12' Through and Left Turn Lane</li> </ul>
Receiving Lanes:	<ul style="list-style-type: none"> <li>• 10' Through Lane</li> <li>• 10' Through Lane</li> </ul>
Northbound Travel	
Approach Lanes:	<ul style="list-style-type: none"> <li>• 15' Right and Left Turn Lane</li> </ul>
Southbound Travel:	
Approach Lanes:	<ul style="list-style-type: none"> <li>• 13' Through Lane</li> <li>• 13' Right Turn Lane</li> </ul>
Channelized Lanes:	<ul style="list-style-type: none"> <li>• 13' Channelized Right Merge Lane</li> <li>• 15' Channelized Right Merge Lane</li> </ul>
Receiving Lanes:	<ul style="list-style-type: none"> <li>• 15' Through Lane</li> </ul>



Table 4: Existing conditions at the intersection of Morris Street and Spring Street



Intersection Inventory	
Intersection Control:	<ul style="list-style-type: none"> <li>• Signalized</li> </ul>
Eastbound Travel	
Approach Lanes:	<ul style="list-style-type: none"> <li>• 15' -&gt; 25' Through, Right, and Left Turn Lane</li> </ul>
Receiving Lanes:	<ul style="list-style-type: none"> <li>• 10' Through Lane</li> <li>• 10' Through Lane</li> </ul>
Westbound Travel	
Approach Lanes:	<ul style="list-style-type: none"> <li>• 12' -&gt; 17' Channelized Right Merge Lane</li> <li>• 12' -&gt; 15' Through and Left Turn Lane</li> </ul>
Receiving Lanes:	<ul style="list-style-type: none"> <li>• 22' -&gt; 14' through Lane</li> </ul>
Northbound Travel	
Approach Lanes:	<ul style="list-style-type: none"> <li>• UNKNOWN</li> </ul>
Receiving Lanes:	<ul style="list-style-type: none"> <li>• UNKNOWN</li> </ul>
Southbound Travel:	
Approach Lanes:	<ul style="list-style-type: none"> <li>• 11' Right Turn Lane</li> <li>• 11' Right Turn Lane</li> <li>• 12' Through and Left Turn Lane</li> </ul>
Receiving Lanes:	<ul style="list-style-type: none"> <li>• UNKNOWN</li> </ul>



Table 5: Existing conditions at the intersection of Sussex Avenue and Speedwell Avenue



INTERSECTION INVENTORY

Intersection Control:	<ul style="list-style-type: none"><li>• Signalized</li></ul>
Eastbound Travel	
Approach Lanes:	<ul style="list-style-type: none"><li>• 20' Through, Right, and Left Turn Lane</li></ul>
Westbound Travel	
Receiving Lanes:	<ul style="list-style-type: none"><li>• 21' Through Lane</li></ul>
Northbound Travel	
Approach Lanes:	<ul style="list-style-type: none"><li>• 11' Left Turn Lane</li><li>• 12' Through Lane</li></ul>
Receiving Lanes:	<ul style="list-style-type: none"><li>• 20' Through Lane</li></ul>
Southbound Travel:	
Approach Lanes:	<ul style="list-style-type: none"><li>• 20' Through, Right, and Left Turn Lane</li></ul>
Receiving Lanes:	<ul style="list-style-type: none"><li>• 24' Through Lane</li></ul>



Table 6: Existing conditions at the Madison Avenue bridge over I-287



BRIDGE INVENTORY	
Intersection Controls:	<ul style="list-style-type: none"> <li>• Signalized (west side)</li> <li>• Stop controlled (east side)</li> </ul>
Eastbound Travel	
<ul style="list-style-type: none"> <li>• 13' Outside Travel Lane</li> <li>• 12' Inside Travel Lane</li> </ul>	
Westbound Travel	
<ul style="list-style-type: none"> <li>• 13' Outside Travel Lane</li> <li>• 12' Inside Travel Lane</li> </ul>	
Sidewalks	
Eastbound Side	
<ul style="list-style-type: none"> <li>• 5.5' Sidewalk</li> </ul>	
Westbound Side	
<ul style="list-style-type: none"> <li>• 5.5' Sidewalk</li> </ul>	



## 4.2. Intersection and Bridge Summary

The following summarizes existing conditions at the inventoried intersections and bridge:

- **There are no existing bicycle facility signage, striping, or pavement markings at the intersections and the bridge.**
- **Striping inconsistencies are present at each intersection. These include:**
  - *Lane markings are faded or non existent*
  - *The number and width of travel lanes vary on either side of intersections.*
- **Two (2) intersections have channelized right-turn lanes:**
  - *Lafayette Avenue and Morris Street (Southbound approach)*
  - *Morris Street and Spring Street (Westbound approach)*
- **Wide outside travel lanes exist on individual approaching and receiving lanes at each intersection.**
- **Lane widths on the Madison Avenue (Route 124) Bridge are not compatible for bicyclists based on NJDOT guidelines.**



Intersection of Spring Street and Morris Street, looking east



Intersection of Speedwell Avenue and Sussex Avenue, looking northwest.

# Bicycle Crash Review

V.



## 5. BICYCLE CRASH REVIEW

Bicycle crash reports were requested from the Morristown Police Department (MPD) to assist in identifying the locations and circumstances, and to expand on crash observations included the draft Bicycle Plan (e.g., crashes resulting from a prevalence of sidewalk bicycle riding). Reports were provided by MPD for the most recent eight (8) years available (October 2001-October 2009).

During the eight year period, twenty-three (23) crashes involving bicyclists were reported. Among the crashes, the following common circumstances were noted:

- Sixteen (16) of the crashes occurred at intersections.
- Twelve (12) crashes involved bicyclists who had been riding on the sidewalk. Of these crashes, seven (7) occurred after the cyclists traveled from the sidewalk into the crosswalk and five (5) occurred at driveway locations crossing the sidewalk.
- Nine (9) crashes occurred as a result of the bicyclist riding into a moving or stopped vehicle.
- Four (4) of the bicyclists fled the scene after the crash occurred

In addition to the crash reports, three (3) dispatch notices were included with the information from the MPD. These notices describe bicycle crashes that were reported to the police but could not be independently verified at the crash location.

Reported crashes are summarized in the **Table 7** and illustrated in **Map 3**.



*Martin Luther King Avenue, looking north. Five (5) crashes involving bicyclists occurred along this stretch of roadway.*



*Intersection of Washington Street and Western Avenue, where two (2) crashes involving bicyclists have occurred.*

## Table 7 - Bicycle Crash Review – Study Area Roadways

	Date	Time	Location	Severity	Lighting	Conditions	Crash Description
1	10/3/2009	11:00 AM	Intersection of South Park Place and Dumont Place	Bicyclist Suffered Moderate Injury	Daylight	Overcast	A motorist traveling east on South Park Place struck a bicyclist in the crosswalk at the intersection of Dumont Place. The bicyclist was traveling east on the sidewalk before entering the crosswalk.
2	4/27/2009	7:13 AM	Driveway from 310 South Street	Bicyclist Suffered Moderate Injury	Daylight	Clear	A motorist stopped in the driveway of 310 South Street was struck by a bicyclist traveling east on the sidewalk.
3	2/22/2009	9:11 AM	Intersection of Court Street and Washington Street	Unknown	Daylight	Snow	A motorist traveling north on Court Street struck a bicyclist in the crosswalk at the intersection of Washington Street. The bicyclist was traveling west on the sidewalk before entering the crosswalk. The bicyclist fled the scene.
4	10/20/2008	6:58 AM	Intersection of Martin Luther King Avenue and Abbett Avenue	Unknown	Dawn	Clear	A motorist traveling north on Martin Luther King Avenue turned left onto Abbett Avenue and heard a slight bump as they passed a bicyclist waiting to turn onto Martin Luther King Avenue. The motorist was unsure if they had hit the bicyclist or if the bicyclist had kicked the vehicle. The bicyclist fled the scene.
5	9/16/2008	5:37 PM	Intersection of Water Street and Spring Street	Bicyclist Suffered Moderate Injury	Daylight	Clear	A motorist traveling east on Water Street was crossing through the intersection of South Street when they were struck by a bicyclist traveling south on Spring Street. The bicyclist crossed the intersection against a red signal.
6	9/8/2008	1:47 PM	Intersection of Ann Street and Bank Street	Bicyclist Suffered Moderate Injury	Daylight	Clear	A bicyclist traveling south on Ann Street struck a vehicle that was stopped at the corner of Bank Street. While traveling downhill, the bicyclist was unable to negotiate the turn from Ann Street to Bank Street.
7	7/31/2008	7:31 AM	Intersection of South Street and Dehart Street	Bicyclist Suffered Moderate Injury	N/A	N/A	A bicyclist traveling east on South Street was struck by a car door opened by a motorist exiting a vehicle.

## Morristown Bicycle Plan Addendum

	Date	Time	Location	Severity	Lighting	Conditions	Crash Description
8	7/16/2008	N/A	Intersection of Ridgedale Avenue and I-287 Exit 36 Ramp	No Injury Reported	Daylight	Clear	A bicyclist traveling south on the northbound side of Ridgedale Avenue stated that a vehicle “brushed” up against them while the vehicle was making a right turn from the I-287 exit ramp. The motorist was unaware of any contact made with the bicyclist while turning.
9	6/26/2008	4:16 PM	Intersection of Washington Street and Western Avenue	Bicyclist Suffered Moderate Injury	Daylight	Clear	A motorist traveling north on Western Avenue struck a bicyclist in the crosswalk at the intersection of Washington Street. The bicyclist was traveling west on the sidewalk before entering the crosswalk.
10	6/19/2008	8:52 AM	Intersection of Washington Street and Cattano Avenue	Unknown	Daylight	Clear	A motorist traveling westbound on Washington Street was stopped at the intersection of Cattano Avenue when a bicyclist struck the vehicle from the rear. The bicyclist fled the scene.
11	6/17/2008	6:42 PM	Intersection of Martin Luther King Avenue and Hillairy Avenue	Bicyclist Suffered Moderate Injury	Daylight	Clear	A motorist traveling north on Martin Luther King Avenue struck a bicyclist in the crosswalk at the intersection of Hillairy Street. The bicyclist was traveling north in the southbound lane of Martin Luther King Avenue when they were struck.
12	11/6/2007	3:09 PM	Intersection of Franklin Street and Mellon Place	Bicyclist Suffered Moderate Injury	Daylight	Clear	A motorist traveling south on Mellon Place struck a bicyclist in the crosswalk at the intersection of Franklin Street. The bicyclist was traveling north on the sidewalk before entering the crosswalk.
13	8/24/2007	2:12 PM	Flagler Street, 400' west of Clyde Potts Drive	Bicyclist Suffered Moderate Injury	Daylight	Clear	A motorist traveling south on Flagler Street turned left into an angled parking space and was struck by a bicyclist traveling south on the left side of the roadway.
14	8/22/2007	5:05 PM	Speedwell Avenue, 50' south of Sussex Avenue	Complaint of Pain	Daylight	Clear	A motorist stopped in the driveway of 164 Speedwell Avenue was struck by a bicyclist traveling north on the sidewalk.
15	7/15/2007	8:45 PM	Martin Luther King Avenue, 50' south of Hillairy Avenue	No Injury Reported	Dark (street lights on)	Clear	A motorist traveling south on Martin Luther King Avenue was struck by a bicyclist traveling in the same direction on the roadway. The bicyclist swerved to the left and hit the moving vehicle.

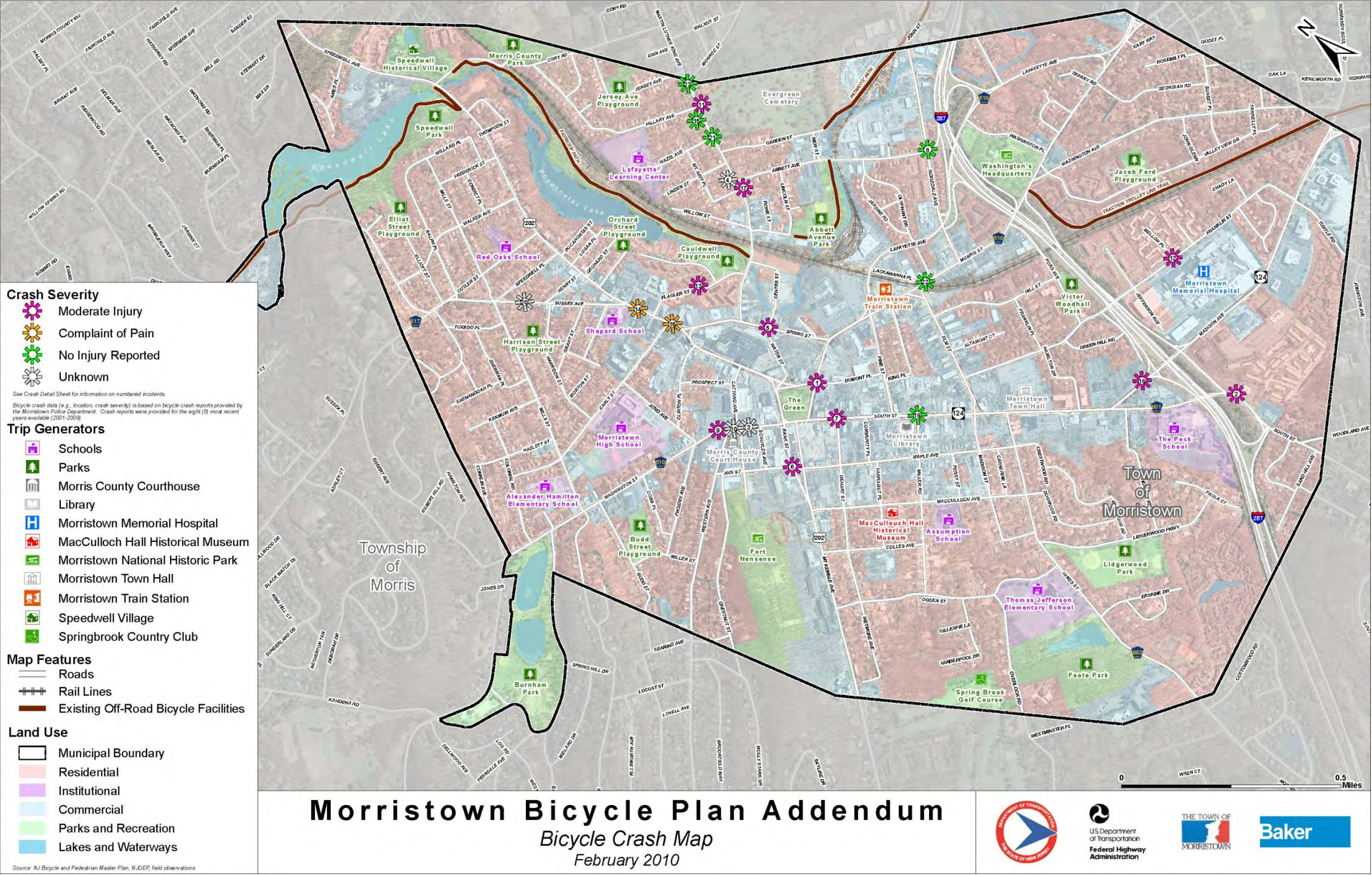


## Morristown Bicycle Plan Addendum

	Date	Time	Location	Severity	Lighting	Conditions	Crash Description
16	5/21/2007	8:24 AM	Speedwell Avenue, 35' south of Early Street	Complaint of Pain	Daylight	Clear	A motorist traveling south on Speedwell Avenue struck a bicyclist while turning left into the driveway for Blockbuster Video. The bicyclist was traveling north on the sidewalk.
17	5/1/2007	11:27 PM	Intersection of Mt. Airy Place and Martin Luther King Avenue	Bicyclist Suffered Moderate Injury	Dark (street lights on)	Rain	A motorist traveling north on Martin Luther King Avenue struck a bicyclist in the crosswalk at the intersection of Mt. Airy Place. The bicyclist was traveling north on the sidewalk before entering the crosswalk.
18	8/29/2006	7:44 AM	Intersection of Madison Avenue and I-287 exit 35 ramp	Bicyclist Suffered Moderate Injury	Daylight	Clear	A motorist traveling south on the I-287 exit ramp (exit 35) struck a bicyclist at the intersection of Madison Avenue. The bicyclist was traveling east on the sidewalk before entering the crosswalk.
19	7/9/2004	12:38 PM	Intersection of South Street and Miller Road	No Injury Reported	Daylight	Clear	A motorist traveling west on South Street turned left onto Miller Road and struck a bicyclist. The police report did not identify the direction the bicyclist was traveling.
20	1/5/2004	8:22 AM	Driveway of 50 Sussex Avenue	Unknown	Daylight	Rain	A motorist stopped in the driveway of 50 Sussex Avenue was struck by a bicycle traveling on the sidewalk. The bicyclist fled the scene.
21	7/20/2002	2:42 PM	Intersection of Martin Luther King Avenue and Hazel Avenue	No Injury Reported	Daylight	Clear	A motorist traveling east on Hazel Drive struck a bicyclist in the crosswalk at the intersection of Martin Luther King Avenue. The bicyclist was traveling south on the sidewalk before entering the crosswalk.
22	1/14/2002	1:58 PM	Intersection of Lackawanna Place and Morris Street	No Injury Reported	Daylight	Clear	A motorist traveling south on Lackawanna Place was struck by a bicyclist traveling west on Morris Street. The bicyclist crossed the intersection against a red signal.
23	10/7/2001	4:51 PM	Martin Luther King Avenue, 150' south of Jersey Avenue	No Injury Reported	Daylight	Clear	A motorist stopped in the driveway at 80-82 Martin Luther King Avenue was struck by a bicyclist traveling south on the sidewalk.



Map 3: Morristown Bicycle Crash Map





# Recommended Bicycle Facility Improvements

VI.





## 6. RECOMMENDED BICYCLE FACILITY IMPROVEMENTS

Recommended bicycle facility improvements to enhance bicycle mobility and accessibility in Morristown were prepared to supplement bikeway design guidance provided in the Morristown's draft Bicycle Plan.

Recommendations are based on findings from the bicycle compatibility assessment and bicycle crash review, the draft Morristown Bicycle Plan, and input from local officials and stakeholders through a Study Coordinating Committee and a Public Information Center (**Appendix C**). The recommended improvements address existing conditions on inventoried roadways, intersections, and bridges in Morristown, and provide suggestions for consideration by Morristown officials for incorporating future roadway modifications to accommodate bicycles.



### 6.1. Bicycle Facility Roadway Improvements

The bikeway design guidelines in the draft Morristown Bicycle Plan were based on standards derived from the NJDOT and the American Association of State and Highway Transportation Officials (AASHTO) Bicycle Facilities guidelines. From these standards, town officials identified three (3) facilities for application in Morristown: *Bike Lanes*, *Shared Roadways*, and *Shared Use Paths*.

Baker has utilized this information in developing the bicycle facility recommendations for Morristown roadways. The recommendations, which are presented as concept templates, were developed for installation within the existing pavement widths and in response to conditions such as speed, volume, and the presence of on-street parking. The concept templates are listed below and illustrated in **Map 4**:

1. **Concept Template #1 – Paved Shoulders “Share the Road”**
2. **Concept Template #2 – Shared Lane with Shared Lane Markings**
3. **Concept Template #3 – Centerline Restriping**
4. **Concept Template #4 – Bicycle Route Designation**

Details pertaining to the concept templates are included on the following pages and accompanied by the identification of specific roadways for application of the improvements (**Appendix D**), order-of-magnitude costs (preliminary cost estimating spreadsheets are

included in **Appendix E**), and potential constraints associated with the installation of the improvements. The recommended improvements were developed in accordance with NJDOT guidelines for bicycle and pedestrian 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 Planning, Design, and Operations of Pedestrian Facilities* and *Guide for the Development of Bicycle Facilities*), and the Federal Highway Administration (FHWA) 2009 edition of the Manual on Uniform Traffic Control Devices (MUTCD).



*Bicyclist travelling west on South Street (NJ 124) against traffic.*



## Map 4: Morristown Bicycle Concept Application Map





### 6.1.1. Concept Template #1 – Paved Shoulders “Share the Road”

Concept Template #1 proposes striped, paved shoulders for roadways which currently have a 32' cross-section and where on-street parking is not permitted. The proposed cross-section would include two 11' travel lanes and 5' shoulders in each direction to provide space for a bicyclist to ride adjacent to motor vehicles. “Share the Road” signs (W11-1, W16-1P) would be installed in conjunction with the striping to bring alert motorists to the presence of bicyclists in the roadway. As the bicycle network is developed in Morristown, these shoulders could be re-striped and signed to become designated bicycle lanes. Concept #1 is illustrated in **Figure 1**.

This template could be applied to Martin Luther King Avenue, (north of Abbett Avenue) and Mt. Kemble Avenue (US 202), (south of MacCulloch Avenue). For Martin Luther King Avenue, striped shoulders would be installed from the intersection of Abbett Avenue to the Morristown boundary. To supplement the striping, share the road signage at regular intervals. It is estimated that the restriping and installation of signs would cost \$26,000.

A 4' wide striped shoulder currently exists on Mt. Kemble Avenue (US 202) between the Morristown boundary and MacCulloch Avenue. Restriping along this corridor would widen each shoulder by 1' and include the installation of shared road signage should be installed at regular intervals. It is estimated that the restriping and installation of signs would cost \$39,000.

No potential constraints are anticipated for this concept.

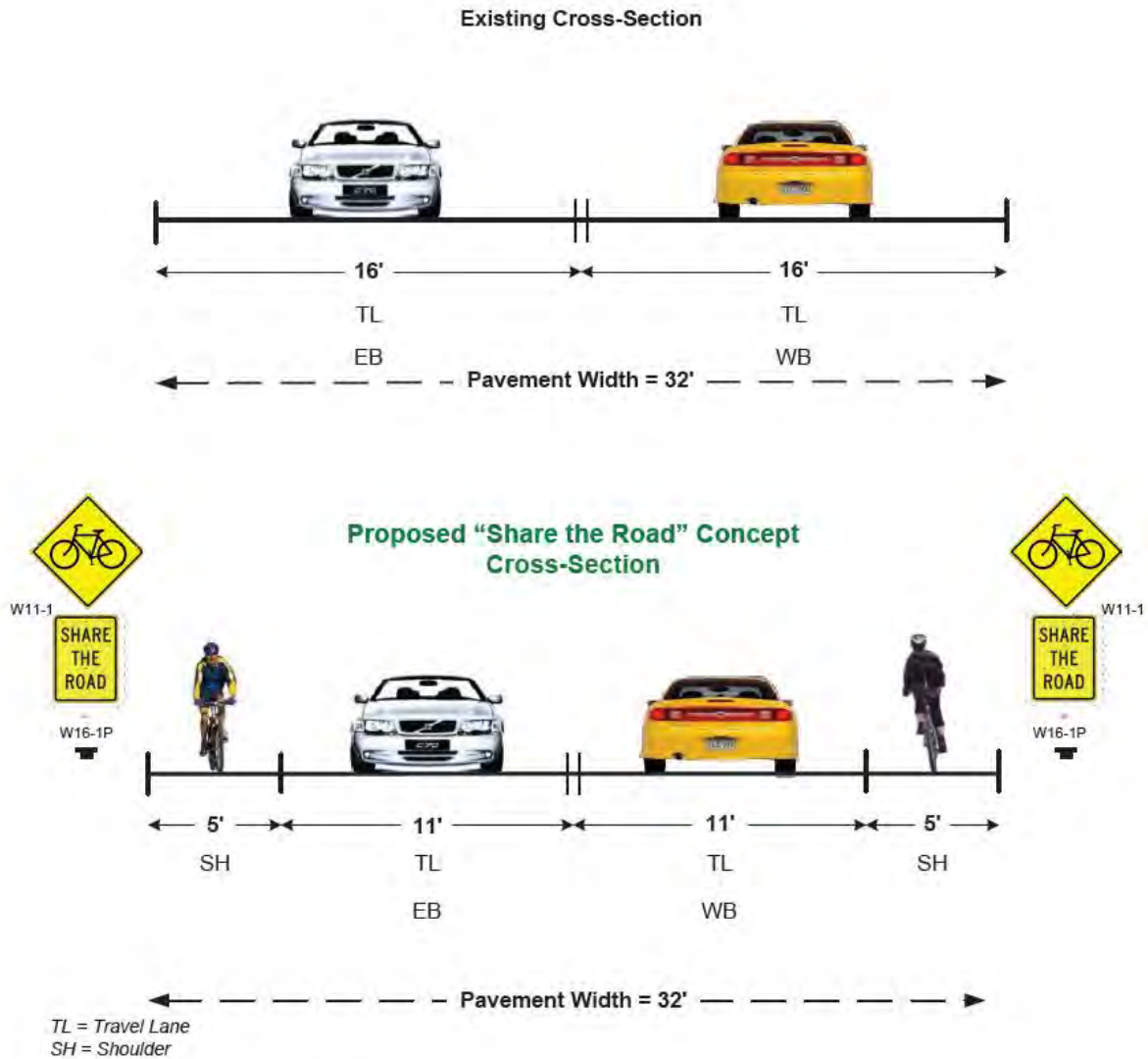


*Mt. Kemble Avenue, looking north*



*Martin Luther King Avenue, looking north*

**Figure 1: Concept Template #1 Paved Shoulders  
“Share the Road”**





### 6.1.2. Concept Template #2 – Shared Lane with Shared Lane Markings

Concept Template #2 proposes the development of shared lanes through the installation of Shared Lane Marking, or “Sharrow” symbols on roadways that have widths between 40’ – 44’ and permitted on-street parking. Shared lane markings are recommended to provide guidance to bicyclists regarding positioning in the travel lane. Shared lane markings can also reduce the incidence of riding against traffic and sidewalk riding by bicyclists.<sup>2</sup>

Three (3) variations (a,b,c) for Concept Template #2 were developed based on varying cross-section widths in Morristown. Recommended signage to supplement the shared lane markings varies based on the proposed cross-section.

#### *Concept Template 2a*

Concept Template #2a proposes re-striping of roadways with a 40’ cross-section. The proposed cross-section would include two 13’ travel lanes 7’ striped parking in each direction, and shared lanes with full travel lane utilization for the bicyclist. Since on-street parking is permitted, Shared Lane Markings should be installed a minimum of 11’ from the face of the curb and ‘Bicycles May Use Full Lane’ signs (R4-11) would be installed along the roadway. Concept #2a is illustrated in **Figure 2**.

This template could be applied to Sussex Avenue, (from Cutler Street to Speedwell Avenue), and South Street, (from Dehart Street to Madison Street). On Sussex Avenue, the shared lane markings are recommended for installation at regular intervals (approx. every 150’ – 200’) along the roadway. “Bicycles may use Full Lane” signs are recommended for installation at wider intervals along the roadway (e.g. 1,000’), but should be installed to correspond with the markings. It is estimated that the restriping and installation of signs would cost \$25,000.

For South Street, a reduction of parking lane striping from 8’ to 7’ is recommended. The shared lane markings are then recommended for installation at regular intervals (approx. every 150’ – 200’) and immediately following each signalized intersection along the roadway. “Bicycles may use Full Lane” signs are recommended for installation at greater intervals (e.g. 1,000’) along the roadway, but should be installed to correspond with the markings. It is estimated that the restriping and installation of signs would cost \$32,000.

No potential constraints are anticipated for this concept.

---

<sup>2</sup> Based on evidence from studies, including San Francisco’s Shared Lane Pavement Markings: Improving Bicycle Safety Final Report and Florida Department of Transportation’s Evaluation of the Shared-Use Arrow

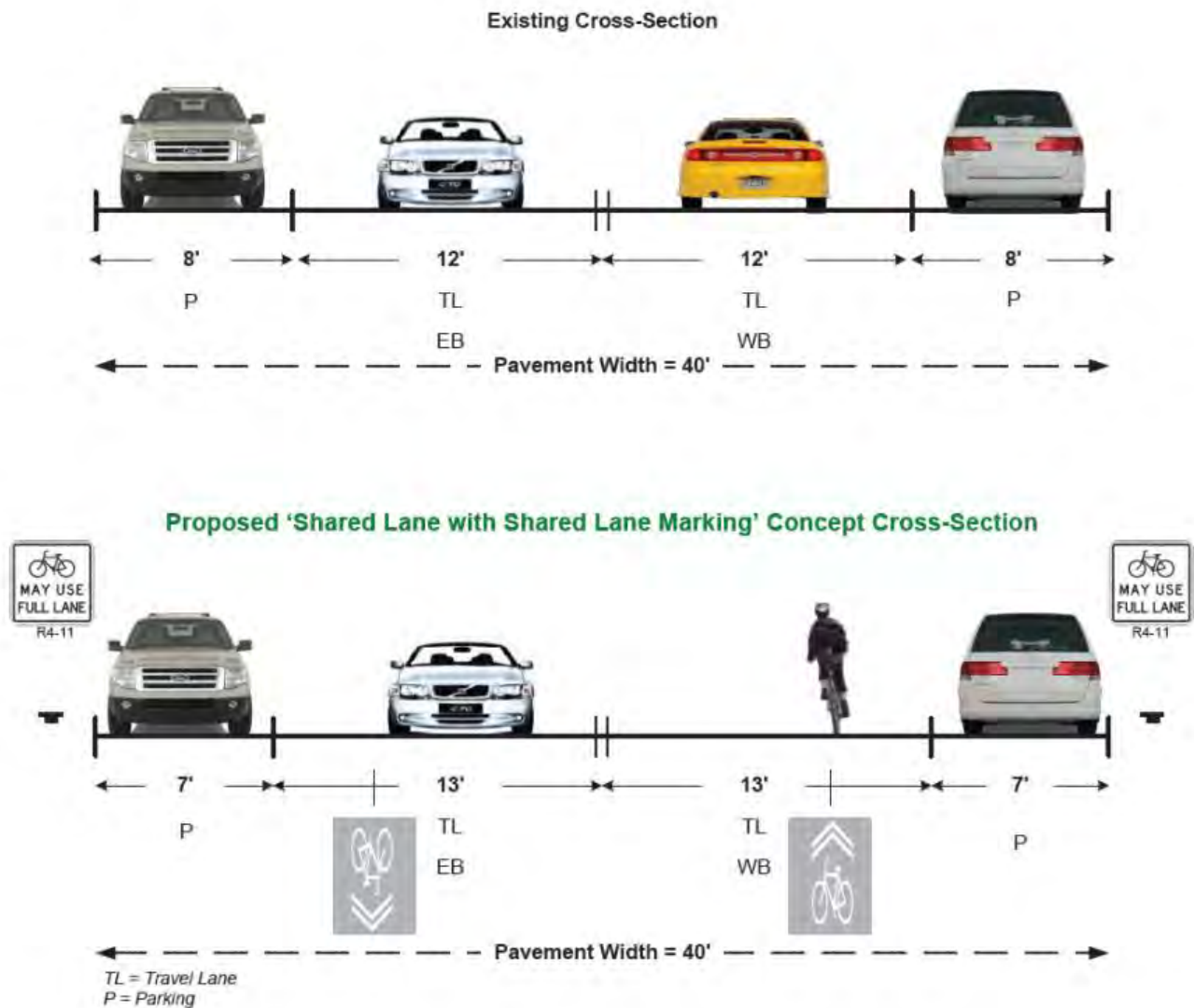


*Sussex Avenue, looking South, toward Speedwell Avenue*



*South Street, looking East*

**Figure 2: Concept Template #2a Shared Lane Concept with Shared Lane Markings (40' Cross-Section)**





### *Concept Template 2b*

Concept Template #2b proposes the re-striping of parking lanes on roadways with a 42' cross-section. The proposed cross-section would include two 14' travel lanes and 7' striped parking in each direction, and shared lanes with full travel lane utilization for the bicyclist. Since on-street parking is permitted, shared lane markings should be installed at minimum of 11' from the face of the curb, as well as "Share the Road" signs (W11-1, W16-1P). "Share the Road" signage is recommended to indicate the potential for side-by-side travel by motorists and bicyclists. Concept #2b is illustrated in **Figure 3**.

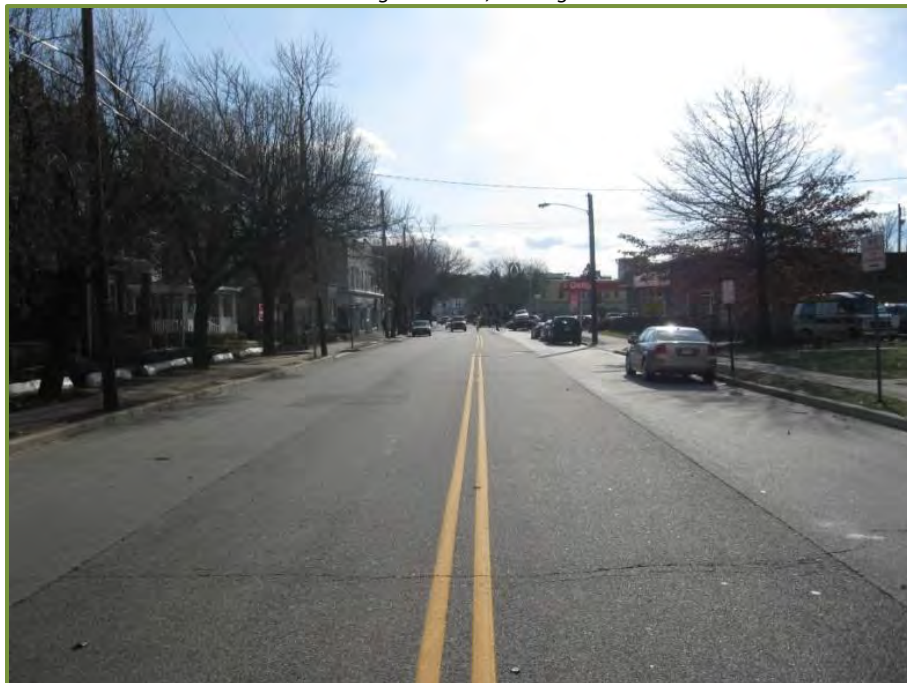
This template could be applied to Washington Street, (from the Morristown Boundary to Cattano Avenue), and Speedwell Avenue, (between Sussex Avenue and Frederick Street). On Washington Street, a reduction of parking lane striping (where present) from 8' to 7' is recommended. The shared lane markings are recommended for installation at regular intervals (approx. every 150' – 200') and immediately following each signalized intersection along the roadway. Share the road signs are recommended for installation at greater c intervals (e.g. 1,000') along the roadway, but should be installed to correspond with the pavement markings. It is estimated that the restriping and installation of signs would cost \$24,000.

For Speedwell Avenue a reduction of parking lane striping (where present) from 8' to 7' is recommended. Shared lane markings are recommended for installation at regular intervals (approx. every 150' – 200') and immediately following each signalized intersection along the roadway. Share the road symbols are recommended for installation at greater intervals (e.g. 1,000') along the roadway, but should be installed to correspond with the pavement markings. It is estimated that the restriping and installation of signs would cost \$27,000.

No potential constraints are anticipated for this concept.



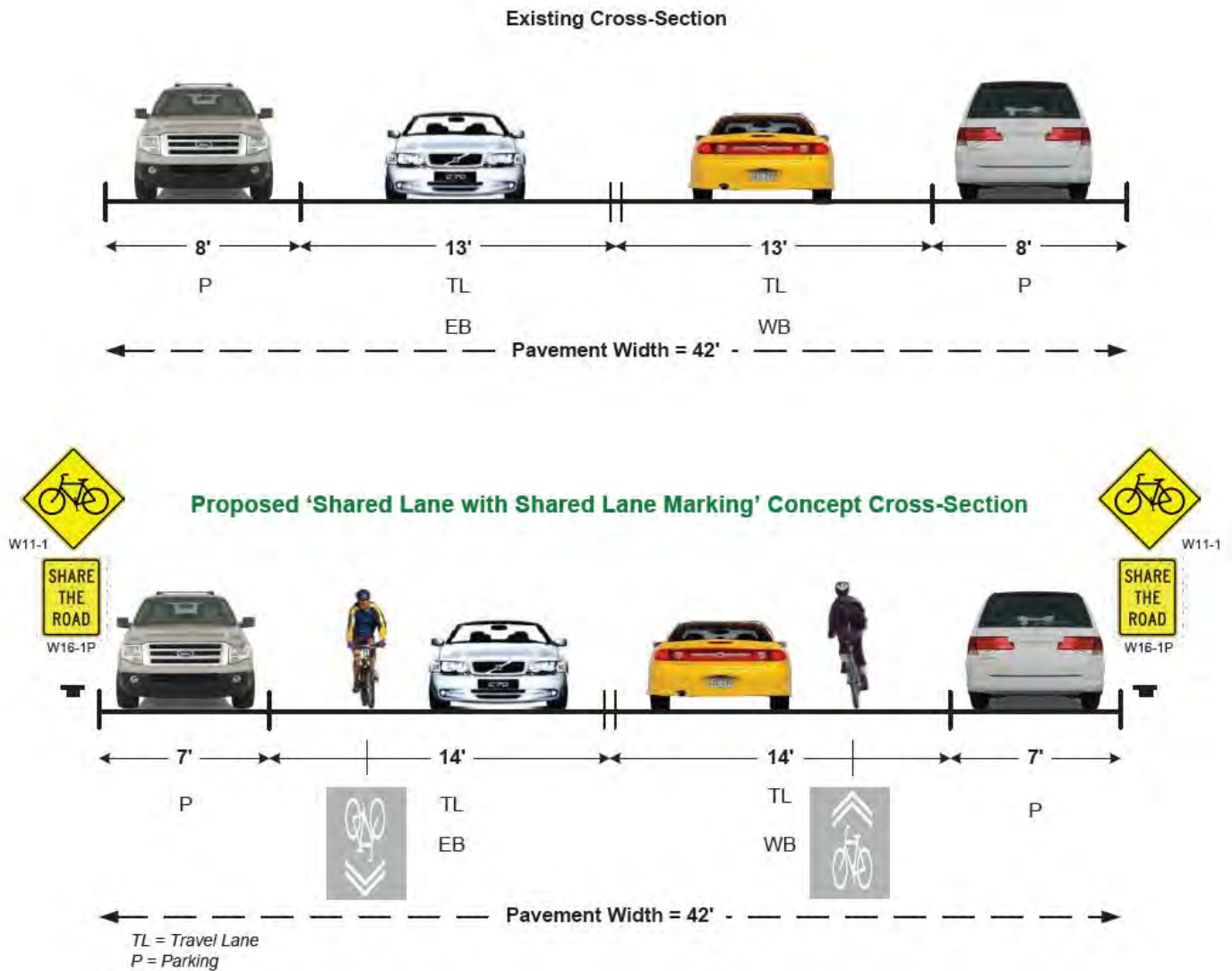
*Washington Street, looking East*



*Speedwell Avenue, looking South*



**Figure 3: Concept Template #2b Shared Lane Concept with Shared Lane Markings (42' Cross Section)**



## *Concept Template 2c*

Concept Template #2c proposes installing shared lane markings on roadways with a 44' cross-section. For this template, four 11' travel lanes would remain, but enhancements are proposed to provide a shared lane situation for full travel lane utilization by a bicyclist. On-street parking is not permitted in these locations, so Shared Lane Markings are recommended for installation at least 4' from the face of the curb in addition to 'Bicycles May Use Full Lane' signs (R4-11). Concept #2c is illustrated in **Figure 4**.

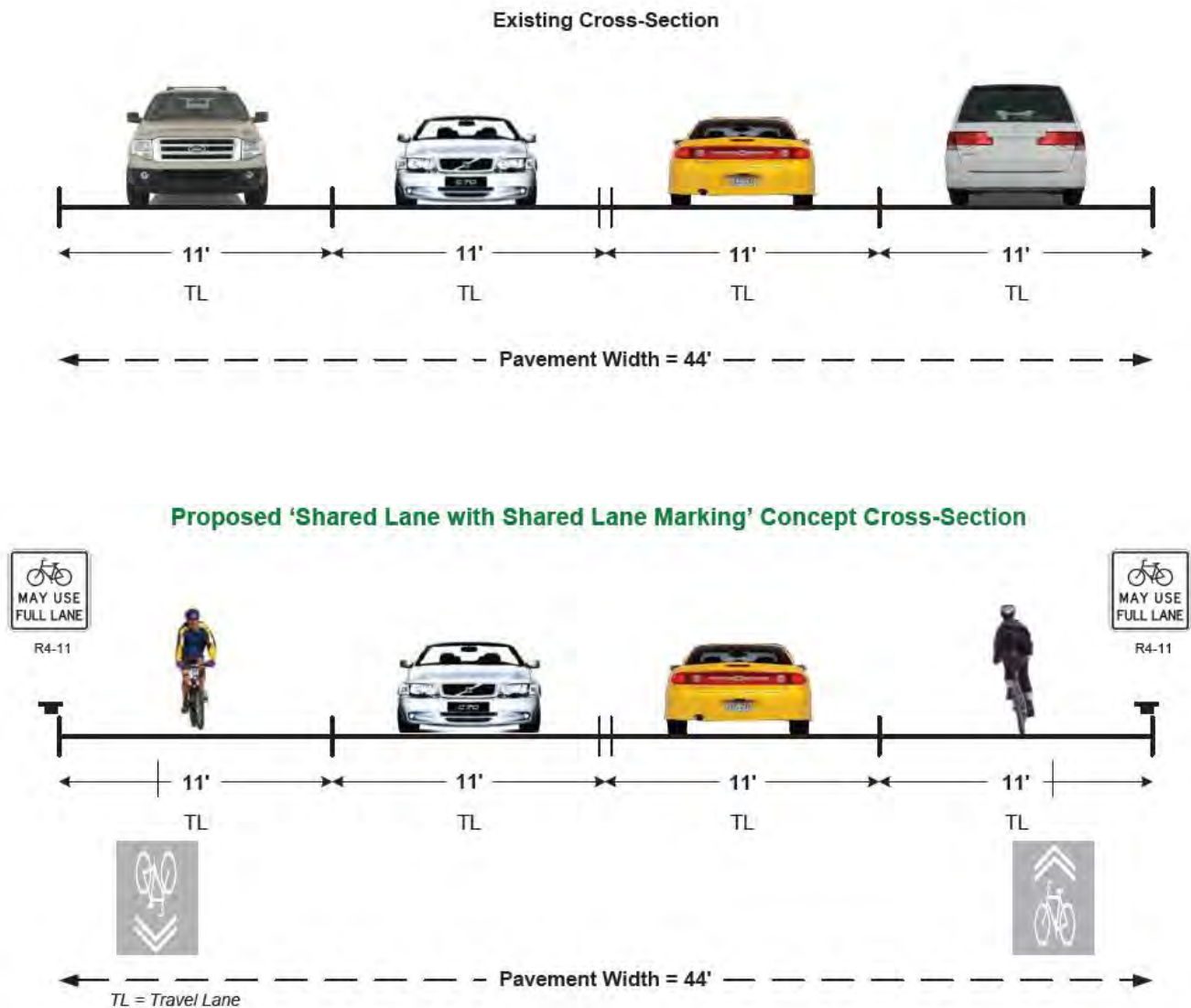
This template can be applied to Spring Street between Morris Street and Speedwell Avenue. On Spring Street, shared lane markings are recommended for installation at regular intervals (approx. every 150' – 200') along the roadway. "Bicycles may use Full Lane" signs are recommended for installation at greater intervals (e.g. 1,000') along the roadway, but should be installed to correspond with the markings. It is estimated that the restriping and installation of signs would cost \$23,000.



*Spring Street, looking South, towards Morris Street*



**Figure 4: Concept Template #2c Shared Lane Concept with Shared Lane Markings (44' Cross Section)**



## 6.1.3. Concept Template #3 – Centerline Restriping

Concept Template #3 proposes restriping of the roadway centerlines to provide additional space for future installation of bicycle facilities (e.g. shared lane markings, shoulders, etc.). In situations where bicycle facilities can only be accommodated (without ROW impacts) on one side of the roadway, shifting centerlines could provide the necessary additional space needed to accommodate bicycle facilities on both sides. Once restriping is completed, one of the previous four (4) concept templates could be implemented. In addition shifting the centerlines, the locations may require additional planning, investigation, and engineering review.

Potential locations for centerline restriping are James Street (from South Street to MacCulloch Avenue), Martin Luther King Avenue from (Center Street to Spring Street), and Abbett Avenue (from Ridgedale Avenue to Martin Luther King Avenue). For example, on Martin Luther King Avenue, current roadway widths are not bicycle compatible in the northbound direction. Shifting the roadway centerline 2' toward the southbound lane will increase to the northbound lane width to 14' making it compatible for the application of Concept Template 2b.

Potential constraints associated with shifting the centerlines include traffic impacts and the relocation of raised pavement markers. It is recommended that centerline shifting be reviewed further when the identified roadways are under consideration for repaving or reconstruction.



*Restriping the centerlines on Martin Luther King Avenue could provide added space for a 14' northbound travel lane.*



## 6.1.4. Concept Template #4 – Bicycle Route Designation

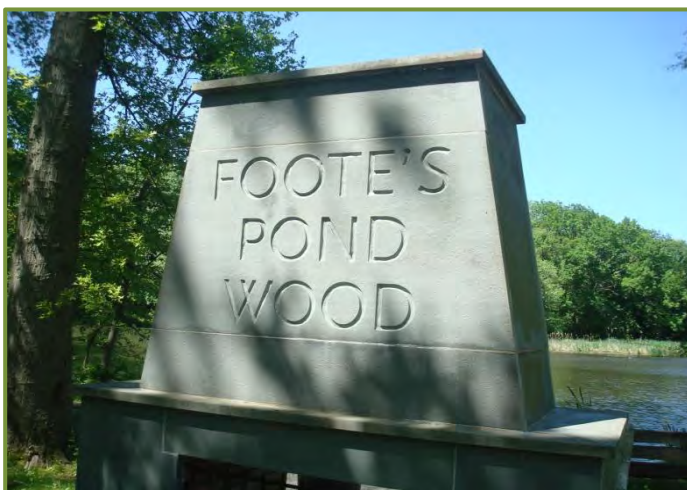
Concept Template #4 proposes the designation of low-volume residential streets as Signed Bicycle Routes. The purpose of signing roadways as Bicycle Routes is to provide directional information and connections for bicyclists to reach community destinations.

Many lower speed (25 MPH) residential streets in Morristown were determined bicycle compatible per NJDOT guidelines and have the potential to be signed as a Bicycle Route. For this concept, Bicycle Route signage (D Series: D1-1 and D-11-1) is recommended for installation at the start and end of the proposed routes, with additional signage provided at major decision points to provide guidance for bicyclists. The D1-1 plaques are recommended to identify destinations, and could include “To Downtown”. In addition to providing bicycle connections within neighborhoods, the signed bicycle routes could serve as connecting routes to other roadway corridors that are improved under other concept templates, such as Mt. Kemble Road (US 202) and Martin Luther King Avenue. Concept #4 is illustrated in **Figure 5**.

Examples of where this template could be applied are:

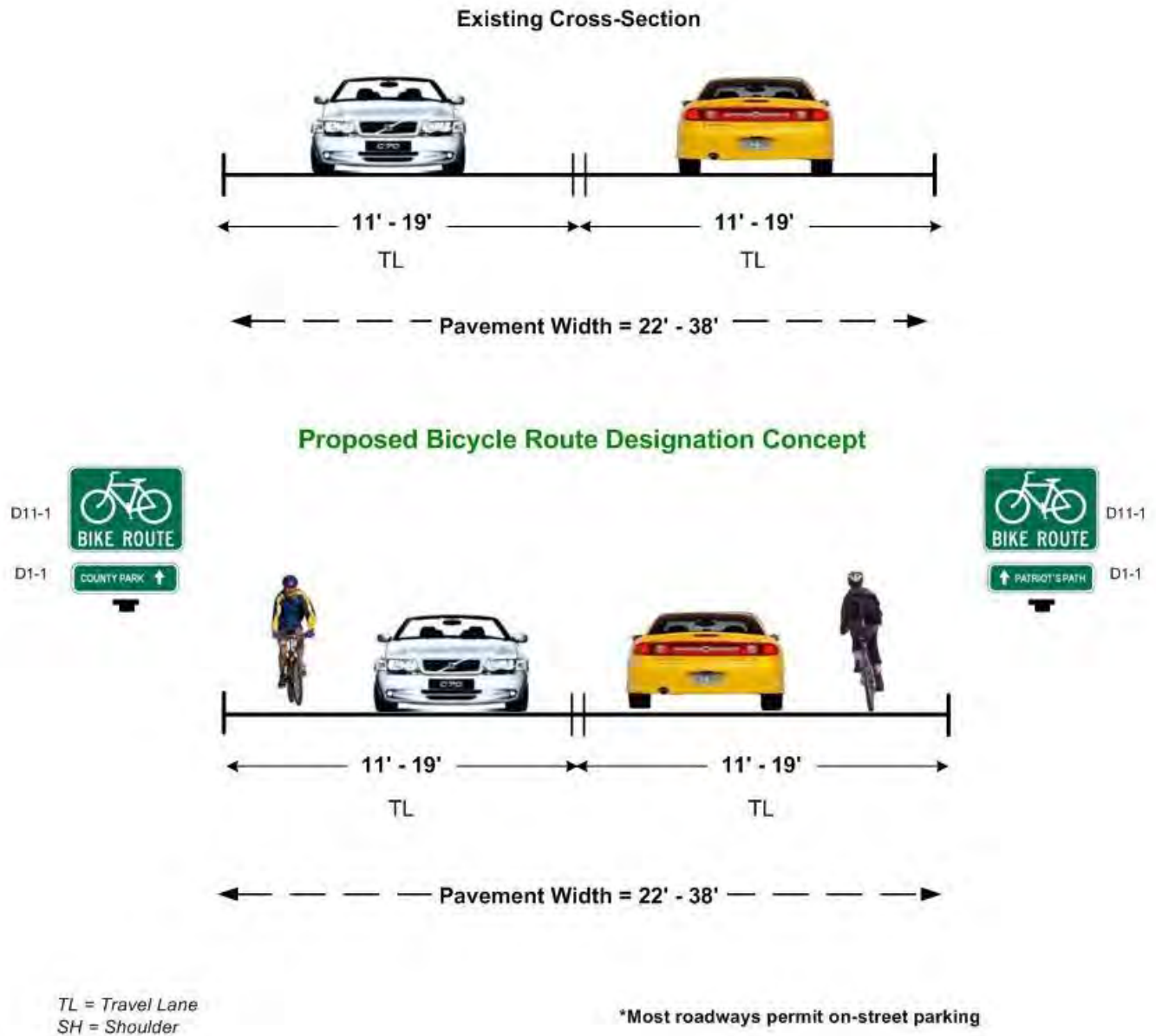
- Valley View Drive: providing a connection to the Jacob Ford Playground
- Ogden Street: providing a connection to the Thomas Jefferson Elementary School.
- Jersey Avenue: providing a connection to the Jersey Avenue Playground

It is estimated that the installation of signs would cost between \$17,000 and \$20,000 per route.



*Destinations such as the Morristown Train Station or Foote's Pond Wood near the Thomas Jefferson Elementary School could be better served through the designation of bicycle routes throughout Morristown.*

**Figure 5: Concept Template #4 – Bicycle Route Designation**





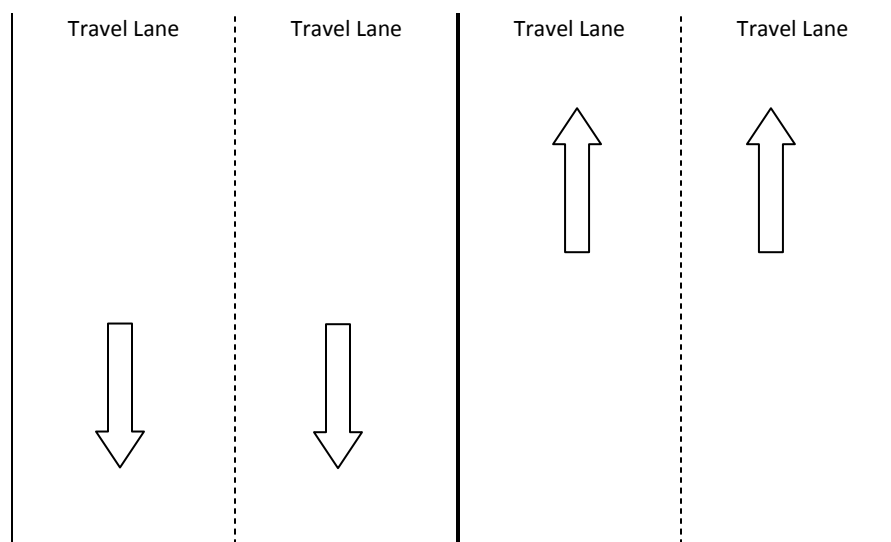
## 6.1.5. Further Study

Connectivity within a network is important when developing on-road bicycle facilities. To that end, several roadways that could provide key connections in Morristown present significant challenges to accommodating bicycles and will require further study. These roadways include:

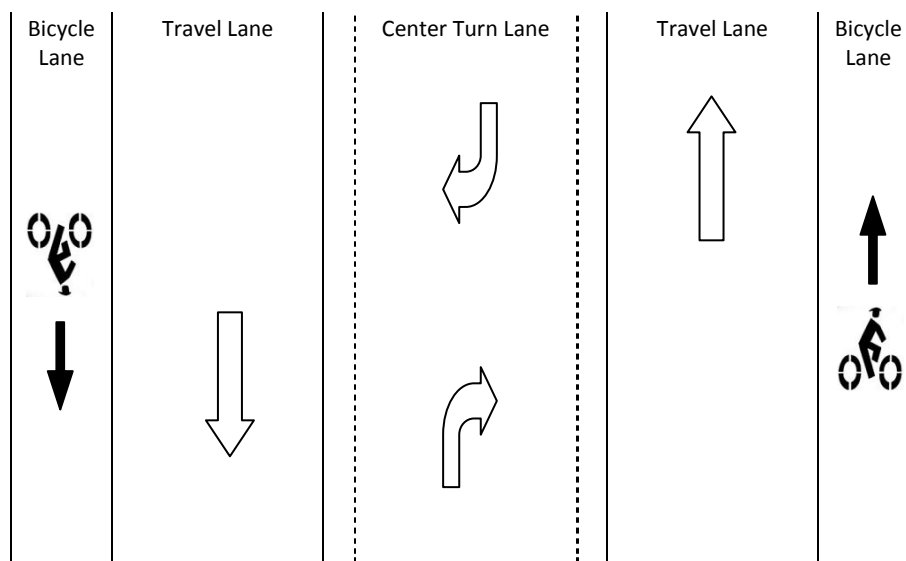
- Speedwell Avenue (US 202), north of Frederick Street
- Speedwell Avenue (US 202), between Sussex Avenue and Flagler Street
- Ridgedale Avenue, north of Abbett Avenue
- Lafayette Avenue
- Madison Avenue (NJ 124), west of I-287
- MacCulloch Avenue
- Pine Street

For these roadways, investigation is recommended into possible removal of on-street parking, reduction in the number of travel lanes, and potential minor widening to increase available existing pavement width for bicycles. An example of this type of change is the concept of a Road Diet. A Road Diet involves reducing vehicle travel lanes and reallocating roadway space for other modes of travel and potential uses, such as bicycle lanes. **Figures 6 and 7** illustrate a Road Diet prior to, and after implementation.

**Figure 6: Cross-Section prior to Road Diet**

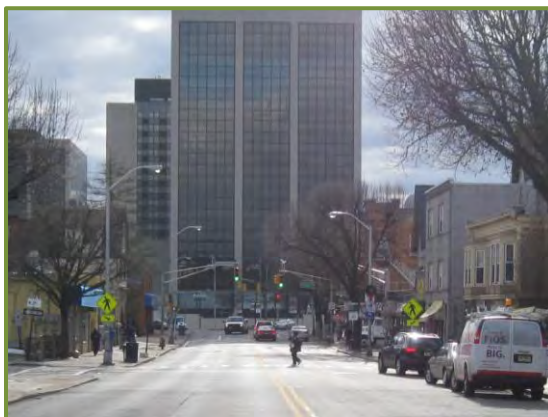


**Figure 7: Cross-Section following Road Diet**



Road diets have been successfully constructed on roadways with an AADT under 20,000, and have resulted in improved multi-modal travel, speed reductions, and minimal traffic diversions.<sup>3</sup> However, at a minimum, this treatment requires analysis of peak hour traffic volumes and roadway capacity before it can be implemented.

These potential changes will require more detailed engineering review and design, as well as coordination with residents, property owners, transportation agencies, and other involved stakeholders.



*The section of Speedwell Avenue between Sussex Avenue and Flagler Street will need further study before bicycles can be accommodated.*

<sup>3</sup> Road Diet Handbook: Setting Trends for Livable Streets, Institute of Transportation Engineers, July, 2009



## 6.2. Bicycle Facility Improvements at Intersections and Bridges

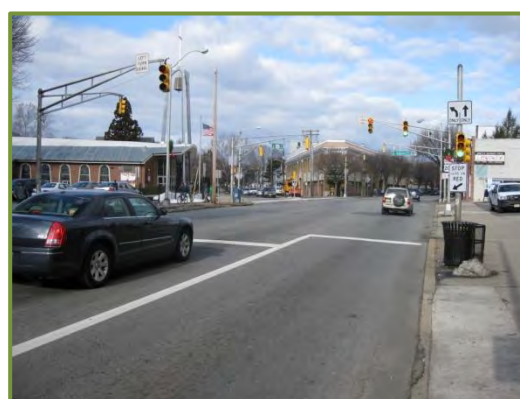
Several important connections through Morristown will include traversing major intersections and bridges by bicyclists. Of the five (5) intersections that were analyzed during this study, it was identified that three (3) are scheduled to receive enhancements as part of a “complete streets” policy currently being initiated by Morris County. These intersections are located along Morris Street at Spring Street, Lafayette Avenue, and Elm Street. Critical to the success of the complete streets application along this corridor will be the application of bicycle facilities if they have not been planned already.

For the remaining two (2) intersections, at Speedwell Avenue/Sussex Avenue and Ridgedale Avenue/Lafayette Avenue, consistency of lane widths through the intersections and the installation of appropriate striping and signage will help to increase motorist awareness of the presence of bicyclists at these locations. At these locations 13’ - 14’ shared travel lanes are recommended through the intersections. An example of how these improvements may look can be found in **Figure 8**, on the following page.

Since Morristown is bisected by Interstate 287, several bridges may require crossing. For the bridge on Madison Avenue (NJ 124) which was analyzed during this study, adequate space is not available for the roadway. NJDOT’s *Planning and Design Guidelines for Bicycle Compatible Roadways and Bikeways* recommends that for small sections of roadway, bicyclists may use sidewalks on bridges when combined with adequate signage and striping.



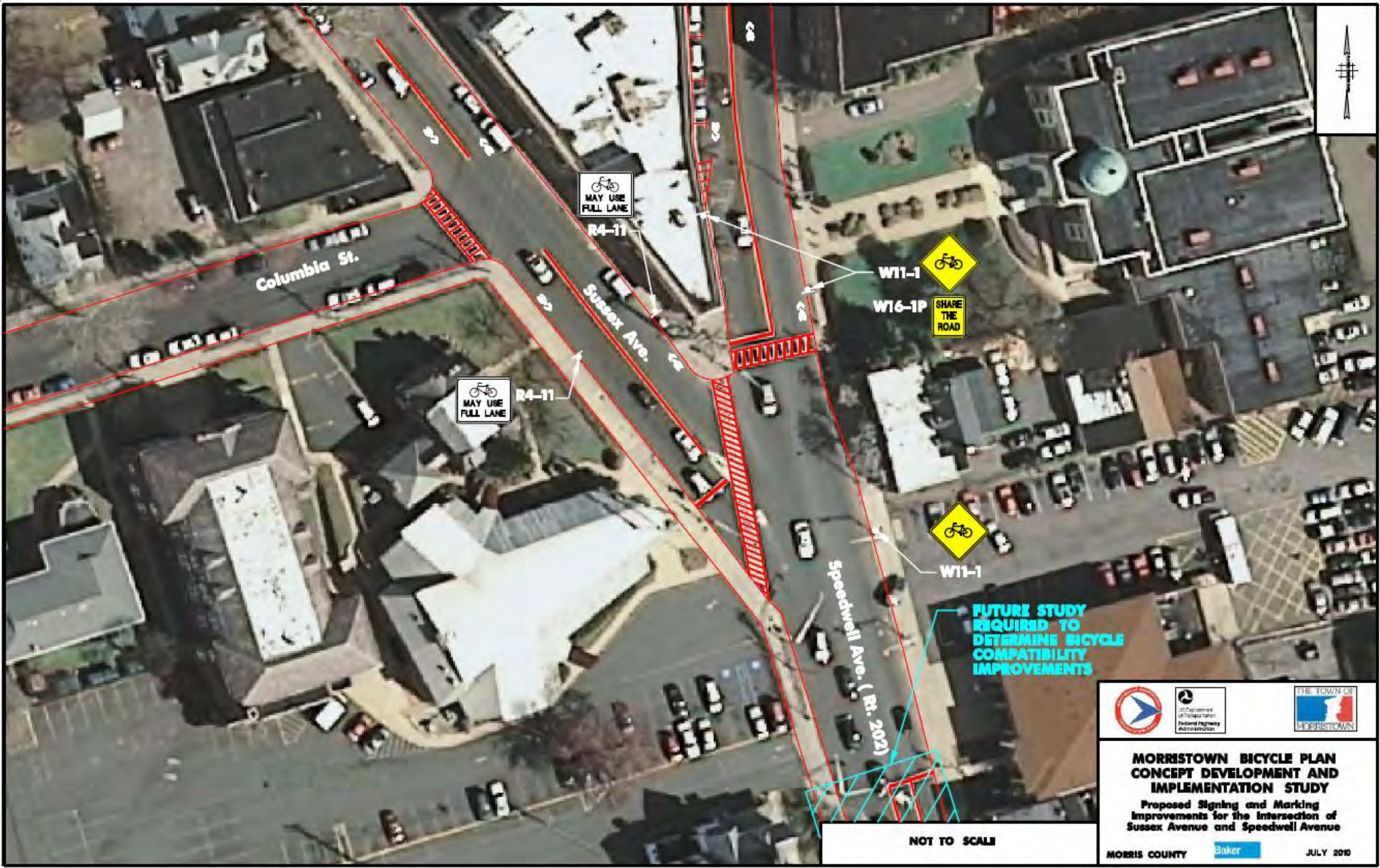
*Sidewalk located on Madison Avenue Bridge*



*Intersection of Sussex Avenue and Speedwell Avenue*



Figure 8: Proposed Signing and Striping at Sussex Avenue and Speedwell Avenue





# Implementation Plan

VII.



## 7. IMPLEMENTATION PLAN

Morristown covers an area of roughly three (3) square miles. The average bicycle trip ranges between 3 – 5 miles. As a result, Morristown presents a tremendous opportunity for increasing the amount of bicycle travel in town through on-road bicycle compatibility enhancements.

As detailed and illustrated in this addendum, there are multiple treatments that can be installed in Morristown to improve bicycle mobility. The following sections provide guidance on coordination, planning, and funding sources that can serve as a resource for developing bicycle facilities in Morristown.

### 7.1. Implementation Items

Bicycle accommodations on Morristown roadways (e.g., lane striping, pavement markings, signage, etc.) will likely need to be installed in phases based on the availability of resources, local priorities, and implementation of scheduled roadway improvements (e.g., re-striping, repaving, reconstruction, etc). Consequently, there may be thresholds and opportunities for advancing different elements of the bicycle network.

**Table 8** presents the recommended action items in a matrix to provide a potential outline for implementing the conceptual improvement templates and developing a comprehensive bicycle network:



*Bicyclist travelling west on South Street.*



*Bicyclist riding on the sidewalk along Morris St.*



**Table 8: Morristown Bicycle Plan Addendum Implementation Matrix**

#	Action Item	Purpose	Implementation Time Frame
1	Advance improvements along a key East – West corridor in Morristown. The proposed corridor for this action item is Washington Street (CR 510) and South Street (NJ 124/CR 601). Concept templates 2a, 2b and 2c can be applied to sections of this corridor as detailed on <b>Map 4</b> . Additional investigation will be needed for other sections of the corridor to identify compatibility improvements that would create a connected set of bicycle facilities and enhancements.	The proposed corridor would provide an initial east – west spine for the bicycle network that would allow for future network connections.	Short-term
2	Advance improvements along a key North – South corridor in Morristown. The proposed corridor for this action item takes place along Martin Luther King Avenue and Mt. Kemble Ave. Concept templates 1, 2b, and 3 can be applied to sections of this corridor as detailed on <b>Map 4</b> . Additional investigation will be needed for other sections of the corridor to identify compatibility improvements that would create a connected set of bicycle facilities and enhancements.	The proposed corridor would provide an initial north – south spine for the bicycle network that would allow for future network connections.	Short-term
3	Connect established North – South and East – West corridors with supplemental facilities that will connect to destinations within Morristown.	Additional routes would provide connections to bicycle trip generators such as parks, commercial centers, and transit facilities.	Mid – term
4	Perform further study on segments identified in <b>Map 4</b> where necessary to provide connectivity through Morristown. These locations should be targeted for future traffic counts so that compatibility can be assessed further.	Further study on recommended segments of roadway will provide necessary data to effectively accommodate bicycle facilities on these roadways.	Long - term
5	Completion of regional trail networks to provide off-road connections for bicyclists travelling in and through Morristown.	To establish Morristown as a regional destination for bicycles travelling on the regional trail network.	Long - term
6	Coordinate with Morris County and NJDOT regarding local improvement schedules for County and State owned roadways in Morristown. Require improvements to take place as a part of regular maintenance.	Coordination will help to identify regional connections outside of Morristown and potentially reduce associated costs by including improvements with the local improvement schedules.	Continuous
7	Continued enforcement and education regarding local regulations that do not permit cyclists over the age of 14 to ride on sidewalks and that promote bicycle travel on the roadways.	To promote safe practices when riding bicycles throughout Morristown.	Continuous
8	Establish an education and outreach program for the Hispanic community in an attempt to educate bicycle riders on how new facilities should be used. Reinforcement of existing laws and regulations should also be reviewed at these sessions.	To promote safe practices when riding bicycles throughout Morristown.	Continuous

## 7.2. Coordination Efforts

Coordination between Morristown, the Township of Morris, and Morris County should continue to advance improvements to accommodate bicycles on roadways inside and around Morristown. Following this study, a potential step could be the formation of a working group (e.g. Bike/Ped Task Force) to pursue opportunities and resources to support the design and implementation of the on-road facilities. The working group could assist in establishing bicycle compatible routes, as well as identifying potential regional connections that can be supported collectively.

Coordination should also include the identification of opportunities through future development and encouraging feedback from local cycling groups. As projects occur, such as office expansions and commercial developments, opportunities to advance bicycle improvements should be pursued. In addition, through coordination and collaboration, responsibility can be shared regarding future maintenance for bicycle facilities.

## 7.3. Funding Improvements

Costs associated with on-road bicycle improvements can fluctuate. Improvements (e.g., striping of shoulders on Martin Luther King Avenue) can be completed at a relatively lower implementation cost if done by utilizing municipal resources.

Based on the implementation matrix, the recommended action items could be eligible for the following potential funding sources:

- Congestion Mitigation and Air Quality (CMAQ)
- Transportation Development Districts (TDD)
- Smart Future Planning Grants
- Safe Routes to School Grants

Funding sources for bicycle and pedestrian improvements are described in more detail 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.



# Maintenance, Education, & Enforcement

VIII.



## 8. MAINTENANCE, EDUCATION, AND ENFORCEMENT

Maintenance of roadways, including on-road bicycle facilities; education of bicyclists and motorists; and enforcement of traffic laws and statutes are important considerations as the potential for increased bicycle ridership will increase as facilities are created.

### 8.1. 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.

### 8.2. 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 five (5) groups should be educated about bicycle safety and awareness in Morristown:

1. Bicyclists Riding on Sidewalks
2. Young ( 17 and under) bicyclists
3. Adult bicyclists
4. Hispanic bicyclists
5. 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/Touring Tips)  
<http://www.state.nj.us/transportation/commuter/bike/tourtips.shtml>



- **Federal Highway Administration (FHWA)– Bicycle Safety Education Resource Center**

<http://www.bicyclinginfo.org>

**Good Practices Guide**

<http://www.bicyclinginfo.org/education/resource/bestguide.cfm>

Through public meetings it was identified that the Hispanic community represents a major segment of the cycling community in Morristown. In an effort to provide educational material for the Hispanic community, the FHWA and the National Highway Traffic Safety Administration (NHTSA) currently provide a multitude of resources pertaining to educational campaigns for Hispanic bicyclists. In addition to marketing materials, the FHWA has prepared multiple reports on the topic and two (2) have been provided in **Appendix G and H**. Educational materials in Spanish can be accessed at the following locations:

- **FHWA – Safety Programs**

[http://safety.fhwa.dot.gov/ped\\_bike/hispanic/materials/index.cfm](http://safety.fhwa.dot.gov/ped_bike/hispanic/materials/index.cfm)

- **NHTSA – Pedestrian and Bicycle Safety among Hispanics**

<http://www.nhtsa.gov/Driving+Safety/Bicycles/Pedestrian+and+Bicycle+Safety+among+Hispanics>



Several flyers for bicyclist are prepared in Spanish and reports addressing similar issues have been developed by the FHWA and the NHTSA.

### 8.3. Enforcement

The key to encouraging a safe and well traveled transportation system is an enforcement program for traffic regulations as they apply to each type of roadway user: motorists, bicyclists, and pedestrians. The Town of Morristown 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 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 motorists, bicyclists, and pedestrians of applicable laws and recommended travel practices.



# Conclusion

IX.



### 9. CONCLUSION

Morristown has an opportunity to enhance roadway conditions to improve bicycle accommodation on its roadway network in its desire to develop a comprehensive bicycle network. The Addendum is intended to serve as a resource for the town to improve the roadway network for present and future generations of bicyclists. The concept templates provided within this Addendum demonstrate improvements that could enhance bicycle compatibility on existing roadways and improve conditions for bicycle travel throughout the town.



*South Street, looking West*



# Appendix

# A



## **NJDOT 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.

**Table 1**

Bicycle Compatible  
Roadway Pavement  
Widths





# Appendix B



## **Bicycle Compatibility Assessment - Study Area Roadways Matrix**

### Bicycle Compatibility Assessment<sup>1</sup> – Study Area Roadways Matrix

Roadway Name	From	To	AADT	Total Pavement Width	Lane Width (NB//SB)	Lane Width (EB//WB)	# of Lanes	Speed Limit	Median Width	On Street Parking or Shoulders	Bicycle Compatible <sup>1,2,4</sup>
Speedwell Avenue (US 202)	Township Border	Cory Road	26,000	44'	11'/11'//11'/11'		4	35 MPH		No	No 14' outside travel lanes needed
Speedwell Avenue (US 202)	Cory Road	Fredrick Street	10,000 <sup>3</sup>	44'	11'/11'//11'/11'		4	35 MPH		No	No 14' outside travel lanes needed
Speedwell Avenue (US 202)	Fredrick Street	Cutler Street	10,000 <sup>3</sup>	41'	13'//20'		2	35 MPH		8' NB Unstriped parking	Yes (SB travel only) 14' outside travel lane needed for NB travel
Speedwell Avenue (US 202)	Cutler Street	Sussex Avenue (CR 617)	14,300	42'	21'//21'		2	25 MPH		Partial, Unstriped parking	Yes (where parking is not permitted)
Speedwell Avenue (US 202)	Sussex Avenue (CR 617)	Flagler Street	26,600	42'	14'//20'		2	25 MPH		8' SB Striped parking	Yes
Speedwell Avenue (US 202)	Flagler Street	Early Street	26,600	40'	10'/10'//10'/10'		4	25 MPH		No	No 14' outside travel lanes needed
Speedwell Avenue (US 202)	Early Street	Spring Street	10,000 <sup>3</sup>	40'	10'/10'//10'/10'		4	25 MPH		No	No 14' outside travel lanes needed
Speedwell Avenue (US 202)	Spring Street	Clinton Avenue	10,000 <sup>3</sup>	54'	11'/11'//14'		3	25 MPH		11' Right turn lane, NB 7' Striped parking SB	Yes (SB travel only) 14' outside travel lane needed for NB travel

<sup>1</sup> Compatibility was determined based on NJDOT Guidelines for Bicycle Compatible Roadway Pavement Widths.

<sup>2</sup> 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.

<sup>3</sup> If traffic volume were unavailable or unknown, roadway was assessed under Condition III (AADT over 10,000) of the NJDOT guidelines

<sup>4</sup> On stretches of roadway with steep grades where bicyclists need more maneuvering space, the wide curb lane should be slightly wider where practicable (15 feet) is preferred. (AASHTO, 1999)



Roadway Name	From	To	AADT	Total Pavement Width	Lane Width (NB//SB)	Lane Width (EB//WB)	# of Lanes	Speed Limit	Median Width	On Street Parking or Shoulders	Bicycle Compatible <sup>1,2,4</sup>
Speedwell Avenue (US 202)	Clinton Avenue	Cattano Avenue	12,600	48'	12'/12'//16'		3	25 MPH		8' SB Striped parking	Yes (SB travel only) 14' outside travel lane needed for NB travel
Bank Street (US 202)	Washington Street (CR 510)	Ann Street	10,000 <sup>3</sup>	23'	15' SB only		1	25 MPH		8' SB Striped parking	Yes
Bank Street (US 202)	Ann Street	MacCulloch Avenue	10,000 <sup>3</sup>	28'	14'//14'		2	25 MPH		No	Yes
Mt. Kemble Avenue (US 202)	MacCulloch Avenue	Town Boundary	8,600	32'	12'//12'		2	35 MPH		4' NB + SB Shoulders	No 14' travel lanes needed
South Street (NJ 124)	S. Park Place	DeHart Street	15,200	48'		20'//12'	2	25 MPH		8' NB + SB Striped parking	Yes (EB travel only) 14' travel lane needed for WB travel
South Street (NJ 124)	DeHart Street	Pine Street	15,200	40'		12'//12'	2	25 MPH		8' NB + SB Striped parking	No 14' travel lanes needed
South Street (NJ 124)	Pine Street	Elm Street	10,000 <sup>3</sup>	44'		14'//16'	2	25 MPH		7' EB + WB Striped parking	Yes
South Street (NJ 124)	Elm Street	Madison Street	10,000 <sup>3</sup>	41'		10'/10'//10'/11'	4	25 MPH		No	No 14' outside travel lanes needed
Madison Avenue (NJ 124)	Hospital Drive	Turtle Road	24,700	48'		12'/12'//12'/12'	4	40 MPH		No	No 14' outside travel lanes needed
Morris Avenue (CR 510)	Harding Road	Tiffany Road	10,600	42'		14'/14'/14'	3 One Way EB	25 MPH		No	Yes



## Morristown Bicycle Plan Addendum

Roadway Name	From	To	AADT	Total Pavement Width	Lane Width (NB//SB)	Lane Width (EB//WB)	# of Lanes	Speed Limit	Median Width	On Street Parking or Shoulders	Bicycle Compatible <sup>1,2,4</sup>
<b>Morris Avenue (CR 510)</b>	Kary Way	Woodside Drive	6,100	30'		12'/18'	2	25 MPH		No	Yes
<b>Morris Street (CR 510)</b>	Dumont Place	Spring Street	10,000 <sup>3</sup>	45'		14'//15'	2	25 MPH		8' EB + WB <i>Striped parking</i>	Yes
<b>Morris Street (CR 510)</b>	Spring Street	Pine Street	19,300	61'		10'/11'//11'/11'	4	25 MPH	10' <i>Striped/Center Turn Lane</i>	8' EB <i>Striped parking</i>	No <i>14' outside travel lanes needed</i>
<b>Morris Street (CR 510)</b>	Pine Street	Elm Street	21,900	49'		10'/10'//21'	2	25 MPH		8' EB <i>Striped parking</i>	Yes <i>(WB travel only)</i> <i>14' outside travel lanes needed for EB travel</i>
<b>Morris Street (CR 510)</b>	Ridgedale Avenue	Ford Avenue	19,000	42'		11'/11'//12'	3	25 MPH		8' EB <i>Unstriped parking</i>	No <i>14' travel lanes needed</i>
<b>Washington Street (CR 510)</b>	Town Boundary	Mills Street	16,300	42'		13'//13'	2	25 MPH		8' EB + WB <i>Unstriped parking</i>	No <i>14' travel lanes needed</i>
<b>Washington Street (CR 510)</b>	Mills Street	Atno Place	19,000	42'		12'//14'	2	25 MPH		8' EB + WB <i>Unstriped parking</i>	Yes <i>(WB travel only)</i> <i>14' travel lane needed for EB travel</i>
<b>Washington Street (CR 510)</b>	Atno Place	Cattano Avenue	10,000 <sup>3</sup>	41.5'		12'//21'	2	25 MPH		8.5' <i>Striped parking</i>	Yes <i>(WB travel only)</i> <i>14' travel lane needed for EB travel</i>
<b>Washington Street (CR 510)</b>	Cattano Avenue	Bank Street (US 202)	10,000 <sup>3</sup>	42'		10'/12'//10'/10'	4	25 MPH		No	No <i>14' travel lanes needed</i>
<b>Sussex Avenue (CR 617)</b>	Cleveland Street	Mills Street	10,000 <sup>3</sup>	40'		12'//12'	2	30 MPH		8' EB + WB <i>Unstriped parking</i>	No <i>14' travel lanes needed</i>



Roadway Name	From	To	AADT	Total Pavement Width	Lane Width (NB//SB)	Lane Width (EB//WB)	# of Lanes	Speed Limit	Median Width	On Street Parking or Shoulders	Bicycle Compatible <sup>1,2,4</sup>
Sussex Avenue (CR 617)	Mills Street	500' east of Cutler Street	9,400	39'		17'//17'	2	30 MPH	5' Striped median	No	Yes
Sussex Avenue (CR 617)	500' east of Cutler Street	Cutler Street	9,400	38'		12'//14'	2	30 MPH	12' Striped median	No	Yes (WB travel only) 14' travel lane needed for EB travel
Sussex Avenue (CR 617)	Cutler Street	Town Boundary	10,000 <sup>3</sup>	38'		14'//15'	2	25 MPH		5' WB + 4' EB Shoulders	Yes
Abbett Avenue	Ridgedale Avenue	Patriots' Path Trailhead	7,500	34'		15'//11'	2	25 MPH		8' WB Striped Parking	Yes (EB travel only) 14' travel lane needed for WB travel
Abbett Avenue	Patriots' Path Trailhead	Martin Luther King Avenue	7,500	32'		13'//11'	2	25 MPH		8' WB Striped Parking	No 14' travel lanes needed
Ann Street	Bank Street (US 202)	Court Street	8,800	35'		17.5'//17.5'	2	25 MPH		No	Yes <sup>4</sup>
Ann Street	Court Street	Western Avenue	8,800	38'		16'//14'	2	25 MPH		8' WB Striped Parking	Yes
Cory Road	Speedwell Avenue (US 202)	Patriots' Path Trailhead	10,000 <sup>3</sup>	29'		15'//14'	2	25 MPH		No	Yes
Cory Road	Patriots' Path Trailhead	Railroad Bridge	10,000 <sup>3</sup>	28'		14'//14'	2	25 MPH		No	Yes
Cory Road	Railroad Bridge	Town Boundary	10,000 <sup>3</sup>	19.5'		14//14	2	25 MPH		1.5' WB Striped Shoulder	Yes
Cutler Street	Mills Street	Sussex Avenue (CR 617)	3,500	29'		11'//11'	2	25 MPH		7' WB Unstriped parking	No 14' travel lanes needed





## Morristown Bicycle Plan Addendum

Roadway Name	From	To	AADT	Total Pavement Width	Lane Width (NB//SB)	Lane Width (EB//WB)	# of Lanes	Speed Limit	Median Width	On Street Parking or Shoulders	Bicycle Compatible <sup>1,2,4</sup>
Doughty Street	Mt. Kemble Avenue (US 202)	Wetmore Avenue	1,600	25'		12.5'//12.5'	2	25 MPH		No	Yes <sup>4</sup>
Elm Street	Morris Street (CR 510)	South Street (NJ 124)	10,000 <sup>3</sup>	42'	13'/13'		2	25 MPH		8' NB + SB Striped parking	No 14' travel lanes needed
Flagler Street	Speedwell Avenue (US 202)	170 ' east of Speedwell Avenue	2,700	32'		16'	1 One Way EB	25 MPH		8' Both Sides Striped parking	Yes
Flagler Street	170 ' east of Speedwell Avenue	Clyde Potts Drive	2,700	34'		34'	1 One Way EB	25 MPH		16' Perpendicular parking on N side of road	Yes
Flagler Street	Clyde Potts Drive	Martin Luther King Avenue	2,700	34'		17'//17'	2	25 MPH		No	Yes
Franklin Street	Elm Place	Revere Road	10,000 <sup>3</sup>	32'		12'//12'	2	25 MPH		8' WB Unstriped Parking	No 14' travel lanes needed
Garden Street	Martin Luther King Avenue	End of Garden Street	500	22'		14'	1 One Way EB	25 MPH		8' EB Unstriped parking	Yes
Gregory Terrace	Cutler Street	Cory Road	200	34'		10'//10'	2	25 MPH		7' EB + WB Unstriped parking	Yes
Hillairy Avenue	Martin Luther King Avenue	Hillairy Court	1,400	39'		12.5'//12.5' w/ speed humps	2	25 MPH		7' EB + WB Unstriped parking	Yes
Hillairy Avenue	Hillairy Court	Cory Road	1,400	35'		10.5'//10.5' w/ speed humps	2	25 MPH		7' EB + WB Unstriped parking	No 12' travel lanes needed



Roadway Name	From	To	AADT	Total Pavement Width	Lane Width (NB//SB)	Lane Width (EB//WB)	# of Lanes	Speed Limit	Median Width	On Street Parking or Shoulders	Bicycle Compatible <sup>1,2,4</sup>
Hillcrest Avenue	Washington Street (CR 510)	Town Boundary	1,000	24'	12'//12'		2	25 MPH		7' NB + SB Unstriped parking	Yes
James Street	Maple Avenue	MacCulloch Avenue	11,000	34'	12'//14'		2	25 MPH		8' SB Striped parking	Yes (SB travel only) 14' travel lane needed for NB travel
James Street	MacCulloch Avenue	Lidgerwood Parkway	6,300	34'	17'//17'		2	25 MPH		No	Yes
James Street	Lidgerwood Parkway	Ogden Street	6,300	36'	11'//11'		2	25 MPH		7' NB + SB Unstriped parking	No 14' travel lanes needed
James Street	Ogden Street	Town Boundary	6,300	37'	11'//12'		2	25 MPH		7' NB + SB Unstriped parking	No 14' travel lanes needed
Jardine Road	Olyphant Drive	Olyphant Parkway	500	20'	10'//10'		2	15 MPH		No	Yes <sup>4</sup> 11' travel lanes recommended
Jardine Road	Olyphant Parkway	Olyphant Drive	500	20'	12'		1 One Way SB	15 MPH		8' SB Unstriped parking	Yes <sup>4</sup>
Jersey Avenue	Township Border	Cottage Place	800	34'		10'//10'	2	25 MPH		7' EB + WB Unstriped parking	Yes <sup>4</sup> 11' travel lanes recommended
King Street	Morris Street (CR 510)	King Place	1,200	32'	11.5'//11.5'		2	25 MPH		9' NB Striped Parking	No 12' travel lanes needed
King Place	King Street	Pine Street	1,200	32'	9'//9'		2	25 MPH		7' NB + SB Unstriped Parking	No 12' travel lanes needed



## Morristown Bicycle Plan Addendum

Roadway Name	From	To	AADT	Total Pavement Width	Lane Width (NB//SB)	Lane Width (EB//WB)	# of Lanes	Speed Limit	Median Width	On Street Parking or Shoulders	Bicycle Compatible <sup>1,2,4</sup>
Lafayette Avenue	Morris Avenue (CR 510)	Malcolm Avenue	11,400	36'		12'/12'/12'	3 One Way WB	25 MPH		No	No 14' outside travel lane needed
MacCulloch Avenue	James Street	Madison Street	7,500	38'		11'//11'	2	25 MPH		8' EB + WB Unstriped parking	No 14' travel lanes needed
MacCulloch Avenue	Madison Street	Miller Road	7,500	40'		10'//10'	2	25 MPH	4' Brick/ Striped	8' EB + WB Unstriped parking	No 14' travel lanes needed
MacCulloch Avenue	Miller Road	Oak Street – Farragut Place	7,500	42'		11'//11'	2	25 MPH	4' Brick/ Striped	8' EB + WB Unstriped parking	No 14' travel lanes needed
MacCulloch Avenue	Oak Street – Farragut Place	Dehart Street	7,500	38'		10'//12'	2	25 MPH		8' EB + WB Unstriped parking	No 14' travel lanes needed
MacCulloch Avenue	Dehart Street	Mt. Kemble Avenue (US 202)	7,500	41'		10.5'//10.5'	2	25 MPH	4' Brick/ Striped	8' EB + WB Unstriped parking	No 14' travel lanes needed
Market Street	Mac Culloch Avenue	The Green	10,000 <sup>3</sup>	33'	17'		1	25 MPH		8' NB + SB Striped parking	Yes
Martin Luther King Avenue	Town Boundary	Abbett Avenue	13,500	32'	16'//16'		2	25 MPH		No	Yes
Martin Luther King Avenue	Abbett Avenue	Railroad Underpass	10,000	42'	17'//17'		2	25 MPH		8' NB Striped parking	Yes
Martin Luther King Avenue	Railroad Underpass	Spring Street	10,000	39'	12'//19'		2	25 MPH		8' NB Striped parking	Yes (SB travel only) 14' travel lane needed for NB travel







## Morristown Bicycle Plan Addendum

Roadway Name	From	To	AADT	Total Pavement Width	Lane Width (NB//SB)	Lane Width (EB//WB)	# of Lanes	Speed Limit	Median Width	On Street Parking or Shoulders	Bicycle Compatible <sup>1,2,4</sup>
Mills Street	Early Street	Washington Street (CR 510)	8,800	34'	12'//14'		2	25 MPH		8' NB Striped parking	Yes (SB travel only) 14' travel lane needed for NB travel
Mills Street	Willard Place	Cutler Street	1,200	26'	9'//9'		2	25 MPH		8' NB Unstriped parking	No 12' travel lanes needed
Mt. Airy Place	Martin Luther King Avenue	Hazel Avenue	500	32'		9'//9' w/ speed humps	2	25 MPH		7' EB + WB Unstriped parking	Yes 11' travel lanes recommended
Ogden Place	Wetmore Avenue	Miller Road	1,600	28'	14'//14'		2	20 MPH		8' SB Partial, Unstriped parking	Yes
Ogden Place	Miller Road	Overlook Road	1,600	26'		13'//13'	2	20 MPH		No	Yes
Ogden Place	Overlook Road	James Street	1,600	30'		15'//15'	2	20 MPH		No	Yes
Olyphant Drive	Lafayette Avenue	Abbett Avenue	350	19'	11'		1 One Way NB	15 MPH		8' NB Unstriped parking	Yes <sup>4</sup> 11' travel lanes recommended
Overlook Road	Ogden Place	End of Bridge	600	24' – 28'	12'//12' 12'//16'		2	25 MPH		No	Yes
Overlook Road	End of Bridge	Township Border	600	33'	12.5'//12.5'		2	25 MPH		8' SB Unstriped parking	Yes
Perry Street	MacCulloch Avenue	Maple Avenue	3,900	30'	14'		1 One Way NB	25 MPH		8' Both Sides Unstriped parking	Yes





## Morristown Bicycle Plan Addendum

Roadway Name	From	To	AADT	Total Pavement Width	Lane Width (NB//SB)	Lane Width (EB//WB)	# of Lanes	Speed Limit	Median Width	On Street Parking or Shoulders	Bicycle Compatible <sup>1,2,4</sup>
Prospect Street	Cattano Avenue	350' north of Cattano Avenue	1,100	33'	12.5'//12.5'		2	25 MPH		8' NB <i>Striped parking</i>	Yes <sup>4</sup>
Prospect Street	350' north of Cattano Avenue	Clinton Place	1,100	34'	10'//10'		2	25 MPH		7' NB + SB <i>Striped parking</i>	Yes <sup>4</sup> <i>11' travel lanes recommended</i>
Pine Street	Morris Avenue (CR 510)	King Place	4,200	29'	10.5'//10.5'		2	25 MPH		8' SB <i>Striped parking</i>	No <i>14' travel lanes needed</i>
Pine Street	King Place	South Street (NJ 124)	4,200	33'	12.5'//12.5'		2	25 MPH		8' NB + SB <i>Striped parking</i>	No <i>14' travel lanes needed</i>
Ridgedale Avenue	Abbett Avenue	Town Boundary	17,700	44'		11'/11'//11'/11'	4	25 MPH		No	No <i>14' outside travel lanes needed</i>
Spring Street	Morris Street (CR 510)	Water Street	10,000 <sup>3</sup>	44'	11/11'//11'/11'		4	25 MPH		No	No <i>14' outside travel lanes needed</i>
Spring Street	Water Street	Martin Luther King Avenue	10,000 <sup>3</sup>	49'	13'/12'//12'/12'		4	25 MPH		No	No <i>14' outside travel lanes needed</i>
Spring Street	Martin Luther King Avenue	Speedwell Avenue (US 202)	10,000 <sup>3</sup>		12'/11'//11'/12'		4	25 MPH		No	No <i>14' outside travel lanes needed</i>
Valley View Drive	Farrelly Place	John Glenn Road	600	28'		Unstriped	2	25 MPH		<i>Unstriped parking both directions</i>	Yes
Valley View Drive	John Glenn Road	Philip Place	600	34'		Unstriped	2	25 MPH		<i>Unstriped parking both directions</i>	Yes
Valley View Drive	Philip Place	Washington Avenue	600	30'		Unstriped	2	25 MPH		7' EB + WB <i>Striped parking</i>	Yes





## Morristown Bicycle Plan Addendum

Roadway Name	From	To	AADT	Total Pavement Width	Lane Width (NB//SB)	Lane Width (EB//WB)	# of Lanes	Speed Limit	Median Width	On Street Parking or Shoulders	Bicycle Compatible <sup>1,2,4</sup>
Walker Avenue	Mills Street	Speedwell Avenue (US 202)	1,600	28'		10'//10'	2	25 MPH		8' EB <i>Unstriped parking</i>	No <i>12' travel lanes needed</i>
Washington Avenue	John Glenn Road	Valley View Drive W.	1,800	38'		11'//11'	2	25 MPH		8' EB + WB <i>Unstriped parking</i>	No <i>12' travel lanes needed</i>
Wetmore Avenue	Ogden Street	Colles Avenue	500	39'	12.5'//12.5'		2	25 MPH		8' EB + WB <i>Unstriped parking</i>	Yes
Woodland Avenue	South Street (NJ 124)	Township Border	8,600	38'		12'//12'	2	35 MPH		8' EB + 6' NB <i>shoulders</i>	Yes





# Appendix C



## Meeting Minutes and Public Comments



## MEMORANDUM OF MEETING

**Project:** Morristown Bicycle Plan Addendum      **S.O. No:** 2007BPP643C, T.O. # 12

**Date:** April 22, 2010      **Time:** 9:00 - 11:00 AM

**Place:** Room 201,  
Morristown Town Hall      **By:** James Van Schoick

---

**Purpose:** Study Coordinating Committee Meeting

---

**Attending:**

Name	Representing
Timothy Dougherty	Mayor, Morristown
Jeff Hartke	Town Engineer, Morristown
Stefan Armington	Morristown Planning Board
Patrick Geary	Morristown Parking Authority
Victor Filomeno	Morristown Police Department
David Helmer	Director, Morris County Parks Commission
Michael Turkot	Morris County Sherriiff
Denise Chaplick	Morris County Division of Transportation
Elizabeth Thompson	NJTPA
William Riviere	NJDOT - Office of Bicycle and Pedestrian Programs (NJDOT-OBPP)
Barry Keppard	Michael Baker Jr. Inc.
Jim Van Schoick	Michael Baker Jr. Inc.

---

The meeting began with Barry Keppard welcoming everyone to the Study Coordinating Committee (SCC) Meeting for the Morristown Bicycle Plan Addendum. Mr. Keppard introduced William Riviere (NJDOT-OBPP) and Jim Van Schoick. Mr. Riviere provided an overview of the NJDOT bicycle and pedestrian planning assistance program and stated that the desired result is a plan which meets the needs of the town. Introductions by attendees followed.

Mr. Keppard stated that the purpose of the SCC meeting was to present work completed to date, and to review preliminary conceptual bicycle compatibility improvements for inclusion in the Morristown Bicycle Plan Addendum. Mr. Keppard then stated that a *Feedback Form* has been provided for attendees to record their questions and comments during the meeting.

Mr. Keppard introduced Mr. Van Schoick to review the Study Scope of Work and present the findings from the Data Collection and Facility Analysis tasks.

***Scope of Work***

Mr. Van Schoick began by stating that the tasks performed were focused on the development of an addendum to the previously created Morristown Bicycle Plan. He summarized the tasks in the Scope of Work which included: 1) Data Collection, 2) Facility Analysis, 3) Concept Development, 4) Implementation Plan, 5) Public Outreach, and 6) Bicycle Plan Addendum. Mr. Van Schoick then presented the findings from Tasks 1 and 2.

## MEMORANDUM OF MEETING

---

### ***Data Collection***

Mr. Van Schoick reviewed the data collected, which included bicycle crash reports, aerial photography, GIS data, traffic volumes and roadway cross sectional characteristics. Attendees were informed that field visits were performed to identify bicyclist travel patterns in the town as well as existing conditions on roadways and at identified intersections. The following comment was received:

- Michael Turkot asked if the investigations into bicyclist travel patterns included all types of bicyclists or if it was limited to a certain group, such as just recreational bicyclists. Mr. Van Schoick responded that travel patterns were captured for observed bicyclists, and that they were observed on both recreational and utilitarian trips (e.g., commute, shopping, etc.)

Mr. Van Schoick stated that bicycle crash reports from 2001 to 2009 were provided by the Morristown Police Department. Reported crashes were reviewed for contributing circumstances and crash locations were mapped. The crash map was presented to attendees and common characteristics among the crashes were identified.

### ***Roadway Bicycle Compatibility Assessment***

Mr. Van Schoick stated that roadways in the Study Area with existing traffic volumes were assessed for bicycle compatibility. Existing traffic volumes were gathered from NJDOT, Morris County, and Morristown.

A matrix was created to summarize the data collected (e.g., travel lanes width, presence and width of on-street parking, posted speed limits, etc.) and bicycle compatibility was determined based on NJDOT Bicycle Planning and Design Guidelines. The Bicycle Compatibility Map was presented to illustrate assessed roadways. Mr. Van Schoick explained that segments of roadway were identified as compatible or not compatible based on a quantitative assessment of roadway cross-sectional characteristics and available roadway traffic volumes at each location. He explained that this process limited the length of the segments, due to major intersecting streets that could contribute additional significant volume to the assessed roadway.

### ***Intersection Inventory and Assessment***

An intersection inventory and analysis was performed for six (6) locations selected by town officials. The assessment included five (5) signalized intersections and one (1) bridge. Mr. Van Schoick summarized the results of the intersection assessment including details on shoulder widths, striping and pavement markings, lane widths, intersection controls, and intersection approaches. The results of the inventory and assessment include:

- Wide outside lanes (14'+), were identified for some approach and receiving lanes at intersections and could be considered bicycle compatible based on NJDOT guidelines for shared lane widths.
- Variations in the configuration of lanes at intersections, such as the addition of a travel lane on the receiving side of the intersection, were noted. These variations in lane delineation limit the amount of space available for bicycles on the receiving side of the intersection in most locations.



## MEMORANDUM OF MEETING

- Striping at intersections was worn and was identified as an issue which may affect driver and bicyclist positioning as they approach and travel through intersections.

Aerial photographs and sketches were displayed for the six (6) locations.

Mr. Van Schoick then turned the presentation over to Mr. Keppard to review the preliminary conceptual improvement schemes for the Morristown Bicycle Plan Addendum.

### ***Conceptual Improvement Schemes***

Mr. Keppard began by familiarizing SCC attendees with the primary types of on-road bicycle facilities, including bicycle lanes, paved shoulders, and shared travel lanes. Since many of the roadways in Morristown share similar widths and characteristics, Mr. Keppard stated that the concepts were meant to serve as representative improvements. The concepts could be applied to roadway segments based on roadway widths and cross-sectional characteristics (lane widths, presence of on-street parking, presence of shoulders, etc.). Mr. Keppard presented the following concepts:

- **Roadway Concept Scheme 1: Paved Shoulder**

Concept Scheme 1 could apply to roadways without on-street parking and a minimum pavement width of 32'. The concept proposes striping or re-striping roadways to increase shoulder widths to 5' or wider to improve bicycle compatibility. 'Share the Road' (MUTCD W11-1, W16-1P) signage would also be installed. Mr. Keppard stated that this concept could be applied to roadways such as Mt. Kemble Rd. (south of Ogden Pl.) and Martin Luther King Ave. (north of Abbett Ave.).

- **Roadway Concept Scheme 2a: Shared Lane with Shared Lane Markings**

Concept Scheme 2a could apply to roadways with on-street parking and a pavement width of 40'. The concept proposes restriping parking lanes from 8' to 7' and travel lanes from 12' to 13'. Shared lane markings are proposed, as well as 'Bicycles May Use Full Lane' (R4-11) signs. The markings and signage would assist a bicyclists' lateral positioning in the travel lane and motorist awareness of bicyclists using the roadway.

Mr. Keppard stated that since the travel lane width would be below 14', the bicyclist would occupy the travel lane in the same manner as a motorist. Roadways where this concept could be implemented include Sussex Ave. (south of Mills St.) and South St. (west of Madison Ave).

- **Roadway Concept Scheme 2b: Shared Lane with Shared Lane Markings**

Concept Scheme 2b could apply to roadways with on-street parking and a pavement width of 42'. This concept includes striping improvements recommended under Concept 2a but 'Share the Road' signage would be proposed rather than the 'Bicycles May Use Full Lane'. Mr. Keppard stated that this concept could be applied

## MEMORANDUM OF MEETING

to roadways such as Washington St. (west of Atno Ave.) and Speedwell Ave. (north of Flagler St.).

- **Roadway Concept Scheme 3: Bicycle Route Designation**

Concept Scheme 3 proposes the installation of Bicycle Route Signage (D 11-1, M5, M6) along low volume, low speed roadways that are bicycle compatible according to NJDOT guidelines. The roadways selected for this application are proposed to supplement Concepts 1, 2a, and 2b which would be used on higher volume roadways. Mr. Keppard stated that these roadways would connect between destinations and existing bicycle facilities. Mr. Keppard then identified two (2) roadways where this concept could be applied: Valley View Drive and Ogden Street.

The following questions or comments were received regarding the roadway concepts:

- Jeff Hartke stated that Morris County was currently planning to restripe Morris St. and Morris Ave. He stated that the restriping would be experimental. Mr. Hartke provided preliminary engineering plan sheets for each location to Mr. Keppard.
- Regarding the Morris Ave. re-striping, Denise Chaplick added that the re-striping will reduce the number of travel lanes from three (3) to two (2), add striping for 7' shoulders on both sides of the roadway, and potentially add bulb-outs. The restriping is awaiting town approval, and if approved, the restriping would be installed in May and tested through June.
- Regarding the Morris St. re-striping, Ms. Chaplick stated that from Ford Ave. to Dumont Pl. a resurfacing will occur in August. At this time, the County is looking to implement complete streets concepts, but large volumes and on-street parking between Spring St. and Lafayette Ave. may limit the restriping application.
- Mr. Hartke stated that Morristown would be installing curb extensions on Washington Ave. in addition to restriping the roadway to include shoulders.

### ***Bridge and intersection Concepts:***

Mr. Keppard stated that concepts at intersections and the Madison Ave. bridge over I-287 would focus on increased signage. The installation of signage at these locations is intended to increase driver awareness of the presence of bicyclists at intersections. Mr. Keppard also stated that bicyclists are permitted to use the sidewalk on bridges in most cases, but may be required to dismount the bicycle at these locations. Signs proposed for these locations include 'Share the Road' signs, 'Bicycles May Use Full Lane' signs, and 'Walk Bicycles Across Bridge' signs (R[NJ] 5-14B, R[NJ] 5-14C).

Mr. Keppard also stated that if Shared Lane Markings are used, the Manual on Uniform Traffic Control Devices (MUTCD) recommends that the markings be placed immediately after the intersection. Use of the markings would assist bicyclists with lateral positioning as they approach and travel through intersections with shared lanes.

## MEMORANDUM OF MEETING

---

### ***Education and Outreach Concepts:***

Mr. Keppard stated that it is recommended that the town provide an Education and Outreach Program. The purpose of the program would be to promote recommended travel behavior for both motorists and bicyclists on roadways, especially in shared travel lane situations. Also, the outreach could assist in reducing the practice of the bicycle sidewalk riding in the town.

Mr. Keppard stated that both the FHWA and NJDOT provide a wide range of free documentation in both English and Spanish to assist in increasing knowledge about recommended travel behaviors.

### ***Additional Assessed Roadways***

Mr. Keppard stated that additional roadways were assessed, but no viable low-cost solutions could be determined for these locations. More detailed engineering investigations would be needed to determine how to make these locations compatible since lane configurations, parking, and traffic operations would likely be impacted.

### ***Group Assessment***

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

- Stefan Armington stated that the application of the Shared Lane Markings was anticipated as a potential improvement for on-road bicycle compatibility.
- Mr. Armington stated that additional signage should be limited to reduce the potential for sign clutter along the roadways. Mr. Keppard responded that this could be done as the MUTCD provides a greater emphasis on pavement marking and striping than on signage for bicycle facilities.
- Mr. Hartke expressed a desire to connect any on-road facilities in Morristown to those available outside of the town. Mr. Armington added that he would be able to provide the Study Team with routes outside of the Town of Morristown.
- Mr. Hartke expressed concern for bicyclists riding on the sidewalk, which is often observed in town. Mr. Keppard responded that shared lane markings and the implementation of a public outreach program to educate bicyclists could help address this issue.
- Mr. Armington asked about the potential impacts in reducing parking lane widths to 7'. Patrick Geary responded that the current parking lane width of 8' provides more space for door openings and tends to favor the current width since it reduces the potential for car doors being hit.
- Mr. Hartke asked how bicyclists orient themselves on the roadway. Mr. Keppard responded that the Shared Lane Markings provide assistance for a bicyclist to position themselves laterally in a shared lane. He stated that the marking would be located at least



## MEMORANDUM OF MEETING

---

11' feet from the curb where on-street parallel parking was present and could reduce the chance of a bicyclist hitting the open door of a parked vehicle.

- Mr. Turkot stated that as a cyclist himself, he has had conflicts with pedestrians in the roadway, and asked what could be done about that. Mr. Keppard responded that an effective way to address the issue could be through education and outreach programs. Other pedestrian facility improvements such as marked crosswalks and curb ramps can also be used to encourage pedestrians to cross at preferred locations.

### ***Next Steps/Schedule***

Mr. Keppard informed attendees that the next steps for the study are to finalize the proposed concepts based on the SCC's comments and prepare for the Public Information Center, which is anticipated to be held in May. In addition, work will begin on the Morristown Bicycle Plan Addendum.

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

---

Handouts at Meeting: Agenda, Fact Sheet, Feedback Form, and Morristown Bicycle Plan Addendum Presentation

Next Steps: Public Information Center (May), Final Morristown Bicycle Plan Addendum (July)

Follow up Materials: Morristown Bicycle Plan Addendum Presentation



# Comment Card

PLEASE SHARE YOUR COMMENTS WITH US ON

BICYCLING IN MORRISTOWN!

Have suggested routes for people cycling through town  
Connectivity with Morris Township and beyond. How do  
we get other towns to cooperate with us?  
Thank you for thinking about bikes!!!

Please use other side for additional comments



Baker



# Comment Card

PLEASE SHARE YOUR COMMENTS WITH US ON

BICYCLING IN MORRISTOWN!

Defined shoulders w/ proper striping like example 2c  
would be best. Drivers need road striping to even  
consider bikes part of the road.

Please use other side for additional comments



Baker



# Comment Card

PLEASE SHARE YOUR COMMENTS WITH US ON  
BICYCLING IN MORRISTOWN!

- RT 202 N. 2 NORTH OF FREDERICK ST. IS A NASTY SECTION - CAN A BYPASS USING THE SPEEDWELL HISTORIC VILLAGE PROPERTY?
- I LIKE THE SHARROWST "MAY USE FULL LANE" SIGNS - CAN LANGUAGE BE USED TO INDICATE LEGALITY? ... "CYCLIST ENTITLED TO FULL LANE"?
- NEED SAFE CONNECTION TO TRACTION LINE, ONE WAY, NO SHOULDER, RT. 287. PRIME SPOT FOR A SEPERATED BIKE PATH!

Please use other side for additional comments



Baker



# Comment Card

PLEASE SHARE YOUR COMMENTS WITH US ON  
BICYCLING IN MORRISTOWN!

BAD IDEA!! There's too much TRAFFIC and too many people crossing the streets all over (i.e. walker) you're looking for people getting hurt.

Please use other side for additional comments



Baker



- 5/ TO GET TO MORRIS PLAINS - USE -  
JULIEN TO LAKE ROAD TO BURNHAM  
IT AVOIDS SPEEDWELL AVE.
- 6/ COMMON BIKE WAGE - EVERY SATURDAY -  
SPEEDWELL TO GREEN TO BANK TO  
MACCULLOUGH (SP) TO JAMES -
- 7/ TO ~~HEAD~~ GET TO MADISON - SOUTH  
TO WOODLAND AVE - ON FRANKLIN  
TO TURTLE - TO WOODLAND
- 8/ GOAL IS TO GET FIVE+ EXPERIENCED  
RIDERS TO BECOME CONFIDENT ABOUT  
RIDING TO TOWN -



## Comment Card

PLEASE SHARE YOUR COMMENTS WITH US ON

BICYCLING IN MORRISTOWN!

- 1/ PLAN NEEDS TO SHARED AND COORDINATION  
WITH SURROUNDING TOWN - M' TOWNSHIP, MAD  
MORRIS PLAINS RANDOLPH HARDING - FLORHAM NJ
- 2/ IS THERE AN EDUCATION PROGRAM WITH THE PL
- 3/ SHARED ROADS WITH HARROWS ARE GREAT -
- 4/ OUT OF TOWN CONNECTION NEED TO BE  
THOUGHT OUT - MLK TO HAMOVER IS NOT  
GREAT EXCEPT TO GO TO THE YMCA.

Please use other side for additional comments



*Over*

Baker



# Comment Card

PLEASE SHARE YOUR COMMENTS WITH US ON  
BICYCLING IN MORRISTOWN!

*It's a great start, it has my full support.*

*Tina Wahlstrom*

Please use other side for additional comments



U.S. Department  
of Transportation  
Federal Highway  
Administration

Baker



# Comment Card

PLEASE SHARE YOUR COMMENTS WITH US ON  
BICYCLING IN MORRISTOWN!

*I am glad to see Morristown taking steps to make the town bike friendly for all. I hope the town takes this into consideration when it revises its Master Plan. But it is important the town makes it a goal to change the public's attitude toward bikes.*

Please use other side for additional comments



U.S. Department  
of Transportation  
Federal Highway  
Administration

Baker

# Comment Card

PLEASE SHARE YOUR COMMENTS WITH US ON  
BICYCLING IN MORRISTOWN!

Cycling in morristown -  
o you must create physical space that  
is restricted to bikes only so  
o with only 2.5 mi<sup>2</sup> in morristown we  
could become a great cycling  
community

Please use other side for additional comments



Baker

# Comment Card

PLEASE SHARE YOUR COMMENTS WITH US ON  
BICYCLING IN MORRISTOWN!

Good work  
I say to remove parking on one side of  
South Morris, Speedwell, Washington  
and Park Place and put in bike lane and  
put a pedestrian/bike flyover @ Lafayette  
over the highway - 287. Thanks

Please use other side for additional comments



Baker



# Comment Card

PLEASE SHARE YOUR COMMENTS WITH US ON

BICYCLING IN MORRISTOWN!

I think while these plans might need some tweaking, it is really important to get some of the sharrows + markings down on the road asap + see how it works to make cyclists + pedestrians safer.

I would pick Maple over Macculloch as a bike route for that neighborhood.



US Department of Transportation  
Federal Highway Administration

Please use other side for additional comments

Baker

# Comment Card

PLEASE SHARE YOUR COMMENTS WITH US ON

BICYCLING IN MORRISTOWN!

Great job. Keep up the good research.

think about where you can add the following

Side walk	car	parked cars	bike path	Side walk
-----------	-----	-------------	-----------	-----------



US Department of Transportation  
Federal Highway Administration

Please use other side for additional comments

Baker



# Comment Card

PLEASE SHARE YOUR COMMENTS WITH US ON

BICYCLING IN MORRISTOWN!

I like the plan, insofar as I understand it - looks good!

We need to work on educating adult cyclists to ride on street, not on sidewalk & on getting motorists to respect cyclists (& pedestrians) too.

I feel better (safer) already

Please use other side for additional comments



Baker

Really please get these  
down this  
week!

I'll help!

# Appendix D



## Roadway Concept Application Table



## Roadway Concept Application Table

This table identifies roadway segments assessed for bicycle compatibility in Morristown and their corresponding concept template application as illustrated in **Map 4**. The table provides an additional reference for local officials to review roadway segments and advance potential pavement striping, marking, and sign improvements. Additional information (e.g. pavement widths, traffic volumes, etc.) on these segments can be located in **Table 1: Bicycle Compatibility Assessment – Study Area Roadways**.

Roadway Name	From	To	Concept Application
Speedwell Avenue (US 202)	Township Border	Cory Road	Further Study Required
Speedwell Avenue (US 202)	Cory Road	Fredrick Street	Further Study Required
Speedwell Avenue (US 202)	Fredrick Street	Cutler Street	2B
Speedwell Avenue (US 202)	Cutler Street	Sussex Avenue (CR 617)	2B
Speedwell Avenue (US 202)	Sussex Avenue (CR 617)	Flagler Street	Further Study Required
Speedwell Avenue (US 202)	Flagler Street	Early Street	2C
Speedwell Avenue (US 202)	Early Street	Spring Street	2C
Speedwell Avenue (US 202)	Spring Street	Clinton Avenue	2C
Speedwell Avenue (US 202)	Clinton Avenue	Cattano Avenue	2C
Bank Street (US 202)	Washington Street (CR 510)	Ann Street	2B
Bank Street (US 202)	Ann Street	MacCulloch Avenue	2B
Mt. Kemble Avenue (US 202)	MacCulloch Avenue	Town Boundary	1
South Street (NJ 124)	S. Park Place	DeHart Street	2A
South Street (NJ 124)	DeHart Street	Pine Street	2A
South Street (NJ 124)	Pine Street	Elm Street	2A
South Street (NJ 124)	Elm Street	Madison Street	Further Study Required
Madison Avenue (NJ 124)	Hospital Drive	Turtle Road	Further Study Required
Morris Avenue (CR 510)	Harding Road	Tiffany Road	County Restriping
Morris Avenue (CR 510)	Kary Way	Woodside Drive	Morris County Restriping
Morris Street (CR 510)	Dumont Place	Spring Street	Morris County Restriping
Morris Street (CR 510)	Spring Street	Pine Street	Morris County Restriping
Morris Street (CR 510)	Pine Street	Elm Street	Morris County Restriping
Morris Street (CR 510)	Ridgedale Avenue	Ford Avenue	Morris County Restriping
Washington Street (CR 510)	Town Boundary	Mills Street	2B
Washington Street (CR 510)	Mills Street	Atno Place	2B
Washington Street (CR 510)	Atno Place	Cattano Avenue	2B
Washington Street (CR 510)	Cattano Avenue	Bank Street (US 202)	2C
Sussex Avenue (CR 617)	Cleveland Street	Mills Street	2A
Sussex Avenue (CR 617)	Mills Street	500' east of Cutler	2A

Roadway Name	From	To	Concept Application
		Street	
Sussex Avenue (CR 617)	500' east of Cutler Street	Cutler Street	2A
Sussex Avenue (CR 617)	Cutler Street	Town Boundary	1
Abbett Avenue	Ridgedale Avenue	Patriots' Path Trailhead	3
Abbett Avenue	Patriots' Path Trailhead	Martin Luther King Avenue	3
Ann Street	Bank Street (US 202)	Court Street	4
Ann Street	Court Street	Western Avenue	4
Cory Road	Speedwell Avenue (US 202)	Patriots' Path Trailhead	4
Cory Road	Patriots' Path Trailhead	Railroad Bridge	4
Cory Road	Railroad Bridge	Town Boundary	4
Cutler Street	Mills Street	Sussex Avenue (CR 617)	4
Doughty Street	Mt. Kemble Avenue (US 202)	Wetmore Avenue	4
Elm Street	Morris Street (CR 510)	South Street (NJ 124)	2B
Flagler Street	Speedwell Avenue (US 202)	170 ' east of Speedwell Avenue	4
Flagler Street	170 ' east of Speedwell Avenue	Clyde Potts Drive	4
Flagler Street	Clyde Potts Drive	Martin Luther King Avenue	4
Franklin Street	Elm Place	Revere Road	2A
Garden Street	Martin Luther King Avenue	End of Garden Street	4
Gregory Terrace	Cutler Street	Cory Road	4
Hillairy Avenue	Martin Luther King Avenue	Hillary Court	4
Hillairy Avenue	Hillary Court	Cory Road	4
Hillcrest Avenue	Washington Street (CR 510)	Town Boundary	4
James Street	Maple Avenue	MacCulloch Avenue	3
James Street	MacCulloch Avenue	Lidgerwood Parkway	1
James Street	Lidgerwood Parkway	Ogden Street	Further Study Required
James Street	Ogden Street	Town Boundary	Further Study Required
Jardine Road	Olyphant Drive	Olyphant Parkway	4
Jardine Road	Olyphant Parkway	Olyphant Drive	4
Jersey Avenue	Township Border	Cottage Place	4
King Street	Morris Street	King Place	4

Roadway Name	From	To	Concept Application
	(CR 510)		
King Place	King Street	Pine Street	4
Lafayette Avenue	Morris Avenue (CR 510)	Malcolm Avenue	Further Study Required
MacCulloch Avenue	James Street	Madison Street	Further Study Required
MacCulloch Avenue	Madison Street	Miller Road	Further Study Required
MacCulloch Avenue	Miller Road	Oak Street – Farragut Place	Further Study Required
MacCulloch Avenue	Oak Street – Farragut Place	Dehart Street	Further Study Required
MacCulloch Avenue	Dehart Street	Mt. Kemble Avenue (US 202)	Further Study Required
Market Street	Mac Culloch Avenue	The Green	2B
Martin Luther King Avenue	Town Boundary	Abbett Avenue	1
Martin Luther King Avenue	Abbett Avenue	Railroad Underpass	2B
Martin Luther King Avenue	Railroad Underpass	Spring Street	3
Mills Street	Early Street	Washington Street (CR 510)	4
Mills Street	Willard Place	Cutler Street	4
Mt. Airy Place	Martin Luther King Avenue	Hazel Avenue	4
Ogden Place	Wetmore Avenue	Miller Road	4
Ogden Place	Miller Road	Overlook Road	4
Ogden Place	Overlook Road	James Street	4
Olyphant Drive	Lafayette Avenue	Abbett Avenue	4
Overlook Road	Ogden Place	End of Bridge	4
Overlook Road	End of Bridge	Township Border	4
Perry Street	MacCulloch Avenue	Maple Avenue	4
Prospect Street	Cattano Avenue	350' north of Cattano Avenue	4
Prospect Street	350' north of Cattano Avenue	Clinton Place	4
Pine Street	Morris Avenue (CR 510)	King Place	Further Study Required
Pine Street	King Place	South Street (NJ 124)	Further Study Required
Ridgedale Avenue	Abbett Avenue	Town Boundary	Further Study Required
Spring Street	Morris Street (CR 510)	Water Street	2C
Spring Street	Water Street	Martin Luther King Avenue	2C
Spring Street	Martin Luther King	Speedwell Avenue	2C



Roadway Name	From	To	Concept Application
	Avenue	(US 202)	
Valley View Drive	Farrelly Place	John Glenn Road	4
Valley View Drive	John Glenn Road	Philip Place	4
Valley View Drive	Philip Place	Washington Avenue	4
Walker Avenue	Mills Street	Speedwell Avenue (US 202)	4
Washington Avenue	John Glenn Road	Valley View Drive W.	Morristown Restriping/Construction
Wetmore Avenue	Ogden Street	Colles Avenue	4
Woodland Avenue	South Street (NJ 124)	Township Border	4

# Appendix E



## Preliminary Cost Estimating Spreadsheets



# Morristown Bicycle Plan Addendum

## Cost Estimates

Cost estimates have been developed for the facility improvement in the Morristown Bicycle Plan Addendum. Costs were prepared through the use of The New Jersey Department of Transportation's Bid Price Reports, which include the weighted prices for materials used in construction contracts for the previous year. Bid Price reports from 2008 and 2009 were utilized to provide these estimates.

The improvement concepts presented in this Addendum should not require roadway reconstruction. Costs associated with striping, striping removal, and the installation of signs are listed as incidental items in the cost estimating spreadsheets. Additional assumptions have been made regarding site clearing, construction layout, and traffic needs based on a percentage of the total project cost. Cost estimates were developed for each proposed concept at the following eleven (11) locations:

Concept	Location	Limits
1	Martin Luther King Avenue	Abbett Ave to Morristown Boundary
1	Mt. Kemble Avenue (US 202)	MacCulloch Ave to Morristown Boundary
2a	South Street (NJ 124)	The Green to Elm St
2a	Sussex Avenue (CR 517)	Speedwell Ave (US 202) to Cutler St
2b	Speedwell Avenue (US 202)	Sussex Ave (CR 617) to Frederick St
2b	Washington Street (CR 510)	Cattano Ave to Morristown Boundary
2c	Spring Street	Speedwell Ave (US 202) to Morris St (CR 510)
3	Martin Luther King Avenue	Railroad Underpass to Spring St
4	Jersey Avenue	Martin Luther King Ave to Cottage Pl
4	Ogden Street	Mt Kemble Ave (US 202) to James St (CR 663)
4	Valley View Drive	Washington Ave to Farrelly Pl

Striping	Cost per ln. ft.
Removal of Shoulder Striping	\$1.50
Removal of Parking Striping	\$1.50
Removal of Centerline Striping	\$1.50
Traffic Stripes, Long life Epoxy	\$7.00
Traffic Markings, Long Life Epoxy	\$7.00

Signage	MUTCD Sign Designation	Size	Price per sq. ft.
Bicycles May Use Full Lane	R4-11	30x30	\$35.00
Bicycle Warning	W11-1	24x24	\$30.00
Share the Road (Plaque)	W16-1P	18x24	\$30.00
Bicycle Route	D11-1	24x18	\$30.00
Bicycle Route Auxiliary Signs	M2-1; M3-1,2,3,4; M4-1,1a,2,3,5,6,7,7a,8,14	12x6	\$30.00



## Classification Number 2 - RECONSTRUCTION, WIDENING &amp; DUALIZATION - English

Township	Morristown	Section/Contract #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Valley View Drive Concept 4 Application

**EARTHWORK** (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4,050	0
Roadway Exc. Unclassified, <b>See (J)</b>	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, <b>See (J)</b>	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 striping.  
 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

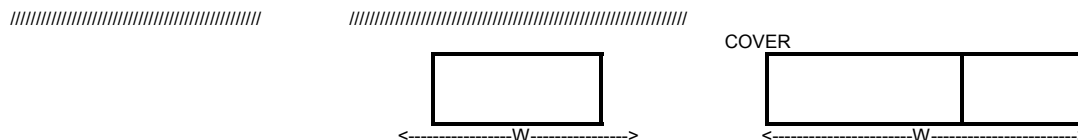
Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
				0
				0
				0
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL				0

\*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**

Class 2 - Reconstruction, Widening Dualization

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
				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 & Stub Abut.	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stub Abut.	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 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

## Class 2 - Reconstruction, Widening Dualization

Minimum Length 100 feet	40 to 60	No Piles	166.50
	Degrees	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 increased 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.

[illegible]

\*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

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

## INCIDENTAL ITEMS

Item	Units	Cost	x Quantity	= Amount
Removal of Shoulder Striping	LF	1.5	0	0
Removal of Median Striping	LF	4.5	0	0
Traffic Stripes, Long Life Epoxy	LF	1.5	0	0
Traffic Markings, Long Life (Shared Lane Marking)	SQFT	7	0	0
D11-1 (Bicycle Route Sign) - 2	SQFT	30	15	450
M6 Series (Directional Arrow Sign) - 2	SQFT	30	3	90



Class 2 - Reconstruction, Widening Dualization

M2, M3, M4 Series (Auxilliary Sign) - 2	SQFT	30	2	60
General Installation Costs				10000
INCIDENTAL ITEMS TOTAL	=			10600

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	Morristown	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Valley View Drive Concept 4 Application

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	10600
Landscape	0
Noise Abatement	0
General Items	0
PROJECT SUBTOTAL	10600

Other Items	Proj. Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators		1% of Proj. Subtotal	0
Maintenance of Traffic		10% of Proj. Subtotal	0
Training		1% of Proj. Subtotal	0
Mobilization			0

Class 2 - Reconstruction, Widening Dualization

		Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		954
		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.)	\$	0	
		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.)	\$	0	
		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				10600	

CONTINGENCIES & ESCALATION

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%

Y

3.00

3.00

1.04

10600	1.030	1.04	11355
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%	3531
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		\$3,531.32

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 \$500	0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = 6000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

11355	0	NO UTILITIES
for Urban use 0.12, Rural 0.055 or + Estimate =		

Class 2 - Reconstruction, Widening Dualization

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

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

NO ROW

SUMMARY

Construction Estimate for Initial	11355
Construction Engineering (CE)	0
Contingencies	6000
Utilities Relocations	NO UTILITIES
Total Construction Cost	17355

Right of Way Cost	NO ROW
-------------------	--------



## Classification Number 2 - RECONSTRUCTION, WIDENING &amp; DUALIZATION - English

Township	Morristown	Section/Contract #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Ogden Street Concept 4 Application

**EARTHWORK** (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4,050	0
Roadway Exc. Unclassified, <b>See (J)</b>	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, <b>See (J)</b>	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 striping.  
 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

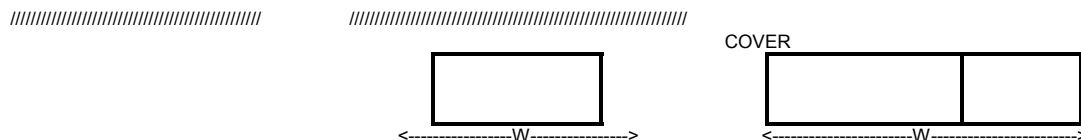
\*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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**

Class 2 - Reconstruction, Widening Dualization

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
				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 & Stub Abut.	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stub Abut.	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 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

## Class 2 - Reconstruction, Widening Dualization

Minimum Length 100 feet	40 to 60	No Piles	166.50
	Degrees	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 increased 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
				0
				0
				0
			Sub Total	0
Clearing Site Bridge *0-3% of Sub Total				0
			%	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	1.5	0	0
Removal of Median Striping	LF	4.5	0	0
Traffic Stripes, Long Life Epoxy	LF	1.5	0	0
Traffic Markings, Long Life (Shared Lane Marking)	SQFT	7	0	0
D11-1 (Bicycle Route Sign) - 2	SQFT	30	24	720
M6 Series (Directional Arrow Sign) - 2	SQFT	30	8	240



Class 2 - Reconstruction, Widening Dualization

M2, M3, M4 Series (Auxilliary Sign) - 2	SQFT	30	0	0
General Installation Costs				10000
INCIDENTAL ITEMS TOTAL	=			10960

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	Morristown	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Ogden Street Concept 4 Application

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	10960
Landscape	0
Noise Abatement	0
General Items	0
PROJECT SUBTOTAL	10960

Other Items	Proj. Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators		1% of Proj. Subtotal	109.6
Maintenance of Traffic		10% of Proj. Subtotal	1096
Training		1% of Proj. Subtotal	109.6
Mobilization			986.4

Class 2 - Reconstruction, Widening Dualization

		Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		986
		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.)	\$	0	
		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.)	\$	0	
		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				13262	

CONTINGENCIES & ESCALATION

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%

Y

3.00

3.00

1.04

13261.6	1.030	1.04	14206
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%	0.00
5.0 to 10.0	16.20%	0.00
10.0 & above	12.20%	0
CONSTRUCTION ENGINEERING AMOUNT		\$0.00

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 \$500	0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = 6000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

14206	0	NO UTILITIES
for Urban use 0.12, Rural 0.055 or + Estimate =		

Class 2 - Reconstruction, Widening Dualization

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

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

NO ROW

SUMMARY

Construction Estimate for Initial	14206
Construction Engineering (CE)	0
Contingencies	6000
Utilities Relocations	NO UTILITIES
Total Construction Cost	20206

Right of Way Cost	NO ROW
-------------------	--------



## Classification Number 2 - RECONSTRUCTION, WIDENING &amp; DUALIZATION - English

Township	Morristown	Section/Contract #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Jersey Avenue Concept 4 Application

**EARTHWORK** (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4,050	0
Roadway Exc. Unclassified, <b>See (J)</b>	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, <b>See (J)</b>	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 striping.  
 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

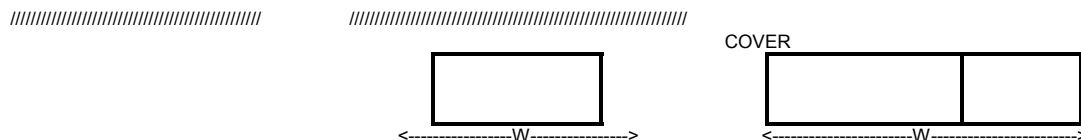
\*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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**

Class 2 - Reconstruction, Widening Dualization

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
				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 & Stub Abut.	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stub Abut.	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 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

## Class 2 - Reconstruction, Widening Dualization

Minimum Length 100 feet	40 to 60	No Piles	166.50
	Degrees	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 increased 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.

[illegible]

\*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

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

## INCIDENTAL ITEMS

Item	Units	Cost	x Quantity	= Amount
Removal of Shoulder Striping	LF	1.5	0	0
Removal of Median Striping	LF	4.5	0	0
Traffic Stripes, Long Life Epoxy	LF	1.5	0	0
Traffic Markings, Long Life (Shared Lane Marking)	SQFT	7	0	0
D11-1 (Bicycle Route Sign) - 2	SQFT	30	15	450
M6 Series (Directional Arrow Sign) - 2	SQFT	30	3	90



Class 2 - Reconstruction, Widening Dualization

M2, M3, M4 Series (Auxiliary Sign) - 2	SQFT	30	2	60
General Installation Costs				10000
INCIDENTAL ITEMS TOTAL	=			10600

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	Morristown	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Jersey Avenue Concept 4 Application

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	10600
Landscape	0
Noise Abatement	0
General Items	0
PROJECT SUBTOTAL	10600

Other Items	Proj. Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators		1% of Proj. Subtotal	106
Maintenance of Traffic		10% of Proj. Subtotal	1060
Training		1% of Proj. Subtotal	106
Mobilization			954

Class 2 - Reconstruction, Widening Dualization

		Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		954
		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.)	\$	0	
		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.)	\$	0	
		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				12826	

CONTINGENCIES & ESCALATION

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%

Y

3.00

3.00

1.04

12826	1.030	1.04	13739
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%	0.00
5.0 to 10.0	16.20%	0.00
10.0 & above	12.20%	0
CONSTRUCTION ENGINEERING AMOUNT		\$0.00

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 \$500	0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = 6000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

13739	0	NO UTILITIES
for Urban use 0.12, Rural 0.055 or + Estimate =		

Class 2 - Reconstruction, Widening Dualization

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

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

NO ROW

SUMMARY

Construction Estimate for Initial	13739
Construction Engineering (CE)	0
Contingencies	6000
Utilities Relocations	NO UTILITIES
Total Construction Cost	19739

Right of Way Cost	NO ROW
-------------------	--------

## Classification Number 2 - RECONSTRUCTION, WIDENING &amp; DUALIZATION - English

Township	Morristown	Section/Contract #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Martin Luther King Avenue Concept 3 Application

**EARTHWORK** (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4,050	0
Roadway Exc. Unclassified, <b>See (J)</b>	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, <b>See (J)</b>	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

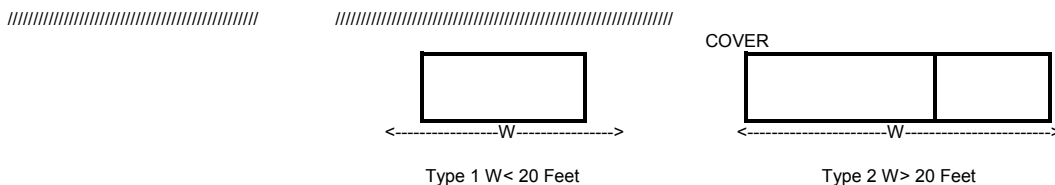
Computation Table for Pavement. Cost

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**



Class 2 - Reconstruction, Widening Dualization

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
				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 & Stub Abut.	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stub Abut.	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 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
--	--	--	--	---

## Class 2 - Reconstruction, Widening Dualization

Length	Width	Cost per SF	Bridge Total
--------	-------	-------------	--------------

1. For skewers 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 increased 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
				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

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

### INCIDENTAL ITEMS

Item	Units	Cost	x Quantity	= Amount
Removal of Centerline Striping	LF	1.5	2640	3960
Traffic Stripes, Long Life Epoxy	LF	1.5	2640	3960
Traffic Markings, Long Life (Shared Lane Marking)	SQFT	7	70	490
W11-1 (Bicycle Warning Sign) - 2	SQFT	30	8	240
W16-1P (Share the Road plq.) - 2	SQFT	30	6	180
INCIDENTAL ITEMS TOTAL		=		8830

## LANDSCAPE

		Quantity	x Unit Prices	= Amount
Topsoil and Seeding (Mainline)				
Length of Project in miles		0	112,815	0
Planting (Mainline)				

Class 2 - Reconstruction, Widening Dualization

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	Morristown	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Martin Luther King Avenue Concept 3 Application

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	8830
Landscape	0
Noise Abatement	0
General Items	0
PROJECT SUBTOTAL	8830

Other Items	Proj. Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators		1% of Proj. Subtotal	0
Maintenance of Traffic		10% of Proj. Subtotal	6000
Training		1% of Proj. Subtotal	0
Mobilization			794.7
Progress Schedule	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal	0
	Project Cost 5.0 & above	10% of Proj. Subtotal	
	Project Cost (Mil.)	\$	
	Less than 2.0	0	
	2.0 to 5.0	6,000	
	5.0 to 10.0	8,000	
	10.0 to 20.0	15,000	
	20.0 to 30.0	30,000	
	30.0 to 40.0	40,000	
	40.0 & above	58,000	
Clearing Site	Project Cost (Mil.)	\$	5000
	Less than 1.0	15,000	
	1.0 to 2.0	30,000	

795

0

0

0

0

0

0

0

15000

0

Class 2 - Reconstruction, Widening Dualization

		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			22625		

CONTINGENCIES & ESCALATION

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%

Y

3.00

3.00

1.04

22624.7	1.030	1.04	24236
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%	0.00
5.0 to 10.0	16.20%	0.00
10.0 & above	12.20%	0
CONSTRUCTION ENGINEERING AMOUNT		\$0.00

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 \$500	0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = 6000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

24236	0 NO UTILITIES
	for Urban use 0.12, Rural 0.055 or + Estimate = Utility Relocation Cost for Initial Estimate
Construction Cost for Initial Estimate	Use % or utilities detailed 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	24236
Construction Engineering (CE)	0
Contingencies	6000
Utilities Relocations	NO UTILITIES
Total Construction Cost	30236



Right of Way Cost

NO ROW

## Classification Number 2 - RECONSTRUCTION, WIDENING &amp; DUALIZATION - English

Township	Morristown	Section/Contract #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Spring Street Concept 2c Application

**EARTHWORK** (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4,050	0
Roadway Exc. Unclassified, <b>See (J)</b>	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, <b>See (J)</b>	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 striping.  
 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

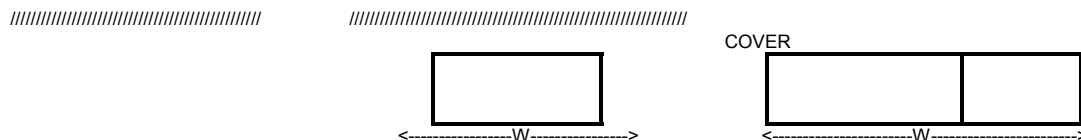
\*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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**

Class 2 - Reconstruction, Widening Dualization

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
				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 & Stub Abut.	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stub Abut.	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 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

## Class 2 - Reconstruction, Widening Dualization

Minimum Length 100 feet	40 to 60	No Piles	166.50
	Degrees	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 increased 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.

[illegible]

\*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

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

## INCIDENTAL ITEMS

Item	Units	Cost	x Quantity	= Amount
Removal of Shoulder Striping	LF	1.5	0	0
Removal of Median Striping	LF	4.5	0	0
Traffic Stripes, Long Life Epoxy	LF	1.5	0	0
Traffic Markings, Long Life (Shared Lane Marking) - 1	SQFT	7	126	882
R4-11 Bicycles May Use Full Lane Sign) - 8	SQFT	35	50	1750
INCIDENTAL ITEMS TOTAL		=		2632



**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	Morristown	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Spring Street Concept 2c Application

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	2632
Landscape	0
Noise Abatement	0
General Items	0
PROJECT SUBTOTAL	2632

Other Items	Proj. Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators			0
Maintenance of Traffic		Lump Sum	6000
Training			0
Mobilization			236.88
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal	
	Project Cost 5.0 & above	10% of Proj. Subtotal	
Progress Schedule	Project Cost(Mil.)	\$	0
	Less than 2.0	0	0
	2.0 to 5.0	6,000	0

237

0

0

0

Class 2 - Reconstruction, Widening Dualization

		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				15869	

CONTINGENCIES & ESCALATION

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%

			Y		3.00	1.04
			3.00			
15868.88		1.030	1.04	16999		
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%	0.00
5.0 to 10.0	16.20%	0.00
10.0 & above	12.20%	0
CONSTRUCTION ENGINEERING AMOUNT	\$0.00	

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 \$500	0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = 6000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

16999	0	NO UTILITIES
		for Urban use 0.12, Rural 0.055 or + Estimate = Utility Relocation Cost for Initial Estimate
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	

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

RIGHT OF WAY COST NO ROW

Class 2 - Reconstruction, Widening Dualization

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

SUMMARY

Construction Estimate for Initial  
Construction Engineering (CE)  
Contingencies  
Utilities Relocations  
Total Construction Cost

16999
0
6000
NO UTILITIES
22999

Right of Way Cost

NO ROW
--------

## Classification Number 2 - RECONSTRUCTION, WIDENING &amp; DUALIZATION - English

Township	Morristown	Section/Contract #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Washington Street (CR510) Concept 2b Application

**EARTHWORK** (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4,050	0
Roadway Exc. Unclassified, <b>See (J)</b>	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, <b>See (J)</b>	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

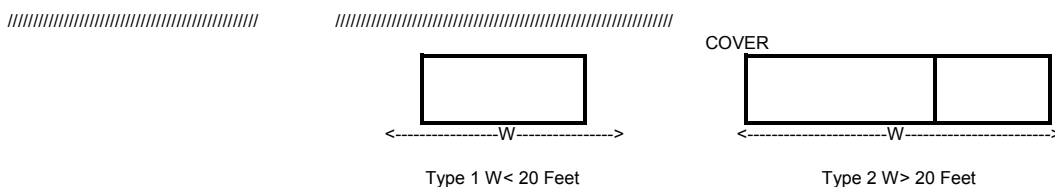
Computation Table for Pavement. Cost

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**



Class 2 - Reconstruction, Widening Dualization

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
		Short Culverts		10' to 20'	147.25
		Difficult	0-60	0 to 10'	203.50
		Conditions under 1000 Square Feet	degrees	10' to 20'	235.00
Type 2		Area w x L exceeds 1000 Sq. Feet	0-60 degrees	0 to 10'	121.75
		Short Culverts		10' to 20'	152.50
		Difficult	0-60	0 to 10'	203.50
		Conditions under 1000 Square Feet	degrees	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
				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 & Stub Abut.	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stub Abut.	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 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
--	--	--	--	---

## Class 2 - Reconstruction, Widening Dualization

Length	Width	Cost per SF	Bridge Total
--------	-------	-------------	--------------

1. For skewers 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 increased 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
				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

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

### INCIDENTAL ITEMS

Item	Units	Cost	x Quantity	= Amount
Removal of Parking Striping	LF	1.5	139	208.5
Traffic Stripes, Long Life Epoxy	LF	1.5	139	208.5
Traffic Markings, Long Life (Shared Lane Marking)	SQFT	7	154	1078
W11-1 (Bicycle Warning Sign) - 6	SQFT	30	24	720
W16-1P (Share the Road plq.) - 6	SQFT	30	18	540
INCIDENTAL ITEMS TOTAL				2755

## LANDSCAPE

		Quantity	x Unit Prices	= Amount
Topsoil and Seeding (Mainline)				
Length of Project in miles		0	112,815	0
Planting (Mainline)				

Class 2 - Reconstruction, Widening Dualization

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	Morristown	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Washington Street (CR510) Concept 2b Application

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	2755
Landscape	0
Noise Abatement	0
General Items	0
PROJECT SUBTOTAL	2755

Other Items	Proj. Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators			0
Maintenance of Traffic		Lump Sum	8000
Training			0
Mobilization			247.95
Progress Schedule	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal	0
	Project Cost 5.0 & above	10% of Proj. Subtotal	
	Project Cost (Mil.)	\$	
	Less than 2.0	0	
	2.0 to 5.0	6,000	
	5.0 to 10.0	8,000	
	10.0 to 20.0	15,000	
	20.0 to 30.0	30,000	
Clearing Site	30.0 to 40.0	40,000	5000
	40.0 & above	58,000	
	Project Cost (Mil.)	\$	
	Less than 1.0	15,000	
	1.0 to 2.0	30,000	
	2.0 to 5.0	45,000	
	5.0 to 10.0	115,000	
	10.0 to 20.0	220,000	

248

0

0

0

0

0

0

15000

0

0

Class 2 - Reconstruction, Widening Dualization

		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				18003	

CONTINGENCIES & ESCALATION

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%

Y

3.00

1.04

18002.95	1.030	1.04	19285
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%	0.00
5.0 to 10.0	16.20%	0.00
10.0 & above	12.20%	0
CONSTRUCTION ENGINEERING AMOUNT		\$0.00

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 \$500	0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = 6000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

19285	0 NO UTILITIES
	for Urban use 0.12, Rural 0.055 or + Estimate = Utility Relocation Use % or utilities detailed estimate Cost for Initial Estimate
Construction 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	19285
Construction Engineering (CE)	0
Contingencies	6000
Utilities Relocations	NO UTILITIES
Total Construction Cost	25285

Right of Way Cost NO ROW



## Classification Number 2 - RECONSTRUCTION, WIDENING &amp; DUALIZATION - English

Township	Morristown	Section/Contract #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Speedwell Avenue (CR510) Concept 2b Application

**EARTHWORK** (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4,050	0
Roadway Exc. Unclassified, <b>See (J)</b>	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, <b>See (J)</b>	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

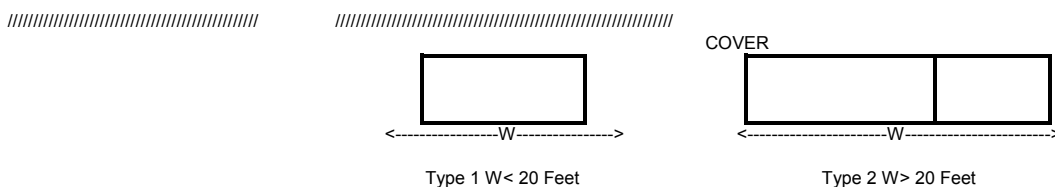
Computation Table for Pavement. Cost

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**

Class 2 - Reconstruction, Widening Dualization

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
		Short Culverts		10' to 20'	147.25
		Difficult	0-60	0 to 10'	203.50
		Conditions under 1000 Square Feet	degrees	10' to 20'	235.00
Type 2		Area w x L exceeds 1000 Sq. Feet	0-60 degrees	0 to 10'	121.75
		Short Culverts		10' to 20'	152.50
		Difficult	0-60	0 to 10'	203.50
		Conditions under 1000 Square Feet	degrees	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
				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 & Stub Abut.	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stub Abut.	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 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
		40 to 60 Degrees	No Piles	166.50
Minimum Length 100 feet			Piles at Semi-Stub Abut.	194.75
			Piles at Piers & Semi-Stub Abut.	217.50

				0
--	--	--	--	---

## Class 2 - Reconstruction, Widening Dualization

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 increased 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
				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

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

## INCIDENTAL ITEMS

Item	Units	Cost	x Quantity	= Amount
Removal of Parking Striping	LF	1.5	25	37.5
Traffic Stripes, Long Life Epoxy	LF	1.5	25	37.5
Traffic Markings, Long Life (Shared Lane Marking)	SQFT	22	224	4928
W11-1 (Bicycle Warning Sign) - 6	SQFT	30	16	480
W16-1P (Share the Road plq.) - 6	SQFT	30	12	360
INCIDENTAL ITEMS TOTAL	=			5843

## LANDSCAPE

		Quantity	x Unit Prices	= Amount
Topsoil and Seeding (Mainline)				
Length of Project in miles		0	112,815	0
Planting (Mainline)				

Class 2 - Reconstruction, Widening Dualization

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	Morristown	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Speedwell Avenue (CR510) Concept 2b Application

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	5843
Landscape	0
Noise Abatement	0
General Items	0
PROJECT SUBTOTAL	5843

Other Items	Proj. Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators			0
Maintenance of Traffic		Lump Sum	8000
Training			0
Mobilization			525.87
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal	
	Project Cost 5.0 & above	10% of Proj. Subtotal	
Progress Schedule	Project Cost (Mil.)	\$	0
	Less than 2.0	0	
	2.0 to 5.0	6,000	
	5.0 to 10.0	8,000	
	10.0 to 20.0	15,000	
	20.0 to 30.0	30,000	
	30.0 to 40.0	40,000	
	40.0 & above	58,000	
Clearing Site	Project Cost (Mil.)	\$	5000
	Less than 1.0	15,000	
	1.0 to 2.0	30,000	
	2.0 to 5.0	45,000	
	5.0 to 10.0	115,000	
	10.0 to 20.0	220,000	

526

0

0

0

0

0

0

15000

0

0



Class 2 - Reconstruction, Widening Dualization

		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				21369	

CONTINGENCIES & ESCALATION

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%

Y

3.00

1.04

21368.87	1.030	1.04	22890
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%	0.00
5.0 to 10.0	16.20%	0.00
10.0 & above	12.20%	0
CONSTRUCTION ENGINEERING AMOUNT		\$0.00

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 \$500	0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = 6000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

22890	0 NO UTILITIES
	for Urban use 0.12, Rural 0.055 or + Estimate = Utility Relocation Cost for Initial Estimate
Construction Cost for Initial Estimate	Use % or utilities detailed 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	22890
Construction Engineering (CE)	0
Contingencies	6000
Utilities Relocations	NO UTILITIES
Total Construction Cost	28890

Right of Way Cost NO ROW

## Classification Number 2 - RECONSTRUCTION, WIDENING &amp; DUALIZATION - English

Township	Morristown	Section/Contract #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Sussex Avenue (CR617) Concept 2a Application

**EARTHWORK** (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4,050	0
Roadway Exc. Unclassified, <b>See (J)</b>	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, <b>See (J)</b>	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 stripping. 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

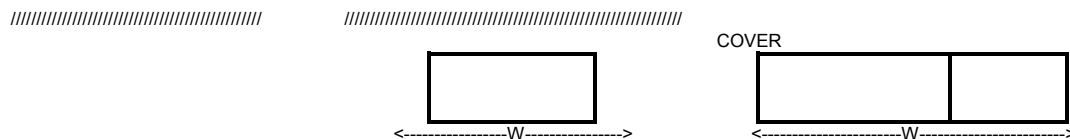
Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
				0
				0
				0
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL				= 0

\*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**

Class 2 - Reconstruction, Widening Dualization

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 & Stub A	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stub A	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 40 feet		0 to 40 Degrees	No Piles	157.00
			Piles at Semi-Stub Abut.	182.00
		40 to 60	Piles at Piers & Semi-Stub Abut.	204.50
			No Piles	166.50

## Class 2 - Reconstruction, Widening Dualization

Minimum Length 100 feet		Degrees	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 increased 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.

[illegible]

\*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

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

## INCIDENTAL ITEMS

Item	Units	Cost	x Quantity	= Amount
Removal of Shoulder Striping	LF	1.5	0	0
Removal of Median Striping	LF	4.5	0	0
Traffic Stripes, Long Life Epoxy	LF	1.5	0	0
Traffic Markings, Long Life (Shared Lane Marking)	SQFT	7	154	1078
R4-11 Bicycles May Use Full Lane Sign) - 12	SQFT	35	75	2625
INCIDENTAL ITEMS TOTAL	=			3703

## LANDSCAPE



Class 2 - Reconstruction, Widening Dualization

		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	Morristown	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Sussex Avenue (CR617) Concept 2a Application

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	3703
Landscape	0
Noise Abatement	0
General Items	0
PROJECT SUBTOTAL	3703

Other Items	Proj. Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators			0
Maintenance of Traffic		Lump Sum	6000
Training			0
Mobilization			333.27
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal	
	Project Cost 5.0 & above	10% of Proj. Subtotal	
Progress Schedule	Project Cost(Mil.)	\$	0
	Less than 2.0	0	
	2.0 to 5.0	6,000	
	5.0 to 10.0	8,000	
	10.0 to 20.0	15,000	
	20.0 to 30.0	30,000	
	30.0 to 40.0	40,000	
	40.0 & above	58,000	

333  
0  
0  
0  
0  
0  
0  
0

Class 2 - Reconstruction, Widening Dualization

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				17036	

CONTINGENCIES & ESCALATION

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%

Y

3.00

1.04

17036.27	1.030	1.04	18249
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%	0.00
5.0 to 10.0	16.20%	0.00
10.0 & above	12.20%	0
CONSTRUCTION ENGINEERING AMOUNT		\$0.00

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 \$500,000	0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = 6000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

18249	0	NO UTILITIES
-------	---	--------------

for Urban use  
0.12, Rural 0.055  
or + Estimate =  
Utility Relocation  
Cost for Initial  
Estimate

Construction 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 18249

Class 2 - Reconstruction, Widening Dualization

Construction Engineering (CE)	0
Contingencies	6000
Utilities Relocations	NO UTILITIES
Total Construction Cost	24249
Right of Way Cost	NO ROW

## Classification Number 2 - RECONSTRUCTION, WIDENING &amp; DUALIZATION - English

Township	Morristown	Section/Contract #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	South Street (NJ 124) Concept 2a Application

**EARTHWORK** (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4,050	0
Roadway Exc. Unclassified, <b>See (J)</b>	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, <b>See (J)</b>	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 stripping. 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

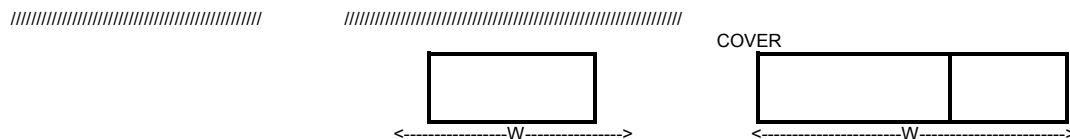
Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
				0
				0
				0
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL				= 0

\*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**



Class 2 - Reconstruction, Widening Dualization

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 & Stub A	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stub A	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 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
		40 to 60	No Piles	166.50

## Class 2 - Reconstruction, Widening Dualization

Minimum Length 100 feet		Degrees	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 increased 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.

[illegible]

\*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

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

## INCIDENTAL ITEMS

Item	Units	Cost	x Quantity	= Amount
Removal of Shoulder Striping	LF	1.5	673	1009.5
Removal of Median Striping	LF	4.5	0	0
Traffic Stripes, Long Life Epoxy	LF	1.5	673	1009.5
Traffic Markings, Long Life (Shared Lane Marking)	SQFT	22	224	4928
R4-11 Bicycles May Use Full Lane Sign) - 12	SQFT	35	100	3500
INCIDENTAL ITEMS TOTAL	=			10447

## LANDSCAPE

Class 2 - Reconstruction, Widening Dualization

		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	Morristown	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	South Street (NJ 124) Concept 2a Application

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	10447
Landscape	0
Noise Abatement	0
General Items	0
PROJECT SUBTOTAL	10447

Other Items	Proj. Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators			0
Maintenance of Traffic		Lump Sum	8000
Training			0
Mobilization			940.23
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal	
	Project Cost 5.0 & above	10% of Proj. Subtotal	
Progress Schedule	Project Cost(Mil.)	\$	0
	Less than 2.0	0	
	2.0 to 5.0	6,000	
	5.0 to 10.0	8,000	
	10.0 to 20.0	15,000	
	20.0 to 30.0	30,000	
	30.0 to 40.0	40,000	
	40.0 & above	58,000	

940  
0  
0  
0  
0  
0  
0  
0

Class 2 - Reconstruction, Widening Dualization

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				26387	

CONTINGENCIES & ESCALATION

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%

Y

3.00

3.00

1.04

26387.23	1.030	1.04	28266
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%	0.00
5.0 to 10.0	16.20%	0.00
10.0 & above	12.20%	0
CONSTRUCTION ENGINEERING AMOUNT		\$0.00

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 \$500,000	0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = 6000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

28266	0	NO UTILITIES
-------	---	--------------

for Urban use  
0.12, Rural 0.055  
or + Estimate =  
Utility Relocation  
Cost for Initial  
Estimate

Construction 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 28266



Class 2 - Reconstruction, Widening Dualization

Construction Engineering (CE)	0
Contingencies	6000
Utilities Relocations	NO UTILITIES
Total Construction Cost	34266
Right of Way Cost	NO ROW

## Classification Number 2 - RECONSTRUCTION, WIDENING &amp; DUALIZATION - English

Township	Morristown	Section/Contract #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Mt. Kemble Avenue (US 202) Concept 1 Application

**EARTHWORK** (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4.050	0
Roadway Exc. Unclassified, <b>See (J)</b>	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, <b>See (J)</b>	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 striping.  
 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

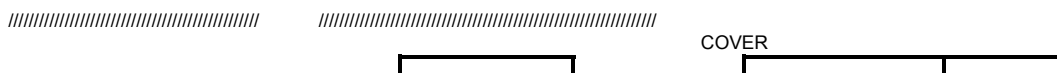
Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
				0
				0
				0
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL				= 0

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

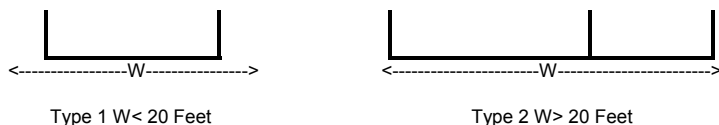
Example = actual pavement width = 25 foot = 25/12 = 2.08 W.F.

**CONTEXT SENSITIVE DESIGN**

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

= **CULVERTS**

Class 2 - Reconstruction, Widening Dualization



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	0-60 degrees	0 to 10'	203.50
		Difficult Conditions under 1000 Square Feet		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	0-60 degrees	0 to 10'	203.50
		Difficult Conditions under 1000 Square Feet		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
				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 & Stub Ab	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stub Ab	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	0 to 40	No Piles	176.5
		Area L x W exceeds 4500 Sq. Feet	Degrees	On Piles	187.25
			40 to 60	No Piles	219.75
			Degrees	On Piles	273.25
III		W exceeds L	0 to 40	No Piles	226.75
		Area L x W exceeds 4500 Sq. Feet	Degrees	On Piles	299.25
			40 to 60	No Piles	241.5
			Degrees	On Piles	310
IV		Width 30 - 45 feet	0 to 40	No Piles	295.5
		Area W x L under 4500 Sq. Foot	Degrees	On Piles	396.75
			40 to 60	No Piles	318.25
			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

Class 2 - Reconstruction, Widening Dualization

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

Length	Width	Cost per SF	Bridge Total
			0

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 increased 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
				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**



Class 2 - Reconstruction, Widening Dualization

Item	Units	Cost	x Quantity	= Amount
Removal of Shoulder Striping	LF	1.5	5280	7920
Removal of Median Striping	LF	4.5	0	0
Traffic Stripes, Long Life Epoxy	LF	1.5	5280	7920
W11-1 (Bicycle Warning Sign) - 2	SQFT	30	12	360
W16-1P (Share the Road plq.) - 2	SQFT	30	12	360
INCIDENTAL ITEMS TOTAL		=		16560

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	Morristown	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Mt. Kemble Avenue (US 202) Concept 1 Application

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	16560
Landscape	0
Noise Abatement	0
General Items	0
PROJECT SUBTOTAL	16560

Other Items	Proj. Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators			0

Class 2 - Reconstruction, Widening Dualization

Maintenance of Traffic			Lump Sum	8000	
Training				0	
Mobilization				1490.4	
		Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		1490
		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				33050	

CONTINGENCIES & ESCALATION

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%

Y

3.00

3.00

1.04

33050.4	1.030	1.04	35404
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%	0.00
5.0 to 10.0	16.20%	0.00
10.0 & above	12.20%	0
CONSTRUCTION ENGINEERING AMOUNT		\$0.00

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 \$500,	0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = 6000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

35404		0	NO UTILITIES
-------	--	---	--------------

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

Construction 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  
Construction Engineering (CE)  
Contingencies  
Utilities Relocations  
Total Construction Cost

35404
0
6000
NO UTILITIES
41404

Right of Way Cost

NO ROW

## Classification Number 2 - RECONSTRUCTION, WIDENING &amp; DUALIZATION - English

Township	Morristown	Section/Contract #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Martin Luther King Avenue Concept 1 Application

**EARTHWORK** (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4,050	0
Roadway Exc. Unclassified, <b>See (J)</b>	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, <b>See (J)</b>	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

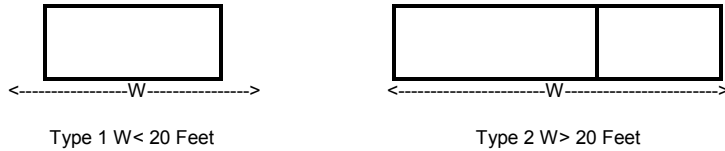
= **CULVERTS**

//////////////////////////////////////
 //////////////////////////////////////

COVER



Class 2 - Reconstruction, Widening Dualization



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
		Short Culverts		10' to 20'	147.25
		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
		Short Culverts		10' to 20'	152.50
		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 & Stub At	174.75
			40 to 60 Degrees	No Piles	145
				Piles at Stub Abut.	168.25
				Piles at Piers & Stub At	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)

## Class 2 - Reconstruction, Widening Dualization

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

Length	Width	Cost per SF	Bridge Total
--------	-------	-------------	--------------

1. For skewers 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 increased 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.

[illegible]

\*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	1.5	0	0
Removal of Median Striping	LF	4.5	0	0
Traffic Stripes, Long Life Epoxy	LF	1.5	2640	3960
W11-1 (Bicycle Warning Sign) - 2	SQFT	30	16	480
W16-1P (Share the Road plq.) - 2	SQFT	30	16	480
INCIDENTAL ITEMS TOTAL		=		4920

**LANDSCAPE**

		Quantity	x Unit Prices	= Amount
Topsoil and Seeding (Mainline)		0	112,815	0
Length of Project in miles		0	64,500	0
Planting (Mainline)		0	12,500	0
Length of Project in miles		0	20,000	0
Topsoil, Seeding, Planting (Finger Ramp)		0	7.9	0
Number of Finger Ramps		0		0
Topsoil, Seeding, Planting (Loop Ramp)		0		0
Number of Loop Ramps		0		0
Topsoil, Seeding (Access Road)		0		0
Length of Access Road in Feet		0		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	Morristown	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #12 (118747)
PM	Del Vecchio	UPC No.	Martin Luther King Avenue Concept 1 Application

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	4920
Landscape	0
Noise Abatement	0
General Items	0
PROJECT SUBTOTAL	4920

Class 2 - Reconstruction, Widening Dualization

Other Items		Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators				0	
Maintenance of Traffic			Lump Sum	6000	
Training				0	
Mobilization				442.8	
		Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		443
		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				18363	

CONTINGENCIES & ESCALATION

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%

Y

3.00

3.00

1.04

18362.8	1.030	1.04	19670
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
10-20	2.50%	2
Over 20	2%	3

0.030  
0.000  
0.000

CONSTRUCTION ENGINEERING (CE)

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

0  
0.00  
0.00  
0

CONSTRUCTION ENGINEERING AMOUNT

\$0.00

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of \$

\$0 to 0.1  
0.1 to 0.5  
0.5 to 5.0  
5.0 to 10.0  
10.0 to 15.0

Construction Change Order Contingency Amount

\$6,000  
25,000  
25,000 + 4% of amount in excess of \$500,000  
205,000 + 3% of amount in excess of \$5,000,000  
355,000 + 2% of amount in excess of \$10,000,000

6000  
25000  
0  
0  
0



Class 2 - Reconstruction, Widening Dualization

15.0 and above 455,000 + 1.5% of amount in excess of \$15,000,000 - max \$500, 0  
0

For State Funded Projects, Contingencies for Change orders = 0  
CHANGE ORDER CONTINGENCY AMOUNT = 6000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

19670	0	NO UTILITIES
-------	---	--------------

for Urban use  
0.12, Rural 0.055  
or + Estimate =  
Utility Relocation  
Cost for Initial  
Estimate

Construction Cost for Initial Estimate

Use % or utilities  
detailed 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  
Construction Engineering (CE)  
Contingencies  
Utilities Relocations  
Total Construction Cost

19670
0
6000
NO UTILITIES
25670

Right of Way Cost

NO ROW

# 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**

Subregional Studies Program.....	4
Supportive Task Grants.....	4
Transportation Management Associations (TMAs).....	4
Local Transportation Planning Assistance Program (LTPA).....	6
Bicycle/Pedestrian Planning Assistance.....	6
Smart Future Planning Grants.....	7
Small Cities Development Block Grant.....	7
New Jersey Historic Trust.....	7
New Jersey Redevelopment Authority (NJRA).....	7
Authority Resources	
NJRA Pre-Development Fund (“NJRA PDF”).....	8
New Jersey Urban Sity Acquisition Program (“NJUSA”).....	8
NJRA Bond Program.....	8
New Jersey Redevelopment Investment Fund (“RIF”).....	8
NJRA Environmental Equity Program (E <sup>2</sup> P”).....	8
Working in Newark’s Neighborhoods (“WINN”).....	9
NJRA Redevelopment Training Institute.....	9
Freshwater Wetlands Mitigation Council.....	9
Other Sources of Funding.....	9

## **Funding of Projects**

Federal Funding Under SAFETEA-LU	
Division of Local Aid and Economic Development.....	10
National Highway System (NHS).....	10
Surface Transportation Program (STP) Funds.....	10
STP Resources.....	11
Safe Routes to School.....	14
Local Aid for Designated Transit Villages.....	14
The Congestion Mitigation and Air Quality Improvement Program (CMAQ).....	14
National Recreational Trails Program (Symms Trails System Act).....	15
Scenic Byways.....	15
Section 402 Safety Funds.....	15
Federal Transit Administration Funds.....	16
Federal Community Development Block grant (CDBG) Program.....	16
State Funding	
Local Aid for Centers of Place.....	17
County Aid Program.....	18
Municipal Aid Program.....	19
Discretionary Funding/Local Aid Infrastructure Fund.....	19
Safe Routes to School.....	20
Bikeways Projects.....	20
Urban Enterprise Zones (UEZ).....	20

Office of Green Acres.....	20
County of Municipal Capital (Public Works) Funding.....	21
Special Improvement Districts (SIDs).....	21
Transportation Development Districts (TDD).....	22
Developer Provided Facilities.....	22
Open Space Trust Funds.....	22
Other Funding Sources	
Bicycles Belong.....	23
Local School Districts.....	23
General Mills Foundation.....	24

# ***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](http://www.njtpa.org). The South Jersey Transportation Planning Authority serves Atlantic, Cape May, Cumberland and Salem counties and is available at [www.sjtpo.org](http://www.sjtpo.org). The Delaware Valley Regional Planning Commission serves Burlington, Camden, Gloucester and Mercer counties and is available at [www.dvrpc.org](http://www.dvrpc.org).

### **Supportive Task Grants**

A portion of funds given to NJTPA to support planning activities are passed through to the subregions (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](mailto:ccctma@driveless.com)  
[www.driveless.com](http://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](http://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](mailto:info@hudsontma.org)  
[www.hudsontma.org](http://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](mailto:info@hart-tma.com)  
[www.hart-tma.com](http://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](mailto:kmm@kmm.org)  
[www.kmm.org](http://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](mailto:info@meadowlink.org)  
[www.meadowlink.org](http://www.meadowlink.org)

#### **RIDEWISE OF RARITAN VALLEY**

360 Grove Street  
Bridgewater, NJ 08807  
Ph: 908-704-1011  
Email: [staff@ridewise.org](mailto:staff@ridewise.org)  
[www.ridewise.org](http://www.ridewise.org)

#### **TRANSOPTIONS**

2 Ridgedale Avenue, Suite 200  
Cedar Knolls, NJ 07927  
Ph: 973-267-7600  
Fax: 973-267-6209  
[www.transoptions.org](http://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 Unit at 609-530-2869, [Helene.Rubin@dot.state.nj.us](mailto: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](mailto: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](mailto: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](mailto: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 its 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<sup>2</sup>P")**

The E<sup>2</sup>P Program advances brownfields efforts by providing up-front capital to assist with the predevelopment stages of brownfields redevelopment projects. E<sup>2</sup>P 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](http://www.njra.us)  
E-mail: [njra@njra.state.nj.us](mailto: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](mailto:Jill.Aspinwall@dep.state.nj.us) or visit [www.nj.gov/dep/landuse/fww/mitigate/mcouncil.html](http://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](mailto: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 administering 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](mailto: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](mailto: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 through 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 Borough 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.shtml>.

### **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 walkways 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](http://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.shtml>

### **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](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](http://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](http://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>

# Appendix G



## **Promoting Pedestrian and Bicyclist Safety to Hispanic Audiences**

# **Promoting Pedestrian and Bicyclist Safety to Hispanic Audiences**

Task Order Number: SA06B030

*Submitted to:*



**U.S. Department of Transportation  
Federal Highway Administration**

**Office of Safety Programs, HSA-20**

**400 Seventh Street, S.W.**

**Washington, DC 20590**

*Submitted by:*

**Science Applications International Corporation  
McLean, VA 22102**

November 30, 2005

[http://safety.fhwa.dot.gov/ped\\_bike/ped\\_bike\\_hsp.htm](http://safety.fhwa.dot.gov/ped_bike/ped_bike_hsp.htm)



**Form DOT F 1700.7 (8-72)**

<b>1. Report No.</b>	<b>2. Government Accession No.</b>	<b>3. Recipient's Catalog No.</b>	
<b>4. Title and Subtitle</b>  Promoting Pedestrian and Bicyclist Safety to Hispanic Audiences		<b>5. Report Date</b> November 2005	
		<b>6. Performing Organization Code</b>	
<b>7. Authors</b> Eloisa Raynault (SAIC), Kelley Pecheux (SAIC), Herman Huang (Sprinkle Consulting, Inc.).		<b>8. Performing Organization Report No.</b>	
<b>9. Performing Organization Name and Address</b> Science Applications International Corporation (SAIC) 1710 SAIC Drive, M/S T1-12-3 McLean, VA 22102		<b>10. Work Unit No. (TRAIS)</b>	
		<b>11. Contract or Grant No.</b> DTFH61-03-D-00106	
<b>12. Sponsoring Agency Name and Address</b> Federal Highway Administration Office of Safety Programs, HSA-20 400 Seventh Street, S.W. Washington, DC 20590		<b>13. Type of Report and Period Covered</b> Marketing Plan, 2005	
		<b>14. Sponsoring Agency Code</b> HSA-20	
<b>15. Supplementary Notes</b> Ms. Tamara Redmon, COTM			
<b>16. Abstract</b>  This marketing plan, which uses available reference materials and additional research in the form of focus group session results, showcases a strategy for marketing pedestrian and bicycle safety issues/concerns to different Hispanic populations in the United States.			
<b>17. Key Words</b> Hispanic, Latino/Latina, Pedestrian, Bicycle, Safety		<b>18. Distribution Statement</b> No restrictions. This document is available to the public from: The National Technical Information Service, Springfield, VA 22161.	
<b>19. Security Classif. (of this report)</b> Unclassified	<b>20. Security Classif. (of this page)</b> Unclassified	<b>21. No of Pages</b> 44	<b>22. Price</b> N/A

Form DOT F 1700.7 (8-72)

Reproduction of completed page authorized.

## Table of Contents

<b>EXECUTIVE SUMMARY.....</b>	<b>III</b>
<b>1 INTRODUCTION.....</b>	<b>1</b>
<b>2 MARKETING PLAN.....</b>	<b>1</b>
2.1 AUDIENCE .....	7
2.2 SAFETY ISSUES TO INCLUDE IN CAMPAIGN .....	7
2.3 MESSAGES.....	7
2.4 MATERIALS/MEDIA .....	8
2.5 SUGGESTED METHODS OF DISSEMINATION OF MATERIALS .....	8
<b>APPENDIX A. STEPS TAKEN TO DEVELOP THE MARKETING PLAN.....</b>	<b>11</b>
<b>APPENDIX B. FHWA/NHTSA/PROJECT TEAM TELECONFERENCE .....</b>	<b>31</b>
<b>APPENDIX C. PRELIMINARY OUTREACH MATERIALS.....</b>	<b>32</b>
<b>APPENDIX D. FOCUS GROUP TESTING OF OUTREACH MATERIALS .....</b>	<b>35</b>
<b>APPENDIX E. REVISED OUTREACH MATERIALS.....</b>	<b>37</b>
<b>APPENDIX F. REFERENCES .....</b>	<b>38</b>

# EXECUTIVE SUMMARY

The objectives of this FHWA/NHTSA project include: (1) the development of a plan for marketing pedestrian and bicycle safety issues/concerns to different Hispanic populations in the United States and (2) the development of materials in different formats that will be used to promote pedestrian and bicycle safety issues in the Hispanic community. This marketing plan presents the recommendations about the audience, the safety issues to be addressed, the types and format of messages, the media, and the potential methods of dissemination of the outreach materials. Also included in this marketing plan are the results of the background research conducted in the development of the marketing plan.

The following recommendations are based on the research conducted for this project:

1. There are multiple audiences that may be more at risk as pedestrians or bicyclists. These may be groups that should be targeted by pedestrian/bicycle campaigns or by word-of-mouth marketing:
    - New immigrants.
    - Mexican males (Hispanics of Mexican origin compose roughly two-thirds of all fatalities among Hispanic pedestrians and bicyclists. Among all Hispanics, about 67 percent of pedestrian fatalities and 89 percent of bicyclist fatalities occurred to males.). (1)
    - Children (especially bicyclists ages 10-15 and pedestrians ages 5-9). (2, 3)
    - Seniors (especially bicyclists ages 70-79 and pedestrians age 70 and over). (2, 3)
    - Male members of the household (e.g., fathers, grandfathers, uncles, brothers).
    - Entire family.
  2. Recommended pedestrian and bicycle safety issues to be included in the outreach campaigns have been split into the following two categories:
    - Educational issues.
    - Informational issues.
- While there is a fine line between educational and informational issues, educational issues focus more on teaching the audience rules and regulations that they are expected to follow and how these rules and regulations are enforced in the U.S. Informational issues focus more on issues such as what it takes to be a safe pedestrian or bicyclist (e.g., always use a crosswalk, push the call button to receive the pedestrian signal, always look left-right-left before crossing the street).
3. Messages about pedestrian and bicycle safety for Hispanic audiences should:
    - Focus on the value of family and impact on family.
    - Be realistic, with relationships to their lives.
    - Have an emotional component (e.g., graphic and explicit descriptions of crashes), but should not be overly frightening or use “scare tactics.”
  4. For formatting and distribution purposes, it is recommended that these messages:
    - Use graphics, photos, and other visuals.
    - Be concise, not too wordy, and written for low literacy level.
    - Be clear and free of jargon.

Rather than focusing on one type of media, the use of a variety of materials, so that messages are seen and heard in a variety of places, is recommended. The recommended media to be included in an outreach campaign include:

- Television (TV).
- Radio.
- Newspaper.
- Magazines.
- Brochures/flyers/handouts.

It should be noted that the use of Hispanic media is important. Many Hispanics watch only Spanish TV, listen to only Spanish radio stations, and/or read only Spanish newspapers and magazines. Therefore, using only mainstream media may not reach some of the target audience; however, caution should be taken in providing only Spanish-language materials, as many second generation Hispanics prefer to speak and read English. Thus, it is recommended that the materials be bilingual.

5. One of the most important recommendations from the research is that materials alone cannot change behavior. Due to the importance of family and community in the Hispanic culture, commitment to safety practices is more likely to occur when:
  - The materials are used in combination with at least one community outreach activity.
  - Multiple activities are held within the community.
  - Respected leaders of the community, as well as family members, reinforce the messages through person-to-person contact and word-of-mouth campaigns.

With these recommendations in mind, Table ES–1 connects the audience (the who), the issues and types of messages (the what), the media (the how), and the methods of dissemination (the where). For example, if children are the focus of a safety campaign, issues could be educational and/or informational; messages should focus on the value of family; and posters, handouts, and comics are media that should be disseminated at schools with person-to-person contact via teachers, administrators, or other authority figures. TV is also a recommended medium for information dissemination and could be used in addition to the print media distributed at schools. As many Latinos may not fully trust the government or large institutions, more appropriate venues for disseminating materials include churches, clinics, and community centers. (4)

Safety campaigns should be tailored to fit the needs of each community. This will help determine whether educational or informational issues are most important.

**Table ES–1. Connecting the Who, What, How, and Where of Marketing Pedestrian and Bicycle Safety to Hispanic Audiences**

<b>Audience (Who?)</b>	<b>Issues (What?)</b>	<b>Messages (What?)</b>	<b>Materials/Media (How?)</b>	<b>Methods of Dissemination (Where?)</b>
New immigrants	Educational & Informational	Value of family Impact on family Emotional component Relates to their lives	Hispanic TV and radio stations* Hispanic newspapers and magazines*	
			Brochures, flyers, handouts	Public transit stations Supermarkets Churches
Mexican males	Educational & Informational	Value of family Impact on family Emotional component Relates to their life	TV and radio stations* Newspapers and magazines*	
			Brochures, flyers, handouts	Motor vehicle offices Public transit stations Supermarkets
Children	Educational & Informational	Value of family	Hispanic TV*	
			Posters, handouts, comics Person-to-person contact	Schools (teachers, administrators, authority figures)
Seniors	Educational & Informational	Value of family Emotional component Relates to their life	Hispanic TV and radio stations*	
			Brochures, flyers, handouts Person-to-person contact	Community centers Senior centers Churches
Male members of the household	Educational & Informational	Value of family Emotional component Impact on family Relates to their life	TV and radio stations* Newspapers and magazines*	
			Brochures, flyers, handouts	Motor vehicle offices
Entire family	Educational & Informational	Value of family Emotional component Impact on family Relates to their life	Brochures, flyers, handouts, games Person-to-person contact	Special events, holidays, community activities Soccer games Churches

\* While much of the findings point towards Spanish-language TV, radio, and print media, the researchers recognize that this may not be exclusive for each group. “According to a Texas media representative, Spanish radio and TV are the most effective media for reaching Hispanic audiences. Spanish television reaches most of the younger generation, since they do not read newspapers. However, Hispanics who are 30 to 40 years of age are best reached through the English media. The media representative mentioned studies showing that although many Hispanics in Texas speak Spanish, only a small percentage of long-term residents read it. Translations are often so badly done that given a choice of reading a newspaper in English or reading the Spanish translation, approximately 8 out of 10 Hispanics would choose to read the English version. According to the media representative, the affinity for reading English is particularly strong in second generation Hispanics because they were penalized as children if they spoke Spanish in Texas schools.” (7)



# **1 INTRODUCTION**

On a yearly basis, pedestrians represent about 4,808 highway fatalities and bicyclists represent about 728 highway fatalities. Statistics suggest that a disproportionate amount of persons killed and injured in traffic crashes are Hispanic immigrants. Census data indicate that the Hispanic population of the United States is growing faster than any other group, and problems with the safety of Hispanics on roadways will only increase as more and more Hispanics immigrate to the United States. In response to this issue, the Federal Highway Administration (FHWA) and the National Highway Traffic Safety Administration (NHTSA) have initiated a project to develop a marketing plan and outreach materials that promote pedestrian and bicycle safety messages for Hispanic audiences in a format to which Hispanics will respond.

The objectives of this FHWA/NHTSA project include: (1) the development of a plan for marketing pedestrian and bicycle safety issues/concerns to different Hispanic populations in the United States and (2) the development of materials in different formats that will be used to promote pedestrian and bicycle safety issues in the Hispanic community. The first objective is to perform market research to determine what messages are most needed, what is the best way to get the messages out, and who is/are the target audience(s). The purpose of this marketing plan is to delineate the results of the market research so that appropriate materials may be considered for development. The second objective is to develop the outreach materials, to test their effectiveness with the target audience(s), and to mass-produce the products. In addition to other distribution methods, these materials could become part of FHWA's Pedestrian Safety Campaign, which provides a toolbox of outreach materials that State and local organizations can customize to their needs and use. This campaign currently has some materials that are available in Spanish and targeted to Hispanic pedestrian safety.

## **2 MARKETING PLAN**

This section summarizes the recommendations for marketing pedestrian and bicycle safety to Hispanic audiences based on analysis and synthesis of the information from the literature review, focus groups, and review of Hispanic outreach materials.

Table 2-1 summarizes the results of the literature search and focus groups in terms of responses to the key questions (listed in the first column). Sections 2.1 through 2.4 present the recommendations for marketing pedestrian and bicycle safety to Hispanic audiences.

Overall, there was much agreement between what was found in the literature review and what was found in the focus groups. The commonalities and contradictions found between the literature review and the focus groups are summarized in Table 2-2.

**Table 2-1. Summary of Literature Review and Focus Group Findings.**

Question	Findings from Literature Review	Findings from Focus Groups
Which Hispanic groups should be targeted and why?	New immigrants and those less informed about the laws (6) Latino fathers, brothers, and uncles in order to create lasting behavior change in the Latino household (4)	Participants in the focus groups conducted for this study reported that Hispanics who are recent immigrants, low in acculturation, or possess limited English language skills are those who are most confused about the U.S. traffic safety system.
Should different cultural groups be targeted and why?	While each Hispanic culture is unique, the differences as they pertain to pedestrian and bicycle safety are relatively minor (6) Based on the crash statistics, male Hispanics of Mexican origin are overrepresented in pedestrian and bicycle crashes (1)	Question not addressed in focus groups
What age groups should be targeted and why?	Children and seniors (6) -- pedalcyclists ages 10-15 and 70-79 (2) -- pedestrians ages 5-9 and 70+ (3) Based on crash statistics, Hispanic pedestrians and bicyclists 21-29 years old are overrepresented in fatalities (1) All extended family members (different ages and roles) with encouragement to spread the word so that everyone who lives in the household can reinforce the message (4)	Question not addressed in focus groups
In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?	Basic rules of the road, meaning of traffic signs and signals, education of pedestrian and bicycle safety (6) Intersections on multi-lane roadways (1) The need to obey traffic laws (10), how to use crosswalks, and pedestrian/bicyclist rights and responsibilities (1)	There was a consensus that Hispanics needed general information on traffic safety issues: <ul style="list-style-type: none"> <li>•Traffic signs (exactly what signs mean; many signs are the same in Latin American countries, but understanding these signs is still an issue)</li> <li>•How traffic regulations are enforced in the U.S. (regulations tend not to be enforced as strictly in Latin American countries)</li> <li>•How to cross the street safely (including only crossing at intersections, using crosswalks, understanding walk/don't walk signals, and pushing a button to get a walk signal)</li> <li>•Where pedestrians should walk/bicyclists should ride (there was confusion over whether bicyclists can/should ride on sidewalks)</li> <li>•Overall tips related to the importance of being cautious</li> </ul> Participants were told that Hispanics were especially at risk for accidents, and this was viewed as important information that should be included in educational materials.

Question	Findings from Literature Review	Findings from Focus Groups
<p>What types of messages are most likely to have the most impact?</p>	<p>Messages centered on the value of the family as the reason to practice safety (4, 7)</p> <p>Messages with themes that have some relationship to their lives and consequences to family (7, 8, 9)</p> <p>Messages built on the oral traditions of the Latino community, utilizing rhymes, riddles, dichos (sayings) and finger games as reminders (4)</p> <p>Messages built on what families are already doing right (4)</p> <p>Messages that are realistic (7, 10)</p> <p>Graphic and explicit descriptions of motor vehicle crashes and the impact on families (7)</p> <p>No aggressive or enforcement-oriented messages (7)</p> <p>Messages that are clear, consistent, and free of jargon (10)</p> <p>Messages that go beyond preachy slogans like “Don’t Drink and Drive” but that instead allow recipients to make their own conclusions (10)</p> <p>Messages, materials, and events that appropriately represent Latinos (4)</p>	<p>Participants expressed a preference for messages that have an emotional component, get their attention, and make them take the message content to heart. However, they do not want this emotional content to be overly frightening or to use scare tactics. Thus, their preference seems to be for messages that highlight the importance of traffic safety (i.e., because accidents do happen), while focusing on a positive reason to avoid such accidents (i.e., out of love for family). Participants were also receptive to general information messages as previously noted, although such general information is more likely to appear in a booklet, while messages with more emotional content would be better received in advertisements and/or posters.</p>
<p>What format and graphics are culturally appropriate?</p>	<p>Graphics, photos, and other visuals not relying too heavily on text (6, 8)</p> <p>Use faces that look like the target population, faces of people that the target audience knows and respects (such as community and religious leaders), popular celebrities, and photographs rather than illustrations . (27)</p>	<p>Participants reported that all materials should be relatively concise. They were willing to listen to a commercial for up to a minute, and were willing to spend 2-3 minutes reading a flyer, advertisement, or brochure. All print materials should be written at a very low literacy level and should rely on images as well as text to convey their message.</p>

Question	Findings from Literature Review	Findings from Focus Groups
<p>What are the best media for getting the messages across?</p>	<p>Hispanic media (Telemundo TV, El Tiempo Latino newspaper, Hispanic magazines) (4, 7, 9, 10, 14, 15, 16)</p> <p>Public service announcements (6, 7)</p> <p>Television (6, 7, 9, 10)</p> <p>Radio (6, 7, 9, 10)</p> <p>Print ads (6, 7, 9)</p> <p>Posters, flyers, handouts, newspaper inserts (6, 9, 16)</p> <p>“Fotonovelas” or photographic story telling brochures and “radionovelas” or soap opera style segments (8, 9, 10)</p> <p>Person-to-person contact (7)</p> <p>Bumper stickers (9)</p> <p>Manuals/maps for bicyclists (6)</p> <p>Nontraditional outreach strategies (4)</p> <p>Billboards/door decals to demonstrate support from area businesses (11)</p> <p>Transit shelters and bus backs (9)</p> <p>Messages should be seen and heard in a variety of places (8)</p> <p>Materials alone are not enough to change behavior. Commitment to safety practices are more likely to occur when the materials are used in combination with at least one community outreach activities, with the most impact coming from multiple community activities and when respected leaders and family members reinforce the messages. (4)</p>	<p>Participants expressed an interest in information in a variety of formats. They were interested in television, radio, newspaper, and magazine advertisements, as well as in brochures, posters, and information for students. The Hispanic media mentioned by name were Telemundo, Univision, and Telefutera (all TV stations); all participants in the DC group agreed these were good media outlets. The DC group mentioned radio station La Mega 92.7. They only mentioned Spanish-language media outlets, no English outlets. No media by name came up in the group in Colorado Springs. Among these options, television advertisements are most preferred, followed by posters and information distributed at schools. Print materials were seen as most useful because participants were interested in taking them home and looking at them on their own time. Participants were not interested in fotonovelas, radionovelas, buttons, calendars, or bumper stickers as a means to distribute information.</p>
<p>Should materials be presented in just Spanish or in English as well?</p>	<p>Bilingual materials should be used (4, 6, 7, 9, 18)</p>	<p>Participants thought that the materials should primarily be in Spanish, since they thought the primary target audience should be recent immigrants (many of whom speak little to no English).</p>
<p>How should multiple languages be presented in the documents?</p>	<p>Bilingual materials should be presented side by side or front to back rather than line by line (18)</p>	<p>Question not addressed in the focus groups</p>
<p>Who are the key partners in the outreach effort?</p>	<p>Law-enforcement agencies in which trust has been built (19, 20, 21)</p> <p>Nonprofit, community-based programs (4, 22)</p> <p>Committee of key stakeholders (11)</p> <p>National and local organizations that serve the Latino community, traffic safety organizations, and agencies that specialize in health education (27)</p>	<p>Question not addressed in the focus groups</p>

Question	Findings from Literature Review	Findings from Focus Groups
Who should help distribute and promote the public safety information within the community?	<p>Trusted community organizations, family members, and friends (4)</p> <p>Public and non-profit grassroots organizations (25)</p> <p>Delivered by real people as opposed to celebrities (10)</p> <p>Word-of-mouth advertising campaigns (9)</p>	<p>Participants in the focus groups conducted for this study thought that they had a role to play in distributing such information via conversations with friends and family members. In addition, information spread via word-of-mouth (e.g., through a network of Hispanics trained to educate others on this topic) would also be appreciated.</p>
Where should the materials be distributed?	<p>Schools (6, 7, 16)</p> <p>Churches and community-based organizations (6, 7)</p> <p>Soccer games (6, 26)</p> <p>Public transit stations and bus shelters, and supermarkets, doctors' offices, libraries, motor vehicle offices, bicycle race, and bike stores (6)</p> <p>Family gatherings, cultural celebrations, special events, and holidays are key outreach tools. El Día de los Niños, birthdays, El Día de los Muertos and Mother's Day are recommended for special events. (4, 26)</p> <p>Safety events should be planned at the local Head Start center, clinics, multiservice centers, neighborhood stores or parks. (4)</p> <p>Materials can be distributed through programs used by members of the target audience, for example, English classes, Head Start, child care agencies, prenatal classes, etc. (27)</p>	<p>Participants listed a variety of possible locations. The most popular were schools, supermarkets, other stores (Wal-Mart and 7-Eleven were mentioned by name), and churches. There was also some interest in getting information through community centers or at doctor's offices. A few participants mentioned public transit stations or motor vehicle offices as possible locations to distribute information. There was little to no interest in getting information at soccer games (they go to games for entertainment purposes), libraries (few Hispanics visit libraries because most information is in English), or bicycle shops (too expensive).</p>



**Table 2-2. Commonalities and Contradictions Between Literature and Focus Groups.**

<b>Question</b>	<b>Commonalities between Literature and Focus Groups</b>	<b>Contradictions between Literature and Focus Groups</b>
Which Hispanic groups should be targeted and why?	New/recent immigrants	--
In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?	<ul style="list-style-type: none"> <li>• Meaning of traffic signs/signals</li> <li>• Education of laws/regulations/rules-of-road</li> <li>• Education on pedestrian and bicycle safety</li> </ul>	--
What types of messages are most likely to have the most impact?	<ul style="list-style-type: none"> <li>• Messages with emotional content</li> <li>• Messages that focus on value of family</li> <li>• No aggressive or enforcement messages (scare tactics)</li> </ul>	--
What format and graphics are culturally appropriate?	<ul style="list-style-type: none"> <li>• Use of graphics/photos/visuals</li> <li>• Concise messages that do not rely too heavily on text</li> </ul>	--
What are the best media for getting the messages across?	<ul style="list-style-type: none"> <li>• Hispanic media (TV, radio, newspapers, magazines)</li> <li>• Brochures/flyers/handouts</li> </ul>	The literature showed fotonovelas, radionovelas, and bumper stickers as good media; however, focus group participants were not interested in these media.
Should materials be presented in just Spanish or in English as well?	--	The literature consistently said that bilingual materials should be used; however, focus group participants said that materials should be primarily in Spanish (Note: this may have resulted from new immigrants representing the largest target audience in the groups and/or participants being shown predominantly Spanish language materials as examples).
Who should help distribute and promote the public safety information within the community?	<ul style="list-style-type: none"> <li>• Family members</li> <li>• Word-of-mouth</li> <li>• Non-profit/grassroots organizations/Hispanic organizations trained to educate others</li> </ul>	--
Where should the materials be distributed?	<ul style="list-style-type: none"> <li>• Schools</li> <li>• Supermarkets</li> <li>• Community-based orgs/community centers</li> <li>• Doctors' offices</li> <li>• Public transit stations</li> <li>• Motor vehicle offices</li> </ul>	The literature pointed to soccer games, libraries, and bicycle shops as places to distribute information; however, focus group participants did not think these were good locations to distribute materials (e.g., soccer games are for entertainment, libraries have mostly English materials, and bike shops are too expensive).

## **2.1 AUDIENCE**

Based on the research, the following audiences may be more at risk as pedestrians or bicyclists or may be groups that should be targeted by pedestrian/bicycle campaigns to “get the word” out through word-of-mouth marketing:

- New immigrants.
- Mexican males.
- Children.
- Seniors.
- Male members of the household (e.g., fathers, grandfathers, uncles, brothers).
- Entire family.

## **2.2 SAFETY ISSUES TO INCLUDE IN CAMPAIGN**

Recommended pedestrian and bicycle safety issues to be included in the outreach campaigns have been split into the following two categories:

1. Educational issues:
  - Basic rules of the road and how they are enforced in the U.S.
  - Meaning of traffic signs and signals.
2. Informational issues:
  - How to be a safe pedestrian/bicyclist.
  - Hispanics are especially at risk for crashes.

While there is a fine line between educational and informational issues, educational issues focus more on teaching the audience rules and regulations that they are expected to follow and how these rules and regulations are enforced. Informational issues focus more on issues like what it takes to be a safe pedestrian or bicyclist (e.g., always use a crosswalk, push the call button to receive the pedestrian signal, always look left-right-left before crossing the street).

## **2.3 MESSAGES**

Based on the research, messages about pedestrian and bicycle safety for Hispanic audiences should:

- Focus on the value of family and impact on family.
- Be realistic, with relationships to their lives.
- Have an emotional component (e.g., graphic and explicit descriptions of crashes), but should not be overly frightening or use “scare tactics.”

It is recommended that these messages:

- Use graphics, photos, and other visuals.
- Be concise, not too wordy, and written for low literacy level.
- Be clear and free of jargon.

## **2.4 MATERIALS/MEDIA**

Use of a variety of materials (messages should be seen and heard in a variety of places) is recommended, rather than focusing on one type of media. The recommended media to be included in an outreach campaign include:

- Television.
- Radio.
- Newspaper.
- Magazines.
- Brochures/flyers/handouts.

It should be noted that the use of Hispanic media is important. There are many Hispanics who watch only Spanish TV, listen to only Spanish radio stations, and/or read only Spanish newspapers and magazines. Therefore, using only mainstream media may not reach some of the target audience.

## **2.5 SUGGESTED METHODS OF DISSEMINATION OF MATERIALS**

One of the most important recommendations from the research is that materials alone are not enough to change behavior. Due to the importance of family and community in the Hispanic culture, commitment to safety practices are more likely to occur when the materials are used in combination with at least one community outreach activity, with the most impact coming from multiple activities held within the community and when respected leaders of the community as well as family members reinforce the messages through:

- Person-to-person contact.
- Word-of-mouth campaigns.

With these recommendations in mind, Table 2-3 makes the connection between the audience (the who), the issues and types of messages (the what), the media (the how), and the methods of dissemination (the where). For example, if children are the focus of a safety campaign, issues could be educational and/or informational; messages should focus on the value of family; and posters, handouts, and comics are media that should be disseminated at schools with person-to-person contact with teachers, administrators, or other authority figures. Television is also a recommended medium for information dissemination and could be used in addition to the print media distributed at schools. If household males are the target of a safety campaign, issues could be educational and/or informational; messages should have an emotional component and focus on the impact of the family if something were to happen to them; and TV and radio stations, along with print media, are recommended media types. TV and/or radio advertisements could be broadcast during appropriate sports events; and brochures, flyers, or handouts could be made available at motor vehicle offices.

Safety campaigns should be tailored to fit the needs of each community. This will help determine whether educational or informational issues are most important.

**Table 2-3. Connecting the Who, What, How, and Where of Marketing Pedestrian and Bicycle Safety to Hispanic Audiences.**

<b>Audience (Who?)</b>	<b>Issues (What?)</b>	<b>Messages (What?)</b>	<b>Materials/Media (How?)</b>	<b>Methods of Dissemination (Where?)</b>
New immigrants	Educational & Informational	Value of family Impact on family Emotional component Relationship to lives	Hispanic TV and radio stations* Hispanic newspapers and magazines*	
			Brochures, flyers, handouts	Public transit stations Supermarkets Churches
Mexican males	Educational & Informational	Value of family Impact on family Emotional component Relationship to lives	TV and radio stations* Newspapers and magazines*	
			Brochures, flyers, handouts	Motor vehicle offices Public transit stations Supermarkets
Children	Educational & Informational	Value of family	Hispanic TV*	
			Posters, handouts, comics Person-to-person contact	Schools (teachers, administrators, authority figures)
Seniors	Educational & Informational	Value of family Emotional component Relationship to lives	Hispanic TV and radio stations*	
			Brochures, flyers, handouts Person-to-person contact	Community centers Senior centers Churches
Household males	Educational & Informational	Value of family Emotional component Impact on family Relationship to lives	TV and radio stations* Newspapers and magazines*	
			Brochures, flyers, handouts	Motor vehicle offices
Entire family	Educational & Informational	Value of family Emotional component Impact on family Relationship to lives	Brochures, flyers, handouts, games Person-to-person contact	Special events, holidays, community activities Soccer games Churches

\* While much of the findings point towards Spanish-language TV, radio, and print media, the researchers recognize that this may not be exclusive for each group. “According to a Texas media representative, Spanish radio and TV are the most effective media for reaching Hispanic audiences. Spanish television reaches most of the younger generation, since they do not read newspapers. However, Hispanics who are 30 to 40 years of age are best reached through the English media. The media representative mentioned studies showing that although many Hispanics in Texas speak Spanish, only a small percentage of long-term residents read it. Translations are often so badly done

that given a choice of reading a newspaper in English or reading the Spanish translation, approximately 8 out of 10 Hispanics would choose to read the English version. According to the media representative, the affinity for reading English is particularly strong in second generation Hispanics because they were penalized as children if they spoke Spanish in Texas schools.” (7)



## **APPENDIX A.**

### **STEPS TAKEN TO DEVELOP THE MARKETING PLAN**

An outline, developed as part of the Educación de seguridad en el tránsito/Education in Traffic Safety (EST) project, was referenced and used to guide the development of this marketing plan. The EST is a 2-year project to study existing traffic safety educational materials for Latinos and to create guidelines for the development of new culturally appropriate materials (5). The guidelines developed by EST could be used to develop brochures, posters, videos, and booklets designed to promote safe driving, riding, walking, and biking. Therefore, these guidelines are important to consider in developing any outreach campaign for Hispanic communities. While the guidelines will not be available until summer 2005, the following is an outline of the guidelines under development (27):

#### **Research and Planning**

1. Identify the audience.
2. Identify key partners.
3. Understand the traffic safety topic.
4. Understand the audience.
5. Understand health communication.
6. Review existing materials.

#### **Creating Materials**

7. Develop your message and content.
8. Use accurate, simple, and appropriate language.
9. Use culturally appropriate format and graphics.
10. Solicit feedback from the target audience and your partners.

#### **Dissemination and Evaluation**

11. Effectively disseminate.
12. Evaluate and review.

The research team for this FHWA/NHTSA project used this outline to identify critical steps towards the development of this marketing plan. These critical steps were defined as:

- Develop key questions about the audience and communicating with them.
- Identify means of gathering information to answer the key questions.
- Analyze and synthesize the information gathered.
- Use the information to develop the marketing plan.

### **A.1 Develop Key Questions About Audience and Communicating with Them**

In order to accomplish many of the items listed in the above outline, (e.g., identify and understand the audience, identify key partners, understand the traffic safety topic and the audience, understand effective principles of health/safety communication, use a format and graphics that are culturally appropriate, use accurate and appropriate language, disseminate in an effective way), the research

team developed a list of key questions to be answered under each of these critical steps. These questions included:

- Identify the audience:
  - Which Hispanic groups should be targeted?
  - Should different cultural groups be targeted?
  - What age groups should be targeted?
- Identify key partners:
  - Who are the key partners in the outreach effort?
- Understand the audience and the traffic safety topic:
  - In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?
- Understand effective principles of health/safety communication:
  - What types of messages are most likely to have the most impact (what content is culturally appropriate)?
  - What format and graphics are culturally appropriate?
  - What are the best media for getting the messages across?
- Use accurate and appropriate language:
  - Should materials be presented in just Spanish or in English as well?
  - How should multiple languages be presented in the documents?
- Disseminate in an effective way:
  - Who should help distribute and promote the public safety information within the community?
  - Where should the materials be distributed?

The remaining critical steps in the outline (not listed above with questions) will be addressed through the tasks in the Statement of Work for this project. For example, “review Spanish language materials” was addressed in the information gathering stage (Task 2—see Section A.2.3); while “solicit feedback from community partners on the content, format and graphics, and language” and “evaluate and review your material” will be addressed through focus groups conducted in Task 3, which will be written as an addendum to this marketing plan.

## **A.2 Identify Means Of Gathering Information To Answer Key Questions**

Next, several means of gathering information to answer the key questions were identified, including: a literature search, focus groups with Hispanic pedestrian and bicyclists, and a review of Hispanic outreach materials created for other safety campaigns. Each method for gathering information is discussed in more detail in the following subsections.

### **A.2.1 Literature Search**

The objective of the literature search was to develop a marketing plan of the most effective methods of promoting bicycle and pedestrian safety to Hispanic audiences. The extent of the task was delineated in the Work Plan submitted to FHWA/NHTSA in November 2004. It stated that:

The SAIC team, principally Sprinkle, will review the FHWA's "Determining the Extent of the Highway Safety Problem as it Relates to Hispanic Populations in the United States" (when completed), NHTSA's "Highway Safety Needs of U.S. Hispanic Communities: Issues and Strategies," and other documents as deemed appropriate. SAIC staff will meet with members of the MWCOG's [Metropolitan Washington Council of Governments] Street Smart Program to review their Hispanic outreach materials and learn about their market research performed to date. SAIC staff will also review any other relevant materials developed for Hispanic audiences, such as material that helps develop a full understanding of the general issues faced by Hispanic immigrants to the U.S. (e.g., language barriers); staff members have collected informative materials developed for Hispanic audiences by the Pan American Health Organization (PAHO).

Sources referenced in the literature search include:

- FHWA and NHTSA staff.
- NHTSA website ([www.nhtsa.dot.gov](http://www.nhtsa.dot.gov)).
- The Transportation Research Information Services (TRIS) Database ([trisonline.bts.gov](http://trisonline.bts.gov)). Keywords "Latino" and "Hispanic" were used to search for records from the last five years.
- General search of the Internet with key words "Hispanic traffic safety", "Hispanic pedestrian", "Marketing to Hispanics".

The results of the literature review are summarized in Section A.3.

## **A.2.2 Focus Groups**

Focus groups related to Hispanics' perceptions, knowledge, and attitudes concerning pedestrian and bicycle safety were conducted as part of this research study. The purpose of these groups was to better understand what information Hispanics need about this topic. As discussed, this information will inform the development of the marketing campaign.

### **A.2.2.1 Locations for focus groups**

Colorado Springs, CO, and the Washington, DC, areas were selected as locations to conduct the two focus groups. Both these locations were selected as areas that have a large number of recent immigrants from many different countries of origin. In addition, the geographic spread between the two locations will help ensure that the findings are not specific to Hispanics from one country of origin (i.e., Colorado Springs has a larger number of immigrants from Mexico than the Washington, DC, area, while the Washington, DC, area has a larger number of immigrants from Puerto Rico than Colorado Springs).

### **A.2.2.2 Participant recruitment**

The Media Network (TMN), in conjunction with Springs Research of Colorado Springs, CO, recruited participants to attend the focus group sessions. Eligible participants had to meet the following criteria: Hispanics over the age of 18 who have less than a college education and walk or ride a bicycle regularly (at least 2 times a week). Additionally, participants needed to be a member of a group at higher risk for pedestrian and bicycle accidents (i.e., seniors, young males, parents of young children, recent immigrants, or being of Mexican origin). The goal was to create diverse groups of respondents in each city. TMN designed a customized recruiting screener with input from FHWA/NHTSA to ensure that participants in the focus groups fit the profile of respondents the

research team sought. Potential participants were contacted by telephone and screened to verify their eligibility.

Eligible participants were invited to participate in the groups and were assured of the personal confidentiality and research-oriented purpose of the groups. Participants were not informed of the sponsor of this project. Confirmation letters with the time and location of the group were sent to all participants, as well as directions to the facilities where the groups were being held. Participants were called the day before the sessions to remind and encourage them to attend.

#### **A.2.2.3     *Focus group methodology***

The focus groups were held in February 2005 in Colorado Springs, CO and Silver Spring, MD. A professional bilingual focus group moderator led each group. The groups lasted about 2 hours and were conducted in Spanish. Each participant signed an agreement to acknowledge that the session was being recorded (audio only); the agreement informed them that their personal information would be kept confidential. Participants were provided with a light meal as well as a cash stipend for their participation.

At the beginning of the discussion, participants were encouraged to share their ideas and were told that there were no wrong answers to the questions being asked. Participants were advised of “ground rules” for the discussion that included the role of the moderator and what constitutes appropriate participant behavior. They were then reminded that they were being audio recorded.

To begin the discussion, participants introduced themselves to one another and to the moderator. They were then led through the research questions in the moderator’s guide, which focused on issues such as general knowledge of pedestrian and bicycle safety issues, key content areas for potential messages, participants’ preferences for types and kinds of information on this topic, and participants’ preferences for how to receive information on this topic.

The results of the focus groups are summarized in Section A.3.

#### **A.2.3   Review Hispanic Outreach Materials**

Hispanic outreach materials recommended for review by FHWA and NHTSA, as well as those found in the literature search were gathered and reviewed. A summary of these documents is shown in Table A-1.

**Table A-1. Summary of Spanish Language Materials Reviewed.**

<b>Outreach Material</b>	<b>Source</b>	<b>Brief Description</b>
Manual del Ciclista (Bicyclist Manual)	State of Oregon	15-page bi-fold manual covering bicycle maintenance, traffic laws for cyclists, basic safety principles, and what to do in case of an accident.
Cómo Ajustar y Usar un Casco Para Ciclistas (How to adjust and use a Bicycle Helmet)	Asociación de Daño Cerebral de la Florida, Inc.	Tri-fold brochure <sup>1</sup> —5-step instructions with picture illustration and written instructions for adjusting and using a bicycle helmet.
Proteja la Cabeza de su Niño (Protect your child's head)	State of California Department of Health Services	2-page (8.5" X 11") color handout with large photograph and brief textual description on properly fitting a bicycle helmet (presented in Spanish and English) <sup>2</sup>
Los Chicos y la Bicicleta En Illinois (Children and bicycles in Illinois)	State of Illinois	10-page bi-fold manual with "how to" drawings and text descriptions on the following bicycle-related topics: ride in the street and in the sidewalk, look behind you, navigate intersections, and adjust the bicycle and helmet for a proper fit (for parents) <sup>3</sup>
Comparta el Camino: Guía Para Ciclistas y Motoristas (Share the Road: Guide for Cyclists and Drivers)	City of Tucson Dept. of Transportation Pima Association of Governments Pima County Dept. of Transportation	45-page guide with "how to" drawings and text on numerous bicycle-related topics: pass parked cars, open car doors if cyclists are close by, detailed Arizona laws, etc. <sup>4</sup>
Medidas de seguridad para montar en bicicleta (Safety measures for mounting bicycles)	Kaiser Permanente	3-page flyer/handout on how to properly mount a bicycle (i.e., good locations to do so, use a helmet) <sup>5</sup>
Mira Izquierda Derecha Izquierda (Look Left Right Left)	Florida Department of Transportation	4-page pamphlet <sup>6</sup> —explains the meaning of the pedestrian signal indications.
Street Smart (multiple Spanish-language materials)	Metropolitan Washington Council of Governments	Multimedia campaign materials include TV spots (signal explanation for pedestrians); brochures, bus transit shelters and cards, and posters (cross safely); and handouts (use the crosswalks).
¡Yo camino - yo cuento! (multiple Spanish-language materials)	North Central Texas Council of Governments	Campaign materials include brochures and bookmarks (reasons to walk, suggestions on destinations, safety tips, walking gear tips, steps to fitness walking, and walking goals).

<sup>1</sup>[www.dot.state.fl.us/safety/ped\\_bike/brochures/ped\\_bike\\_brochures\\_bicycle.htm](http://www.dot.state.fl.us/safety/ped_bike/brochures/ped_bike_brochures_bicycle.htm)

<sup>2</sup>[www.dhs.ca.gov/ps/cdic/epic/bike/documents/BikeHelmetSPAN01.pdf](http://www.dhs.ca.gov/ps/cdic/epic/bike/documents/BikeHelmetSPAN01.pdf)

<sup>3</sup>[www.dot.state.il.us/bikemap/kidsonbikesspanish/kidsbikespanish.pdf](http://www.dot.state.il.us/bikemap/kidsonbikesspanish/kidsbikespanish.pdf)

<sup>4</sup>[www.dot.pima.gov/tpcbac/comparte1.pdf](http://www.dot.pima.gov/tpcbac/comparte1.pdf)

<sup>5</sup>[www.permanente.net/kaiser/pdf/7341.pdf](http://www.permanente.net/kaiser/pdf/7341.pdf)

<sup>6</sup>[www.cure.fau.edu/pedcenter/downloads/spanishcard.pdf](http://www.cure.fau.edu/pedcenter/downloads/spanishcard.pdf)



In addition, Pedestrian-Bicycle Coordinators in all 50 States, the District of Columbia, Guam, and Puerto Rico were contacted via email to determine what, if any, Spanish language materials they had used. Finally, several organizations and agencies suggested by NHTSA were also contacted. These agencies included:

- American Academy of Pediatrics.
- Centers for Disease Control.
- Children's Safety Network.
- Consumer Product Safety Commission.
- League of American Bicyclists.
- National Bicycle Dealers Association.
- Thunderhead Alliance.

The following questions were asked of the State Pedestrian-Bicycle Coordinators and the organizations/agencies:

1. Has your office put out any Spanish-language materials on bicycle or pedestrian safety?
2. If yes, how are you distributing these materials or reaching the target audience? What have you found to be the best way(s) to reach the audience?
3. Have the materials themselves and the outreach mechanisms been effective?

As of March 4, 2005, responses had been received from 18 of the States, the District of Columbia, and 4 of the 7 organizations. These responses from the States are summarized in Table A-2. Summary of Responses from Pedestrian Bicycle Coordinators and the responses from the organizations are summarized in Table A-3. Summary of Responses from Organization. Any State or organization from which no information was received is not listed in the table; however, as information is received, it will be considered in the development of the marketing materials.

**Table A-2. Summary of Responses from Pedestrian-Bicycle Coordinators**

State	Response
California	California Highway Patrol produces brochures on various traffic safety topics, including <i>Patinetas y Patines (Skateboards, Rollerblades &amp; Scooters)</i>
District of Columbia	<i>¡Proteja la cabeza de su niño! (Protect Your Child's Head)</i> —California Department of Health Services
Florida	<i>Cómo ajustar un casco para ciclistas (How to Fit a Cyclist's Helmet)</i> (brochure) <i>Mira Izquierda Derecha Izquierda (Look Left Right Left)</i> – produced by Florida DOT
Idaho	The Bicycle/Pedestrian Coordinator distributes Safe Ride News publications and fact sheets through county driver's license offices, schools upon request, and others
Illinois	<i>Los chicos y las bicicletas en Illinois (Kids on Bikes in Illinois)</i> (primary target audience of this booklet is children ages 9 to 11). These brochures are available to anyone requesting them in hard copy. In the past, they have been sent to schools with Hispanic students and have been distributed at Bike Shows and conferences around the state. It is difficult to evaluate the effectiveness, but they are in continual demand and there have been several reprintings.
New Mexico	Currently translating a bicycle awareness brochure into Spanish
Oregon	Oregon DOT sent multiple copies of its <i>Manual del Ciclista (Bicycle Manual)</i> . It is not available online.
Rhode Island	The Rhode Island Department of Health has not produced its own materials. Instead, the department has distributed Spanish-language National SAFE KIDS and AAA materials at school and community events and health fairs: <ul style="list-style-type: none"> <li>• Pedestrian Safety (SAFE KIDS)</li> <li>• Walkability Checklist (SAFE KIDS)</li> <li>• Safe Walking Tips (AAA)</li> </ul> The department has not distributed any Spanish-language materials on bicycle safety.
Arizona Georgia Indiana Massachusetts Michigan Minnesota Missouri Nebraska	Nevada New Hampshire New Jersey New York North Carolina North Dakota Tennessee Vermont
	Nothing in Spanish Phone responses: Massachusetts, Minnesota, Tennessee. Other States responded by e-mail.

**Table A-3. Summary of Responses from Organizations**

Organization	Response
Children's Safety Network	"Educación de seguridad en el tránsito" (EST) (5).
Thunderhead Alliance	This is a national alliance of state and local bicycle coalitions. The Executive Director suggested the Chicagoland Bicycle Federation ( <a href="http://www.biketraffic.org">www.biketraffic.org</a> ), LA County Bicycle Coalition ( <a href="http://www.labikecoalition.org">www.labikecoalition.org</a> ), Florida Bicycle Association ( <a href="http://www.floridabicycle.org">www.floridabicycle.org</a> ), and Texas Bicycle Coalition ( <a href="http://www.biketexas.org">www.biketexas.org</a> ).
American Academy of Pediatrics	E-mail response: "The AAP has not put out any Spanish-language materials on bicycle or pedestrian safety."
National Bicycle Dealers Association	E-mail response: "Sounds like an excellent project, but we have nothing in Spanish."
Centers for Disease Control	Phone response: Suggested two organizations - <a href="http://www.safekids.org">www.safekids.org</a> and <a href="http://www.iwalktoschool.org">www.iwalktoschool.org</a> .
Florida Bicycle Association	The FBA has English and Spanish PSAs on "Go with the Flow" and "Get Out and Ride." The PSAs are available online at <a href="http://www.floridabicycle.org">www.floridabicycle.org</a> .
Los Angeles County Bicycle Coalition	<p>The Los Angeles County Bicycle Coalition prepared a report called <i>Enhanced Public Outreach Project for Metro's Bicycle Transportation Strategic Plan</i>. Data collection included both English and Spanish surveys of bicyclists.</p> <p>The Coalition distributes Spanish and bilingual English/Spanish materials produced by the Los Angeles DOT, Metro, and other area agencies.</p>
Chicagoland Bicycle Federation	<p>The Chicagoland Bicycle Federation created a series of pamphlets in Spanish:</p> <p>Ciclistas: ¿Desean respeto?</p> <p>Ciclistas: ¡No viajen por la acera!</p> <p>Ciclismo seguro en Chicago</p> <p>Cómo asegurar su bicicleta</p> <p>Cómo usar el carril para bicicletas</p> <p>Consejos para los motoristas</p> <p>Los chicos y la bicicleta en Chicago</p> <p>The Chicago Bicycle Federation also produced a bilingual coloring book, <i>Kids on Foot in Chicago / Niños caminando en Chicago</i>.</p>
Texas Bicycle Coalition	The Texas Bicycle Coalition is working with universities to get student teachers certified to teach a course, SuperCycle, to 4 <sup>th</sup> and 5 <sup>th</sup> graders.

The review of the materials demonstrated that a variety of different types of materials on a variety of different topics have been produced for Hispanic audiences. There was no overall theme identified in the materials and not necessarily any connectivity between any of the documents. The print documents do provide an idea of the visual layouts that have been used and, in some cases, illustrate what may work and what may not (i.e., some are more graphics oriented, while others rely more heavily on textual descriptions). This visual aspect will be considered when developing the marketing materials for this project.

### **A.3 Analyze and Synthesize Information**

Once all the information was gathered, the information from all sources was analyzed and synthesized. This section presents a synthesis of the results in terms of the EST outline and the key questions developed to address the items in the outline. The results are first shown for the literature, followed by the results of the focus groups.

#### **A.3.1 Identify the Audience**

In order to develop an effective outreach campaign, it was important to identify the audience. In other words, who exactly is the target of the campaign? Who relates to age and sex of the audience, culture, and how long they have been in the United States.

##### **A.3.1.1 Which Hispanic groups should be targeted?**

FHWA and NHTSA sponsored a research project in 2004 related to Hispanic pedestrian and bicycle safety. As part of this research, crash data from 1999 through 2003 were analyzed. Pedestrian and bicycle fatalities were examined by ethnicity, gender, age, and alcohol involvement. (1) In addition, 8 focus groups were conducted with 62 Hispanic men and women who walked or rode a bicycle regularly. (6) Focus group participants mentioned that new immigrants and those less informed about the laws as being at increased risk of a crash.

In particular, the participants reported that Hispanics who are recent immigrants, low in acculturation, or possess limited English language skills are those who are most confused about the U.S. traffic safety system.

##### **A.3.1.2 Should different cultural groups be targeted?**

Focus group participants in the 2004 FHWA/NHTSA-sponsored study did not think that any one Hispanic cultural group was more at risk. Moreover, participants agreed that, while each Hispanic culture is unique, the differences among Hispanic cultures as they pertain to pedestrian and bicycle safety are relatively minor. (6) However, based on the crash statistics, Hispanics of Mexican origin account for roughly two-thirds of all fatalities among Hispanic pedestrians and bicyclists. Among all Hispanics, about 67 percent of pedestrian fatalities and 89 percent of bicyclist fatalities occurred to males. (38)

##### **A.3.1.3 What age groups should be targeted?**

Focus group participants in the 2004 FHWA/NHTSA sponsored study reported that children were most likely to be in a crash, but that seniors were also at increased risk. (6) Crash statistics showed

that there was a higher percentage of fatalities among Hispanic pedestrians and bicyclists aged 21-29, compared to non-Hispanic pedestrians and bicyclists in the same age group. (38)

In 2001, a child passenger safety campaign was developed in partnership between NHTSA, the National Latino Children's Institute (NLCI), and Nationwide Insurance. (4) The results showed that:

- Future projects should include special outreach activities and messages for immigrant groups.
- Special events and traffic safety messages need to be targeted to all extended family members with encouragement to spread the word to other members of the family. Everyone must be responsible for the family's safety.
- A strategy targeting Latino fathers, brothers and uncles must be developed in order to create lasting behavior change in the Latino household.

### **A.3.2 Understand the Audience and the Safety Topic**

After the target audience has been identified, it is important to develop an understanding of the audience and how the safety topic relates to them.

#### **A.3.2.1 *In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?***

Focus group participants in the 2004 FHWA/NHTSA study had a general awareness of traffic signs and regulations; they were familiar with some aspects of the U.S. traffic system, including signs, signals, and laws. However, their knowledge was somewhat vague. For example, some pedestrians were unsure of what the blinking hand meant at a crosswalk. Several bicyclists questioned whether biking rules existed. In addition, traffic signs in English confused some participants. Participants reported that there is a lack of basic information on pedestrian and bicycle safety. The main sources of knowledge were their peers and taking their driver's exam. Pedestrian focus group participants suggested that more education be provided on these pedestrian safety-related areas:

- Stopping at every light.
- Looking both ways before crossing the street.
- Obeying the laws.
- Respecting the lights.
- Crossing only in pedestrian walkways.
- Education about what to do at yellow lights.
- Education about how cars can slide in snow and bad weather.

Bicycle focus group participants were interested in information on laws, precautions, risks, and positive and negative things about being a bicyclist. They also thought that educating drivers on bicycle safety was critical. (6)

According to crash data analyzed as part of the same study, pedestrian and bicyclist fatalities among Hispanics were more likely to occur in urban areas than pedestrian fatalities among Non-Hispanic Whites or Non-Hispanic Blacks. Bicyclist fatalities among Hispanics were more likely to occur at or near an intersection than bicyclist fatalities among non-Hispanic Whites or Non-Hispanic Blacks. (1) The authors point out that about one-fifth of fatal pedestrian crashes are intersection or intersection-related. About 9 percent of fatal pedestrian crashes occur at a signalized intersection. These numbers

are applicable to both Hispanic and non-Hispanic pedestrian fatalities. According to the authors, intersections on multi-lane roadways are a potential topic for educational programs that target Hispanic bicyclists. The authors also recommend that (1) campaigns should focus on the need to obey traffic laws, how to use crosswalks, and pedestrian/bicyclist rights and responsibilities; and (2) local programs should focus on the specific pedestrian/bicyclist problems in each community.

Focus group participants for this study reported that Hispanics, as a cultural group, have limited knowledge about U.S. traffic safety laws. This lack of knowledge is driven by cultural differences (i.e., differences between Latin American countries and the U.S. in traffic behaviors), as well as by language barriers. The result is that specific features of the U.S. traffic safety system are consistently confusing to Hispanics who are recent immigrants, low in acculturation, or possess limited English language skills. These include general differences in how traffic laws are enforced, differences in signs, the importance of crossing only in marked areas, how to read walk/don't walk signs, and how to push the button to call for a walk signal on a crosswalk. This result shows the importance of using more than just materials to change behaviors.

Participants readily self-reported that they would like to know more about U.S. traffic safety laws. There was a consensus among group members that Hispanics needed additional general information on traffic safety issues. They reported that Hispanics need to know more about:

- Traffic signs (including exactly what signs mean; many signs are the same in Latin American countries, but understanding these signs is still an issue).
- How traffic regulations are enforced (i.e., via ticketing) in the U.S. (regulations tend not to be enforced as strictly in Latin American countries).
- How to cross the street safely (including only crossing at intersections, using crosswalks, understanding walk/don't walk signs, and pushing a button to get a walk signal).
- Where pedestrians should walk/bicyclists should ride (there was confusion over whether bicyclists can or should ride on sidewalks, for example).
- Overall tips related to the importance of being cautious.

In the focus groups, participants were told that Hispanics were especially at risk for accidents, and this was viewed as important information that should be included in educational materials.

### **A.3.3 Understand Effective Principles of Health/Safety Communication**

One of the most significant references found in the literature review was the Corazón de mi vida campaign. (4) The Corazón de mi vida campaign is a child passenger safety campaign developed in partnership between NHTSA, the National Latino Children's Institute (NLCI), and Nationwide Insurance. Corazón de mi vida reaches the Latino community using appealing culture-based materials combined with four unique community activities, including: (1) parent pláticas, gatherings at Head Start and childcare centers, churches, clinics, and community centers to discuss child passenger safety and common attitudes; (2) press conferences where communities are encouraged to use special days to promote media coverage for child passenger safety; (3) safety seat "blessings," moving spiritual ceremonies that result in personal commitments to protect children; and (4) safety seat clinics to encourage families to drive up to checkpoints to test the installation of their safety seats. The materials include a variety of hangers, tags, bumper stickers, lotería games, and a video.

Twelve community-based organizations were invited to participate in the development and pilot testing of the Corazón de mi vida materials and strategies. Additional pilot tests were conducted in El Paso and Del Rio. Each program participated in a training session and received a video on how to organize a Corazón de mi vida plática, press conference, blessing, and safety seat clinic.



Findings from the pilot test indicated that although the Corazón de mi vida materials provide information in an easy-to-use manner and offer innovative reminders, the materials alone were not enough to change behavior. Parents and family members indicated that commitment to passenger safety practices was more likely to occur when the materials were used in combination with at least one of the community outreach activities. The greatest improvement in Latino safety behavior occurred when all four activities were held within the community, and when respected leaders of the community as well as family members reinforced the messages.

The messages and activities of the Corazón de mi vida program connect personally with each participant. They work because:

- They center on the value of the family as the reason to practice passenger safety.
- The messages build on the oral traditions of the Latino community, utilizing rhymes, riddles, dichos (sayings), and finger games as reminders.
- Family gatherings and cultural celebrations are the key outreach tools. El Día de los Niños, birthdays, El Día de los Muertos and Mother's Day are recommended for special events such as safety seat clinics.
- Both Spanish and English are used to convey information.
- The messages build on what families are already doing right.
- Strategies are targeted to different ages and roles so that everyone who lives in the household can reinforce the message.
- Information is relayed through trusted community organizations as well as family members and friends.
- The Hispanic media plays a significant role in getting the message out.

#### **A.3.3.2    *What types of messages are most likely to have the most impact?***

In 1995, NHTSA sponsored a study to identify the highway safety needs of Hispanic communities within the United States. (7) Interviews with representatives of public and other agencies actively involved with Hispanic communities and focus groups with members of Hispanic communities were used to gather information. The results of the study showed that, in promoting health and safety, community members recommended developing themes that have some relationship to their lives and agreed that the family is one of the most powerful symbols in the Hispanic community. The organizational representatives emphasized the importance of personal contact and establishing relationships within the community. Effective strategies include:

- Realistic messages.
- Person-to-person contact.
- Public service announcements.
- Message delivery through schools, churches, and community-based organizations.

Strategies to be avoided include:

- Impersonal approaches.
- The use of aggressive or enforcement-oriented messages.
- The tendency to ignore the diversity within Hispanic communities.
  - Study participants pointed out differences among different Hispanic groups and differences caused by the length of time in the U.S. and the acculturation process.

- According to some agency representatives, a common mistake is to assume that all Hispanics want to speak Spanish.
- Presentations that come across as disrespectful or condescending.
- Excluding key members of the community from program development and implementation.

Specifically, focus group participants called for graphic and explicit descriptions of motor vehicle crashes and the impact on families.

In 2002, Mecklenburg County, NC, developed a Safe Communities Program by producing culturally sensitive materials to reduce drinking and driving among Latinos in the county. From focus groups, they learned that the materials should focus consequences to the family, a genre popular among Latinos. (8) One of the RadioNovelas involves a woman being informed by a police officer that her husband has died in an impaired driving crash. The woman is concerned about taking care of the family and how they will manage without her husband. Another RadioNovela involves a man who has been injured in a drunk driving crash. A physician informs him that he was unable to save his leg during an emergency operation. The man is then concerned about how he will be able to take care of his family.

A bilingual video developed by El Pueblo, Inc., in North Carolina covers topics such as how to get a driver's license, the importance of using safety belts and child passenger seats, and the possible impacts of actions, such as driving under the influence, on the family. (27)

Street Smart is a pedestrian and bicycle safety and public awareness program in the Washington, DC, metropolitan area with the goal of educating the public on pedestrian and bicycle safety issues and laws. Street Smart started in 2002, and the most recent implementation took place in April 2004. The campaign is not targeted solely at Hispanics. Campaign materials urge drivers to "Imagine the Impact" of a crash on the lives and families of pedestrians, cyclists, and drivers. (9)

A study to design effective multi-media campaigns to reduce motor vehicle crashes in communities of recent Latino immigrants employed focus groups with Latino immigrants in three U.S. Cities. Results showed that many newly arrived Latino immigrants need to be informed about traffic safety laws. Focus group participants preferred that messages reflect real life or real stories, and be delivered by real people as opposed to celebrities. In three focus groups with Latino immigrants in three U.S. cities, results showed that, because of low literacy among many Latinos, effective messages must be clear, consistent, and free of jargon. In addition, messages should go beyond slogans like "Don't Drink and Drive" and preaching, and instead allow recipients to make their own conclusions. (10)

Participants in the focus groups conducted for this study generally did not like the idea of humorous messages, although reaction was inconsistent. While they are attention-getting, the topic of traffic safety is not a humorous subject and they would therefore be in bad taste. Participants' reactions to messages with shock value were more consistent. Overall, participants thought such messages could get their attention and cause them to think about the importance of traffic safety. In fact, this was one of two favorite types of messages discussed in the groups. There was a sense among participants, however, that messages should not be too shocking or scary, as this may have a negative impact.

The other favorite message type among participants focused on the importance of being safe because you love your family. They liked the idea of materials that focused on family and community, and thought such materials would resonate well with Hispanic cultural values. As with messages on acting out of family love, messages on sparing your family the trauma of loss were likewise reacted to favorably. This is, of course, closely related to being safe because you love your family; however, sparing your family the trauma of loss messages were slightly less preferred than being safe because

you love your family messages. If messages on avoidance of trauma were used, participants thought they should focus on true stories of family trauma.

Participants had a favorable reaction to messages focused on general information. For example, such messages showed and explained traffic signs or encouraged people to use crosswalks. Participants appreciated the clarity of these messages, although their slight preference was for messages with more emotional content. Participants also did not like general information messages that contained too much textual information or that were overly simplistic and thus condescending.

#### **A.3.3.3 *What format and graphics are culturally appropriate?***

Focus group participants from the 2004 FHWA/NHTSA study said materials should include graphics and other visuals and not rely too heavily on text. (6) Likewise, focus group participants in the 2002 Mecklenburg County Safe Communities Program recommended the use of photos and verbal information, as opposed to a large amount of text, was important. (8)

The EST project suggested that messages for parents that emphasize the value of family and that messages be written in a positive way (such as “Protect Yourself – Drive Sober” instead of “Don’t Drink and Drive”). (27) Regarding graphics, the EST project suggested the use of faces that look like the target population, faces of people that the target audience knows and respects (such as community and religious leaders), popular celebrities, and photographs rather than illustrations. (27)

Participants in the focus groups conducted for this study reported that all materials should be relatively concise: participants were willing to listen to a commercial for up to a minute, and were willing to spend 2-3 minutes reading a flyer, advertisement, or brochure. All print materials should be written at a very low literacy level and should rely on images as well as text to convey their message.

#### **A.3.3.4 *What are the best media for getting the messages across?***

Focus group participants from the 2004 FHWA/NHTSA study suggested that information be distributed via television, radio, newspaper, commercials, soap operas, public service announcements, word-of-mouth advertising campaigns, posters, flyers, bumper stickers, and manuals/maps for bicyclists. (6)

Focus group participants from the 1995 NHTSA study, particularly from urban areas, viewed television as the medium with the most potential for disseminating traffic safety information to the Hispanic population. (7) The report also notes that the most effective medium may differ by location.

Focus group participants in the 2002 Mecklenburg County Safe Communities Program thought that the messages should be seen and heard in a variety of places. (8)

Recommendations from the Corazón de mi vida pilot test include. (4)

- The Latino community has its own vehicles for communication, and these must be used in order to reach the community. For example, most participants found about the Corazón de mi vida events through word of mouth or through flyers handed to them personally at trusted organizations (i.e., child care center, Head Start, etc.).
- Nontraditional outreach strategies need to be used to make the connection with Latinos. There is mistrust of government and large institutions, (4) so safety events should be planned at the local Head Start Center, clinic, multiservice center, neighborhood store, or park. Latinos must see themselves appropriately represented in messages, materials, and events.

- Latinos are more likely to use information presented by a relative, trusted friend, a service provider with which they have a relationship, or through an event sponsored by an organization they trust.
- Future outreach efforts should take into account the informal communication patterns in the Latino community.
- Safety events should be planned at the local Head Start center, clinic, multiservice center, neighborhood store, or park, rather than across town at large institutions such as hospitals.
- Special events and holidays (such as El Día de los Niños, birthdays, El Día de los Muertos, and Mother's Day) should be carefully explored for every opportunity to connect with Latino families.

The ¡Yo cuento! campaign is intended to encourage people who currently walk for purposeful trips to continue to do so, and to encourage those who currently drive, even for short trips, to choose to make at least some of those trips by foot. Billboards depicting the family of Baldo™ comic strip characters, with the slogan “Una Familia Activa Vive Mejor ¡Camina!” (An Active Family Lives Better. Walk!) are being placed at strategic locations around the district, and hundreds of “¡Éntrole!” (Come in, or join us!) door decals featuring the campaign logo are being installed on every public entrance made available to the program, to demonstrate unified support from area businesses. (11) The North Central Texas Council of Governments is now looking at ways to gauge success. (12)

The Mecklenburg County Safe Communities Program found the most effective means of communication was through “fotonovelas” (i.e., photographic storytelling brochures) and “radionovelas” (i.e., soap opera-style segments) focusing on the pertinent educational points. (8)

Street Smart utilized multiple resources and media: TV and radio spots, print ads, outdoor media including transit shelters and bus backs, posters, handouts, and more. Enforcement activities (i.e., pedestrian stings) were also conducted. Spanish media included Telemundo (TV), El Tiempo Latino (a newspaper), and some transit shelter signs. (9) The Metropolitan Washington Council of Governments (MWCOG) received some comments about grammatical mistakes in the Spanish-language posters. MWCOG also had some positive comments on how the radio ads played in Spanish. No focus groups were held to obtain feedback. (13)

Madrina-Padrino Public Safety Project was a 1-year pilot educational program on traffic and public safety that ended on December 31, 2004. Through its culturally competent approach, this project relied upon community-based organizations to serve as madrinas (godmothers) and padrinos (godfathers), or trusted friends, who pledge to ensure the community's safety and wellbeing and to counsel, advocate for, and strengthen families in the pursuit of greater public safety. This project published feature stories in Hispanic newspapers to create interest and built trust between the Hispanic community and law enforcement, used Hispanic newspapers and radio to promote the education and training to be offered by community-based organizations, and secured TV news coverage of training. (14)

The results of NHTSA-sponsored focus groups in 2001 with Latinos in three cities showed that television appears to be the preferred medium, as focus group participants spent more time watching television (especially telenovelas on weekdays and sports programs on weekends) than listening to the radio. Fotonovelas were also suggested as a way to transmit messages, and can be distributed in some areas as newspaper inserts. Newspapers seem to have limited impact, in light of limited educational levels among many Latinos. Also, many U.S.-educated Latinos do not read Spanish print media. (10)

In August 2003, Cheskin, a consulting and strategic market research firm, reported that Hispanic print constitutes an up-and-coming set of media in the U.S. Examples of successful print media in the U.S. Hispanic market include dailies such as: *La Opinion*, *El Nuevo Herald*, and *El Diario La Prensa*; and magazines such as: *Healthy Kids en Español*, *Ser Padres*, *People en Español*, *Latina*, and *Selecciones del Reader's Digest*. All these magazines have listened to the consumer and have created and reinforced the content Hispanics appreciate. (15)

In October 2003, an in-school publication developed through a partnership with the Kid Guardian Foundation, Los Angeles County Sheriff's Department, Los Angeles Unified School District (LAUSD) *School Safe Traffic Zone* and *La Opinion* newspaper was distributed. A total of 353,000 handbooks went to K-3 students from the Los Angeles Unified School District and S.T.A.R. (Success Through Awareness and Resistance) Unit participating schools and as an insert in the Sunday edition of *La Opinion* newspaper reaching more than 100,000 families throughout Los Angeles. The handbook provided parents and children with written stories on the subject and included lesson ideas for teachers to develop and carry out in the classroom. (16)

In August 2000, the Lincoln-Lancaster County (Nebraska) Health Department Traffic Safety Program, the School Traffic Education and Enforcement Program, and Lincoln-Lancaster County Safe Communities came together to reduce the number of pedestrian injuries among the county's rapidly growing Hispanic population. Three elementary schools with a significant proportion of Hispanic students conducted observational surveys on pedestrian safety in the neighborhoods around the schools. Interventions based on the data gathered in these surveys included multilingual educational materials for parents, peer education activities, and the creation of pedestrian safety videos in both English and Spanish. Pedestrian safety resource packets were distributed to all 50 public and parochial schools in the county. The program also developed a website that allows the public to report unsafe behaviors of students or motorists around schools, as well as traffic safety assessments to evaluate the safety habits of both young pedestrians and motorists in the vicinity of the schools. (17)

The use of pictures or photographs of familiar scenes and activities is another effective strategy. For example, images of soccer (which is popular in Latin America) may be more appealing than images of American football. (27)

The EST project also advises that graphics should be respectful (do not reinforce negative stereotypes) and inclusive (if the whole family is being targeted, include grandparents because many Hispanics live in extended family situations). (27)

Participants in the focus groups conducted for this study expressed an interest in information from a variety of media. They were interested in television, radio, newspaper, and magazine advertisements, as well as in brochures, posters, and information for students. Among these options, television advertisements are most preferred, followed by posters and information distributed at schools. Print materials were seen as most useful because participants were interested in taking them home and looking at them on their own time. Participants were not interested in fotonovelas, radionovelas, buttons, calendars, or bumper stickers as a means to distribute information.

#### **A.3.4 Use Accurate and Appropriate Language**

Rather than just assuming that the materials should all be in Spanish, it was important to determine how the audience wants to receive information and what has worked well in past outreach campaigns.

#### **A.3.4.2     *Should materials be presented in just Spanish, or in English and Portuguese as well?***

Focus group participants in the 2004 FHWA/NHTSA-sponsored study said that materials should be bilingual in Spanish and English. (6)

Agency representatives interviewed in the 1995 NHTSA study said that bilingual materials are generally preferred, but that English only may sometimes be appropriate. (7) A common mistake noted by some agency representatives is the assumption that all Hispanics want to speak Spanish, which can be patronizing and a turn-off. The preferred language depends on age and acculturation.

Street Smart conveyed information in both English and Spanish. (9) The Spanish materials were translations of the English materials. (13)

According to the EST project, material should be written as if it were for Spanish speakers initially. A word-for-word translation from English to Spanish will not capture the meaning of all essential points and may come across as an “afterthought.” (27) The EST project cites the example of an informational card, developed in Indiana, about child passenger safety. The English side of the card has a law enforcement message: “Buckle Me Up Properly: That’s the Law.” The Spanish side has different photographs and a different message, with a focus on safety instead of law enforcement. The message is roughly translated as “A mother’s arms are not always the safest place.” (27)

In a January 2005 article, according to collective experience at Cheskin, bilingual marketing documents are appropriate for various reasons. Those Hispanics who prefer Spanish as their dominant language do so because they feel that they are being taken into account when they receive marketing material that includes information in Spanish. They also like the English language material as it helps them learn English, especially the technical terms. In addition, Hispanics believe that the English language makes the document more legitimate. The legitimacy brings with it an emotional benefit, namely, respondents describe a feeling as being part of the U.S. (18)

#### **A.3.4.3     *How should multiple languages be presented in the documents?***

If materials are to be presented in two or more languages, what is the best way to accomplish this? Should materials be translated line by line? Should the materials be presented with one side in Spanish and the other side in English (or front to back)? Or should two separate documents be produced? According to Cheskin’s intercultural team, it is best to offer bilingual documents with pages side-by-side or front-to-back. This option allows people to understand one concept at a time and to learn the technical distinctions as full concepts. (18)

### **A.3.5 Disseminate in an Effective Way**

#### **A.3.5.2     *Who are the key partners in the outreach effort?***

Partnerships can be critical in helping spread the word, especially in certain communities. One common theme throughout the literature and past outreach campaigns is the importance of family in Hispanic communities, as well as the effectiveness of using trusted leaders in the community in promoting the safety messages.

One of the key findings of focus groups of participants at the Latino Traffic Safety Summit in Wisconsin was the necessity of building trust between the Latino community and law-enforcement agencies. (19)



As an example of building trust between the Latino community and law-enforcement, the Florida Highway Patrol (FHP) created the Salvando Vidas (Saving Lives). This program, created in 2004, was designed to promote traffic safety among Northeast Florida's Hispanic population. By partnering with civic, religious, government, and non-profit organizations, the FHP sought to serve this unique community and promote general traffic safety, vehicle safety, seatbelt use, child restraint use, and driving under the influence (DUI) awareness among this target population.

Some key goals of the program are to:

- Foster trust between law enforcement and the Hispanic community.
- Promote a safer driving environment through targeted education.
- Encourage compliance with State traffic laws.
- Provide low income families with child safety seats.
- Educate drivers about the dangers of drinking and driving.

The Salvando Vidas outreach program allows FHP Troopers, who are either of Hispanic ancestry or are bilingual and/or bicultural, to be designated as Salvando Vidas Coordinators. These coordinators work within the Hispanic community to organize community safety events, provide traffic safety education presentations, and serve as role models in the community. In addition, FHP has established a telephone voice mailbox for callers in the Jacksonville area, which offers a message in Spanish with information about the program. (20)

Since 1987, the California Highway Patrol (CHP) has been proactively involved in a traffic safety outreach program, El Protector, directed at the Hispanic community. It places special emphasis on educating through dialogue with the community, instead of focusing on enforcement measures. The goal of the El Protector Program is to reduce the disproportionate number of Hispanic drivers and victims involved in traffic related collisions. Activities are designed to educate and encourage positive traffic safety behavior and to build better community relations between the community and law enforcement agencies. Such community opportunities arise at local neighborhood/town hall meetings, educational functions, media, and at other community related forums. The driving force and focus of this program is the use of a CHP officer of Hispanic ancestry or officers that are bilingual and bicultural; such an officer is known as an El Protector Program Coordinator. The coordinator organizes community events, provides traffic safety education presentations, and serves as a Hispanic role model. (21)

In February 2004, the New Jersey Department of Community Affairs Center for Hispanic Policy, Research, and Development, in partnership with the Department of Law and Public Safety's Division of Highway Traffic Safety, awarded \$270,000 in funding to support Hispanic nonprofit organizations participating in a "Partnering for Traffic Safety" program. The funding went to assist nine Hispanic organizations to develop public education programs geared toward raising child seatbelt and car seat awareness in the Hispanic community. "Nonprofit, community-based programs are a great untapped resource in our effort to educate the public about traffic safety," said Roberto Rodriquez, Director of the Division of Highway Traffic Safety. "I am excited about this new partnership that will, for the first time, allow our finding to be channeled directly to these local agencies that work closely with members of the Hispanic community." (22)

One recommendation from the Corazón de mi vida pilot test was that large institutions and State and city governments need to be encouraged to create partnerships with Latino community-based organizations and to make funds available to them for costs associated with safety activities. Small organizations cannot join partnerships if their overhead costs are not covered. (4) During 2004, Corazón de mi vida was launched in Kansas City, MO, and Santa Ana, CA. The local partners in

Kansas City were the Guadalupe Center and El Centro, Inc. The local partner in Santa Ana was Latino Health Access. (23, 24)

To develop the ¡Yo cuento! campaign, a group of key stakeholders formed a committee to help guide the campaign to reach the widest audience possible. This ¡Yo cuento! committee is working with support from the Greater Dallas Hispanic Chamber, the Oak Cliff Chamber, the Cooper Institute, and others to maximize saturation throughout the mile-square district. The committee is providing input and direction on potential strategies (i.e., what would work best), as well as messages and graphic images for the campaign. The campaign was publicized through news articles in Spanish-language newspapers and through outreach at community events for Hispanics. (11, 12)

The EST guidelines (27) state that “If materials are to influence attitudes and change behavior, they must consider cultural and linguistic factors, contain correct traffic safety information, and utilize principles of effective health communication.” Therefore, the guidelines encourage the reader to find partners who can contribute expertise in these areas. Examples include national and local organizations that serve the Latino community, traffic safety organizations, and agencies that specialize in health education. During the development of the materials, feedback should be solicited from both professionals and community residents with regard to whether the messages are clear and relevant, whether the language is appropriate, and whether the graphics and design are appealing. (27)

#### **A.3.5.3    *Who should help distribute and promote the safety information within the community?***

In the Corazón de mi vida campaign, information is relayed through trusted community organizations, as well as family members and friends. (4) A recommendation from the Corazón de mi vida campaign was to have information presented by a relative, trusted friend, a service provider with which they have a relationship, or through an event sponsored by an organization they trust. (4)

Focus group participants from the National Program to Design Effective Multi-Media Campaigns to Reduce Motor Vehicles Crashes in Communities of Recent Latino Immigrants preferred that messages reflect real life or real stories, and be delivered by real people as opposed to celebrities. (10)

In 2001, NHTSA selected Hispanic communities in Boston and surrounding areas to introduce the NHTSA mission of reducing the number of motor vehicle injuries and deaths among Hispanics in the area. They began by sending letters of introduction requesting a meeting, along with packets of information and sample materials to eight public and non-profit grassroots organizations in Massachusetts. NHTSA met face-to-face with four of the agencies in an effort. As a direct result of these meetings, each agency now understands that traffic safety is a worthy topic and now knows how and where to access educational materials and programs to begin to address concerns. While these grassroots organizations need a fair amount of TLC, they have credibility in their communities and have the direct contact with the populations in need of this information. (25)

Participants in the focus groups recently conducted for this ongoing FHWA/NHTSA marketing study thought that they had a role to play in distributing such information via conversations with friends and family members. In addition, information spread via word-of-mouth (e.g., through a network of Hispanics trained to educate others on this topic) would also be appreciated.

#### **A.3.5.4     *Where should the materials be distributed?***

The focus group participants in the 2004 FHWA/NHTSA study suggested that information be distributed at soccer games, public transit stations and bus shelters, churches, schools, supermarkets, doctor's offices, community centers, libraries, motor vehicle offices, and bike stores. (6)

The Corazón de mi vida campaign works because it holds safety events at the local Head Start center, clinics, multiservice centers, neighborhood stores, or parks, rather than across town at large institutions such as hospitals. Family gatherings, special events, holidays, and cultural celebrations are also considered as key outreach opportunities. El Día de los Niños, birthdays, El Día de los Muertos, and Mother's Day are recommended for special events. (4)

In the 1995 NHTSA-sponsored study to identify the highway safety needs of Hispanic communities, the results suggested message delivery through schools, churches, and community-based organizations as effective strategies. (7)

University of Illinois, Chicago/Illinois Hispanic Safe Communities (UIC/IHSC) is a statewide coalition focusing on Hispanic communities in Illinois. UIC/IHSC conducted a study to define the Hispanic traffic injury problem using local data. Department of Public Health data indicated that Hispanics were killed in traffic collisions at a rate double that of their representation in the population. The project staff decided to use focus groups in order to understand better what was going on in a particular Hispanic community. These focus groups revealed that while Hispanics in Illinois were concerned with traffic safety, the issue was often overshadowed by concerns with gangs and violence. The research also revealed that few of the participants had any formal driver education and that a substantial number were actually driving without a license. Following the focus groups, UIC/IHSC and its local partners reached out to Hispanics in a number of ways. They found that youth soccer events were effective venues for reaching Hispanics. Also, an effective educational event was held in conjunction with a "Scoop the Loop" antique car rally. UIC/IHSC and its partners provided traffic education activities for the entire family. For example, police officers walked adults wearing "Fatal Vision" goggles, which simulate various blood alcohol levels, while community volunteers helped children draw pictures with traffic safety themes. (26)

Materials can be distributed through programs used by members of the target audience, for example, English classes, Head Start, child care agencies, prenatal classes, etc. (27)

Participants in the focus groups recently conducted for this ongoing FHWA/NHTSA marketing study listed a variety of possible locations. The most popular were schools, supermarkets, other stores (Wal-Mart and 7-Eleven were noted by name), and churches. There was also some interest in getting information through community centers or at doctors' offices. A few participants mentioned public transit stations or motor vehicle offices as possible locations to distribute information. There was little to no interest in getting information at soccer games (they go to games for entertainment purposes), libraries (few Hispanics visit libraries because most information is in English), or bicycle shops (too expensive).

## **APPENDIX B.**

### **FHWA/NHTSA/PROJECT TEAM TELECONFERENCE**

FHWA, NHTSA, and members of the project team held a teleconference in June 2005. FHWA and NHTSA indicated some priority messages to be conveyed to pedestrians and bicyclists.

#### **Pedestrians:**

1. Always use the crosswalk when provided to cross the street. However, do not assume that drivers will stop for you. Look before crossing.
2. Know the meaning of the pedestrian signals. The steady walking man symbol means it is fine to cross. The flashing hand means that one can continue crossing if already in the street, but one should not start to cross. The steady hand means do not cross.
3. Be predictable. Stay off freeways and restricted zones. Use sidewalks where provided. Cross or enter streets where it is legal to do so.
4. Where no sidewalks are provided, it is safer to walk facing road traffic so you can get out of the way if a driver leaves the road.
5. Use extra caution when crossing multiple lane, higher speed streets.

#### **Bicyclists:**

6. Always wear a properly fitting bike helmet.
7. Make sure your bike is properly equipped with lights and reflectors if you are riding on the road at dark or under low light conditions (e.g., dusk, rain, fog).
8. Ride in a straight line and signal for turns and changing lanes. Obey all traffic laws including stop signs, traffic lights, and yielding to pedestrians just like a motorist. Ride in the right direction and on the right.
9. Sidewalk riding is unlawful in some areas. Find out the laws in your area.

#### **Both:**

10. Be wary. Most drivers are nice people, but do not count on them paying attention. Watch out, and make eye contact to be sure they see you.
11. Alcohol and drugs can impair your ability to walk or bike safely, just as they impair a person's ability to drive.

## **APPENDIX C.**

### **PRELIMINARY OUTREACH MATERIALS**

The project team developed two radio PSAs (entirely in Spanish – the scripts include English translations), one text PSA (in Spanish, with an English translation), five bilingual brochures, and five bilingual flyers.

Radio PSA #1 features two Mexican-American men talking, and one attempts to cross the street to speak with a woman. Since the red hand is displayed on the pedestrian signal, he is nearly hit by a car. The sounds of a horn honking and brakes squealing can clearly be heard. The premise is that the first man must have been “in a hurry to die” by demonstrating this behavior. At the end of the PSA, a voiceover states (in Spanish), “Every seven minutes, a pedestrian is killed in the United States. Too many Latinos are among them. Look both ways before you cross the street and respect the traffic lights. Teach/show those you love.”

In radio PSA #2, two Mexican-American women are walking. The younger woman is a recent immigrant, while the older has lived in the U.S. for a while. The younger comments on the speed of traffic. The older says, “You’ll get used to it.” The sound of cars almost crashing is heard and then the older says that she’ll never get used to the traffic at that corner. She then says, sadly, that her oldest son was killed while crossing the street at that corner. “He probably thought that the driver would stop. You cannot think like that here. You must always look both ways before crossing...before it’s too late.” The voiceover is similar to that of the first radio PSA: “Every seven minutes, a pedestrian is killed in the United States. Too many Latinos are among them. Be aware of the signals and cross carefully. Teach/show those you love.”

In a text version of PSA #3, two Mexican-American men are talking. One is late for work and rushes across the street (while the red hand is displayed on the pedestrian signal) to try to catch the bus. He is nearly hit by a car. The second man tells the first, “...I don’t know who’s going to take care of your wife and kids after you’ve been hit by a car. Even if you survive, you’re not going to be working for a long time.” The ending is the same as in the first radio PSA.

The brochures and flyers address five topics:

1. Alcohol
2. Bike
3. Caution
4. Driver
5. Signals

For each topic, the brochure and flyer have both similar format and content. Both the brochure and flyer are double-sided. The brochures and flyers for each topic have the same general layout. As an example, the draft alcohol brochure is shown in Figures C-1 and C-2.

On the front side (Figure C-1), the large photo on the right depicts two young Hispanic males crossing the street diagonally, a car approaching on the far side, dotted lines representing the paths of the pedestrians and the driver, and a large “X” showing where a crash could occur. The title reads “No sabía” / “I didn’t know...” and a bilingual fact is printed over the photo. The brochures are folded such that the large photo, title, and fact are on the cover.

The left side is a bilingual “dictionary,” with two or three concepts, each with an explanation and a photo. The Spanish content is in a black typeface, and the English content is in a blue typeface.

On the reverse side (Figure C-2) are four messages with explanations (all bilingual) and four photos. The Spanish content is in a black typeface, and the English content is in a blue typeface.



**Figure C-1. Front Side of Draft Brochure on Alcohol.**



## ALCOHOL AFFECTS HOW YOU MOVE

Drinking impairs your ability to walk, cycle, and drive.

### EL ALCOHOL AFECTA EL MODO EN QUE USTED SE MUEVE

Le bebida disminuye su habilidad  
para caminar, montar  
en bicicleta y conducir.



## ALCOHOL AFFECTS HOW YOU FEEL

Drinking creates a false  
sense of security.

### EL ALCOHOL AFECTA EL MODO EN QUE USTED SE SIENTE

Le bebida crea una falsa sensación de seguridad.



## ALCOHOL AFFECTS HOW YOU THINK

Even a small drink of alcohol will have  
an impact on your judgment.



### EL ALCOHOL AFECTA EL MODO EN QUE USTED SE MUEVE

Incluso una pequeña cantidad  
de alcohol tiene un gran  
impacto en usted.



## DRINK WITH CAUTION

Almost half of pedestrians  
killed or injured in crashes  
were walking under the  
influence of alcohol.

### BEBA CON PRECAUCIÓN

Casi la mitad de los peatones muertos o  
grávemente herido en accidentes de tráfico se  
encuentra bajo la influencia del alcohol.

Figure C-2. Reverse Side of Draft Brochure on Alcohol.

## **APPENDIX D.**

### **FOCUS GROUP TESTING OF OUTREACH MATERIALS**

After the preliminary outreach materials were developed, they were then tested by focus groups with Hispanic pedestrians and bicyclists. The objective was to ensure that the materials were effective, contextually meaningful, and would resonate with the Hispanic population. One focus group, with 11 participants, was held in Silver Spring, MD. Another focus group, with 12 participants, was held in Colorado Springs, CO. Both focus groups were conducted during October 2005.

The focus groups were asked questions that addressed the content of the materials, as well as the medium (e.g., print, audio/visual). Brochure questions included, “What do you think about the cover of the brochure? If you saw this brochure, do you think you would pick it up and read it? Why or why not?” Example PSA questions included, “What was your overall opinion about this script? What parts of the script did you like? Why? What parts of the script did you dislike? Why?” In addition, the focus groups were asked if any words or phrases in the materials were confusing or possibly offensive.

#### **D.1 Feedback on Brochures and Flyers**

In general, participants thought all the flyers and brochures were necessary and important for educational purposes; however, most participants suggested changing the cover graphic and text of brochures to more accurately portray the message.

- Most participants thought that the titles of the brochures should be a brighter color to call more attention to message of the brochure.
- Participants liked images depicting a family or more than one person, and were less interested in images featuring one individual. It is suggested that pictures be updated to include families or groups of people together to show a more realistic situation of how Hispanics walk or ride together.
- Another concern the participants verbalized was that the traffic scenarios were not realistic, and that representing the traffic situation that they face on a daily basis is an important change that should be made.
- There were no offensive phrases found in any of the flyers or brochures. However participants recommended that the language used in the brochures be simplified for those individuals who are less literate, but would find this information equally as useful.
- In addition, many participants expressed concern with the phrase *No sabía* (“I didn’t know”), and found that opening title confusing. It is recommended the title be changed to one that is easier to understand, such as “Do you know?”

##### **D.1.1 Feedback on PSAs**

Participants thought that with minor changes, the PSAs, like the brochures and flyers, were important for informing people of their rights and road safety, especially for those that are less literate. People thought both the second PSA and the third PSA were the most important to be played on radio stations, however, most did not like the portrayal of characters in the first PSA.

### *PSA #1 (MEN)*

- Participants had mixed reviews about the PSA featuring two men. While some participants liked this PSA, finding the situation with the two guys as funny, other participants thought that this PSA was biased and unrealistic. To err on the side of caution, this should be re-worked or not used.
- Overall, participants noted very little confusion in terminology and found the PSA informative and useful.

### *PSA #2 (WOMEN)*

- Participants liked the PSA featuring women talking.
- No one found the phrases offensive or difficult to understand.
- Most participants liked the women's way of speaking and could clearly understand the messages being communicated in the PSA.
- Overall, participants found the PSA important and informative.

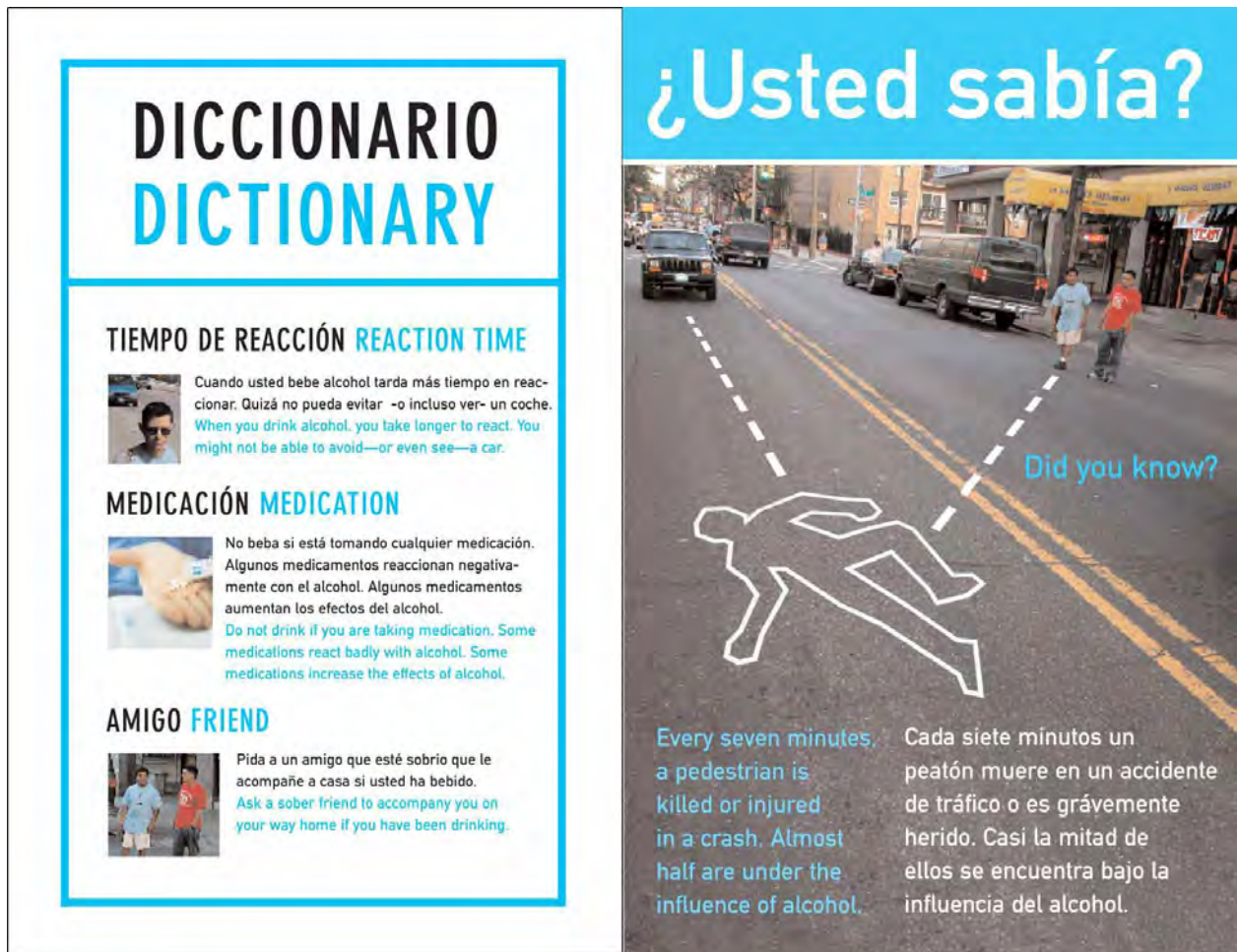
### *PSA #3 (Script)*

- Most participants liked this PSA, and especially enjoyed the tone of the speakers. Overall, participants thought that this PSA adequately addressed the message being communicated.
- Participants noted no offensive or confusing phrases.

It was recommended that the brochures be distributed through churches, schools, offices, stores, subway/metro stations, community centers, parks and through the mail. Participants noted Western Union, Hispanic restaurants, churches, Hispanic organizations (e.g., Casa de Maryland, Centro Católico Hispano), and country consulates as places to distribute flyers. Participants thought that the PSAs should be played on Hispanic-targeted radio stations in the morning or afternoon. It was also suggested that television commercials on this topic be developed as a way to inform the Hispanic community about pedestrian and bicycle safety.

## APPENDIX E. REVISED OUTREACH MATERIALS

In accordance with the suggestions made by focus group participants and FHWA and NHTSA, the outreach materials were revised. For example, Figure E-E-1 shows a revised front side of the brochure on alcohol. The title was changed from “No sabía” / “I didn’t know” to “¿Usted sabía?” / “Did you know?” The title and the fact are now in a larger font. The “X” showing where a crash could occur has been replaced by the outline of a person on the pavement.



**Figure E-1. Front Side of Revised Brochure on Alcohol.**

Ten thousand copies of each brochure and each flier will be produced and provided to FHWA/NHTSA in December 2005. The PSA featuring the two women was considered suitable and clear without revision; it will be provided to FHWA/NHTSA by November 2005. The text PSA featuring the two men and the bus is in production and will be provided to FHWA/NHTSA by November 2005.

## APPENDIX F. REFERENCES

1. U.S. Department of Transportation, FHWA and NHTSA, Richard L. Knoblauch, Rita Furst Seifert, and Nhora Barrera Murphy, *The Pedestrian and Bicyclist Highway Safety Problem As It Relates to the Hispanic Population in the United States*, Report No. DTFH61-03-P-00324 (Washington, DC, 2004).
2. U.S. Department of Transportation, NHTSA, NCSA, *Traffic Safety Facts: Pedalcyclists*. Report No. DOT HS 809 768 (Washington, DC, 2003), <<http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2003/809768.pdf>> (April 21, 2005).
3. U.S. Department of Transportation, NHTSA, NCSA, *Traffic Safety Facts: Pedestrians*. Report No. DOT HS 809 769 (Washington, DC, 2003), <<http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2003/809769.pdf>> (April 21, 2005).
4. National Latino Children's Institute, *Corazón de mi vida. Preliminary Findings – Yearlong Pilot Test* (February 14, 2001), <<http://www.nlci.org/kits/Corazon%20report01.htm>> (February 4, 2005).
5. AA Foundation for Traffic Safety, Educación de seguridad en el tránsito/Education in Traffic Safety, <<http://www.aaafoundation.org/projects/index.cfm?button=EDCintro&colheight=650>> (February 2005).
6. U.S. Department of Transportation, FHWA and NHTSA, Nhora Barrera Murphy and Richard Knoblauch, *Hispanic Pedestrian and Bicycle Safety: Report of Focus Group Discussions in Washington, New York, Miami, and Los Angeles* (Washington, DC, July 2004).
7. U.S. Department of Transportation, NHTSA, *Highway Safety Needs of U.S. Hispanic Communities: Issues and Strategies*, Report DOT HS 808 373 (Washington, DC, September 1995).
8. Mecklenburg Safe Communities, *Local Research Leads to Innovative DWI Campaign for Latinos*, <<http://www.nhtsa.dot.gov/safecommunities/ServiceCenter/scnews/features4.html>> (July 24, 2002).
9. DesignHouse, Street Smart, “The 2004 Pedestrian and Bicycle Safety and Public Awareness Campaign: Annual Report and Campaign Summary” (Washington, DC, August 17, 2004).
10. Midwest Latino Health Research and El Centro Hispano, *Traffic Safety in Latino Communities: National Program to Design Effective Multi-Media Campaigns to Reduce Motor Vehicles Crashes in Communities of Recent Latino Immigrants - Focus Group Results with Latino Immigrants in Three U.S. Cities. Final Report*. Submitted to The Latino Council on Alcohol and Tobacco and National Highway Traffic Safety Administration (December 2001).
11. North Central Texas Council of Governments, *Walking Campaign Promotes Healthy Strides along Jefferson Boulevard and Bishop Arts District of Oak Cliff*. Press release for ¡Yo camino - yo cuento! (I walk – I count!) campaign, <[www.gdhcc.com/info/Count\\_info\\_sheet.pdf](http://www.gdhcc.com/info/Count_info_sheet.pdf)> (Dallas, TX, September 25, 2003).
12. Phone call with Mr. Jared White, North Central Texas Council of Governments, April 26, 2005.
13. E-mail from Mr. Michael Farrell, Metropolitan Washington Council of Governments, April 27, 2005.



14. Hispanic American Police Command Officers Association, *Madrina-Padrino Public Safety Project: Project Description*, <[www.hapcoa.org/mpp/index.php?doc=description](http://www.hapcoa.org/mpp/index.php?doc=description)> In addition, PowerPoint presentation delivered at Save a Life Summit.
15. Cheskin Consulting and Strategic Market Research, *Marketing to Hispanics: The Print Opportunity in the Hispanic Market*, <<http://weblog.cheskin.net/blog/archives/000070.html>> (February 4, 2005).
16. Hispanic PR Wire, "353,000 Children's Pedestrian and Traffic Safety Handbooks to be distributed to schools in the Los Angeles Unified School District, schools participating in the STAR Program, and as a Sunday insert in *La Opinion* Newspaper," October 21, 2003. <<http://www.hispanicprwire.com/news.php?l=in&id=1573&cha=2>>
17. Building Safe Communities, Volume 3, Number 5, August 2000. Available online at [http://www2.edc.org/buildingsafecommunities/vol3\\_5/local.htm](http://www2.edc.org/buildingsafecommunities/vol3_5/local.htm)
18. Cheskin Consulting and Strategic Market Research, *Marketing to Hispanics: Should I Offer Bilingual Documents?* <<http://weblog.cheskin.net/blog/archives/000560.html>> (February 4, 2005).
19. *The Madison Times*, "Traffic Safety Summit Targets Latinos," <[www.madtimes.com/archives/nov2004\\_4/madtimes\\_114.htm](http://www.madtimes.com/archives/nov2004_4/madtimes_114.htm)> (February 4, 2005).
20. Florida Highway Patrol, Florida Department of Highway Safety & Motor Vehicles, <[www.fhp.state.fl.us/PhotoGallery/PG081304.htm](http://www.fhp.state.fl.us/PhotoGallery/PG081304.htm)> (February 4, 2005).
21. California Highway Patrol, [www.chp.ca.gov/html/elprotector.html](http://www.chp.ca.gov/html/elprotector.html) (February 4, 2005).
22. Department of Community Affairs, State of New Jersey, [www.state.nj.us/dca/news/2004/pr022004.shtml](http://www.state.nj.us/dca/news/2004/pr022004.shtml) (February 4, 2005).
23. National Latino Children's Institute. Press release dated September 9, 2004. Available online at [http://www.nlci.org/kits/Kansas\\_City\\_press.htm](http://www.nlci.org/kits/Kansas_City_press.htm)
24. National Latino Children's Institute. Press release dated October 21, 2004. Available online at [http://www.nlci.org/kits/Santa\\_Ana\\_press.htm](http://www.nlci.org/kits/Santa_Ana_press.htm)
25. Massachusetts Multicultural Outreach, U.S. Department of Transportation, NHTSA, *Traffic Safety Digest*, Fall 2001 (Washington, DC, 2001). <[www.nhtsa.dot.gov/people/outreach/safedige/Fall2001/F01\\_02W\\_MA.html](http://www.nhtsa.dot.gov/people/outreach/safedige/Fall2001/F01_02W_MA.html)> (February 4, 2005)
26. University of Illinois, Chicago/Illinois Hispanic Safe Communities, *Building Safe Communities*, vol. 2, no. 3 (March/April 1999). Available online at [http://www2.edc.org/buildingsafecommunities/vol2\\_3/Illinois.htm](http://www2.edc.org/buildingsafecommunities/vol2_3/Illinois.htm)
27. Education Development Center, *Guidelines for Developing Traffic Safety Educational Materials for Spanish-speaking Audiences*. Draft, June 9, 2005.



# Appendix H



**Marketing Plan and Outreach Materials that Promote Pedestrian and Bicyclist Safety to Different Hispanic Populations in the United States**

# **Final Detailed Findings Report for Marketing Plan and Outreach Materials that Promote Pedestrian and Bicyclist Safety to Different Hispanic Populations in the United States**

Task Order Number: SA06B030

*Submitted to:*



**U.S. Department of Transportation  
Federal Highway Administration**

**Office of Safety Programs, HSA-20**

**400 Seventh Street, S.W.**

**Washington, DC 20590**

*Submitted by:*

**Science Applications International Corporation  
McLean, VA 22102**

February 23, 2005

**FINAL DETAILED FINDINGS REPORT FOR MARKETING PLAN AND OUTREACH  
MATERIALS THAT PROMOTE PEDESTRIAN AND BICYCLIST SAFETY TO  
DIFFERENT HISPANIC POPULATIONS IN THE UNITED STATES**

**February 23, 2005**

**TABLE OF CONTENTS**

1.	INTRODUCTION .....	1
2.	Highway Safety Needs of U.S. Hispanic Communities: Issues and Strategies .....	7
3.	Hispanic Pedestrian and Bicycle Safety: Report of Focus Group Discussions in Washington, New York, Miami, and Los Angeles .....	10
4.	The Pedestrian and Bicyclist Highway Safety Problem as It Relates to the Hispanic Population in the United States .....	13
5.	Pedestrian Safety Program for Hispanic Populations .....	16
6.	Pedestrian Safety Campaign Planner: A Step-by-Step Guide and Materials to Implement a Public Information and Education Campaign for Pedestrian Safety .....	18
7.	¡Yo camino - yo cuento! .....	20
8.	Mecklenburg Safe Communities Program – Campaign to Reduce Drinking and Driving Among Latinos in the Community .....	22
9.	Corazón di mi vida – Preliminary Findings: Yearlong Pilot Test .....	24
10.	Street Smart 2004 Campaign, Washington, DC .....	26
11.	The Madrina—Padrino Public Safety Project.....	28
12.	Traffic Safety in Communities of Color .....	30
13.	Traffic Safety in Latino Communities: National Program to Design Effective Multi- Media Campaigns to Reduce Motor Vehicles Crashes in Communities of Recent Latino Immigrants - Focus Group Results with Latino Immigrants in Three U.S. Cities .....	32
14.	Conclusion .....	35
15.	BIBLIOGRAPHY .....	36

# 1. INTRODUCTION

## 1.1 Project Background

In the United States, 4,749 pedestrians were killed, and about 70,000 were injured in collisions with motor vehicles in the year 2003 (*Traffic Safety Facts 2003: Pedestrians*). An additional 622 pedalcyclists (mostly bicyclists) were killed, and 46,000 injured, in collisions with motor vehicles (*Traffic Safety Facts 2003: Pedalcyclists*). This means that every day, 318 pedestrians and bicyclists are injured and nearly 15 lose their lives. These grim statistics clearly indicate that pedestrian and bicycle safety is a national problem, with staggering human and economic costs.

According to a 2004 report by the Center for Applied Research and The Media Network, an average of 545 Hispanic pedestrians and 79 Hispanic bicyclists are killed in crashes with motor vehicles every year. These numbers are likely to increase as the Hispanic population in the U.S. continues to increase. There is a clear need to include Hispanics as part of the target audience in any pedestrian/bicycle safety education program. With that need in mind, the Federal Highway Administration sponsored this project, "Marketing Plan and Outreach Materials that Promote Pedestrian and Bicyclist Safety to Different Hispanic Populations in the United States".

## 1.2 Task 2 (Detailed findings report) Background

This literature review for the detailed findings report was conducted as part of Task 2 ("Develop a Marketing Plan of Most Effective Methods of Promoting Bicycle and Pedestrian Safety to Hispanic Audiences in the United States"). The objective of this review is to develop a marketing plan of the most effective methods of promoting bicycle and pedestrian safety to Hispanic audiences.

The extent of the task was delineated in the Work Plan submitted to FHWA in November 2004. It stated that:

The SAIC team, principally Sprinkle, will review the FHWA's "Determining the Extent of the Highway Safety Problem as it Relates to Hispanic Populations in the United States" (when completed), NHTSA's "Highway Safety Needs of U.S. Hispanic Communities: Issues and Strategies," and other documents as deemed appropriate. SAIC staff will meet with members of the MWCOC's [Metropolitan Washington Council of Governments] Street Smart Program to review their Hispanic outreach materials and learn about their market research performed to date. SAIC staff will also review any other relevant materials developed for Hispanic audiences, such as material that helps develop a full understanding of the general issues faced by Hispanic immigrants to the U.S. (e.g., language barriers); staff members have collected informative materials developed for Hispanic audiences by the Pan American Health Organization.

The materials included in this detailed findings report were identified and obtained through a variety of sources:

- FHWA and NHTSA staff
- NHTSA website (<http://www.nhtsa.dot.gov/>)
- TRIS Online (<http://trisonline.bts.gov>) - The Transportation Research Information Services (TRIS) Database is produced and maintained by the Transportation Research Board at the National Academy of Sciences. It contains nearly half a million records of published and on-going transportation research. To ensure that the most recent studies were included in this detailed findings report, we searched TRIS Online using the terms "Latino" and "Hispanic" for records from the last five years.

The marketing plan that developed under this task will address the following questions at a minimum:

- In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed? Specifically, we will consider the Hispanic population's knowledge and understanding of such issues as where to safely cross the street, the meanings of pedestrian signals, rules of the road, and how to put on a bicycle helmet, just to name a few.
- What types of messages are most likely to have the most impact? Not all message types will be effective in communicating the issues that may result in a reduction in the number of Hispanics involved in pedestrian and bicycle crashes. Therefore, it will be important to consider the types of messages that will be most effective. For example, what tone should the messages have? Should humor be used, or would messages with "shock value" have more impact?
- What are the best "media" for getting the messages across? To answer this question, we will need to determine how to target Hispanics. For example, could the messages be effectively promoted in specific locations frequented by Hispanics? If so, what are these locations and how could the messages be displayed (e.g., posters) or distributed (e.g., brochures)? What percentage of Hispanics are transit dependent? Might the messages be communicated by posters at bus shelters or as "safety tips" on transit timetables, where Hispanic transit riders would see the messages? Should the messages ultimately be delivered in newspaper or magazine ads, and if so, what newspapers and magazines are most often read by Hispanics? Would television ads be effective, and if so, on which channels should they be broadcast? Would lectures/presentations by church or community leaders, for example, be effective mechanisms for delivery (i.e., person to person versus handing out material)?
- Which Hispanic groups should be targeted and why? Hispanic groups that may be targeted include migrant workers, recent immigrants (been in country less than 10 years), immigrants (been in country more than 10 years) and those who are "American born". Are any of these groups over-represented in pedestrian and bicycle crashes? If so, why might this be and how could it be overcome?
- Which age groups of Hispanics should be targeted and why? Are younger Hispanics more likely to be involved in pedestrian or bicycle crashes? If so, could they be targeted in or around schools? Community centers?
- Should different cultural groups be targeted and why? Different cultural groups that may be targeted include those from Mexico, South and Central American, Cuba, and Puerto Rico. Do their cultural differences have an impact on their involvement in pedestrian and bicycle crashes? If so, why and how could this knowledge be leveraged to develop an effective, targeted marketing campaign?
- Should materials be presented just in Spanish, or in English and Portuguese as well? What level of Spanish/English/Portuguese should be used?

Each item in the detailed findings report is presented in the following format: Title, Introduction and/or Summary, Questions answered, Outstanding questions.

The information in the detailed findings report allows determination of which questions are, and are not, covered in existing materials. Subsequently, we will refine the list of questions to address in the Marketing Plan with input from FHWA and NHTSA, and the refined questions will inform the development and conduct of focus groups.

### 1.3 Summary of Findings from Literature Review

The following summary table lists each item in the detailed findings report along with how each item addresses the questions.

Table 1 Questions Addressed in the Literature

Questions	Literature			
	Highway Safety Needs of U.S. Hispanic Communities	Hispanic Pedestrian and Bicycle Safety (CAR and TMN)	The Pedestrian and Bicyclist Highway Safety Problem	Pedestrian Safety Program (NHTSA)
In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?	Not addressed	1. General awareness of traffic signs and regulations 2. Sources of info about traffic signs and regulations	1. Intersections on multi-lane roads 2. Obey traffic laws 3. How to use crosswalks 4. Educating drivers on ped/bike safety	Impaired pedestrians
What types of messages are most likely to have the most impact?	Graphic and explicit descriptions of motor vehicle crashes and the impact on families	Graphics and visuals	Graphics and visuals	Not addressed
What are the best "media" for getting the messages across?	TV, radio, print – may differ by location	Distribute info via TV, radio, transit, churches, schools, supermarkets, etc.	Distribute info via TV, radio, transit, churches, schools, supermarkets, etc.	Report, slide program with presenter's guide, educator's guide, brochures, telenovelas.
Which Hispanic groups should be targeted?	Young inexperienced drivers, recent immigrants, rural residents, elderly drivers, unlicensed and uninsured drivers	Children, new immigrants, seniors	Hispanics of Mexican origin, males, ages 21-29	Older pedestrians and children
Which age groups should be targeted?	Young and elderly drivers	Children, seniors	21-29	Older pedestrians and children
Should different cultural groups be targeted?	Not addressed	No one cultural group is most at risk	Mexican origin	Did not target specific groups
Should materials be presented just in Spanish, or in English as well?	Spanish only English only Spanish & English	Bilingual	Bilingual	Spanish Bilingual



Table 1 (continued) Questions Addressed in the Literature

Questions	Literature			
	Pedestrian Safety Campaign Planner	¡Yo camino – yo cuento!	Mecklenburg Safe Communities Program	Corazón di mi vida
In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?	1. Driver yielding to pedestrians 2. Pedestrian understanding of signals 3. Pedestrian visibility	Not addressed	Not addressed	Not addressed
What types of messages are most likely to have the most impact?	Emotional appeal	1. Slogans that encourage walking 2. Illustrations of comic strip characters enjoying walking	1. Photos and verbal info 2. Impacts of crashes on families	Value of family as reason to practice passenger safety
What are the best “media” for getting the messages across?	TV, radio, print, brochures	Billboards, door decals, brochures	Radio and print	Hangers, tags, bumper stickers, games, video – distributed through parent gatherings, religious blessings, press conferences, safety seat clinics
Which Hispanic groups should be targeted?	Not addressed	Did not target specific groups	Did not target specific groups	Did not target specific groups
Which age groups should be targeted?	Young drivers Working age adult pedestrians	Did not target specific groups	Did not target specific groups	Parents of young children
Should different cultural groups be targeted?	Did not target specific groups	Did not target specific groups	Did not target specific groups	Did not target specific groups
Should materials be presented just in Spanish, or in English as well?	Bilingual	Spanish Bilingual	Spanish only	Bilingual

Table 1 (continued) Questions Addressed in the Literature

Questions	Literature			
	Street Smart 2004 Campaign	The Madrina-Padrino Public Safety Project	Traffic Safety in Communities of Color	Traffic Safety in Latino Communities
In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?	1. Pedestrian laws in crosswalks 2. Drivers yielding to pedestrians in crosswalks 3. Improving driver and pedestrian behavior	Not addressed	Not addressed	Not addressed
What types of messages are most likely to have the most impact?	"Imagine the impact" of a crash on the lives and families of pedestrians and drivers	Did not discuss specific messages	Family-oriented, highly personalized, non-confrontational	1. Clear, consistent, and free of jargon 2. Reflect real life 3. Address cultural factors
What are the best "media" for getting the messages across?	TV, radio, print ads, transit, posters, handouts, enforcement activities	Media outreach through newspaper stories and TV news coverage	Comprehensive efforts that involve law enforcement, educators, city planners, media representatives, community leaders, physicians, national organizations	TV, fotonovelas
Which Hispanic groups should be targeted?	Drivers (of all ethnic and racial groups)	Recent immigrants	Highest-risk groups	Recent immigrants
Which age groups should be targeted?	Males 18-34	Did not target specific groups	Highest-risk groups	Not addressed
Should different cultural groups be targeted?	Did not target specific groups	Did not target specific groups, but population of pilot sites is mostly Mexican	Not addressed	Report does not specify groups; acknowledges variety of cultural orientations
Should materials be presented just in Spanish, or in English as well?	Bilingual	Not specified in report	Not addressed	Not specified in report

## 1.4 Additional Questions

The reports and campaigns reviewed also shed light on two additional questions: how different is the Hispanic population from the general population (other than language issues), and how effective are the methods currently used on the general population.

For the first question, the family is one of the most powerful institutions so any public awareness campaign must feature the family (according to Highway Safety Needs of U.S. Hispanic Communities: Issues and Strategies). This theme has been featured in various campaigns. These include the Yo camino – yo cuento (which features billboards depicting a happy family walking together), the Mecklenburg Safe Communities Program (which includes a RadioNovela in which a woman is concerned about how she and her children will manage after her husband has died in a traffic crash) and the Madrina-Padrino Public Safety Project (just as a Latino child may have a madrina (godmother) and padrino (godfather) to ensure his/her safety, individuals and organizations are encouraged to serve as madrinas and padrinos to the community).

Regarding the second question, the Street Smart campaign conducted in 2004 included TV, radio, newspaper and transit ads, public relations activities, and posters and handouts. A similar campaign was conducted in 2002. Surveys of motorists indicated increased awareness of the campaign and of police efforts to crack down on drivers who did not yield to pedestrians. However, the motorist-reported incidence of (1) pedestrians walking without concern for motor vehicles and (2) drivers not yielding to pedestrians in crosswalks remained the same after the campaign as it was before.

FHWA's Pedestrian Safety Campaign includes TV, radio and print ads with messages pertaining to motorist yielding to pedestrians, pedestrians looking before they cross and pedestrian understanding of traffic signals. This campaign is being tested in three cities – Missoula, MT, Oceanside, CA and Washington, DC. An ongoing research project, scheduled to be completed in September 2005, is evaluating the effectiveness of the campaigns with respect to (1) pedestrian and motorist awareness of the campaigns, (2) pedestrian and motorist understanding of safe and legal behaviors, and (3) observed pedestrian and motorist behaviors.

## **2. Highway Safety Needs of U.S. Hispanic Communities: Issues and Strategies**

Agency: NHTSA  
Date of Report: September 1995

### **2.1 Introduction**

This NHTSA study identified the highway safety needs of Hispanic communities in the U.S. The researchers obtained information from agency and organization representatives and focus group participants.

### **2.2 Abstract (copied from report)**

Growing diversity within the U.S. population is presenting new challenges to the National Highway Traffic Safety Administration and other agencies that serve the public. One of the fastest growing demographic groups is the Hispanic population. The term Hispanic encompasses a number of communities that differ in their cultural heritage. The objective of this study was to identify the highway safety needs of Hispanic communities within the United States. The study also explored how best to promote highway safety issues to those communities and identified similarities and differences among the Hispanic communities on highway safety issues. Telephone discussions were held with representatives of public and other agencies actively engaged with Hispanic communities in California, Texas, Colorado, the District of Columbia, New York City/New Jersey and Florida. In addition, focus groups were conducted with adolescent males, young adult males, young adult females and parents of young children.

Drinking and driving was the safety problem most frequently identified by the organizational representatives and community members, followed by nonuse of safety belts. In promoting health and safety, community members recommended developing themes that have some relationship to their lives, and agreed that the family is one of the most powerful symbols in the Hispanic community. The organizational representatives emphasized the importance of personal contact and establishing relationships within the community.

### **2.3 Summary**

This report addresses the following highway safety problems that were identified by agency and organization representatives and focus group participants:

1. Drinking and driving
2. Speeding
3. Inattention
4. Seat belt use
5. Child safety seat use

Drinking and driving was mentioned most often by both agency and organization representatives and focus group participants. Many reasons were cited, including alcohol consumption as proof of manhood and lack of knowledge about the effects of alcohol on driving ability.

Study participants agreed that the family is one of the most powerful symbols in the Hispanic community. As stated on page 93,

“All study participants emphasized that any public awareness campaign for the Hispanic community must feature the family. According to one Texas participant, anything that is viewed

as dangerous for the family reaches the entire community, so the safety of the family can be a key message.”

Agency and organization representatives and focus group participants found that the following strategies have been effective in their communities for communicating health and safety information:

1. Realistic messages
2. Person-to-person contact
3. Public service announcements
4. Message delivery through schools, churches, and community-based organizations

Based on their experience in developing and implementing programs, agency and organization representatives determined that the following strategies would not work in Hispanic communities. Focus group participants corroborated many of these.

1. Impersonal approaches
2. The use of aggressive or enforcement-oriented messages
3. The tendency to ignore the diversity within Hispanic communities
4. Presentations that come across as disrespectful or condescending
5. Excluding key members of the community from program development and implementation.

## 2.4 Questions answered

What types of messages are most likely to have the most impact? What tone should the messages have? Should humor be used, or would messages with “shock value” have more impact?

*Focus group participants called for graphic and explicit descriptions of motor vehicle crashes and the impact on families. This suggests that “shock value” may be also appropriate for pedestrian- and bicyclist-oriented messages.*

What are the best “media” for getting the messages across? Should the messages ultimately be delivered in newspaper or magazine ads? Would television ads be effective?

*“Study participants, particularly in urban areas, viewed television as the medium with the most potential for disseminating traffic safety information to the Hispanic population.” (page 95)  
However, page 119 of the report notes that the most effective medium – radio, television or print materials - may differ by location.*

Which Hispanic groups should be targeted and why? Which age groups of Hispanics should be targeted and why?

*Study participants identified young inexperienced drivers, recent immigrants, rural residents, elderly drivers, and unlicensed and uninsured drivers as Hispanic driver groups that more often seem to display unsafe behaviors as drivers and passengers.*

Should materials be presented just in Spanish, or in English and Portuguese as well?

*Materials may be presented in Spanish only, English only, or both Spanish and English, depending on the target audience.:*

- *“Bilingual materials are generally preferred, but English only may sometimes be appropriate.” (page 119)*
- *“A common mistake according to some agency representatives is the assumption that all Hispanics want to speak Spanish. According to one participant, this is patronizing and can be a turnoff.” (page 111)*
- *“Recent immigrants may require basic information presented in Spanish.” (page xi)*

*The preferred language depends on age and acculturation (i.e., recent immigrant versus second generation). This report did not include Portuguese.*

## 2.5 Outstanding questions

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

*This report does not address pedestrian and bicycle safety.*

Which Hispanic groups should be targeted and why? Which age groups of Hispanics should be targeted and why?

*Study participants identified young inexperienced drivers, recent immigrants, rural residents, elderly drivers and unlicensed and uninsured drivers as groups that more often seem to display unsafe behaviors as drivers and passengers. Crash data should be analyzed to determine whether these groups are over-represented in pedestrian and bicycle crashes. Input from focus groups should be solicited to determine the groups to be targeted for pedestrian and bicycle safety messages.*

Should different cultural groups be targeted and why?

*Crash data should be analyzed to determine which cultural groups are over-represented in pedestrian and bicycle crashes. Input from focus groups should be solicited to determine the groups to be targeted for pedestrian and bicycle safety messages.*



### 3. Hispanic Pedestrian and Bicycle Safety: Report of Focus Group Discussions in Washington, New York, Miami, and Los Angeles

Agency: The Media Network, Inc. and Center for Applied Research  
Website: [http://safety.fhwa.dot.gov/ped\\_bike/docs/fhwanhtsa.htm](http://safety.fhwa.dot.gov/ped_bike/docs/fhwanhtsa.htm)  
Date of Report: July 2004

#### 3.1 Introduction

This report presents the results of eight focus groups with Hispanic bicyclists and pedestrians. A companion report, *The Pedestrian and Bicyclist Highway Safety Problem As It Relates to the Hispanic Population in the United States*, discusses the characteristics of fatal crashes in which Hispanic pedestrians and bicyclists were involved.

#### 3.2 Executive Summary (copied from Executive Summary)

The Federal Highway Administration (FHWA) and National Highway Transportation Safety Administration (NHTSA) contracted with The Center for Applied Research (CAR) and its subcontractor The Media Network, Inc. (TMN) to conduct research related to Hispanic pedestrian and bicycle safety. As part of this research, TMN and CAR investigated crash statistics for this population group, made contacts to Hispanic organizations to collect information and build partnerships, and held eight (8) focus groups with Hispanic bicyclists and pedestrians. This research was designed to enable FHWA/NHTSA to better understand the attitudes and beliefs of Hispanics living in the U.S. concerning these issues. The results will allow FHWA/NHTSA to develop effective communication strategies and programs that will complement its existing information and services to promote safety and decrease fatalities and injuries among Hispanic bicyclists and pedestrians.

This report primarily presents results from the focus group portion of this research, although we briefly discuss the partnership-building component to add context. TMN facilitated eight (8) focus groups with adults in Washington, DC, New York, Miami and Los Angeles. Participants were Hispanic men and women, over the age of 18, who either walked or rode their bicycles regularly. Sixty-two (62) adults participated in these groups, twenty-eight (28) men and thirty-four (34) women. Three participants were born in the US; eleven were born in Puerto Rico. The remainder were born in other countries.

Table 2 shows the number of participants by age group.

Table 2 Number of Participants by Age Group

Age Group	Number of Participants
18-29	11
30-39	16
40-49	14
50-59	11
60-69	6
70-79	3
80 and over	1

### 3.3 Summary

Of the 62 participants, 35 participated in the pedestrian safety focus groups and 27 participated in the bicycle safety focus groups. Each group was conducted in Spanish by a professional bilingual moderator. This report summarizes the focus group findings by topic (such as general awareness of traffic signs and regulations, differences in traffic between Latino countries and the U.S., etc.) and includes quotes from participants. The Appendix includes the moderator's guide and screening form in both English and Spanish.

### 3.4 Questions answered

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

- *General awareness of traffic signs and regulations – In both the pedestrian and bicyclist focus groups, the participants were familiar with some aspects of the U.S. traffic system, including signs, signals, and laws. However, their knowledge was somewhat vague. For example, some pedestrians were unsure of what the blinking hand meant at a crosswalk. Several bicyclists questioned whether biking rules existed. In addition, some participants were confused by traffic signs in English.*
- *Sources of information about traffic signs and regulations – Participants in both the pedestrian and bicyclist focus groups reported that there is a lack of basic information on pedestrian and bicycle safety. The main sources of knowledge were their peers and taking the driver's exam.*

What types of messages are most likely to have the most impact? What are the best “media” for getting the messages across? Could the messages be effectively promoted in specific locations frequented by Hispanics? Should the messages ultimately be delivered in newspaper or magazine ads? Would television ads be effective?

*Participants in the pedestrian focus groups suggested that information be distributed via television, radio, public transit stations, commercials, soap operas, soccer games, PSAs, churches, schools and supermarkets. They were not interested in receiving information via the Internet. Materials should include graphics and other visuals, and not rely too heavily on text.*

*In the bicyclist focus groups, participants suggested that information be distributed via media outlets – radio, newspaper, television, and magazines, doctor's offices, churches, schools, community centers, bus shelters, the Internet, supermarkets, libraries, Hispanic neighborhoods, motor vehicle offices, and bike stores. They also suggested word-of-mouth advertising campaigns with commercials, posters, flyers, bumper stickers, a bicycle race, and manuals and maps for bicyclists.*

Should materials be presented just in Spanish, or in English and Portuguese as well?

*Participants in both the pedestrian and bicyclist focus groups said that materials should be bilingual in Spanish and English. The focus groups did not include Portuguese.*

Which Hispanic groups should be targeted and why? Are any groups over-represented in pedestrian and bicycle crashes? Which age groups of Hispanics should be targeted and why?

*Focus group participants said that children were most likely to be in a crash but also mentioned new immigrants, seniors and those who are less informed about the laws as being at increased risk of a crash.*

Should different cultural groups be targeted and why? Do their cultural differences have an impact on their involvement in pedestrian and bicycle crashes?

*Focus group participants did not think that any one cultural group (such as Mexicans, Puerto Ricans, or Central Americans) was most at risk. Moreover, both pedestrian and bicyclist focus group participants agreed that while each Hispanic culture is unique, the differences among Hispanic cultures as they pertain to pedestrian and bicycle safety are relatively minor.*

### 3.5 Outstanding questions

Should materials be presented just in Spanish, or in English and Portuguese as well?

*The focus groups did not include Portuguese.*

## 4. The Pedestrian and Bicyclist Highway Safety Problem as It Relates to the Hispanic Population in the United States

Agencies: Center for Applied Research, Inc. and The Media Network, Inc.  
Date of Report: 2004

### 4.1 Introduction

This report describes the extent of the involvement of Hispanics in pedestrian and bicycle crashes.

### 4.2 Summary

FHWA and NHTSA sponsored research related to Hispanic pedestrian and bicycle safety. This report presents crash statistics and summarizes the results of focus groups. A companion report, *Hispanic Pedestrian and Bicycle Safety*, presents the focus group results in detail.

The authors analyzed FARS data from 1999 through 2003. They examined pedestrian and bicyclist fatalities by ethnicity, gender, age and alcohol involvement. For the analysis summarized below, Hispanics were divided into five subgroups: Mexican, Puerto Rican, Cuban, Central or South American, European Spanish or other.

The analysis revealed that

1. There were 2,723 Hispanic pedestrians killed in crashes. This accounted for 16.3% of all pedestrian fatalities.
2. There were 393 Hispanic bicyclists killed in crashes. This accounted for 15.9% of all bicyclist fatalities.
3. 1,388 male pedestrians of Mexican origin were killed in crashes. Of these, 23.4% had alcohol involvement. The level of alcohol involvement among all Hispanic pedestrians who were killed in crashes was 22.2%.
4. 252 male bicyclists of Mexican origin were killed in crashes. Of these, 15.5% had alcohol involvement. This was the highest level of alcohol involvement among the Hispanic subgroups. The level of alcohol involvement among all Hispanic bicyclists who were killed in crashes was 13.2%.

Formatted: Bullets and Numbering

In further analysis, the authors examined the distributions of crash characteristics for three groups: Non-Hispanic Whites, Non-Hispanic Blacks and Hispanics. This additional analysis revealed that

1. Pedestrian fatalities among Hispanics were more likely to occur in urban areas (79.9%) than pedestrian fatalities among Non-Hispanic Whites (64.4%) or Non-Hispanic Blacks (73.3%).
2. Bicyclist fatalities among Hispanics were more likely to occur in urban areas (78.6%) than bicyclist fatalities among Non-Hispanic Whites (60.3%) or Non-Hispanic Blacks (68.9%).
3. Bicyclist fatalities among Hispanics were more likely to occur at or near an intersection (37.4%) than bicyclist fatalities among Non-Hispanic Whites (27.9%) or Non-Hispanic Blacks (32.6%).

### 4.3 Questions answered

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

*The authors point out that about one-fifth of fatal pedestrian crashes are intersection or intersection-related. About 9 percent of fatal pedestrian crashes occur at a signalized intersection. These numbers are applicable to both Hispanic and non-Hispanic pedestrian fatalities. Based on these numbers, they conclude that “Pedestrian safety programs that target crashes at signalized intersections and/or pedestrian crosswalk locations are not focusing on the location of most fatal pedestrian crashes, including those involving Hispanics”. (p. 25, emphasis added)*

*According to the authors, intersections on multi-lane roadways are a potential topic for educational programs that target Hispanic bicyclists.*

*The authors also recommend that (1) campaigns should focus on the need to obey traffic laws, how to use crosswalks, and pedestrian/bicyclist rights and responsibilities; and (2) local programs should focus on the specific pedestrian/bicyclist problems in each community.*

*Pedestrian focus group participants suggested these pedestrian safety-related areas: stopping at every light, looking both ways before crossing the street, obeying the laws, respecting the lights, crossing only in pedestrian walkways, education about what to do at yellow lights, and education about how cars can slide in snow and bad weather.*

*Bicycle focus group participants were interested in information on laws, precautions, risks, and positive and negative things about being a bicyclist. They also thought that educating drivers on bicycle safety was critical.*

What types of messages are most likely to have the most impact? What are the best “media” for getting the messages across?

*Participants in the pedestrian focus groups suggested that information be distributed via television, radio, public transit stations, commercials, soap operas, soccer games, PSAs, churches, schools and supermarkets. They were not interested in receiving information via the Internet. Materials should include graphics and other visuals, and not rely too heavily on text.*

*In the bicyclist focus groups, participants suggested that information be distributed via media outlets – radio, newspaper, television, and magazines, doctor’s offices, churches, schools, community centers, bus shelters, the Internet, supermarkets, libraries, Hispanic neighborhoods, motor vehicle offices, and bike stores. They also suggested word-of-mouth advertising campaigns with commercials, posters, flyers, bumper stickers, a bicycle race, and manuals and maps for bicyclists.*

Should materials be presented just in Spanish, or in English and Portuguese as well?

*Participants in both the pedestrian and bicyclist focus groups said that materials should be bilingual in Spanish and English.*

Which Hispanic groups should be targeted and why? Are any groups over-represented in pedestrian and bicycle crashes?

*Hispanics of Mexican origin for roughly two-thirds of all fatalities among Hispanic pedestrians and bicyclists. Among all Hispanics, about 67 percent of pedestrian fatalities and 89 percent of bicyclist fatalities occurred to males. A higher percentage of fatalities among Hispanic pedestrians and bicyclists occurred to those in the 21-29 age group, compared to non-Hispanic pedestrians and bicyclists.*

Which Hispanic groups should be targeted and why? Should different cultural groups be targeted and why? Do their cultural differences have an impact on their involvement in pedestrian and bicycle crashes?

*The authors recommend that drinking by pedestrians and bicyclists of Mexican origin be addressed by pedestrian and bicycle safety campaigns.*

#### 4.4 Outstanding questions

Should materials be presented just in Spanish, or in English and Portuguese as well?

*The focus groups did not include Portuguese.*



## 5. Pedestrian Safety Program for Hispanic Populations

Agency: NHTSA

Website:

[http://www.nhtsa.dot.gov/people/injury/pedbimot/bike/pedestrian\\_safety.html](http://www.nhtsa.dot.gov/people/injury/pedbimot/bike/pedestrian_safety.html)

Date of Program: Not specified

### 5.1 Introduction

NHTSA's three-part program, *Caminando a Través de los Años* (Walking Through the Years), is intended to address the needs of the Hispanic population.

### 5.2 Summary

NHTSA is developing a three-part Spanish-language pedestrian safety program, *Caminando a Través de los Años* (Walking Through the Years). The first two components are available from NHTSA's Office of Communications and Outreach. The first component targets older pedestrians. It consists of a report, a slide program with a presenter's guide, a brochure and a video telenovela. The second component addresses risks to child pedestrians and targets parents and other adult caregivers. The materials include a telenovela entitled "Amigos para Siempre" (Friends Forever), a bilingual brochure and an educator's guide. The third component is under development. It will deal with the impaired pedestrian problem.

### 5.3 Questions answered

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

*The third component of this program is under development and will deal with impaired pedestrians.*

What are the best "media" for getting the messages across?

*This program uses a report, a slide program with a presenter's guide, an educator's guide, brochures and telenovelas.*

Which Hispanic groups should be targeted and why?

Which age groups of Hispanics should be targeted and why?

*This program targets older pedestrians and children.*

Should materials be presented just in Spanish, or in English and Portuguese as well?

*This program includes Spanish telenovelas and a bilingual brochure. The description does not indicate whether the report and the slide program are in Spanish or in English, or both. The program does not appear to include Portuguese.*

### 5.4 Outstanding questions

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

*This program does not address bicycle safety.*

What types of messages are most likely to have the most impact? What tone should the messages have?

*The description does not indicate what messages are conveyed in the program.*

Should different cultural groups be targeted and why?

*This program does not appear to target different cultural groups.*

## **6. Pedestrian Safety Campaign Planner: A Step-by-Step Guide and Materials to Implement a Public Information and Education Campaign for Pedestrian Safety**

Agency: FHWA  
Contact: Tamara Redmon ([tamara.redmon@fhwa.dot.gov](mailto:tamara.redmon@fhwa.dot.gov))  
Federal Highway Administration  
400 Seventh Street, SW  
Room 3407  
Washington, DC 20590  
Date of Report: 2003

### **6.1 Introduction**

FHWA's Pedestrian Safety Campaign Planner consists of a how-to guide, a video with TV PSAs, brochures, posters, an audio CD with radio PSAs and data CDs with print ads, posters, brochures, slides, TV PSAs, press releases and newspaper articles. Any community or organization can use these materials to promote pedestrian safety.

### **6.2 Summary**

The PSAs, posters and brochures are available in English. No TV or radio PSAs were made in Spanish; only print PSAs, some articles and some posters are available in Spanish. The decision to include Spanish language materials was not based on concrete analysis. The TV PSAs include two directed at drivers and two at pedestrians. Five of the six radio PSAs are aimed at drivers. Six print PSAs target drivers and four target pedestrians. The brochures address pedestrians wearing reflective materials and the meaning of the pedestrian signals. Most of the TV, radio and print PSAs rely heavily on emotional appeals. For example, one print PSA depicts two paramedics tending to an injured girl lying on the pavement. In the English version, text superimposed over the photo reads, "I should have seen the little girl in the crosswalk". Large text at the bottom reads "Stop for Pedestrians. Think of the Impact You Could Make."

As another example, in one of the radio PSAs, a young girl's voice can be heard over the sounds of traffic. She is upset as she asks, "Why was that driver in such a hurry? He was looking for other cars as he turned the corner. He wasn't looking for my mom in the crosswalk." The sound of tires screeching, a scream, and then a shattering windshield are heard next, followed by silence. Full of anguish, the girl continues, "I really miss her..." The narrator then says, "Please look for pedestrians. Stop for them. Think of the impact you can make. A message from the Federal Highway Administration."

FHWA's Pedestrian Safety Campaign is being tested in three cities – Missoula, MT, Oceanside, CA and Washington, DC. An ongoing research project, scheduled to be completed in September 2005, is evaluating the effectiveness of the campaigns with respect to (1) pedestrian and motorist awareness of the campaigns, (2) pedestrian and motorist understanding of safe and legal behaviors, and (3) observed pedestrian and motorist behaviors.

### **6.3 Questions Answered**

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

*The key pedestrian safety-related areas are:*

- *Driver yielding to pedestrians in unmarked crosswalks*
- *Right- and left-turning drivers yielding to pedestrians in signalized crosswalks*
- *Pedestrian understanding of the WALK and DON'T WALK signals*
- *Pedestrian understanding of the need to be visible*

*The Planner does not specify whether these safety-related areas would be different depending on ethnicity/race.*

What types of messages are most likely to have the most impact?

*The campaign relies mostly on messages with emotional appeal, for example, a driver distraught over having hit a pedestrian or a family member in anguish over having lost a loved one in a pedestrian crash. The Planner does not specify which messages may have a greater impact on a Hispanic audience.*

What are the best “media” for getting the messages across? Could the messages be effectively promoted in specific locations frequented by Hispanics?

*The Planner includes a variety of TV, radio and print PSAs. Suggested places for print PSAs include company and organizational newsletters, billboards, and store flyers. Brochures can be distributed through direct mail, in schools and offices, at performances, in restaurants, and other venues. The Planner does not suggest locations specifically for Hispanics.*

Which age groups of Hispanics should be targeted and why?

*The campaign targets young drivers and working-age adult pedestrians. The Planner does not specify whether the age groups would be different depending on ethnicity or race.*

Should materials be presented just in Spanish, or in English and Portuguese as well?

*English TV and radio PSAs, posters and brochures are available; Spanish versions of the print PSAs, some posters and some brochures are available. The campaign materials do not include Portuguese.*

#### 6.4 Outstanding questions

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

*This campaign does not address bicycle safety.*

Which Hispanic groups should be targeted and why?

*This campaign does not target specific Hispanic groups such as migrant workers or recent immigrants.*

Should different cultural groups be targeted and why?

*This campaign does not target different cultural groups.*

## 7. ¡Yo camino - yo cuento!

Agency: North Central Texas Council of Governments

Date of Program: September 2003

### 7.1 Introduction

The purpose of the ¡Yo camino - yo cuento! (I walk – I count!) campaign is to encourage people to walk more often for short, purposeful trips.

### 7.2 Summary

This campaign, developed by the North Central Texas Council of Governments, encourages people to walk more often for short, purposeful trips. The Jefferson Boulevard and Bishop Arts area of Dallas was selected as the first district to be targeted by the campaign. A group of key stakeholders (not specified in the press release) formed a committee to provide input and direction on potential strategies, as well as messages and graphics, for the campaign. Characters from the Baldo comic strip are featured in the campaign materials, which include billboards, door decals and brochures. The billboards contain the slogan “Una Familia Activa Vive Mejor. ¡Camina!” (An Active Family Lives Better. Walk!), and will be installed at strategic locations around the district. The door decals contain the logo, “¡Entra! Come in!” The Baldo comic strip characters are also featured on a bilingual brochure, “Caminar - ¡Un hábito que vale la pena fomentar!” (Walking - A habit worth forming!) The brochure lists reasons to walk, suggestions on destinations, safety tips, walking gear tips, steps to fitness walking, and walking goals.

### 7.3 Questions answered

What types of messages are most likely to have the most impact?

What are the best “media” for getting the messages across? Could the messages be effectively promoted in specific locations frequented by Hispanics?

*This campaign relies on slogans that encourage walking and illustrations of comic strip characters who are enthusiastic about walking. The materials include billboards, door decals and brochures. The billboards are placed at strategic locations and the door decals are placed on public entrances. The brochure contains “how-to” information on walking. The press release does not indicate where the brochures will be distributed.*

Should materials be presented just in Spanish, or in English and Portuguese as well?

*The billboards are in Spanish, and the door decals are in both Spanish and English; the brochures are also bilingual. The campaign materials do not include Portuguese.*

### 7.4 Outstanding questions

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

*Although the brochure provides safety tips such as “always walk facing traffic”, this campaign does not address topic areas such as understanding of pedestrian signals or impaired pedestrians. This campaign does not address bicycle safety.*

Which Hispanic groups should be targeted and why?

Which age groups of Hispanics should be targeted and why?

*This campaign did not target specific Hispanic groups such as migrant workers or recent immigrants.*

Should different cultural groups be targeted and why?

*This campaign does not target different cultural groups.*



## 8. Mecklenburg Safe Communities Program – Campaign to Reduce Drinking and Driving Among Latinos in the Community

Agency: Mecklenburg Safe Communities  
Website: [http://www.nlci.org/kits/corazon\\_intro%20page.htm](http://www.nlci.org/kits/corazon_intro%20page.htm)  
Date of Program: July 2002

### 8.1 Introduction

*Piensa en las Consecuencias* (Think about the Consequences) is a campaign that uses printed booklets and radio announcements to target drinking and driving among Hispanic drivers in North Carolina.

### 8.2 Summary (adapted from <http://www.safecommunities.net/release6.html>)

In 2002, the Mecklenburg County Safe Communities Program in North Carolina produced culturally sensitive materials to reduce drinking and driving among Latinos in the county. From focus groups they learned:

- Use of photos and verbal information as opposed to a large amount of text was important
- Focusing on consequences to the family should be central
- Participants thought the messages should be seen and heard in a variety of places
- Many participants felt they could still drive after drinking eight or more drinks

The title of the materials is *Piensa en las Consecuencias* (Think about the Consequences). The materials also directly state, "si bebes, no manejes" or "if you drink, don't drive."

Following the research, two RadioNovelas (public service announcements) and a PhotoNovela (booklet) were produced. The first RadioNovela involves a woman being informed by a police officer that her husband has died in an impaired driving crash. The woman is concerned about taking care of the family and how they will manage without her husband. The second RadioNovela involves a man who has been injured in a drunk driving crash. A physician informs him that he was unable to save his leg during an emergency operation. The man is then concerned about how he will be able to take care of his family. The PhotoNovela booklet is a series of photographs that tell a story (not specified). It is a genre popular among Latinos.

### 8.3 Questions answered

What types of messages are most likely to have the most impact? What tone should the messages have? Should humor be used, or would messages with "shock value" have more impact?

*Focus group participants indicated that the use of photos and verbal information was important. The two RadioNovelas portray impacts of motor vehicle crashes on families.*

What are the best "media" for getting the messages across?

*This campaign used radio and print media. The report does not identify the radio station(s).*

Should materials be presented just in Spanish, or in English and Portuguese as well?

*This campaign used Spanish materials – two RadioNovelas and one PhotoNovela. It did not include English, or Portuguese.*

#### 8.4 Outstanding questions

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

*This campaign did not address pedestrian and bicycle safety.*

Which Hispanic groups should be targeted and why? and

Which age groups of Hispanics should be targeted and why?

*This campaign did not target specific Hispanic groups or age groups.*

Should different cultural groups be targeted and why?

*This campaign did not target different cultural groups.*

## 9. Corazón de mi vida – Preliminary Findings: Yearlong Pilot Test

Agency: National Latino Children's Institute  
Website: [http://www.nlci.org/kits/corazon\\_intro%20page.htm](http://www.nlci.org/kits/corazon_intro%20page.htm)  
Date of Program: February 2001

### 9.1 Introduction and Summary (copied from <http://www.nlci.org/kits/Corazon%20report01.htm>)

The word *corazón* means “heart” when translated literally from Spanish, but like many Spanish words the cultural meaning is more complex. *Corazón* is an endearment used among family members and loved ones. *Corazón de mi vida* conveys a deeper message—“you are the center of my life.” This concept is the focus of a new initiative to inform Latino families about the importance of placing their young children in child safety restraints. The public information messages and outreach strategies to Latino families utilize the concept (loosely translated) this way:

“You are the center of my life, and I love you so much that I will...  
...put you in a car seat.”  
...put you in the backseat.”  
...wear my own seat belt.”

*Corazón de mi vida* was developed by the National Latino Children's Institute in partnership with the National Highway Traffic Safety Administration (NHTSA) and Nationwide Insurance. The remarkable partnership brought together the best thinking about what works in the Latino community with resources from the public and private sectors.

*Corazón de mi vida* was tested with diverse Latino populations in ten cities. In every city, a community-based organization took the lead in carrying out the project.

1. Chicago, IL
2. Dallas, TX
3. Denver, CO
4. El Paso, TX
5. Grandview, WA
6. Laredo, TX
7. Los Angeles, CA
8. McAllen, TX
9. Plainfield, NJ
10. San Antonio, TX

Preliminary findings for the *Corazón de mi vida* project indicate that Latinos will become more conscious of child passenger safety, buckle up their children in correctly installed safety seats and use their own seat belts when they receive safety information through culturally heartfelt messages delivered by trusted family members or community leaders.

### 9.3 Questions answered

What types of messages are most likely to have the most impact?

*This campaign centered on the value of the family as the reason to practice passenger safety. The central concept was “Corazón de mi vida” (You are the center of my life).*

What are the best “media” for getting the messages across? Could the messages be effectively promoted in specific locations frequented by Hispanics?

*The materials included a variety of hangers, tags, bumper stickers, lotería games, and a video. They were disseminated through parent plática, press conferences, safety seat blessings and safety seat clinics. The parent plática were gatherings held at Head Start and childcare centers, churches, clinics and community centers. Participants received materials and watched a demonstration of how to correctly install a child safety seat. Frequently, participants received a gift voucher for a child safety seat.*

*In a safety seat blessing, a religious leader blesses the child safety seats to be distributed and reminds parents that they have been entrusted with their child’s well-being.*

Which age groups of Hispanics should be targeted and why?

*This campaign targeted parents of young children.*

Should materials be presented just in Spanish, or in English and Portuguese as well?

*This campaign conveyed information in both Spanish and English. It did not include Portuguese.*

#### 9.4 Outstanding questions

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

*This campaign did not address pedestrian and bicycle safety.*

Which Hispanic groups should be targeted and why?

*This campaign did not target specific Hispanic groups such as migrant workers or recent immigrants. However, the report recommends that future projects include outreach activities and messages for immigrant groups, who may not be familiar with the latest information on child passenger safety.*

Should different cultural groups be targeted and why?

*This campaign did not target different cultural groups.*

## 10. Street Smart 2004 Campaign, Washington, DC

Agency: Metropolitan Washington Council of Governments (Draft summary by DesignHouse, August 17, 2004)  
Contact: Michael Farrell, mfarrell@mwkog.org  
Date of Report: August 17, 2004

### 10.1 Introduction/Summary

Street Smart is a pedestrian and bicycle safety and public awareness program in the Washington, DC metropolitan area. The goal is to educate the public on pedestrian and bicycle safety issues and laws. Street Smart started in 2002, and the most recent implementation took place in April 2004.

### 10.2 Questions answered

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

*The 2004 campaign was evaluated in terms of*

- 1. Increasing public awareness of pedestrian safety in general and regarding pedestrian laws in crosswalks in particular*
- 2. Increasing public awareness of police enforcement of drivers yielding to pedestrians in crosswalks*
- 3. Improving driver and pedestrian behavior.*

*The survey was administered in English only, so many Hispanics did not have an opportunity to provide input.*

What types of messages are most likely to have the most impact? What tone should the messages have? Should humor be used, or would messages with “shock value” have more impact?

*Campaign materials urged drivers to “Imagine the Impact” of a crash on the lives and families of pedestrians, cyclists, and drivers. This suggests that “shock value” is appropriate in pedestrian- and bicyclist-oriented messages.*

What are the best “media” for getting the messages across? Might the messages be communicated by posters at bus shelters or as “safety tips” on transit timetables, where the messages would actually be in context? Should the messages ultimately be delivered in newspaper or magazine ads, and if so, what newspapers and magazines are most often read by Hispanics? Would television ads be effective, and if so, on which channels should they be broadcast?

*Street Smart utilized multiple resources and media: TV and radio spots, print ads, outdoor media including transit shelters and bus backs, posters, handouts, and more. Enforcement activities (pedestrian stings) were also conducted. Spanish media included Telemundo (TV), El Tiempo Latino (newspaper) and some transit shelter signs. There were no magazine ads.*

Which age groups of Hispanics should be targeted and why?

*Males ages 18 to 34 (of all ethnic and racial groups) were targeted because they are the primary offenders in pedestrian safety issues.*

Should materials be presented just in Spanish, or in English and Portuguese as well?

*Street Smart conveyed information in both English and Spanish. It did not include Portuguese.*

### 10.3 Outstanding questions

Which Hispanic groups should be targeted and why?

*This campaign did not target specific Hispanic groups such as migrant workers or recent immigrants. Drivers (of all ethnic and racial groups) were the primary target.*

Should different cultural groups be targeted and why?

*This campaign did not target different cultural groups.*



## 11. The Madrina—Padrino Public Safety Project

Agency: Hispanic American Police Command Officers Association (HAPCOA)  
Website: <http://www.hapcoa.org/mpp/index.php?doc=description>  
Date of Program: 2004

### 11.1 Introduction

HAPCOA's Madrina-Padrino Public Safety Project (MPPSP) is a pilot educational program on traffic and traffic safety, developed with support from the Office of Community Oriented Policing Services and NHTSA. It educates providers at community-based organizations who in turn can educate recent Hispanic immigrants whom they serve.

### 11.2 Summary

The MPPSP seeks to involve the whole community, including law enforcement, to focus on educating the Latino community, or one segment of the whole. The goals are to increase

1. Understanding of traffic safety laws and enforcement among a small group of intermediaries that serve recently arrived Latino immigrants
2. Capacity of intermediaries to deliver educational trainings to recently arrived Latino immigrants
3. Understanding of the traffic safety needs of intermediaries and recent Latino immigrants among law enforcement officers in order to improve relations between the two groups

Just as a Latino child's *madrina* (godmother) and *padrino* (godfather) ensure the child's safety, the MPPSP relies on individuals and organizations to serve as *madrinas* and *padrinos* to ensure the community's safety and to counsel, advocate for and strengthen families in the pursuit of greater public safety.

The pilot test sites are Los Angeles, San Antonio and Tucson. These were selected because they have large Hispanic populations, including many recent immigrants.

### 11.3 Questions answered

What are the best "media" for getting the messages across?

*Media outreach strategies include:*

1. *Publishing feature stories in Hispanic newspapers to create interest and build trust between the Hispanic community and law enforcement*
2. *Using Hispanic newspapers and radio to promote the education and training to be offered by community-based organizations*
3. *Securing TV news coverage of training*

Which Hispanic groups should be targeted and why?

*The MPPSP targets recent immigrants.*

### 11.4 Outstanding questions

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

*The MPPSP is about traffic safety in general, so pedestrian and bicycle safety is not singled out.*

What types of messages are most likely to have the most impact?

*The project description does not discuss specific types of messages.*

Which age groups of Hispanics should be targeted and why?

*The project description does not mention any specific age groups.*

Should different cultural groups be targeted and why?

*The MPPSP does not explicitly target different cultural groups, but the Hispanic population of the project sites – Los Angeles, Tucson and San Antonio – is primarily Mexican.*

Should materials be presented just in Spanish, or in English and Portuguese as well?

*The project description does not mention whether training and outreach will be in Spanish only, or in both Spanish and English. It does not mention Portuguese.*

## 12. Traffic Safety in Communities of Color

Agency: University of California, Berkeley, Traffic Safety Center

Website: <http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1003&context=its/tsc>

Date of Report: 2003

### 12.1 Introduction

The authors examine research on traffic safety concerns for African-Americans, Latinos and American Indians. They focus on seat belt use, impaired driving and pedestrian safety.

### 12.2 Summary (copied from report abstract)

This paper examines the available research on how traffic safety issues specifically affect higher-risk communities of color, demonstrates that significant disparities in traffic safety outcomes exist between these groups and whites, and explores possible reasons for these differences. The paper focuses on three traffic safety issues that are associated with poorer outcomes among these communities of color: seat belt use, impaired driving, and pedestrian safety.

This paper highlights major traffic safety needs within specific communities of color, and concludes that ongoing data collection and analysis are necessary to provide a clearer, more complete picture of the issue as well as to inform interventions and efforts targeted toward these communities. More research is needed to understand past traffic safety successes (such as the decreases in impaired driving or increases in seat belt use that have occurred across ethnic groups) so that these successes can be extended. Similarly, evaluations of current interventions are greatly needed, particularly for comprehensive and longitudinal studies. Finally, there is also a need for research that distinguishes the effects of ethnicity versus the effects of socio economic status on traffic safety outcomes.

### 12.3 Questions answered

What are the best “media” for getting the messages across?

*This report recommends comprehensive efforts that are culturally appropriate (for Latino communities, attention should be paid to language issues in addition to being family-oriented, highly personalized, and non-confrontational) and involve diverse partners (law enforcement, educators, city planners, media representatives, community leaders, physicians, national organizations such as NHTSA).*

What types of messages are most likely to have the most impact?

*One of the authors’ recommendations is to develop culturally appropriate strategies. They cite the 1995 NHTSA report, Highway Safety Needs of U.S. Hispanic Communities, stating that traffic safety approaches should be family-oriented, highly personalized, and non-confrontational (p. 10).*

Which Hispanic groups should be targeted and why? Which age groups of Hispanics should be targeted and why?

*According to a study cited on page 6 of the report, “Latino children comprised 39% of the child population [in California], but 48% of all child pedestrian injuries and fatalities.” One of the authors’ recommendations is to target the highest-risk groups (p. 10), but they do not specify children or other age groups.*

#### 12.4 Outstanding questions

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

*The report does not address this question for pedestrian safety. The report does not address bicycle safety at all.*

Should different cultural groups be targeted and why?

*The report does not address this question for pedestrian safety.*

Should materials be presented just in Spanish, or in English and Portuguese as well?

*The report does not address these questions.*

### **13. Traffic Safety in Latino Communities: National Program to Design Effective Multi-Media Campaigns to Reduce Motor Vehicles Crashes in Communities of Recent Latino Immigrants - Focus Group Results with Latino Immigrants in Three U.S. Cities**

Agencies: The Latino Council on Alcohol and Tobacco  
NHTSA  
Date of Report: December 2001

#### **13.1 Introduction**

This report summarizes the results of focus groups conducted in three cities: Durham, NC, Fort Worth, TX and Chicago, IL. The focus groups provided information on Latino immigrants' knowledge, attitudes and behaviors regarding drinking and driving.

#### **13.2 Summary**

As stated by the authors, the study objectives were

- To document the knowledge, opinions, experiences and perceptions about traffic laws and impaired driving among Latinos
- To determine what appropriate safe driving information messages (US traffic laws, practices and customs) need to be developed
- To identify media strategies and specific media messages that can lead to behavioral change, the understanding of traffic safety laws and regulations, and the promotion of safe road use
- To determine which media and which specific outlets (radio, TV, print media, and community-based organizations) best reach the target population.

Eight focus groups were conducted in Spanish with Latino immigrants. The focus groups were held in Durham, NC, Fort Worth, TX and Chicago, IL, all during October 2001. There were 71 participants, and they either (1) had a history of drinking and driving arrests, (2) were identified as social drinkers or heavy alcohol users but had not been arrested for drinking and driving, or (3) were family members of those who had alcohol problems.

The key findings from the focus groups are listed below.

- Many participants reported driving without a driver's license, sometimes because their immigration status did not qualify them for a Social Security number, and therefore, they could not obtain a license.
- The participants learned to drive in their home countries, through observation or being taught by friends or parents. Very few reported learning to drive in school or through a driving school.
- Most participants learned to use seatbelts in the U.S. Although there is a law about seatbelts in Mexico, it is not enforced and seat belt safety campaigns are almost nonexistent. Most participants also reported always using child safety seats with their children.
- The participants reported that drinking was highly prevalent in the community. Most drank socially. Some reported anticipating drinking events and others reported that drinking events were spontaneous. One participant said that the idea of a designated driver did not work for Latinos because they usually get drunk without necessarily expecting or planning to drink.
- Many participants could quote the 0.08 BAC threshold for being legally drunk in their states, but were not clear how many drinks it would take to reach that level. Many viewed driving while

intoxicated as being very “macho”, allowing them to demonstrate to others that they can handle any situation.

- Except in the DWI focus groups, most participants had little knowledge of the health consequences of drinking. Participants who were involved with DWI events or arrests were aware of the economic and legal consequences of DWI, but most non-DWI participants had little knowledge of the consequences of DWI.
- There was limited awareness of the designated driver concept, especially among recent arrivals and persons who spoke only Spanish. Most males felt that it would be hard to find a designated driver because everyone drank at social events. Some saw men who abstained as being “sissified”. Focus group participants also mentioned barriers such as not having money to pay for a taxi.

### 13.3 Questions answered

What are the best “media” for getting the messages across? Should the messages ultimately be delivered in newspaper or magazine ads, and if so, what newspapers and magazines are most often read by Hispanics? Would television ads be effective, and if so, on which channels should they be broadcast?

*Television appears to be the preferred medium, as focus group participants spent more time watching television (especially telenovelas on weekdays and sports programs on weekends) than listening to the radio. Fotonovelas were also suggested as a way to transmit messages, and can be distributed in some areas as newspaper inserts. The authors also suggest radio novelas, although these were not explored by the focus groups.*

*Newspapers seem to have limited impact, in light of limited educational levels among many Latinos. Also, many U.S.-educated Latinos do not read Spanish print media.*

Which Hispanic groups should be targeted and why?

*This study targeted recent immigrants, as they have a higher rate of drinking and driving arrests and crashes than the U.S. population in general.*

What types of messages are most likely to have the most impact? What tone should the messages have?

*Because of low literacy among many Latinos, effective messages must be clear, consistent and free of jargon.*

*Many newly arrived Latino immigrants need to be informed about traffic safety laws.*

*Focus group participants preferred that messages reflect real life or real stories, and be delivered by real people as opposed to celebrities. Messages should go beyond slogans like “Don’t Drink and Drive” and preaching, and instead allow recipients to make their own conclusions. Most participants felt that anti-DWI messages should focus on the personal legal and economic consequences of drinking and driving.*

*In addition, the authors suggest that a national television network or local television stations might organize a news series around an alcohol-related crash involving Latinos and its consequences. The series would be linked to other radio and television activities (such as PSAs), print materials (such as newspaper inserts) and community organizations (who would distribute materials).*

*The authors indicate that media campaigns must address cultural factors such as*



- *Spontaneity* - Some participants had the view that “improvising” is a characteristic of the Latino culture, as exemplified by the comment, “People don’t plan to see each other; they just pass by”. This can result in a person getting drunk without necessarily expecting or planning to drink.
- *The concept of a “designated driver”* - Many participants did not know what “designated driver” meant. Participants mentioned barriers such as difficulty in finding a designated driver (because everyone drank at social events) or not having money to pay for a taxi ride home.
- *The role of machismo* - Some participants mentioned that Latinos feel very “macho” when they drink and want to prove that they can do anything, including driving.
- *Social acceptance of drinking and driving* - Most participants agreed with the statement, “My friends believe it is OK to drink and drive”.

Should different cultural groups be targeted and why?

*The authors recommend that “...all communication activities - radio, TV, print media as well as written meetings for informal distribution - take into account the variety of language groups and cultural orientation of diverse Latinos.” (p. 49)*

#### 13.4 Outstanding questions

In what pedestrian and bicycle safety-related areas is communication with Hispanic audiences most needed?

*This study did not address pedestrian and bicycle safety.*

Which age groups of Hispanics should be targeted and why?

*The report does not address this question.*

Should materials be presented just in Spanish, or in English and Portuguese as well?

*The report does not mention whether materials should be in Spanish only, or both Spanish and English. The focus groups were conducted in Spanish, though. This study did not address Portuguese.*

## **14. Conclusion**

The reports and campaigns reviewed provide insight into the development of the Marketing Plan. Although some reports and campaigns did not address pedestrian and bicycle safety, the information about what types of messages and media are effective is still pertinent. Based on this review, the following recommendations are made:

- At the local level, identify the target audience, such as recent immigrants or parents of young children. Also, determine what the messages need to address (for example, public awareness of safety or unsafe behaviors). Then develop message content and delivery mechanisms that are appropriate for the audience.
- Incorporate a family perspective into the messages.
- Use a variety of media, such as television and fotonovelas, to deliver messages about pedestrian and bicycle safety.
- Disseminate messages in both Spanish and English.

## 15. BIBLIOGRAPHY

Nhora Barrera Murphy and Richard Knoblauch. *Hispanic Pedestrian and Bicycle Safety: Report of Focus Group Discussions in Washington, New York, Miami, and Los Angeles*. The Media Network, Inc., July 2004.

DesignHouse. Street Smart. *The 2004 Pedestrian and Bicycle Safety and Public Awareness Campaign: Annual Report and Campaign Summary*. Washington, DC, August 17, 2004.

Toni Gantz, Barrett Shaver, Javier De La Garza, Larry Cohen, and David R. Ragland. *Traffic Safety in Communities of Color*. University of California, Berkeley, Traffic Safety Center, 2003.

Anna Hamilton, Alejandro Arias, and Annie Acosta. *Highway Safety Needs of U.S. Hispanic Communities: Issues and Strategies*. Report No. DOT HS 808 373. National Highway Traffic Safety Administration, Washington, DC, September 1995.

Hispanic American Police Command Officers Association. *Madrina-Padrino Public Safety Project: Project Description*. Available online at <http://www.hapcoa.org/mpp/index.php?doc=description>. In addition, PowerPoint presentation delivered at Save a Life Summit.

Richard L. Knoblauch, Rita Furst Seifert, and Nhora Barrera Murphy. *The Pedestrian and Bicyclist Highway Safety Problem As It Relates to the Hispanic Population in the United States*. Final Report. Report No. DTFH61-03-P-00324. Center for Applied Research, Inc., Great Falls, VA, 2004.

Mecklenburg Safe Communities. *Local Research Leads to Innovative DWI Campaign for Latinos*. July 24, 2002. Available online at <http://www.safecommunities.net/release6.html>.

Midwest Latino Health Research and El Centro Hispano. *Traffic Safety in Latino Communities: National Program to Design Effective Multi-Media Campaigns to Reduce Motor Vehicles Crashes in Communities of Recent Latino Immigrants - Focus Group Results with Latino Immigrants in Three U.S. Cities*. Final Report. Submitted to The Latino Council on Alcohol and Tobacco and National Highway Traffic Safety Administration. December 2001.

National Highway Traffic Safety Administration. *Pedestrian Safety Program for Hispanic Populations*. Available online at [http://www.nhtsa.dot.gov/people/injury/pedbimot/bike/pedestrian\\_safety.html](http://www.nhtsa.dot.gov/people/injury/pedbimot/bike/pedestrian_safety.html).

National Latino Children's Institute. *Corazón de mi vida. Preliminary Findings – Yearlong Pilot Test*. February 14, 2001. Available online at <http://www.nlci.org/kits/Corazon%20report01.htm>.

North Central Texas Council of Governments. *Walking Campaign Promotes Healthy Strides along Jefferson Boulevard and Bishop Arts District of Oak Cliff*. Press release for ¡Yo camino - yo cuento! (I walk – I count!) campaign, Dallas, TX, September 25, 2003.

*Pedestrian Safety Campaign Planner: A Step-by-Step Guide and Materials to Implement a Public Information and Education Campaign for Pedestrian Safety*. Report No. FHWA-SA-03-006. Federal Highway Administration, Washington, DC.

*Traffic Safety Facts 2003: Pedalcyclists*. Report No. DOT HS 809 768. National Highway Traffic Safety Administration, Washington, DC.

*Traffic Safety Facts 2003: Pedestrians*. Report No. DOT HS 809 769. National Highway Traffic Safety Administration, Washington, DC.