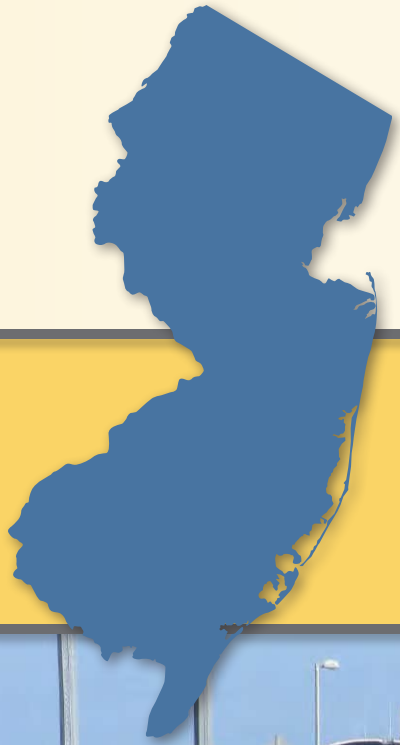
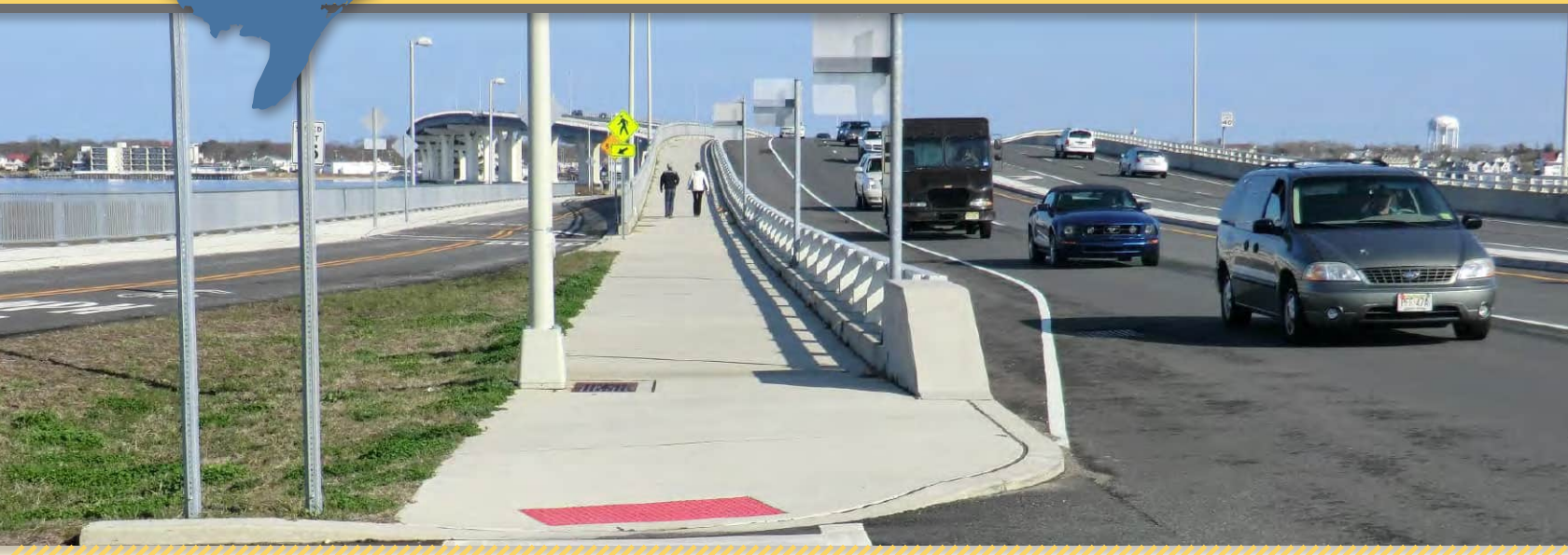
NEW JERSEY



# Pedestrian Safety
## Action Plan

June 2014



New Jersey Department of Transportation

www.nj.gov/transportation

# New Jersey Pedestrian Safety Action Plan

An Update to:
Pedestrian Safety Management in New Jersey: A Strategic Assessment (2005)

Prepared for:

The New Jersey Department of Transportation

Prepared by:

RBA PARSONS BRINCKERHOFF

with:

**Susan G. Blickstein**

and

Civic Eye Collaborative

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# Acknowledgments


## Steering Committee

Arnold Anderson
*Essex County College Police Academy*

Charles Brown
*Voorhees Transportation Center*

Timothy G. Chelius
*South Jersey Transportation Planning Organization*

Janna Chernetz
*Tri-State Transportation Campaign*

Sharon Clancy
*UMDNJ, Department of Surgery*

Pam Fischer
*North Jersey Transportation Planning Authority*

Lou Frangella
*Federal Railroad Administration, Region 1*

Doug Gilbert
*New Jersey Travel Independence Program*

Francisco Gomez
*NHTSA, Region 2*

C. Brian McGuire
*AARP New Jersey*

Kevin S. Murphy
*Delaware Valley Regional Planning Commission*

Jack M. Nata
*City of Newark, Division of Traffic and Signals*

John Peterson
*Atlantic County Department of Regional Planning and Development*

Gary Poedubicky
*NJ Department of Law & Public Safety, Division of Highway Traffic Safety*

Tara Shepherd
*HART Commuter Information Services*

Caroline Trueman
*Federal Highway Administration, NJ Division*

Michael Viscardi
*NJ TRANSIT*

## Project Team

*New Jersey Department of Transportation*
Sheree Davis
Debbie Kingsland
Elise Bremer-Nei, AICP, PP

*The RBA Group*
William Feldman, AICP, PP
Annette Schultz, AICP, PP
Elizabeth Ward, AICP
Tiffany Robinson

*Parsons Brinckerhoff*
Pam Lebeaux, AICP, PP, PhD
Peter Kremer, AICP, PP
Reed Sibley, AICP, PP
Daniel Turner

*Susan G. Blickstein*
Susan G. Blickstein, AICP, PP, PhD

*Civic Eye Collaborative*
Ranjit Walia, AICP, PP

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Karen Scurry
*FHWA Office of Safety*

Charles Zegeer
*Pedestrian and Bicycle Information Center within the University of North Carolina Highway Safety Research Center*

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# Executive Summary

## Overview

A wealth of programs and initiatives are currently underway in New Jersey on behalf of pedestrian mobility and safety. From the widespread influence of Complete Streets and Safe Routes to School to the legislative achievement of the Stop and Stay Stopped Law, major strides in policies and programs have been made since 2005 when the state published its first pedestrian safety plan, **Pedestrian Safety Management in New Jersey: A Strategic Assessment**. Yet the incidence of pedestrian fatalities and injuries remains troubling. An analysis of pedestrian crash data for New Jersey for the six-year period from 2006-2011 reveals that:

- New Jersey has a pedestrian fatality rate of 1.61 per 100,000 people, the 15th highest among all states.
- Approximately 141 pedestrians statewide are killed each year in crashes with motor vehicles, another 270 pedestrians are severely injured and 6,000 are struck by motor vehicles.

## Mission

There continues to be an unacceptable level of pedestrian crash fatalities and serious injuries. This Plan's mission is simple and straightforward:

**TO REDUCE THE INCIDENCE OF PEDESTRIAN FATALITIES AND SERIOUS INJURIES IN NEW JERSEY BY 20% IN 5 YEARS.**

This means preventing 28 pedestrian fatalities each year to bring the number down from 141 to no more than 113. The number of severely injured pedestrians would be reduced by 54 pedestrians from 269 severely injured per year to no more than 215.

Given New Jersey's unique combination of dense, but auto-oriented land use patterns, and its high levels of walking and transit use, pedestrians will continue to be exposed to conflicts with automobile traffic for the foreseeable future. While this Plan cannot eliminate these conflicts, a strategic and coordinated effort can reshape both behavior and the physical environment with a positive outcome. The Plan supports this mission through a data-driven analysis of pedestrian crashes and trends including frequency, severity, location, demographics, and behavioral factors. These data provide a detailed understanding of the dimensions of the problem: who is being hit, by whom, and under what circumstances, and create a rational for the Action Plan.


*Image: Parsons Brinckerhoff*

## Action Plan

The Plan describes specific actions to improve pedestrian safety in New Jersey based on recent data from Plan4Safety. It is organized around three major goals. These goals are based on input from the Steering Committee, which guided this effort, a review of New Jersey's crash data and pedestrian safety initiatives, and an overview of state-of-the-practice resources throughout the nation. The three central goals are:

**GOAL 1:** Establish a ***governance and management structure*** to facilitate coordinated implementation of pedestrian safety initiatives statewide and gauge the success of **New Jersey's Pedestrian Safety Action Plan**.

**GOAL 2:** Foster ***behavioral change*** among users of public rights-of-way to promote an environment of mutual respect, courtesy and acceptance.

**GOAL 3:** Improve and expand the ***transportation infrastructure for pedestrians*** throughout the state in accordance with state-of-the-practice standards and guidelines.

For each core goal, a series of recommended actions is presented that reflect back to the key crash data trends and analysis revealed during the development of this Plan. The Plan's actions focus primarily on state agencies. However, other agencies at the local, regional and county level, as well as non-profit/non-governmental organizations will be important in supporting state implementation efforts and in achieving the overall Plan mission. A summary of the actions follows.

## Actions: Goal 1 - Governance & Management Structure

- Collaborate with partner state agencies, regional, county & municipal governments and stakeholders through ***a Task Force to coordinate pedestrian safety initiatives and track progress.***
- Include ***Action Plan recommendations in the Strategic Highway Safety Plan.***
- Continue to ***participate in traffic safety forums***, conferences, and training to share information on pedestrian safety activities and accomplishments.
- Include the ***health community as a partner*** to raise awareness of pedestrian safety as a serious public health issue and to develop and distribute supporting information.
- ***Prepare a NJ "Who's Who" Compendium*** of pedestrian safety agencies and organizations and what they do.
- ***Improve the Plan4Safety pedestrian crash data management system*** by reconciling/integrating existing data sets to facilitate local government access to information specific to municipalities, e.g. to easily identify high crash corridors.

## Actions: Goal 2 - Foster Behavioral Change

- Consider a systematic long-range plan for a ***statewide public education campaign*** to increase awareness of pedestrian safety and compliance with pedestrian laws.
- ***Coordinate with the Motor Vehicle Commission*** to emphasize pedestrian safety education.
- Continue to ***offer education to decision-makers and seniors*** pertaining to improving mobility for seniors.
- Encourage schools to ***implement a state-of-the-art K-12 traffic safety education curriculum***.
- Continue to provide outreach and ***support to organizations*** dedicated to ***fostering a safer walking environment.***
- Continue to ***support the NJ Safe Routes to School program's education and enforcement activities.***
- Develop and ***provide training for municipalities on managing grants***.
- Continue to ***support pedestrian safety enforcement programs*** that focus on enforcement of driver behavior to stop and stay stopped for pedestrians at crosswalks; also undertake pedestrian safety training for police/ traffic safety officers/ crossing guards.
- Support and ***promote targeted speed enforcement*** in areas of high pedestrian demand and/or risk.
- ***Target high-risk rail station and grade crossing locations*** for enforcement, including school locations.
- ***Facilitate*** implementation of laws regarding ***periodic vision screening of licensed drivers***.
- ***Review, evaluate and support legislation*** that advances pedestrian access and safety needs.

## Actions: Goal 3 – Improve And Expand Pedestrian Infrastructure

- ***Update the pedestrian safety management system*** (PSMS) to help prioritize capital investment.
- ***Establish priorities within NJDOT for pedestrian safety capital improvements*** using the PSMS.
- ***Update NJDOT's highway access permit application*** checklist and methodology.
- ***Continue to implement NJDOT's Complete Streets Policy*** and complete a yearly report to document the extent to which NJDOT infrastructure projects are in compliance with its Complete Streets Policy.
- ***Strengthen the focus on pedestrian safety in lighting standards and guidelines*** and create a pedestrian lighting guide for local governments.
- Evaluate, prioritize and implement projects to ***improve safe pedestrian access to transit facilities***.
- Continue to participate in the Federal Railroad Administration's pilot program to ***implement and evaluate engineering safety treatments at rail crossings***.

- Continue ***funding and technical assistance for county and local projects*** that address pedestrian safety; prioritize funding to disadvantaged communities with high-risk intersections, corridors and/or neighborhoods.
- ***Increase use of Highway Safety Improvement Program and other federal funding for pedestrian safety projects,*** e.g. Pedestrian Safe Corridors Program; identify data-driven projects and apply systemic risk methodology.
- ***Continue to encourage municipalities and counties to adopt and implement Complete Streets policies and plans.***

## Next Steps

Although there may be logical arguments that the current pedestrian crash experience in New Jersey is "explainable" given our unique circumstances, the fact is that the incidence and rate of pedestrian fatalities and serious injuries in New Jersey is just too high. The "sea change" which will, hopefully lead to a new vision and consciousness with regard to our transportation needs and focus, may have commenced but has surely not yet been accomplished. A renewed and concerted effort is required.

This ambitious **Pedestrian Safety Action Plan** sets out an approach for such an effort. It is premised on the belief that a coordinated effort led by those state agencies with principal involvement in pedestrian safety programs and projects, supported by their federal partner agencies, and employing the methods detailed in the plan can have a meaningful impact on levels of pedestrian fatalities and serious injuries in New Jersey.

While the Plan will be spearheaded by the state agencies principally involved, the hoped for changes will not be manifest unless and until all the players become partners. This includes not only those state agencies with a part to play, but also other levels of government: regional, county, municipal along with other, non-governmental partners.

The obvious next steps include the vetting of this Plan by the principal parties, coupled with its endorsement by those who must be a part of its implementation. This should be followed by the convening of the Pedestrian Safety Task Force, which will set in motion the realization of the Plan's mission, the achievement of its goals, the implementation of its actions and the assessment of its performance measures; and the rest, as they say, is success.

*Image: Tim Farrell/The Star-Ledger*

# Chapter 1: Introduction

## Overview

For over a decade, the New Jersey Department of Transportation (NJDOT) has made pedestrian access and safety a top priority. NJDOT's expanded efforts and achievements have placed it in the forefront of state agencies in addressing pedestrian safety, positioning the Department as a leader in assessing the causes and identifying and implementing solutions to the problem of pedestrian crash fatalities and serious injuries. Their efforts focus primarily on roadways that are a part of the State Highway System, but by providing encouragement, information, funding and technical assistance, they have supported efforts to improve pedestrian access and safety by other agencies and levels of government. NJDOT along with the Division of Highway Safety (DHTS) in the Department of Law and Public Safety are the pre-eminent state agencies dealing with pedestrian safety.

In 2005, the Department developed and published a plan entitled **Pedestrian Safety Management in New Jersey: A Strategic Assessment**. That effort was undertaken, in part, as a response to the Federal Highway Administration's (FHWA) designation of New Jersey's as a "Focus State" under a federal "Focused Approach" initiative to more effectively target resources to address pedestrian safety. The plan included over 100 recommendations in 14 areas with the intended purpose of reducing pedestrian fatalities and serious injuries.


Major strides in policies and programs since the 2005 Plan include the widespread influence of Complete Streets and Safe Routes to School and the legislative achievement of the Stop and Stay Stopped Law.

A mid-block crossing on South Orange Avenue in South Orange. *Image: VTC*

Since the 2005 **Pedestrian Safety Management in New Jersey: A Strategic Assessment**, the NJDOT, DHTS, and other state, regional, local and non-governmental organizations have undertaken major initiatives that directly address or indirectly influence pedestrian access and safety. In September 2006, Governor Jon Corzine announced a $74 million statewide Pedestrian Safety Initiative. NJDOT, the Department of Law and Public Safety (State Police and DHTS) and the Motor Vehicle Commission (MVC) have had leading roles in conducting activities to improve pedestrian safety through engineering, education and enforcement strategies. In addition, Safe Routes to School (SRTS) and the Complete Streets (CS) movement have come into being, taken root and blossomed. These programs have significantly increased awareness of pedestrian access and safety issues and spurred activity at local and regional levels throughout New Jersey. The national context has also changed, with new federal programs and research directed to reduce pedestrian fatalities and serious injuries.

The priorities and actions recommended by the 2005 Plan served as an effective guide to NJDOT and partner agencies. However, given the passage of time and the changes that come with it, the Department determined that the time had come to revisit and update the 2005 Plan to reevaluate goals and objectives and to identify the most efficient and effective use of resources for reducing pedestrian fatalities and injuries throughout New Jersey. This Pedestrian Safety Action Plan (PSAP) is the result of this re-evaluation.

# Mission

Given that the impetus for this and the previous version of the pedestrian safety plan is the unacceptable level of pedestrian crash fatalities and serious injuries, the Plan's mission is simple and straightforward:

**TO REDUCE THE INCIDENCE OF PEDESTRIAN FATALITIES AND SERIOUS INJURIES IN NEW JERSEY BY 20% IN 5 YEARS**

With this clear and direct target, NJDOT can measure success toward the achievement of the mission and encourage partner agencies and organizations to join the effort. Calculating progress can be accomplished using a five-year rolling average of the most recently available pedestrian crash fatalities and serious injury data.

To illustrate what the achievement of the mission in five years would mean using the average number of pedestrians killed or severely injured in a typical year:

- the number of pedestrian fatalities would be reduced within 5 years by 28 fatalities from 141 to an average of no more than 113 fatalities,
- the number of severely injured pedestrians would be reduced by 54 pedestrians from 269 severely injured per year to no more than 215, and
- the pedestrian fatality rate would drop from 1.61 per 100,000 to no more than 1.30 per 100,000.

This mission to reduce the incidence of pedestrian fatalities and serious injuries by 20% in 5 years is visionary, yet practical. Long-range pedestrian safety goals will be covered in the upcoming update to the New Jersey Statewide Bicycle and Pedestrian Master Plan. The elimination of all pedestrian fatalities along New Jersey's roadways is the ultimate goal. This "Toward Zero Deaths" approach has been adopted as a national strategy on highway safety and by several state DOTs.

## New Jersey as a Focus State: National Context

The "Focused Approach to Safety" is a program developed by the FHWA and rolled out in 2004-2005. Its purpose is to reduce highway fatalities and serious injuries by identifying focus areas based on the crash types responsible for the highest percentage of highway fatalities and serious injuries in focus states, where the problems are most acute. Pedestrian crashes were identified as a focus area, and New Jersey was designated as a pedestrian focus state.


In 2011, FHWA revised its Focused Approach to Safety program by recognizing focus cities as well as focus states. Cities are so designated if they had a pedestrian fatality rate greater than the national average for cities (2.33 per 100,000 population). A state that contains a focus city is automatically considered a pedestrian focus state. The City of Newark met this criterion and was designated as a pedestrian focus city; as such, New Jersey continued to be designated as a pedestrian focus state.

The Focused Approach to Safety draws attention to and directs resources to address pedestrian safety. Targeted resources available from FHWA include course offerings, conference calls, web conferences, data analysis, and technical assistance. The development of this Pedestrian Safety Action Plan is a key part of New Jersey's response to being designated as a pedestrian focus state. The plan will also help implement the goals outlined in the Strategic Highway Safety Plan (SHSP), which is the state's overall plan to set goals for reducing crashes, fatalities and injuries, and creating a safer and more efficient transportation system.

## Plan Methodology

This Plan is an extension/update of the **Pedestrian Safety Management in New Jersey: A Strategic Assessment** of 2005. Following an evaluation of crash data and statistics, a review of effective strategies from both within and outside New Jersey, and utilizing input from both the Steering Committee, the Plan's mission, goals, actions, performance measures, and roles and responsibilities were established. The resulting draft was reviewed by NJDOT, the Steering Committee and the Pedestrian and Bicycle Information Center (PBIC) within the University of North Carolina Highway Safety Research Center.

The Plan's recommendations focus primarily on state level actions, while acknowledging that statewide achievement will also require action at all levels of government. Given the Department's principal role as initiator of the Plan with a vested interest in the achievement of its goals, NJDOT can be a leader in its implementation through cooperative partnerships. However, keeping in mind that pedestrian safety is not solely the function of the state, recommended actions, roles and responsibilities were developed that mention the involvement of other agencies and levels of government.

## Information Gathering

Initial work efforts focused on gathering relevant information. This included:

- Literature on the state-of-the-practice with respect to pedestrian safety planning and the preparation of pedestrian safety action plans;
- Research studies pertaining to pedestrian safety and proven countermeasures;
- Pedestrian crash statistics (especially fatalities and serious injuries) nationally and in New Jersey since the 2005 Plan;
- Information on pedestrian safety activities being carried out in New Jersey, including activities that were initiated in response to the 2005 Plan; and
- Research on states or jurisdictions known or believed to have successful pedestrian safety programs.


*Image: The RBA Group*

## Outreach/Steering Committee

Principal outreach efforts focused on convening a Steering Committee composed of experts from a wide range of organizations and constituencies, with missions and activities related directly or indirectly to advancing the cause of pedestrian safety in New Jersey. These organizations were selected because of their work in addressing the "E's" of highway safety and the role that they can play in a coordinated effort to implement the Plan.

Three working meetings of the Steering Committee were held. Each meeting demanded the involvement and active participation of Steering Committee members in identifying New Jersey's issues and needs, and in shaping the Plan's mission, goals, actions, and performance measures. An important outcome of the meetings was the identification of existing pedestrian safety program activities and stakeholders in New Jersey, which provides a framework for plan implementation.

Members of the Steering Committee discuss education initiatives.
*Image: The RBA Group*

## Pedestrian Safety Action Plan Toolbox

In conjunction with the Plan, a "toolbox" was developed to encourage local levels of government to take action consistent with and supportive of the Plan's goals. The toolbox is available as a separate document and consists of a series of brochures each highlighting an important action or program that would contribute to pedestrian safety.

The toolbox elements include:

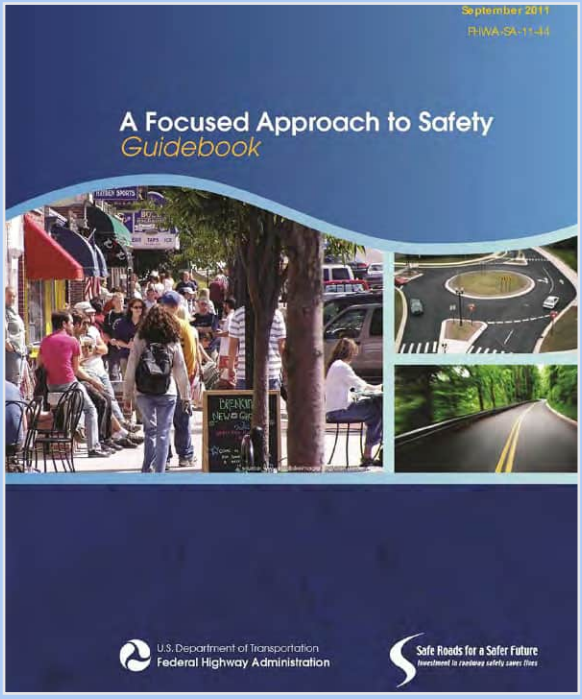
1. Complete Streets
2. Intersection Treatments
3. Mid-block Crossings
4. Safe Access to Transit
5. Pedestrian Lighting
6. Safety Assessment Tools
7. Enforcement
8. Safe Routes to School
9. Senior Mobility
10. Municipal Planning and Pedestrian Safety

In addition to the resources included in the "toolbox," there are many other resources on pedestrian safety available including:

- The Pedestrian and Bicycle Information Center (PBIC) is a national clearinghouse for information about health and safety, engineering, advocacy, education, enforcement, access, and mobility for pedestrians, transit users and bicyclists. For more information, visit: www.walkinginfo.org.
- FHWA's online "Pedestrian Safety Guide and Countermeasure Selection System" (PEDSAFE) provides the latest information available for improving the safety and mobility of those who walk, particularly as it pertains to roadway design and physical roadway features. PEDSAFE is comprised of four sections: a guide of basic information; a total of 67 engineering, education, and enforcement countermeasures; case studies; and an expert system tool for countermeasure selection. The online tool is available at www. pedbikesafe.org/PEDSAFE.

## Hallmarks of the Focused Approach

The Focused Approach to Safety challenges those involved in transportation safety to follow a data driven, systemic approach using proven countermeasures and systemic safety solutions consistent with the "E's" of highway safety.




FHWA's **A Focused Approach to Safety Guidebook** is available at http://safety.fhwa.dot.gov/fas/guidebook.cfm

### The "E's" of Highway Safety

A combination of approaches (e.g., making engineering changes as well as implementing education and enforcement campaigns) is more successful at resolving pedestrian problems than only using one approach. Pedestrian safety improvements are often described in terms of the basic three "E's":

- Engineering – physical changes to infrastructure (i.e., streets, sidewalks, traffic signals, signs, etc.) that affect the operation and movement of traffic and pedestrians.
- Education – strategies that aim to educate pedestrians, drivers, or other groups in order to motivate a change in behavior.
- Enforcement – community-based or law enforcement agency measures to enforce laws and regulations related to pedestrians.

### Other "E's" are sometimes included in this paradigm:

- Encouragement – efforts to promote walking and increase the level of walking in a community.
- Emergency Medical Services (EMS) – an organized system focused on prompt notification of the location and severity of a crash, timely dispatch of trained providers of emergency care, use of evidence-based treatment protocols, and triage to an appropriate health care facility. Note: This is a complementary strategy performed by state police and/or local law enforcement/EMS organizations and health care facilities.
- Evaluation – examining the results and assessing the efficacy of actions taken.

### Data Driven

The effective use of data enables transportation planners to identify safety problems, select proper strategies and countermeasures, monitor progress toward achievement of goals, actions and performance targets, and direct limited resources to where they have the highest potential for reducing fatalities and serious injuries.

### The Systemic Approach

The systemic approach starts with the identification of sites with potential for safety improvements and selection of countermeasures that address crash patterns at those locations. This is followed by analyzing crash data to identify high risk roadway geometric features where specific countermeasures can be deployed cost effectively.

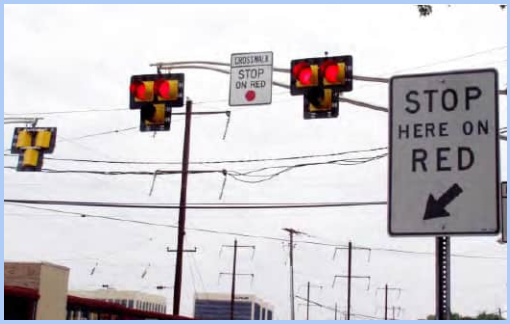
## Use of Proven Countermeasures to Increase Pedestrian Safety

FHWA encourages consideration of a set of research-proven countermeasures that are aimed at increasing pedestrian safety and have been proven to increase safety for all road users as well. Among these are:

### Medians and Pedestrian Refuge Areas in Urban and Suburban Areas

Pedestrian Refuge Area at the intersection of South Orange Avenue and Maybaum Avenue in Newark, NJ. *Image: RBA*

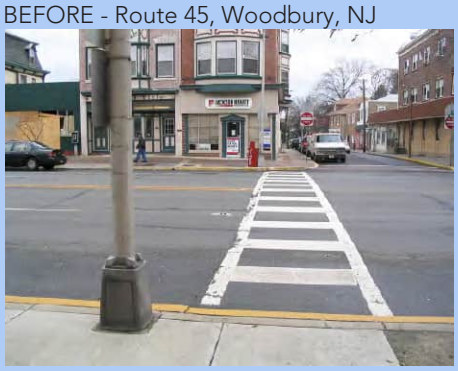
### Pedestrian Hybrid Beacon



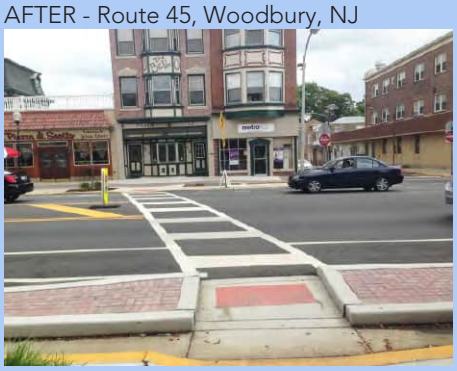

Pedestrian hybrid beacon on Route 27 in Woodbridge near Metropark Station. *Image: NJDOT*

### Road Diet

BEFORE - Route 45, Woodbury, NJ



AFTER - Route 45, Woodbury, NJ



*Images: NJDOT*

Other countermeasures that have been found to reduce pedestrian crashes include:

- Adding an exclusive pedestrian phase/implement a leading pedestrian interval;
- Adding a separate left-turn phase;
- Installing sidewalks;
- Providing a paved shoulder at least 4 feet wide;
- Adding intersection and segment lighting;
- Improving pavement friction (skid treatment with overlay);
- Prohibiting right-turn-on-red;
- Prohibiting left turns;
- Restricting parking near intersections; and
- Installing high-visibility crosswalks.

FHWA's Toolbox of Countermeasures and Their Potential Effectiveness for Pedestrian Crashes documents estimates of the crash reduction that might be expected if countermeasures are implemented. The document can be found at www.walkinginfo.org/training/collateral/resources/pedToolboxofCountermeasures2013.pdf.

# Chapter 2: Dimensions of the Problem

## Introduction

The mission of the **New Jersey Pedestrian Safety Action Plan** is to better understand and ultimately reduce the number of severe pedestrian crashes in New Jersey. Chapter Two supports this mission through data-driven analysis of pedestrian crashes and trends, creating an understanding of the dimensions of the problem: who is being hit, by whom, and under what circumstances.

This overview examines pedestrian crash data for New Jersey for the six-year period from 2006-2011. Six years of data are used in order to provide a robust picture of the underlying patterns that account for pedestrian deaths and injuries in New Jersey. Throughout this chapter, the information is reported in three ways: 1) pedestrians killed, 2) those killed and severely injured,[1] known as KSI, and 3) all pedestrian crashes.

The analysis is based on data from Plan4Safety, an online database of NJDOT crash data maintained by the Center for Advanced Infrastructure and Technology (CAIT) at Rutgers University.

## Pedestrian Crashes in New Jersey

New Jersey has a relatively high number of pedestrian fatalities per capita. In 2011, New Jersey had a pedestrian fatality rate of 1.61 per 100,000 people, the 15th highest among all states. The national rate for 2011 was 1.42.[2]

Data from the period 2006-2012 indicate approximately 138 pedestrians killed, 264 pedestrians severely injured and 5,950 pedestrians struck by motor vehicles each year.

Figure 1 summarizes the severity of pedestrian crashes in New Jersey from 2006 to 2012. To gauge whether there was an identifiable trend over this period while controlling for year-to-year fluctuation, a five-year moving average was constructed. The moving average shows a very slight downward trend among both fatalities and KSI crashes since 2006.

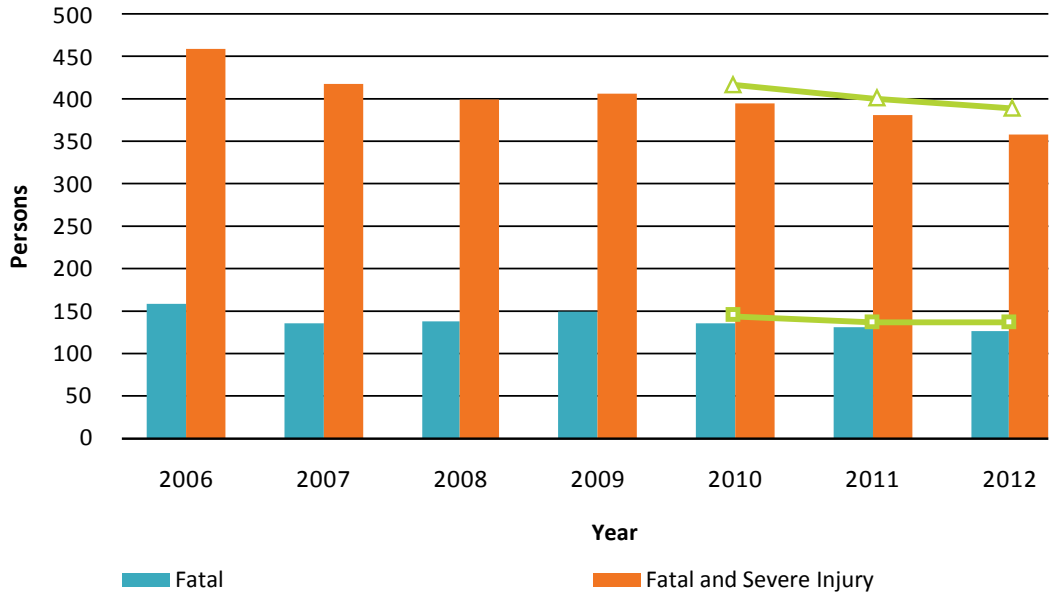



Figure 1: Pedestrian Crashes by Year and Severity New Jersey, 2006-2012

[1] The injuries included in the KSI figures are defined as incapacitating injuries: those that prevent a person from walking, driving or continuing the normal activities the person was capable of before the injury occurred.
[2] National Highway Safety Administration, 2010 Pedestrian Traffic Safety Facts, August 2013.

## Context

A number of factors are thought to contribute to New Jersey's higher than average pedestrian fatality rate. A combination of population density, auto-oriented land use patterns, dense urban and suburban environments, and separation of land uses creates an exceptionally high density of activity and traffic volumes, which tend to expose pedestrians to risk. High traffic volumes and speeds and the prevalence of aggressive driving further compound the risks experienced by pedestrians.

Based on 2010 U.S. Census data, New Jersey is the most densely populated state. At the same time, the high population density facilitates a greater number of walking trips, and New Jersey has a large volume of pedestrian activity. The state has a nearly 20% higher share of people walking to work than the national average, and over twice the share of residents taking transit to work, many of whom walk to and/ or from the bus and rail stations.[3] Additionally, New Jersey has an above average percentage of households without vehicles, contributing to further reliance on walking.[4] With high traffic and pedestrian volumes concentrated in many of the most congested urban areas, New Jersey pedestrians experience greater than average exposure to conflicts with motor vehicles.

Land use patterns in New Jersey are another probable factor in the pedestrian fatality rate. Much of the state has been developed in an automobile-oriented pattern, with wide streets, high travel speeds, and limited pedestrian connectivity. It is not uncommon to find four-lane arterial roads lined with shopping centers, apartment buildings, and schools, with few signalized crossings to connect them. Such environments create formidable challenges to pedestrians and tend to encourage risk-taking behavior.

# Crash Data Analysis

New Jersey pedestrians will likely continue to experience relatively high levels of exposure to automobile traffic in the future. While this Plan cannot eliminate the risks of exposure, these risks can be managed more systematically by targeting the locations, conditions and behaviors of greatest concern for appropriate mitigation. Major categories of analysis include crash location, lighting, temporal, demographic, and behavioral factors.

## Crash Location

Pedestrian crashes in New Jersey tend to follow the national pattern, in which most pedestrian crashes occur in urban and dense suburban areas. Overall pedestrian crash rates are highest in the dense urban counties (Hudson, Essex and Passaic). KSI crashes, as shown in Figure 2, are most concentrated in the densely populated northeastern portion of the state, as well as in clusters around Camden, Trenton, Atlantic City and the U.S. Route 9 and Route 130 corridors. It is important to note that crash rates do not take into account the amount of pedestrian activity.


[3] Based on 2010 U.S. Census data and 2006-2010 American Community Survey (ACS) data available through AASHTO's Census Transportation Planning Product (CTPP) program, approximately 3.3% and 10.6% of New Jersey residents walked or took public transportation to work, respectively, in 2010, compared with 2.8% and 4.9% nationally.

[4] According to the 2011 ACS 1-year estimates data, 11.9% of New Jersey households do not have a vehicle, compared to 9.3% of households nationally.

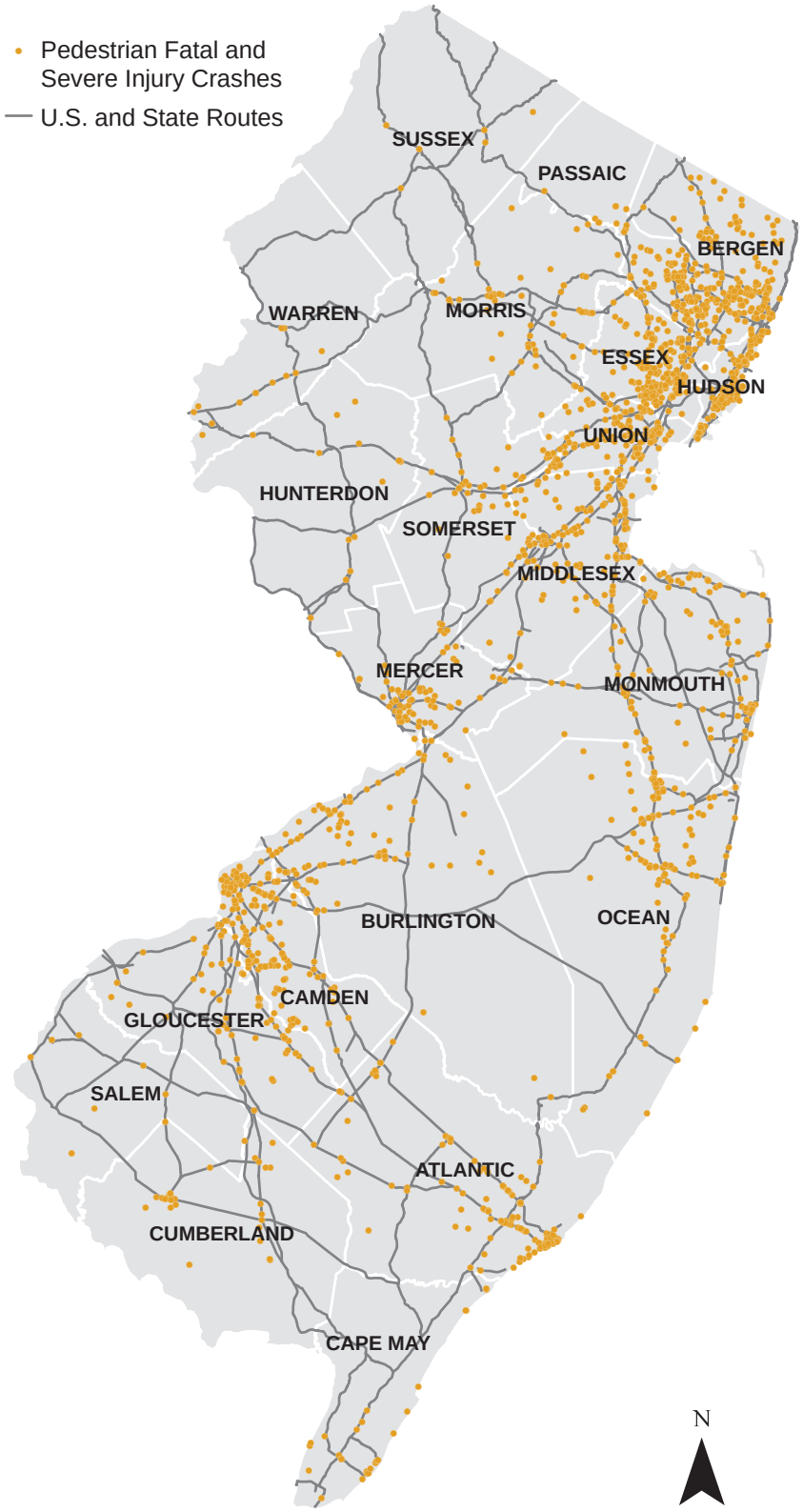



Figure 2: Pedestrian Fatal and Severe Injury Crashes, 2006-2011

## Intersection Location

The majority of New Jersey's pedestrian crashes occur away from intersections, as shown in Figure 3. Fatal and severe pedestrian crashes are even more concentrated in non-intersection locations, with only 28% occurring at intersections. This is comparable to the national pattern, and this pattern implies that, while intersections may provide good opportunities for spot engineering improvements, pedestrian safety programs should target corridor-wide improvements to achieve the greatest impact.[5]

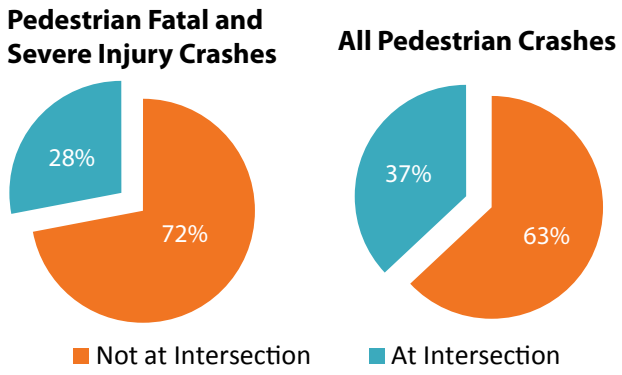



Figure 3: Pedestrian Crash Locations, 2006-2011

## Roadway System and Functional Classification

Approximately two-thirds of New Jersey's fatal pedestrian crashes occur on state and county roadways. The highest share of fatal crashes is on the state highway system with 39% of fatal crashes, followed by the county (26%) and municipal (21%) systems. The distribution is slightly different when considering all severe pedestrian crashes (KSI), with the county (31%), municipal (29%), and state highway (27%) systems having similar shares.

The majority of fatal and severe (KSI) pedestrian crashes occur along New Jersey's arterial roadways. Together, urban principal arterial and urban minor arterial roadways account for 58% of fatal and 53% of KSI pedestrian crashes. Urban local roadways have a comparable share of total crashes (17%), but with significantly less severity (6% of fatal and 11% of KSI crashes). Pedestrian crashes by functional class are summarized in Table 1.

| | Fatal | | KSI | | All Pedestrians Struck | |
|---|---|---|---|---|---|---|
| Functional Class | No. | % | No. | % | No. | % |
| Urban Principal Arterial | 320 | 38% | 719 | 29% | 5,609 | 16% |
| Urban Minor Arterial | 169 | 20% | 587 | 24% | 7,959 | 22% |
| Urban Local | 52 | 6% | 274 | 11% | 6,020 | 17% |
| Urban Collector | 48 | 6% | 167 | 7% | 3,264 | 9% |
| Urban Freeway/Expressway | 40 | 5% | 58 | 2% | 188 | 1% |
| Urban Interstate | 40 | 5% | 55 | 2% | 141 | 0% |
| All Rural Classifications | 26 | 3% | 43 | 2% | 195 | 1% |
| Unknown (Not Classified) | 148 | 18% | 559 | 23% | 12,568 | 35% |

Source: NJDOT 2006-11 crash records

Table 1: Pedestrian Crashes by Functional Classification, 2006-2011

[5] The National Highway Safety Administration, *2011 Pedestrian Traffic Safety Facts*, August 2013.

## Lighting Conditions

Darkness is a well-documented factor correlated with more severe pedestrian crashes. It significantly reduces pedestrian visibility to motorists, and hence reduces driver reaction time in a crash event. Nationally, 70% of all pedestrian fatalities in 2011 occurred during nighttime hours.[6] Pedestrian crashes in New Jersey are consistent with the national pattern, with 68% of fatal crashes occurring in dark conditions (see Figure 4). The figure for state highways is even higher, with 84% of fatal pedestrian crashes on state highways occurring in the dark. Daytime pedestrian crashes tend to be less severe. The crash data also breaks down dark lighting conditions into several categories: street lights off, no street lights, street lights on/continuous, and street lights on/spot.[7] Over a third of fatal and KSI pedestrian crashes (37% and 34%, respectively) had continuous lighting at the crash location, while an additional 10% and 8%, respectively, had spot lighting. These data suggest that existing lighting often may not sufficiently illuminate the pedestrian right-of-way and crossing locations.

## Day of Week and Time of Day

The incidence of pedestrian crashes by time of day and day of week is also consistent with reduced lighting as a critical crash factor and time periods of higher travel volumes. Over three-quarters (78%) of KSI weekend crashes occur between 4pm and 4am, with late night (8pm – midnight) accounting for 38%. Weekday KSI crashes occur most frequently in the evening hours between 4pm and 8pm (33%), coinciding with the typical evening peak travel hours.[8] This pattern is largely consistent with national trends.[9]

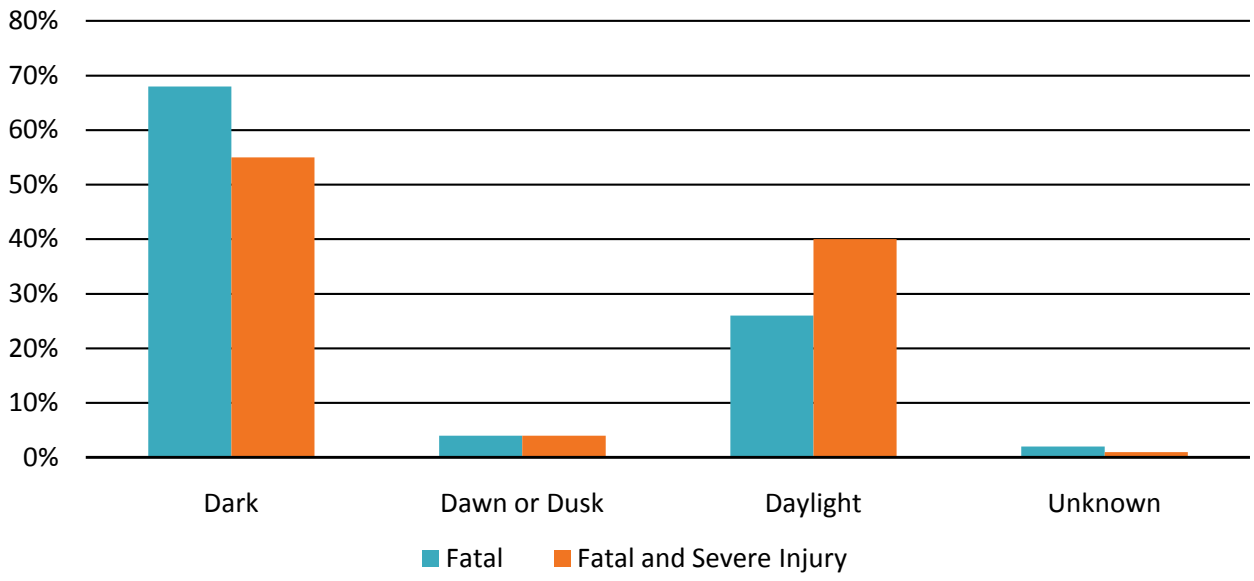



Figure 4: Fatal and Severe Injury Pedestrian Crashes by Lighting Condition, 2006-2011

[6] National Highway Safety Administration, *2011 Pedestrian Traffic Safety Fact*, August 2013.
[7] These sub-categories sum to the 68% and 55% of fatal and KSI crashes, respectively, that occurred in dark conditions shown in Figure 6. For fatal crashes, the break-down is: 5% street lights off, 16% no street lights, 37% street lights on/continuous, and 10% street lights on/spot. For KSI crashes, the breakdown is: 3% street lights off, 10% no street lights, 34% street lights on/continuous, and 8% street lights on/spot.
[8] This analysis groups late night Friday hours (8pm-12am) into the 'weekend' category due to the assumption that typical travel behavior and trips are more consistent with weekend patterns than the previous weekdays. All other time periods and days are categorized by the typical weekday/weekend split.
[9] National Highway Safety Administration, *2011 Pedestrian Traffic Safety Facts*, August 2013.

## Age of Victims

The age of pedestrian victims is very significant for developing targeted programs that can reduce fatal and severe pedestrian crashes in New Jersey. Table 1 shows the distribution of pedestrian crash severity and annual crash rates by age cohort. These cohorts were defined based on general life-cycle categories, with the youngest groups further divided to capture different school ages (primary, intermediate and high school).

The table shows that from a raw numbers perspective, the great majority of the pedestrians killed or injured in New Jersey are adults aged 18 and over. Children and teens up to age 17 accounted for only 6% of the fatalities and 15% of the KSI victims during the six-year period. This finding underscores the importance of behavioral campaigns designed specifically for adults of all ages, including young adults, the middle-aged population and older adults, who accounted for nearly one-fourth of all fatalities.

In addition to raw numbers and percentages, the table also provides information on crash rates by age, also displayed in Figure 5. Fatal crash rates generally increase progressively with age, with the highest rate among seniors, especially those older than 84. KSI crash rates are characterized by a double peak. The highest rate is among seniors, again led by the age group older than 84. This is followed closely by those 65-84 and young people (ages 15-17 and 18-24).

| | Killed | | | KSI | | | All Pedestrians Struck | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age/Crash Severity** | **No.** | **%** | **Annual Rate per 100,000** | **No.** | **%** | **Annual Rate per 100,000** | **No.** | **%** | **Annual Rate per 100,000** |
| < 5 | 12 | 1% | 0.36 | 39 | 2% | 1.18 | 717 | 2% | 21.71 |
| 5 to 9 | 12 | 1% | 0.36 | 76 | 3% | 2.26 | 1,470 | 4% | 43.70 |
| 10 to 14 | 16 | 2% | 0.46 | 105 | 4% | 3.01 | 2,567 | 7% | 73.48 |
| 15 to 17 | 19 | 2% | 0.87 | 138 | 6% | 6.30 | 2,104 | 6% | 96.03 |
| 18 to 24 | 73 | 9% | 1.59 | 272 | 11% | 5.91 | 3,893 | 11% | 84.53 |
| *Subtotal: 5 to 24* | *120* | *14%* | *0.88* | *591* | *24%* | *4.33* | *10,034* | *28%* | *73.49* |
| 25 to 44 | 224 | 27% | 1.56 | 635 | 26% | 4.43 | 8,153 | 23% | 56.94 |
| 45 to 64 | 247 | 29% | 1.74 | 662 | 27% | 4.67 | 7,540 | 21% | 53.21 |
| 65 to 84 | 163 | 19% | 2.74 | 357 | 15% | 6.00 | 2,950 | 8% | 49.55 |
| > 84 | 33 | 4% | 3.23 | 81 | 3% | 7.92 | 635 | 2% | 62.07 |
| No Record | 42 | 5% | 0.08 | 97 | 4% | 0.19 | 5,915 | 16% | 11.28 |
| **GRAND TOTAL** | **841** | **100%** | **1.60** | **2,462** | **100%** | **4.70** | **35,944** | **100%** | **68.56** |

Source: NJDOT 2006-11 crash records; 2006-2011 ASC 1-Year Population Estimates

Table 2: Age of Pedestrian Crash Victims, 2006-2011

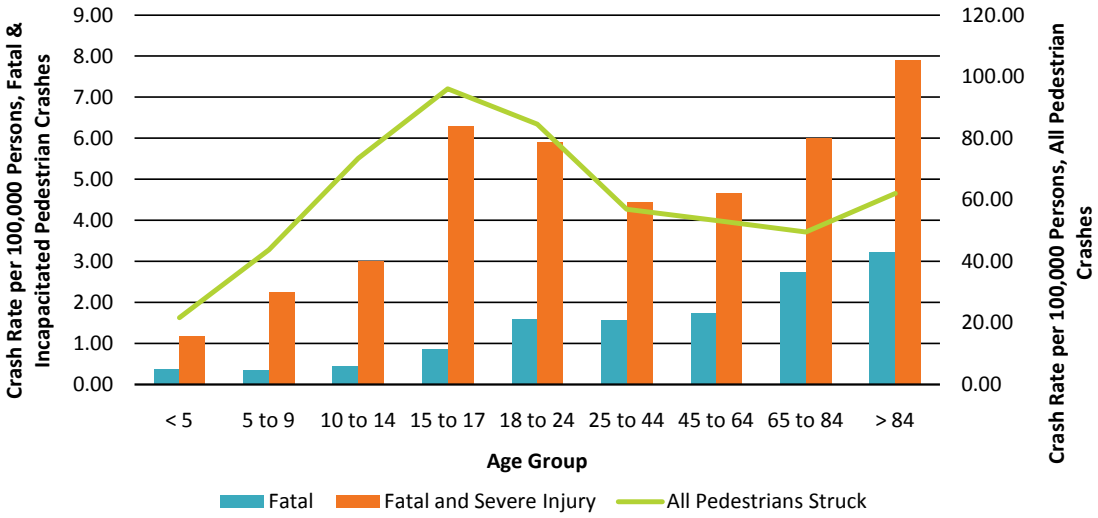



Figure 5: Distribution of Annual Pedestrian Crash Rates by Age and Crash Severity, 2006-2011

## Gender of Victims

Nationally, males tend to compose a higher share of fatal pedestrian crashes (70% in 2011).[10] Pedestrian crashes within New Jersey from 2006-2011 are consistent with this trend, with males involved in over two-thirds of fatal crashes, and over half of all pedestrian crashes. Males had a fatality rate over double that of females and a KSI rate over 75% greater.

## Income, Race and Ethnicity

Information is not available on the distribution of pedestrian crashes in New Jersey by victim's income or ethnicity. National studies show that as a group lower income persons experience greater than average levels of pedestrian injury and fatality. This represents a potential area for future research to inform program development in New Jersey as data becomes available.

## Driver Age and Gender

Demographic information on the drivers was also evaluated based on age and gender, as shown in Figure 6. The gender split was similar across all age groups, with male drivers involved in 60-69% of all KSI pedestrian crashes. The four age groups from 16-65 were each involved in approximately 17%- 20% of KSI pedestrian crashes. The number and percentage of older drivers involved in KSI pedestrian crashes trended down after age 55.

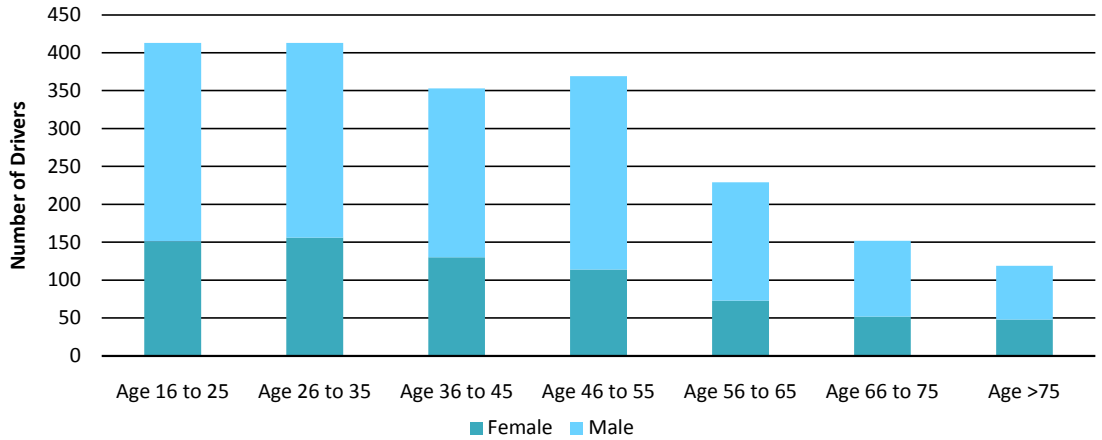



Figure 6: Driver Age and Gender Distribution in Fatal and Severe Injury Pedestrian Crashes, 2006-2011

[10] National Highway Safety Administration, *2011 Pedestrian Traffic Safety Facts*, August 2013.

## Contributing Circumstances

NJDOT crash data includes information on contributing circumstances where noted by police officers. In fatal and severe pedestrian crashes, the most frequent circumstance noted was driver inattention (cited in 30% of crashes) followed by pedestrians crossing where prohibited (cited in 16% of crashes). Other key circumstances include: dark clothing/low visibility to drivers (16%), pedestrians running or darting across traffic (16%), and driver failure to yield the right of way (10%), as shown in Figure 7. The frequency of dark clothing/low visibility is consistent with the analysis of lighting condition data depicted in Figure 4. This finding suggests that in addition to engineering improvements there might be a need for an education campaign targeted to pedestrians on the importance of being more visible at night.

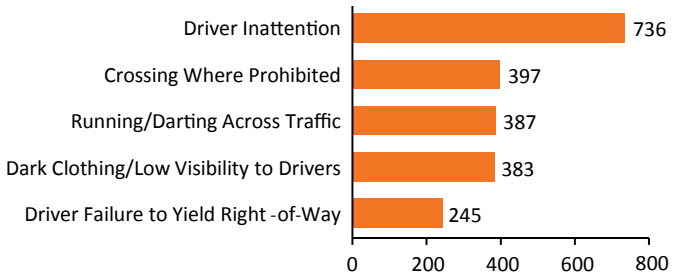



Figure 7: Most Frequently Cited Contributing Circumstances in Fatal and Severe Injury Pedestrian Crashes, 2006-2011

## Pre-Crash Action

Most, but not all, pedestrian and vehicle crash records include information on the pre-crash action by both the driver and pedestrian leading up to the crash, describing the situation that precipitated the crash.

In severe crashes, drivers were typically going straight ahead (73% of KSI crashes, 83% of fatalities). Figure 8 indicates the top four driver pre-crash actions in fatal and severe injury pedestrian crashes. Pedestrians were reported to be "crossing/jaywalking" in approximately one quarter of KSI and fatal crashes. Crossing at marked crosswalks (at intersection) and unmarked crosswalks (at intersection) were reported for 12% and 7%, respectively, of KSI crashes. This suggests the need for more education and enforcement of the state's Stop and Stay Stopped for Pedestrians law. Other than going straight ahead, the most frequent driver pre-crash action was making a left turn, which was cited in 6% of fatal crashes, 10% of KSI crashes, and 21% of all pedestrian crashes. This suggests the need for strategies to reduce conflicts between pedestrians and left-turning vehicles.

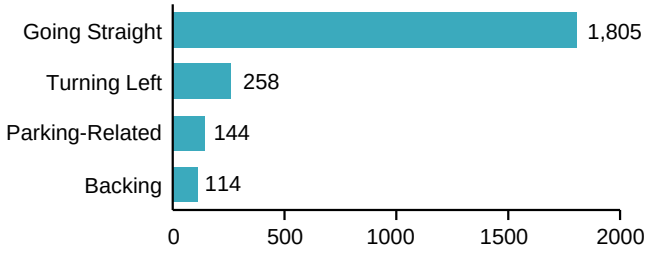



Figure 8: Top 4 Driver Pre-Crash Actions in Fatal and Severe Injury Pedestrian Crashes, 2006-2011

## Alcohol Involvement

Nationwide, alcohol use is a major factor among pedestrian crashes. National data from 2011 shows that 48% of pedestrian fatalities involved alcohol. In 35% of pedestrian fatalities nationwide, pedestrians had a blood alcohol concentration (BAC) of 0.08 grams per deciliter (g/dL) or higher, while drivers had a BAC of 0.08 g/dL or higher in 13% of fatalities. Six percent of fatalities involved alcohol use by both driver and pedestrian.[11]

In New Jersey, data on alcohol impairment in pedestrian crashes is inconclusive for both pedestrians and drivers. The crash records show that fewer than 1% of pedestrians and fewer than 2% of drivers in pedestrian crashes were tested for alcohol impairment. About one-third of drivers in fatal pedestrian crashes were tested, and less than 1% of these had a BAC of 0.08 g/dL or higher. This suggests that alcohol impairment may be less of a factor among drivers in New Jersey pedestrian crashes than it is nationally.

[11] National Highway Safety Administration, *2011 Pedestrian Traffic Safety Facts*, August 2013.

## At-Grade Railroad Crossings

In addition to roadways and pedestrian-vehicular crashes, at-grade rail crossings are another area of concern for pedestrian safety. Plan4Safety data captures only roadway crash data and does not include pedestrian-train crashes. However, the New Jersey Department of Transportation and New Jersey Transit completed a joint study in 2012, the **New Jersey Safety along Railroads Short-Term Action Plan**, which analyzed and documented pedestrian safety issues at railroad grade crossings. The study included a summary of 2010 and 2011 pedestrian-train crash data. During the two-year analysis period, there were 81 incidents involving NJ Transit trains and pedestrians at grade crossings or along the tracks, resulting in 51 fatalities. Of the fatalities, 30 were either accidental in nature or undetermined if they were accidental or intentional. Seven of the accidental or undetermined fatalities occurred at grade crossings while 23 occurred where the public is not permitted.

While the average annual number of pedestrian fatalities at grade crossings is significantly smaller than the average number of pedestrian fatalities throughout the roadway network, grade crossings represent critical nodes in the transportation network, where pedestrian safety enforcement and other countermeasures should be targeted.

# Chapter 3: Current Pedestrian Safety Initiatives in New Jersey

## Introduction

In order to provide a blueprint for actions to improve pedestrian safety in New Jersey, it is necessary to assess the status of current pedestrian safety programs and activities in the state. A number of New Jersey agencies are engaged in a variety of programs to improve pedestrian conditions. NJDOT and DHTS are lead agencies for many of these efforts. The majority of NJDOT's efforts are focused on physical improvements to the state highway system, as well as providing funding and technical resources to other jurisdictions. DHTS has focused primarily on educational and enforcement measures.

While the focus of this Plan is on state agencies, pedestrian safety has been an important part of other federal, local and private efforts. The following provides an overview of significant policies and programs related to pedestrian safety in New Jersey with a focus on NJDOT and DHTS. This list is a sampling of activities.

### Resources available through FHWA's Safety Office

FHWA's Safety Office has available extra resources for focus cities and focus states. Part of this effort has included development of How to Develop a Pedestrian Safety Action Plan, which helps state and local officials know where to begin to address pedestrian safety issues. In addition, FHWA offers free technical assistance and courses to each of the focus states and cities, and free bi-monthly webinars on subjects of interest. The document and webinars are available for free to other states as well. The training is available at a cost to non-focus states and cities through the Pedestrian and Bicycle Information Center (www.walkinginfo.org/training/ pbic/), and is also available through the National Highway Institute.

## New Jersey Department of Transportation (NJDOT)

For over a decade, NJDOT has worked to incorporate pedestrian safety into the Department's everyday project development activities and to encourage and support the efforts of others. While NJDOT's main focus is on engineering improvements, NJDOT and its partner agencies and organizations also have implemented education and enforcement programs as part of a holistic 5E (Engineering, Education, Encouragement, Enforcement and Evaluation) approach to improving pedestrian safety. There are several organizational units in the Department that play a lead role in implementing or funding programs that focus on pedestrian access and safety. Paramount among them are the ***Office of Bicycle and Pedestrian Programs (OBPP),*** the ***Bureau of Transportation Data and Safety (BTDS)*** and the ***Division of Local Aid and Economic Development and Local Aid (Local Aid).*** The pedestrian safety initiatives administered by these units are as follows:

### Office of Bicycle and Pedestrian Programs (OBPP)

- ***The Complete Streets Initiative*** effectively institutionalizes pedestrian safety considerations into everyday operations. To support implementation of the policy, NJDOT has updated each phase of its Capital Project Delivery Process to be consistent with Complete Streets principles; designated Office of Bicycle and Pedestrian Programs (OBPP) staff as Complete Streets Subject Matter Experts; developed a Complete Streets checklist to assist project engineers and consultants in developing and designing projects that are in compliance with the policy; and provided Complete Streets training and technical guidance to internal staff as well as local governments throughout New Jersey.
- ***The Safe Routes to School (SRTS)*** Program is administrated jointly by the SRTS Coordinator in NJDOT's OBPP and by the Division of Local Aid and Economic Development. Since 2005, NJDOT has overseen grant proposals and awarded over $19 million dollars to local communities to develop and implement infrastructure projects and non-infrastructure activities to encourage safe and more accessible environments to support children's mobility. In 2011 the non-infrastructure program was expanded to incorporate regional SRTS

coordinators through NJ's eight TMAs, overseen by the NJ SRTS Resource Center. Coordinators help communities develop School Travel Plans (STPs) in order to assess travel needs around their schools and identify appropriate solutions and projects for which to apply for grants. TMAs also focus on outreach and awareness through free safety lessons and encouragement activities at schools and municipalities across the state.

- ***The Pedestrian Safety Line Item*** was created out of the Governors Pedestrian Safety Initiative of 2006. This funding source is overseen by the OBPP and has provided funding for construction of pedestrian safety projects such as building 194,500 linear feet of sidewalks, hundreds of ADA curb ramps, pedestrian signals and signs, crosswalks and median refuges. To date, over $16 million has been spent on 146 projects to make New Jersey highways safer for pedestrians, bicyclists and transit users of all ages and abilities.
- ***The Local Bicycle and Pedestrian Planning Assistance Program***, administered by ***OBPP*** seeks to foster the development of non-motorized transportation modes by providing technical planning assistance to New Jersey communities. Since the program was established in 1998, NJDOT has worked with over 70 municipalities throughout the state to develop bicycle and pedestrian plans and studies. These studies help to identify a municipality's most significant pedestrian and bicycle issues and identify ways to fix them.
- ***Senior Mobility Workshops*** bring seniors and local officials, engineers, and planners together to discuss barriers to senior pedestrian mobility, and engineering methods available to improve walkability for seniors.

## Bureau of Transportation Data and Safety (BTDS)

- ***The Transportation Safety Resource Center (TSRC)*** was established by ***Center for Advanced Infrastructure and Transportation (CAIT)*** at Rutgers in 2003 in response to an acute need for implementation of federally mandated traffic safety measures. It was established to function as an extension of the NJDOT Division of Traffic Engineering and Safety (now the NJDOT ***Bureau of Transportation Data and Safety, BTDS***). The TSRC's primary mission is to provide ongoing safety analysis support and safety concept development services to the BTDS to improve the safety of New Jersey's roadway network. One BTDS-funded project undertaken and maintained by the TSRC is Plan4Safety, which allows users to search for crash incidents, analyze crash sites, and see crashes plotted on a GIS map. Plan4Safety relies on the crash record data collected by BTDS, which processes about 300,000 crash reports a year. The data is used by Plan4Safety to identify areas with the highest rates of pedestrian and intersection crashes. TSRC is working to incorporate a Pedestrian Management System in Plan4Safety.
- ***Pedestrian Safety Education Program***: With the approval of the Federal Highway Administration (FHWA), BTDS flexed 10 percent of its Highway Safety Improvement Program (HSIP) funds to establish a Pedestrian Safety Education Program. In 2013, with BTDS funding and oversight, the North Jersey Transportation Planning Authority (NJTPA) prepared and launched on behalf of the NJDOT a pedestrian safety pilot program known as "Street Smart." This public education and awareness campaign is a collaborative effort between public, private and non-profit organizations that urges motorists and pedestrians to check their "vital signs" to improve their safety on the road. While it could evolve into a statewide campaign, at present "Street Smart" is being piloted in five communities in the NJTPA region – Hackettstown, Jersey City, Long Beach Island, Newark, and Woodbridge.
- ***Intersection Safety Implementation Plan (ISIP)*** In cooperation with FHWA, the Bureau of Traffic Data and Safety in 2013 completed a plan, that establishes a new vision and approach to dealing with vehicular and pedestrian crashes resulting in fatalities and severe injuries. ISIP's findings and recommendations will influence the current update of the **Strategic Highway Safety Plan *(SHSP)*** which will establish new intersection safety goals.

- ***12 Months of Safety***: In 2011, FHWA named New Jersey an intersection "focus state" in addition to its being identified as a pedestrian focus state. This designation requires that public safety agencies dedicate special engineering, enforcement, and educational resources to reduce pedestrian and intersection crashes. BTDS produces ***12 Months of Safety*** brochures that cover the emphasis areas outlined in the 2007 **New Jersey Comprehensive Strategic Highway Safety Plan** ***(CSHSP)***. These are distributed to the public.
- The ***Pedestrian Safety Corridor Program***, successor to the ***Pedestrian Crash Reduction (at Intersections) Program,*** uses crash data to identify intersections and corridors on the state system with high pedestrian crash rates. These locations are then analyzed to identify potential contributing factors in the crashes and existing deficiencies and recommend improvements.
- ***The Pedestrian Safety Investigation Program (PSIP)*** addresses critical pedestrian hazards and issues on the state highway system. Coordinated by the OBPP, needs are identified based on requests from local stakeholders or documented safety issues. This program is to be expanded into a Rapid Response Program by which OBPP along with VTC and consultant support will investigate/analyze pedestrian fatality crash locations.

## Local Aid

- NJDOT provides support for the implementation of locally initiated pedestrian safety improvements through its ***State Funded Local Assistance Programs*** administered by the ***Division of Local Aid and Economic Development.*** State funded programs include formula funded programs (County Aid) and competitive grant programs such as Municipal Aid, Local Aid for Centers of Place, Local Aid Infrastructure Fund (Discretionary Funding), Bikeways, the Transit Village program and Safe Streets to Transit and Local Bridges/Future Needs. In addition, Local Aid assists New Jersey MPOs in administering the competitive federally funded Transportation Alternatives program. The competitive programs are typically oversubscribed, suggesting a need for additional funding.

## Complete Streets

Complete Streets are designed for everyone – all users, modes, and ability levels – balancing the needs of drivers, pedestrians, bicyclists, transit vehicles, emergency responders, and goods movement. New Jersey is a national leader in advancing the Complete Streets concept. Adopted in 2009, NJDOT's Complete Streets policy has been recognized as the strongest state policy in the nation for three straight years (2010-2012) by the National Complete Streets Coalition. Following NJDOT's lead, 6 counties and 88 municipalities have adopted their own Complete Streets policies (as of October 2013), which represents approximately 10% of all Complete Streets policies nationally. Following are examples of high-profile projects in New Jersey that feature Complete Streets elements:

- On New Jersey Route 27 in Woodbridge, NJDOT installed a pedestrian hybrid beacon (also known as a HAWK signal) to improve pedestrian safety across a busy four-lane roadway. Approximately 800 pedestrians use the innovative tool to access the Metropark NJ TRANSIT rail station.
- In Ocean City, NJDOT's Route 52 bridge replacement project is an example of synergy between local and state Complete Streets policies to create a more robust, complete network. The bridge project links Ocean City with its mainland neighbors and features a separated shared use path for pedestrians and bicyclists.
- A 0.8-mile stretch of Route 45 in Woodbury City, Gloucester County was converted from two travel lanes in each direction to a travel lane in each direction with a dual-use center left-turn lane and bike lanes. New parking was also provided on the outside of the roadway, where practical.

For more information, visit NJDOT Complete Streets Webpage - www.state.nj.us/transportation/eng/completestreets

# New Jersey Division of Highway Traffic Safety (DHTS)

The Division of Highway Traffic Safety (DHTS) is responsible for developing and implementing the New Jersey State Highway Safety Program, with the ultimate goal of moving toward zero fatalities. Using federal funding provided by the National Highway Traffic Safety Administration (NHTSA), DHTS administers the State and Community Highway Safety grants program (Section 402 program), which provides funding for a variety of state and local projects. These projects address the national priority areas of NHTSA and FHWA; included among the priority areas is pedestrian and bicycle safety.

DHTS produces annually the **New Jersey Highway Safety Plan** (HSP) to set performance goals and measures for reducing highway crashes and fatalities. The HSP is submitted to NHTSA and FHWA for approval of recommended activities and expenditures. The bulk of federal funding is devoted to enforcement activities. Major DHTS activities and programs that relate to pedestrian safety include the following.

- The ***Pedestrian Safety Enforcement (PSE) Program*** is the most frequently carried out enforcement detail oriented towards pedestrian safety in New Jersey. Also known as "Cops in Crosswalks," the statewide program evolved from a pilot program in 2007. Since then DHTS has provided technical assistance and training for the program. DHTS sponsors between 3-7 regional trainings each year, and PSE operations are included in the HSP and are an eligible activity for Section 402 funding.

PSE workshop. *Image: VTC*

## Stop and Stay Stopped Law

Effective since April 1, 2010, New Jersey law requires motorists to stop and stay stopped for pedestrians in marked crosswalks. This is an enhancement over the previous "yield for pedestrians" law. Roll-out of the new law was accompanied by several educational campaigns to make motorists and pedestrians aware of the new law and to train law enforcement officers. Oversized palm cards summarizing the changes in the law were distributed through local police departments, driver education courses, and online. The law was also detailed in the New Jersey Driver Manual and public service announcements. For more visit, www.nj.gov/lps/hts/pedestrian.html.


*Image: DHTS*

- DHTS and NJDOT jointly funded the development of the ***New Jersey Crossing Guard Training Program*** and support resources for police departments. The program was piloted at three locations statewide in 2013 and will be offered in additional locations in 2014.
- DHTS periodically offers a specialty course on ***Pedestrian/Bicycle Crash Investigation***. Taught by members of the Institute of Police Technology and Management, the courses are funded through a grant program administered by the DHTS. There is no charge or fees to students.
- DHTS funded the development of the ***Traffic Safety Learning Progression Component*** for pre-kindergarten through grade twelve including lessons on bicycle, pedestrian, and traffic safety. Note: This curriculum should be

further investigated to determine its suitability for implementation in schools. A review by experienced bicycle and pedestrian trainers is recommended.

- ***"Operation 130 Safe Passage"*** is a multi-jurisdictional enforcement operation to make Route 130 in Burlington County safer for pedestrians funded by DHTS. The county and municipal law enforcement agencies that patrol Route 130 are participating in the effort and have signed shared services agreements, which allow them to cross jurisdictions to enforce traffic laws.

## Pedestrian Safety Initiatives by Other State Agencies

- The ***New Jersey Motor Vehicle Commission (MVC)*** has enhanced the NJ Driver Manual's pedestrian safety information so that it more clearly and forcefully emphasizes the responsibilities of both motorists and pedestrians. In addition, the MVC has incorporated pedestrian safety laws into the New Jersey driver examination through the development of test criteria to evaluate driver knowledge of New Jersey's pedestrian safety laws.
- ***NJ TRANSIT*** implements multiple rail safety initiatives to reduce pedestrian accidents and fatalities around the rail system. Efforts include providing public service announcements that feature first-hand accounts of railroad fatalities, offering a free school safety program on pedestrian and rail safety, and conducting enforcement at high-risk locations to prevent pedestrians from ducking under crossing gates or disregarding other warning signs. NJ Transit is also funding a study to develop a model for assessing needs and opportunities for improving safe bicycle and pedestrian access to rail stations.
- The ***Office of Nutrition & Fitness (ONF) at the Department of Health (DOH)*** coordinates ShapingNJ, a public-private partnership of more than 200 organizations across New Jersey working to "make the healthy choice, the easy choice" for all residents. In 2012, ShapingNJ provided grants to 18 communities including an initiative to plan a pedestrian-friendly downtown.
- To provide an on-going education program, the ***New Jersey Department of Education***, developed the New Jersey Core Curriculum Content Standards, for Comprehensive Health and Physical Education, which now includes a Traffic Safety Learning Progression Component for pre-kindergarten through grade twelve.

### New Jersey Safety along Railroads Short-Term Action Plan

In 2012, NJDOT and NJ TRANSIT undertook a joint study to develop a comprehensive approach to improving pedestrian safety at rail crossings in response to a series of fatal incidents. The development of the plan involved a group of experts from transit, traffic, police, and education agencies at the federal and state level to evaluate potential engineering, education, and enforcement tools. The plan resulted in a series of short-term action items to improve pedestrian safety including:

- gate skirts at Aberdeen-Matawan Station, which create an additional barrier below a grade-crossing gate to deter pedestrians from "ducking" under,
- rotating variable message signs (VMS) among high-risk grade-crossing locations to remind pedestrians of the importance of obeying warning and safety devices, and
- the "Another Train Coming" warning system, which is designed to provide an additional warning to pedestrians to remain behind the crossing gates even after the one train they may be aware of has left the station.


Pedestrian gate with "gate skirt" being tested at the Aberdeen-Matawan Train Station. *Image: The RBA Group*

## Rutgers Center for Advanced Infrastructure and Transportation (CAIT)

CAIT is a Tier I University Transportation Center, part of a consortium of academic research institutions sanctioned and supported by the Research and Innovative Technology Administration (RITA) of the U.S. Department of Transportation (USDOT). With funding provided by the NJDOT through the BTDS, CAIT has pursued research and developed programs related to pedestrian safety in New Jersey which includes the following:

- ***Plan4Safety***, a web-based platform for querying, analyzing, and displaying query results from NJDOT's crash database. Plan4Safety assists engineers and planners in identifying problem locations and trends, which can then be targeted with enforcement and/or engineering improvements.
- The ***Transportation Safety Resource Center (TSRC)*** serves state and local transportation agencies by providing products, technical assistance, training, and engineering services. The support TSRC offers can take many forms such as technical assistance that includes traffic engineering services, training users of the Plan4Safety, recommending alternative solutions that include low-cost "quick fix" options for traffic safety, and identifying high-crash locations and evaluating countermeasures to reduce crash frequency and/or severity.
- The ***Police Technical Assistance Program (PTAP)*** initiatives included conducting assessments, providing technical support with regard to the revision of the New Jersey crash report form, and development of a knowledge-based training curriculum to target and reduce reporting errors.
- The ***NJ Local Technical Assistance Program (LTAP)*** offers no-cost technical assistance and support to local agencies through materials distribution, newsletters, and training opportunities. NJ LTAP also works with CAIT's TSRC to provide Road Safety Audits/Assessments to support municipalities and counties undertaking safety improvement projects. Supported by FHWA and NJDOT, the program also serves as a conduit between NJDOT and the transportation community through marketing and coordinating technology transfer services from the NJDOT Research Bureau.

## Voorhees Transportation Center (VTC) at Rutgers University

Located within the Edward J. Bloustein School of Planning and Public Policy at Rutgers, VTC's primary activities include a blend of applied and academic research, education and training, and service to the state and region on a variety of transportation planning and policy topics. Programs and activities related to pedestrian safety include the following:

- In 2000, NJDOT established the ***New Jersey Bicycle & Pedestrian Resource Center (NJBPRC)*** at VTC to help local elected officials, decision-makers and transportation professionals understand the needs of bicyclists and pedestrians, and how to address those needs. Renewed annually at VTC since 2000, the Resource Center specializes in four project areas: Information Clearing House, Technical Information Resource, Education, and Technical Research. The NJBPRC fills an intermediary role between state, county, and local agencies in improving the state's bicycle and pedestrian environment.
- NJBPRC coordinates quarterly meetings of the ***NJ Bicycle and Pedestrian Advisory Council (BPAC)***, a group of bicycle and pedestrian professionals that includes agency representatives and advocates. Their mission involves providing advice and guidance (primarily to NJDOT) on matters pertaining to bicycle and pedestrian issues.
- ***New Jersey Ambassadors in Motion (NJAIM)*** are the NJBPRC's public outreach team. The team consists of adult ambassadors trained to educate and conduct outreach to bicyclists, pedestrians, and motorists to promote safety and active transportation throughout the state of New Jersey.

The New Jersey Ambassadors in Motion. *Image: VTC*

- ***New Jersey's Safe Routes to School Resource Center (NJ SRTSRC)*** at VTC works with NJDOT to support implementation of the SRTS Program, including assisting schools and communities with education, encouragement, enforcement, evaluation, planning and other non-infrastructure related SRTS activities. The ***NJ SRTSRC*** provides primary research, education, dissemination of best practices, training and a statewide crossing guard program while maintaining a website with tools, tips and policies that can be implemented at local and regional levels. The Center is supported by NJDOT through funds provided by FHWA.
- ***The New Jersey Safe Routes to School Coalition*** is an advisory group to the statewide Safe Routes to School program. The Coalition combines efforts from the statewide technical assistance initiatives (NJDOT/VTC/TMAs) and the National Safe Routes to School Partnership NJ Network.
- The ***New Jersey Travel Independence Program (NJTIP)*** is a not-for-profit organization dedicated to increasing the independence and self-sufficiency of people with disabilities, the elderly and other transportation-disadvantaged populations through training on how to use existing public transit services safely and independently. This program merged with VTC in 2013.

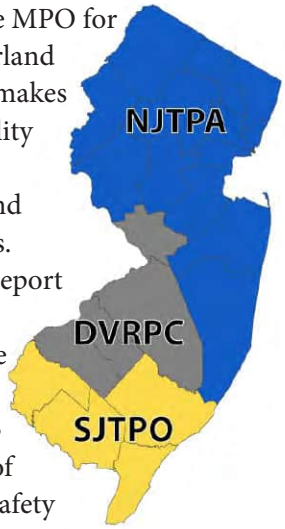
## Metropolitan Planning Organizations (MPOs)

The state's three Metropolitan Planning Organizations (MPOs) are also active in identifying pedestrian needs and improvement projects.

- ***North Jersey Transportation Planning Authority (NJTPA)*** is the MPO for Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren counties and Jersey City and Newark. One of NJTPA's goals is to make walking and biking convenient, safe, efficient, and attractive as viable alternatives to cars for shorter trips. Much of this commitment is made through direct investment in bicycle and pedestrian facilities. The NJTPA's Regional Capital Investment Strategy (RCIS) calls for allocating 1.25 percent of available funds to build and redesign facilities for walking and biking. Other programs and initiatives related to pedestrian safety include:
  - Overseeing the contract for developing, piloting and evaluating a statewide pedestrian safety education campaign that allows for customization based on the unique characteristics of the NJTPA region. Implementation began in late fall of 2013.
  - Hosting more than 20 Walkable Community Workshops.
  - Development of a Bus Stop Safety Toolbox brochure to highlight engineering and policy recommendations to improve pedestrian safety.
- ***Delaware Valley Regional Planning Commission (DVRPC)*** is the MPO for Burlington, Camden, Gloucester, and Mercer counties. Pedestrian planning and the consideration of pedestrian needs are integral elements of nearly all of DVRPC's planning activities. Ensuring pedestrian safety is one of seven key emphasis areas identified in the DVRPC **Safety Action Plan**, which was developed with, and endorsed by, DVRPC's Regional Safety Task Force. DVRPC supports local pedestrian

planning efforts through collecting pedestrian counts on roadways and trails throughout the region using infrared equipment, Road Safety Audits, and the identification of emerging national and international best practices that may be appropriate for the region.

- ***South Jersey Transportation Planning Organization (SJTPO)*** is the MPO for Atlantic, Cape May, Cumberland and Salem counties. SJTPO makes bicycle and pedestrian mobility and safety a high priority by planning future initiatives and conducting safety campaigns. SJTPO has also produced a report that presents statistics for pedestrians in crashes for the South Jersey region for the seven-year period from 2003 through 2009. The purpose of the report is to assist in the safety issue prioritization process. In 1998, in partnership with DHTS, the SJTPO formed the South Jersey Traffic Safety Alliance (SJTSA). The primary objective of the Alliance is to assist all county and municipal agencies and organizations with problem assessment, the development, implementation, and evaluation of educational programs, enforcement programs, and engineering projects, as well as to provide general assistance with traffic and pedestrian safety.




## Transportation Management Associations (TMAs)

TMAs are private, non-profit, member-controlled organizations established to work with employers and governments to help provide effective and efficient commuting and other transportation options. There are eight TMAs currently operating in New Jersey. Each TMA has an SRTS Regional Coordinator that can assist schools with events, education, travel plans and surveys. In addition to supporting SRTS initiatives, several of the TMAs provide pedestrian education and programming assistance. Hunterdon Area Rural Transit TMA, for example, offers presentations to encourage senior citizens to walk regularly and to avoid issues that might otherwise deter walking. Cross County Connection TMA performs field safety audits in areas of demonstrated pedestrian safety concerns. Several TMAs also offer education materials to encourage safe walking.

## Counties and Municipalities

Activities pertaining to pedestrian safety enforcement, education and emergency medical services are primarily local functions. Dozens of municipalities have taken of advantage of technical planning assistance provided by NJDOT to address local needs and desires pertaining to safely accommodating pedestrian and bicycle travel in their communities. Hundreds of municipalities and counties have been recipients of federal and state funds through competitive grant programs administered by NJDOT that provide funding for projects that address pedestrian access and safety. Many others have been recipients of federal Section 402 funds administered by DHTS to implement enforcement and educational programs affecting pedestrian safety.

## Advocacy Groups

Multiple advocacy groups in New Jersey have also had a role in promoting and advancing pedestrian safety policies and programs. Examples include:

- The ***New Jersey Bike & Walk Coalition***, a statewide advocacy organization dedicated to protecting the rights and safety of New Jersey bicyclists and pedestrians through education and promotion.
- The ***Tri-State Transportation Campaign (TSTC)***, a non-profit organization dedicated to reducing car dependency in New York, New Jersey, and Connecticut through enhancing pedestrian safety. TSTC works to accomplish transportation reform, including improvements in pedestrian safety, through a combination of community and campaign organizing, technical analysis, and media and legal advocacy. In 2011, in conjunction with AARP, TSTC organized surveys of intersections along U.S. 40/322 in Atlantic County with residents and public officials to brainstorm pedestrian safety improvements.

- ***New Jersey Future***, a nonprofit, nonpartisan organization that promotes responsible land-use policies. The organization employs original research, analysis and advocacy to build coalitions and drive land-use policies. They are an advocate for Complete Streets, ensuring that roadways are designed and operated to enable safe access for pedestrians, bikes and the disabled, not just cars.

## Private Sector Programs

There are various private foundations and non-profit organizations engaged in promoting pedestrian safety in New Jersey. The following highlights a few of these efforts.

- The ***Robert Wood Johnson Foundation (RWJF)***, headquartered in New Jersey, is actively involved in promoting walking (and by extension pedestrian safety) in conjunction with several of their public health initiatives, such as childhood obesity. New Jersey is also one of seven states participating in the Safe Routes to School State Network Project run by the SRTS National Partnership and funded by RWJF.
- The ***American Association for Retired Persons (AARP)*** promotes pedestrian safety and has been a proponent of Complete Streets policy adoption and implementation. AARP has produced their own video to convey the principles of Complete Streets in New Jersey.
- The ***AAA Foundation*** conducts research that addresses specific questions and generates recommendations for preventing crashes, injuries, and deaths on our roads. They also work with local law enforcement and schools on education.
- The ***Brain Injury Alliance of New Jersey (BIANJ)*** works to advance its transportation safety message through the creation of the following transportation safety websites - ugotbrains.com, njteendriviing.com, njdrivereducation.com, and brainybunch.info.
- ***Operation Lifesaver, Inc.*** is a national safety education group whose goal is to eliminate deaths and injuries at railroad crossings and along railroad rights of way. The coordinator for New Jersey is housed in NJDOT.
- The ***Pedestrian Injury Prevention Partnership (PIPP)*** within the New Jersey Trauma Center at UMDNJ, a community coalition formed to address the unusually high incidence of motor vehicle-child crashes within the city of Newark. The PIPP addresses all aspects of the E's of pedestrian Safety. It is supported by grant funding from American Public Health Association's Public Health Traffic Safety Institute, the NJ Department of Human Services and the NJ Division of Highway Traffic Safety.
- ***Safe Kids NJ***, funded by Johnson and Johnson, participates in Walk to School Day and safety events across New Jersey.

## Professional Organizations

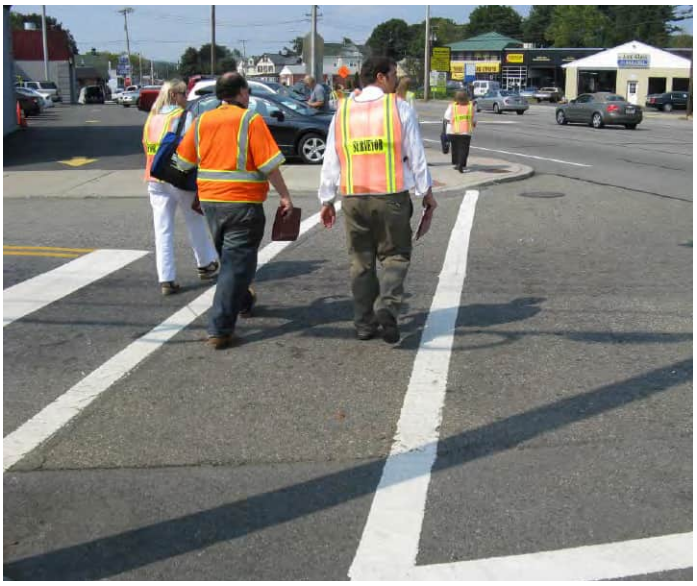
Professional organizations in New Jersey helping to promote safety and walkability in various ways include, but are not limited to, the New Jersey Chapter of the American Planning Association (NJ-APA), New Jersey Police Traffic Officers Association (NJPTOA), Association of New Jersey Environmental Commissions (ANJEC), Institute of Transportation Engineers (ITE), American Society of Civil Engineers (ASCE), American Society of Landscape Architects (ASLA), and the NJ County and Municipal Traffic Engineer's Association.

# Chapter 4: Assessment

## Introduction

As the previous chapter showed, a wealth of programs and initiatives are currently underway in New Jersey on behalf of pedestrian mobility and safety. Major strides in policies and programs have been made since the previous plan was published in 2005, from the widespread influence of Complete Streets and Safe Routes to School initiatives to the legislative achievement of the Stop and Stay Stopped Law. Yet the incidence of pedestrian fatalities and injuries remains troubling. While today's programs have undoubtedly saved lives and are of broad benefit to the state's pedestrians, they are ***still not sufficiently focused*** to achieve systematic reductions in pedestrian deaths and injuries. This was a finding of the 2005 Plan and it remains true today.

A more focused, coordinated and strategic approach will be needed to meet this Plan's target of reducing pedestrian fatalities and severe injuries by 20 percent in five years. The new approach will need to focus more attention on ***changing the behavior of adult pedestrians and drivers with an emphasis on both driver and pedestrian inattention, speeding, and jaywalking. It will also mean systematically modifying roadway conditions that present hazards to pedestrians***, such as: a lack of illumination in pedestrian zones; a lack of protection and visibility at crosswalks–particularly those that are unsignalized; overly long distances between pedestrian crossings of arterial roadways; poor pedestrian conditions near transit stops, missing sidewalks along routes used by pedestrians, and a lack of ADA accommodations.



Road Safety Audits are an example of technical assistance provided to local governments by NJDOT.
*Image: The RBA Group*

Given New Jersey's unique combination of dense, but auto-oriented land use patterns, and its high levels of walking and transit use, pedestrians will continue to be exposed to conflicts with automobile traffic for the foreseeable future. While this Plan cannot eliminate these conflicts, a strategic and coordinated effort can reshape both behavior and the physical environment with a positive safety outcome.

## Key Accomplishments since the 2005 Plan

Since the 2005 Plan was published, NJDOT and many other entities across the state have been steadily working to improve conditions for the state's pedestrians. Of 119 recommendations in that Plan, over half have been either carried out, partially addressed, or are ongoing. In addition to the adoption of NJDOT's Complete Streets Policy, passage of the Stop and Stay Stopped Law, and continued support for Safe Routes to Schools, other key accomplishments include:

- An improved driver's manual and exam that incorporate more comprehensive information about pedestrian safety;
- Development and dissemination of the Pedestrian Safety Enforcement (PSE) program and associated officer training;
- Major improvements in pedestrian crash data and reporting, including the development of the Plan4 Safety database, improved police reporting procedures, and a system for daily reporting of pedestrian crash data to OBPP staff;
- Ongoing technical guidance, training, and planning support for local governments; and
- Increased staffing levels at the OBPP to allow for ramping-up of efforts.

In addition, in its efforts to address hazardous pedestrian locations, NJDOT has successfully transitioned from an intersection-focused approach, in which engineering countermeasures were developed for individual high-hazard intersections, to a more comprehensive, corridor-based 3E approach. This was a key recommendation of the 2005 Plan, consistent with FHWA guidance. This change occurred early in the Governor's Pedestrian Safety Initiative with the development of the Pedestrian Safe Corridors program and has continued.

Recommendations in the 2005 Plan called for a statewide senior pedestrian safety program and a statewide approach to pedestrian risk reduction at major transit facilities. These recommendations have been partially addressed, with the initiation of Senior Mobility Workshops, the Safe Routes to Transit program and rail crossing safety initiatives. However, expanded efforts will be required to fully address the needs of senior pedestrians and to provide safer pedestrian access to bus stops and rail stations throughout the state.


A Senior Mobility Workshop in Manchester Township, Ocean County, NJ. *Image: The RBA Group*

A Safe Streets to Transit grant was used to make sidewalk improvements in Hoboken. *Image: Will Sherman - Cityphile*

Accomplishments have also been made in the areas of project planning, programming and development, notably through the implementation of the Complete Streets Policy at NJDOT. For example, the 2005 Plan recommended that future pedestrian demand be considered when determining the need for sidewalks in highway projects. With the Complete Streets Policy in place, the lack of current pedestrian activity is no longer an acceptable reason to defer sidewalk construction.

Other achievements include improved roadway design policies and standards, including the promotion of fluorescent yellow-green crosswalk signs (now standard), the use of a slower assumed walking speed in establishing signal timings in areas with senior pedestrians (now a MUTCD standard), and more systematic implementation of ADA guidelines. NJDOT is also experimenting with the use of new technologies to protect pedestrians, including the Pedestrian Hybrid Beacon (HAWK signal).

Beyond these measures, NJDOT and its partner organizations continue to support a variety of long-range initiatives that have the potential to bring about greater walkability in New Jersey's cities and towns over time. These include policies and programs to promote compact, mixed-use development and better integration of local land use and transportation planning. Several research and development efforts have also occurred during this period with a significant potential for future payoff. These include NJTPA's study of pedestrian safety at bus stops and its current initiative to develop, pilot and evaluate a model statewide pedestrian safety campaign.

# Needs and Opportunities

The review of current programs, pedestrian crash data, and the literature review and practice scan conducted for this Plan point to areas of strength as well as opportunities for improvement. Considering the array of activities described in Chapter 3 as a loosely organized "system" for combating pedestrian deaths and injuries, clear strengths include the Complete Streets Initiative, a strong legislative foundation in the Stop and Stay Stopped Law, and a strong tradition at NJDOT and DHTS of providing pedestrian-focused technical, planning, training and enforcement assistance to local governments. Gaps in current programs include the lack of a statewide communications campaign and the need for a more systematic application of engineering countermeasures to reduce pedestrian hazards on the state's roadways. These include an array of countermeasures designed to improve midblock crossing locations and provide better illumination of pedestrian networks. There is also a clear need for improved communication and coordination among the many entities involved in pedestrian safety.

## Statewide Communications Campaign

A major gap evident in New Jersey is the lack of a sustained, visible, statewide communications campaign on pedestrian safety. While some counties, municipalities and private sector organizations offer pedestrian safety education programs, these small-scale efforts are insufficient to bring about the major change in awareness and behavior needed to reduce pedestrian deaths and injuries. More comprehensive, sophisticated programs are needed that target drivers and at-risk adult pedestrians–some of whom have limited literacy in any language–using the communication channels and messaging appropriate for each target audience.


An ad from the Spring 2013 StreetSmart Campaign in metropolitan Washington, D.C.

Proven models for this type of program include the StreetSmart Campaign in use in metropolitan Washington, D.C. since 2003, among others. This annual campaign includes radio, newspaper and posters on buses and at bus shelters in English and Spanish as well as social media messaging. The media campaign is accompanied by increased local enforcement, and it has led to a sustained increase in pedestrian safety awareness. The collaborative initiative being led by NJTPA to develop a similar campaign for New Jersey is very promising. Since adult behaviors are entrenched and take time to change, it will be critical to develop long-term support and funding for this or similar behavioral campaigns, as well as the ability to track increases in public awareness and compliance through data collection.


Billboard developed as part of the Street Smart NJ education campaign coordinated by NJTPA.

## Motor Vehicle Commission Role in Driver Communications

The Motor Vehicle Commission's extensive contact with the driving public provides an obvious opportunity to educate drivers on pedestrian rights. This is particularly important given the finding that most drivers in severe and fatal pedestrian crashes are age 25 or older–well beyond the reach of school-based driver education or the initial driver's examination process. These drivers come into contact with MVC through registration, inspection and license renewal. Those are opportunities to deliver messaging about safe driving when pedestrians are present, which could include videos played at MVC facilities where patrons are a captive audience, quizzes or interactive tutorials provided on the MVC website, and notices inserted in registration renewal mailings. At MVC vehicle inspection centers, a pedestrian safety information card could also be handed out to each motorist entering the inspection line. Similar methods have been effective with the Click-it-or-Ticket program.

## Systematic Use of Engineering Countermeasures

NJDOT and many jurisdictions in New Jersey have made strides in applying engineering countermeasures to reduce pedestrian hazards at specific locations. Due to Complete Streets policies, many roadways around the state are being retrofitted with sidewalks, crosswalks and other facilities that reduce walking hazards. However, a more systematic effort is needed to apply known, cost-effective countermeasures proactively to address categories of risk across the roadway system and across jurisdictions. This will require enhancements to NJDOT's project programming process, including the development of a Pedestrian Safety Management System and methodologies for documenting systemic categories of risk. It will also require technical assistance to local jurisdictions on best practices for choosing and applying pedestrian countermeasures. NJDOT should continue to encourage all New Jersey counties and municipalities to adopt and implement their own Complete Streets policies.

Knowledge about best practices for reducing pedestrian hazards has evolved in recent years. FHWA encourages consideration of a set of nine research-proven countermeasures. Three of these nine are especially relevant to pedestrian safety in New Jersey: medians and pedestrian crossing islands in urban and suburban areas, pedestrian hybrid beacons, and road diets. Information on FHWA's proven safety countermeasures is available at http://safety.fhwa.dot.gov/provencountermeasures/index.htm.

Center crossing islands allow pedestrians to deal with only one direction of traffic at a time. *Image: pedbikeimages.org - Lyubov Zuyeva (2011)*


NJDOT installed a pedestrian hybrid beacon, or HAWK signal, at Route 27 in Woodbridge near the Metropark Rail Station. *Image: NJDOT*

A more extensive set of sixty-seven pedestrian-related countermeasures, many of which have also been proven effective in research, are described in FHWA's Pedestrian Safety Guide and Countermeasure Selection System, which has recently been updated. A complete list of these is provided in Table 4. More information on each, including case studies of their use and typical costs, as well as an online countermeasure selection tool is available at www. pedbikesafe.org/PEDSAFE/.

Engineering countermeasures that address mid-block crossings and pedestrian illumination are especially important to this Plan, given that the great majority of New Jersey's pedestrian fatalities and severe injuries occur in the dark and away from intersections. The toolbox accompanying this Plan provides information on pedestrian illumination and mid-block crossing countermeasures. It also includes information on countermeasures for intersections, transit access, education, enforcement, and local assessment tools such as road safety audits.

Other important countermeasures to be considered in appropriate situations include adding sidewalks, walkways or paved shoulders, and the use of separate left-turn phasing and leading pedestrian intervals at intersections where warranted. Left- turn phasing has been found to reduce crashes between left-turning motorists and pedestrians as well as reducing vehicular crashes with through-moving vehicles. Paved shoulders are effective in reducing both "walking along road" pedestrian crashes and vehicle run-off-road crashes.

Table 3: Pedestrian Safety Countermeasures

| | | |
|---|---|---|
| **Along the Roadway** | | |
| • Sidewalks, Walkways and Paved Shoulders | • Street Furniture/Walking Environment | |
| **At Crossing Locations** | | |
| • Curb Ramps | • Parking Restrictions | • Lighting and Illumination |
| • Curb Extensions | • Automated Pedestrian Detection | • Advance Yield/Stop Lines |
| • Marked Crosswalks and Enhancements | • Pedestrian Overpasses/ Underpasses | • Raised Pedestrian Crossings |
| • Crossing Islands | • Leading Pedestrian Interval | |
| **Transit** | | |
| • Transit Stop Improvements | • Bus Bulb Outs | • Access to Transit |
| **Roadway Design** | | |
| • Bicycle Lanes | • Raised Medians | • Driveway Improvements |
| • Lane Narrowing | • One-way/Two-way Street Conversions | • Improved Right-Turn Slip-Lane Design |
| • Lane Reduction (Road Diet) | | |
| **Intersection Design** | | |
| • Roundabouts | • Curb Radius Reduction | • Modified T-Intersections |
| • Intersection Median Barriers | • Modify Skewed Intersections | • Pedestrian Accommodations at Complex Interchanges |
| **Traffic Calming** | | |
| • Temporary Installations | • Speed Tables | • Speed Humps |
| • Chokers | • Gateways | • Mini-Circles |
| • Chicanes | • Landscaping | • Specific Paving Treatments |
| • Serpentine Design | • Specific Paving Treatments | |
| **Traffic Management** | | |
| • Diverters | • Full and Partial Street Closures | • Left Turn Prohibitions |
| **Signals and Signs** | | |
| • Left Turn Phasing | • Pedestrian Signals | • Push Buttons & Signal Timing |
| • Pedestrian Hybrid Beacon (PHB) | • Puffin Crossing | • Right-Turn-on-Red Restrictions |
| • Rectangular Rapid Flash Beacon (RRFB) | • Advanced Stop Lines at Traffic Signals | • Signing |
| **Other Measures** | | |
| • School Zone Improvement | • Automated Enforcement Systems | • Neighborhood Identity |
| • Pedestrian Streets/Malls | • Speed-Monitoring | • Work Zones - Pedestrian Detours |
| • On-Street Parking Enhancements | • Shared Streets | • Pedestrian/Driver Education |
| • Pedestrian Safety at Railroad Crossings | • Police Enforcement | • Streetcar Planning and Design |

Source: FHWA Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE), 2013

## Protected Pedestrian Crossings at Non- Intersection Locations

Most of New Jersey's serious pedestrian crashes occur away from intersections. While NJDOT has made progress in moving from an approach focused on fixing individual intersections to a corridor-based approach to pedestrian safety, there is still relatively little emphasis on developing effective, protected crossings at non-signalized or midblock locations on the state highway system. There remains a lack of awareness throughout New Jersey jurisdictions of the importance of this issue, and a tendency to "blame the victim" by assuming that when pedestrians are hit in a non-intersection location they must be either jaywalking or intoxicated.

Jaywalking behavior, walking under the influence of alcohol or other substances and distracted walking certainly account for some pedestrian fatalities and injuries, but others can be attributed to the lack of adequate crossings at many bus stops and the absence of a pedestrian network connecting nearby pedestrian generators such as apartments, schools and commercial centers. A more systematic approach is needed to create these missing links for pedestrians and thereby reduce conflicts with vehicles.

These lights illuminate both the roadway and the sidewalk. This type of lighting contributes to a sense of safety, and a walkable environment, even in the evenings or early morning.
*Image: www.pedbikeimages.org / Ron Bloomquist*

Potential engineering countermeasures for midblock crossing locations include:

- Installing crossing islands (one of the most effective techniques available for improving pedestrian safety on multi-lane roads),
- Providing better illumination of existing crosswalks,
- Traffic Calming to reduce speeds as drivers approach non-signalized crosswalks,
- Pedestrian Hybrid Beacons (PHBs), also known as HAWK signals,
- Rectangular Rapid Flashing Beacons (RRFBs),
- Parking Restrictions at crossing locations,
- Curb Extensions,
- Curb Ramps,
- Raised Pedestrian Crossings,
- Signing,
- Automated Pedestrian Detection, and
- Pedestrian Overpasses/Underpasses.

At the corridor scale, placing protected crosswalks at more frequent intervals can help to reduce jaywalking and increase safety. Where appropriate, lane reduction (road diets) can also help foster safer crossing conditions along a corridor. Non-engineering countermeasures, including police enforcement and pedestrian/driver education, are also important for effective mid-block crossings.

## Pedestrian-Oriented Lighting

Since most fatal and severe pedestrian crashes occur in the dark, strategies are needed to create better illumination of pedestrian networks, particularly crosswalks. Intersection lighting is often designed for drivers and fails to make pedestrians visible in crosswalks. Lighting is also inadequate at many midblock crosswalks, further contributing to the lack of protection at these crossings. A systematic approach should be developed to identify priorities for improved lighting on major roadways. In addition, as recommended in the 2005 Plan, technical guidance should be developed for municipalities on the design and placement of pedestrian-oriented lighting on local roads.

## Management and Governance Structures

It is apparent that New Jersey has made and is making a serious, committed effort to address pedestrian safety problems. Numerous state and regional governmental entities and non-governmental organizations have devoted time, energy and resources to programs and projects intended to address pedestrian safety and reduce crashes, injuries and fatalities.

What is missing is a lack of clarity and communication among the various parties about the activities they are pursuing. There has been a lack of a clear understanding or awareness of the scope and nature of each other's' efforts, where each fits in, and how their efforts contribute to the tapestry that is a comprehensive array of engineering and programmatic responses to the problem. Consequently, efforts are fragmented and there has not been a concerted, coordinated effort to ensure that work is not duplicated, resources are used efficiently, and all reasonable options and approaches are pursued. In addition, benchmarks to gauge accomplishments, including goals, performance measures and targets, have not been established for many of the activities being undertaken. Consequently it is difficult to measure the success and accomplishments of these efforts.

What is missing and needed is:

- A mechanism for communication, coordination, and exchange among all levels of government (state, regional, county, and local) as well as the various organizations that are engaged in pedestrian safety projects and programs;
- A better understanding among all involved of what each is doing, to foster collaboration, sharing of resources and expansion of potential audiences;
- Documentation of the goals, actions, performance measures and targets for each entity/ program engaged in pedestrian safety activities;
- Regular and rigorous evaluation to gauge program successes and accomplishments and identify the need for adjustments; and
- Assignment of responsibility to specific agencies for taking the lead in carrying out the actions recommended in this Plan, and for evaluating accomplishments and successes and recommending new efforts or adjustments, to ensure the achievement of the Plan's mission and goals.

In addition to improved coordination among the institutions involved in pedestrian safety, there is a need for a more strategic, integrated approach to the management of pedestrian safety functions within NJDOT. Internal functions related to pedestrian safety are currently relatively fragmented, with a lack of clear communication among the groups responsible for different aspects of the issue. For example:

- While the Complete Streets Policy has been effective in getting pedestrian facilities incorporated into capital improvement projects that go through the formal project development process, a clearer process is needed for simpler projects handled under NJDOT's Limited Scope project delivery process. Limited Scope projects, such as pavement resurfacing, simple intersection improvements and bridge deck replacements, can play a key role in improving pedestrian safety and implementing Complete Streets. This will require a better definition of Limited Scope projects and how they relate to Complete Streets.
- NJDOT is working on a methodology for developing pedestrian safety projects utilizing Highway Safety Improvement Program (HSIP) funds, which would require a coordinated effort among the relevant units.

## Summary of Needs

With the publication of this Plan, NJDOT and its partner agencies and organizations are in a position to capitalize on the accomplishments of recent years and take the next steps to better manage pedestrian risks.

- Greatly improved pedestrian crash data and reporting provide the basis for more systematic investments in pedestrian infrastructure. Funding that is already available through the Highway Safety Improvement Program can now be targeted to the remediation of specific conditions that put pedestrians at risk on the corridors where those conditions are present, such as wide arterial roadways in areas with pedestrian trip generators or the absence of pedestrian-focused lighting at crosswalks. This Plan can help inform the development of the forthcoming **Strategic Highway Safety Plan** (SHSP) update to ensure that a data-driven program of pedestrian improvements is incorporated in the SHSP.
- DHTS has been highly successful in promoting implementation of the Pedestrian Safety Enforcement (PSE) program at the municipal level. However, research shows that enforcement campaigns work best when accompanied by media-based awareness campaigns. NJTPA's initiative to develop a statewide pedestrian safety campaign would complement the PSE, creating the increased awareness necessary to change the behavior of drivers and adult pedestrians. Incorporating the MVC into a statewide communications campaign could help reach more drivers.
- Much foundational work has been done to create a safer future for pedestrians in New Jersey. By changing the culture and institutional practices at all levels of government, the Complete Streets Initiative has the potential to transform the environment for pedestrians in numerous communities. Similarly, the Safe Routes to Schools program helps to influence the awareness and behavior of students, parents, teachers, and other community members.
- The high level of interest and participation by the inter-agency Steering Committee formed to guide the development of this Plan is a promising start. A forum for continued collaboration would be useful in facilitating both implementation and evaluation of the Plan's proposed actions, while promoting wider recognition of NJDOTs achievements in fulfilling its mission.

## What will it take?

What will it take to reduce the number of pedestrian fatalities and serious injuries by 20 percent in five years? Considering only the fatalities, a 20 percent reduction means preventing 28 pedestrian fatalities each year to bring the number down from 141 to no more than 113 per year.

Assuming those 28 pedestrians is typical of today's victims:

- 26 of them–the overwhelming majority–would be adults;
- 19 would be male;
- 21 of the fatal crashes would have occurred at non-intersection locations;
- 19 would have occurred in the dark; and
- 18 would have occurred on state or county highways (typically higher-speed arterial roads).

This shows that behavioral strategies aimed at pedestrians should focus primarily on adults, with an emphasis on reaching males. Messaging should stress the risks of crossing major streets in the dark, especially at locations without protected pedestrian crossings.

Infrastructure improvements should emphasize greater crossing protection along arterial roadways where people walk, including along bus routes and near pedestrian-generating land uses (such as apartments, shopping centers, schools and transit stations). Methods include:

- Installing raised median refuge islands (one of the most effective techniques available for improving pedestrian safety on multi-lane roads);
- Providing better illumination of existing crosswalks (also extremely effective, according to FHWA);
- Reducing speeds (calming traffic) as drivers approach non-signalized crosswalks;
- Testing the use of newer traffic control and warning devices, such as Pedestrian Hybrid Beacons (HAWK signals) and Rectangular Rapid Flashing Beacons (RRFB) in appropriate locations;
- Placing protected crosswalks at more frequent intervals (to discourage jaywalking);
- At signalized intersections, implementing a leading pedestrian interval and installing a separate, protected left-turn phase;
- Adding sidewalks and paved shoulders; and
- Implementing road diets.

What about drivers? If the 28 fatal crashes prevented are typical:

- 20 of the drivers would be male and 8 female; and
- 5 would be relatively inexperienced drivers age 24 and under, 20 would be age 25-64, and 3 would be 65 or over.

This suggests that behavioral strategies aimed at drivers should focus mainly on experienced drivers age 25 and over. A three-pronged approach is recommended, combining a sustained statewide media campaign, local enforcement actions, and targeted messages delivered by the Motor Vehicle Commission (online, by mail and at MVC facilities) as a driver registers a vehicle or renews a driver's license.

# Chapter 5: Action Plan

## Introduction

The Action Plan is organized around three major goals. These goals are based on input from the Steering Committee, a review of New Jersey's crash data and pedestrian safety initiatives since the 2005 publication of the **Pedestrian Safety Management in New Jersey: A Strategic Assessment**, and an overview of state-of-the-practice resources throughout the nation. The three central goals are:

> **GOAL 1:** Establish a ***governance and management structure*** to facilitate coordinated implementation of pedestrian safety initiatives statewide and gauge the success of **New Jersey's Pedestrian Safety Action Plan**.
>
> **GOAL 2:** Foster ***behavioral change*** among users of public rights-of-way to promote an environment of mutual respect, courtesy and acceptance.
>
> **GOAL 3:** Improve and expand the ***transportation infrastructure for pedestrians*** throughout the state in accordance with state-of-the-practice standards and guidelines.

For each core goal, a series of recommended actions is presented that is focused on state-level actions that reflect back to the key data trends and analysis presented in Chapters two and four of this Plan. The lead state agency responsible for each of these recommendations is identified, along with other partner state agencies that will need to coordinate activities to achieve success. These state-level actions are the central focus of plan implementation and evaluation efforts. In addition, the Action Plan notes where actions by government agencies at the local, regional and county levels, as well as by the non-profit/non-governmental sector, will be important in supporting state implementation efforts and in achieving the overall Plan mission.

A summary table of the actions, lead agencies and supporting agencies and organizations can be found at the end of this chapter.

## Goal 1 – Governance & Management Structure

***Establish a governance and management structure to facilitate coordinated implementation of pedestrian safety initiatives statewide and gauge the success of* New Jersey's Pedestrian Safety Action Plan.**

Successful plan implementation will hinge on the creation of the institutional structure within NJDOT to lead and guide the implementation process, as well as actions by NJDOT and other state partners highlighted in the recommendations ("Actions"). Supporting actions by regional, county, local and non-profit agencies are also important and will materially contribute to achieving the mission of this Plan. Actions to establish a governance and management structure are organized into two categories, each of which is necessary to ensure that all statewide, regional, and local efforts are maximally effective:

***Category 1.1 "Partnerships and Coordination"*** requires identification of organizations and agencies whose activities support pedestrian safety. Effective partnerships are based on a common understanding of issues and goals, and regular opportunities to share ideas and experiences.

***Category 1.2 "Data Management and Analysis"*** is necessary to ensure that all partners have access to the information that quantifies issues so that resources can be most effectively targeted to address them.


*Image: The RBA Group*

## 1.1 Partnerships & Coordination

### 1.1.a. Pedestrian Safety Task Force

***Action:*** Collaborate with partner state agencies, regional, county and municipal governments, and other stakeholders through a Task Force to coordinate pedestrian safety initiatives and track progress.

***Discussion:*** A review of activities and accomplishments that have taken place since the 2005 **Pedestrian Safety Management in New Jersey: A Strategic Assessment** showed that there has been much activity throughout the state and at all levels of government directed towards improving pedestrian safety. Various organizations and agencies have realized accomplishments in areas ranging from infrastructure improvements to education and enforcement. However, much of the activity has occurred independently and there is relatively little collaboration among those conducting pedestrian safety programs or awareness of each other's efforts.

A Task Force could be convened to promote a shared vision and coordinated effort among state agencies, Metropolitan Planning Organizations (MPOs), counties and local governments. Achieving a 20% reduction in pedestrian fatalities and serious injuries will require action by all levels of government.

One of the most important functions of such a Task Force would be to monitor New Jersey's progress in a systematic and comprehensive way, and to inform NJDOT of programs and initiatives of partner agencies and non-government organizations who are working toward reducing pedestrian crashes. NJDOT would report on the Department's progress for group review and discussion to generate ideas for consideration by NJDOT management. The Task Force could recommend appropriate performance measures as they relate to all participants and to initiate data collection processes that would provide baseline information necessary for future comparison. The Task Force could advise NJDOT and the Governor of achievements in pedestrian safety, while providing information that will aid NJDOT in directing resources where they would have the greatest impact.

In 2012, NJDOT conducted twelve Complete Streets training workshops throughout the state for county and local officials, engineers and planners. *Image: The RBA Group*

***Lead:*** NJDOT, DHTS

***Supporting Agencies and Organizations:*** FHWA, NHTSA, TMAs, State Agencies, MPOs, County/Local Representatives, hospitals and advocates

### 1.1.b. NJ Strategic Highway Safety Plan (NJSHSP)

***Action:*** Include the Pedestrian Safety Action Plan as a component of the NJ Strategic Highway Safety Plan (NJSHSP).

***Discussion:*** The NJSHSP should reference the Pedestrian Safety Action Plan and include recommendations that complement the actions identified through this planning process.

***Lead:*** NJDOT

### 1.1.c. Traffic Safety Forums

***Action:*** Continue to participate in traffic safety forums, conferences, and training to share information on pedestrian safety activities and accomplishments.

***Discussion:*** NJDOT and the DHTS are leaders in disseminating information about current federal and state pedestrian safety priorities, programs and funding. NJDOT's application of state-of-the-practice strategies to accommodate pedestrians is a model for other levels of government. It is important that Department staff keep current and participate in forums to educate and inform others, such as those offered by the Center for Advanced Infrastructure and Transportation (CAIT). In addition, engineers and planners at all levels should take advantage

of pedestrian safety training offered by FHWA, provided free to New Jersey since it is a pedestrian focus state.

***Lead:*** NJDOT, DHTS

***Supporting Agencies and Organizations:*** FHWA, CAIT, VTC

### 1.1.d. Health Community Partnerships

***Action:*** Include the health community as a partner to raise awareness of pedestrian safety as a serious public health issue and to develop and distribute supporting information.

***Discussion:*** Pedestrian fatalities and serious injuries are devastating to individuals, families, and communities and should be seen as a public health issue. As this Plan emphasizes, addressing the causes is not limited to infrastructure solutions, but includes education and enforcement to bring about societal changes in attitudes and behavior. The health community can have a significant impact in raising public awareness through education and by incorporating pedestrian safety into programs and published materials. Engaging the health community in addressing pedestrian safety will expand and strengthen partnerships and introduce new perspectives, venues, audiences, and strategies.

The transportation infrastructure has a profound impact on levels of physical activity in the public. Highways can cut off neighborhoods from public destinations, transit and essential services, severely limiting pedestrian access and opportunities to walk as part of daily living. The link between transportation and public health is recognized by NJTPA, which has added Health Impact Assessments as an eligible activity for its FY 2015-2016 Subregional Studies Program. The proposed program solicitation for FY 2015-2016 provides NJTPA-member cities and counties the opportunity to link transportation and public health with a community based Health Impact Assessment (HIA). HIA brings potential public health impacts and considerations to the decision making process for plans, projects, and policies that fall outside the traditional public health arenas, such as transportation and land use.

***Lead:*** NJDOT, DHTS, NJDOH

***Supporting Agencies and Organizations:*** County Departments of Aging and Health, ShapingNJ, Association for Health, Physical Education, Recreation and Dance (NJAHPERD), Brain Injury Alliance of New Jersey, NJ Health Impact Collaborative at the Bloustein School, as well as local hospitals and trauma centers

### 1.1.e. "Who's Who" Compendium

***Action:*** Prepare an on-line NJ "Who's Who" Compendium of Pedestrian Safety agencies and organizations and what they do.

***Discussion:*** Because many diverse disciplines and actions are required for a comprehensive approach to address pedestrian safety, there is often a lack of awareness among organizations regarding other organizations involved and their programs, resources, and funding. Preparation of a "Who's Who" compendium should be an early implementation action.

***Lead:*** NJDOT

## 1.2 Data Management & Analysis

### 1.2.a. Plan4Safety & Crash Reporting

***Action:*** Improve Plan4Safety pedestrian crash data management by reconciling/ integrating existing data sets to facilitate local government access to information specific to municipalities, e.g. to easily identify high crash corridors; in addition, improve police reporting forms and incorporate results.

***Discussion:*** CAIT has made great strides in improving the access, flexibility, and the ease of use of the Plan4Safety data platform. However, many communities may not find it convenient to access the type of information most needed at the local level, to easily identify priority intersections, corridors and neighborhoods for specific types of improvements based on crash history. Strategies to facilitate access for local and regional government and agencies to focus funding and planning efforts might include periodic distribution of pedestrian crash maps identifying high-risk locations to counties and municipalities, establishing standard queries that identify problem locations, and integrating NJDOT's sidewalk inventory and pedestrian facility data.

***Lead:*** NJDOT, DHTS, CAIT, Statewide Traffic Records Coordinating Committee (STRCC)

***Supporting Agencies and Organizations:*** MPOs, Law Enforcement


A screenshot of the Plan4Safety crash data management system.

# Goal 2 – Foster Behavioral Change

***Foster behavioral change among users of public rights of way to promote an environment of mutual respect, courtesy and acceptance.***

Engineering improvements alone will not reduce the incidence of pedestrian injuries and fatalities. Sustained education, coupled with enforcement, has proven over time to be highly effective in changing behaviors and result in a safety gain. Changing behavior society-wide requires strategies that reach everyone. Actions to foster behavioral change are organized into four categories:

***Category 2.1 "Education"*** actions include strategies that reach all segments of society as well as populations that are over-represented in New Jersey's fatalities and serious injury statistics.

***Category 2.2 "Technical Assistance"*** that is available to organizations, regional and local government, and the interested public strengthens partnerships and provides the platform for implementing the basic three "E's" of highway safety – Education, Enforcement, and Engineering.

***Category 2.3 "Enforcement"*** reinforces the rights and responsibilities of all roadway users and, applied consistently, contributes directly to changing behavior across all segments of society.

***Category 2.4 "Policies and Legislation"*** form the framework for societal behavior and are necessary to support fundamental changes in public attitudes and conduct.

## 2.1 Education

### 2.1.a. Statewide Public Education Campaign

***Action:*** Consider a systematic long-range plan for a statewide public education campaign to increase adult awareness of pedestrian safety and compliance with pedestrian laws; provide funding to support efforts where possible.

***Discussion:*** Having a consistent statewide message is a means of heightening adult awareness of pedestrian safety and knowledge of what the law requires. When government, advocates, private industry and the public work together

to nact change, they can create an environment in which that change becomes a reality. The "Click It or Ticket" campaign is an example of a successful statewide effort that has increased the number of people wearing seat belts while driving.

DHTS has developed a pilot pedestrian safety education campaign, which was implemented by NJTPA, that NJDOT and others could consider as a strategy for a statewide initiative. Products from NJTPA project includes branded pedestrian safety education campaign templates and a stand-alone website and collateral materials in support of the campaign.

***Lead:*** DHTS

***Supporting Agencies and Organizations:*** NJDOT, MPOs, Advocacy Groups, County and Local Governments, AAA, AARP


The messaging of the Street Smart NJ pilot campaign was "Check your vital signs." It ran in the late fall of 2013 (Hackettstown, Jersey City, Newark, Woodbridge) and in early summer of 2014 (Long Beach Island). *Image: BeStreetSmartNJ.org*

### Public Education Campaigns

There are a variety of education campaigns and programs being utilized across the country that target a specific age group, such as UNC Chapel Hill's "Yield to (Tar) Heels" program, which is directed toward college-age pedestrians (www.hsrc.unc.edu/y2h/).

Other programs, such as "Safe Steps - Pasos Seguros," address the high number of elder pedestrian deaths and injuries in Miami-Dade and Monroe Counties (www.allianceforaging.org/afa-ss/ss_iframe.html).


These programs could be used as models in New Jersey to address the state's high KSI rates among 15 to 24 year olds and seniors.

### 2.1.b. Coordination with the Motor Vehicle Commission (MVC) to Emphasize Pedestrian Safety Education

***Action:*** Coordinate with the Motor Vehicle Commission to ensure that appropriate pedestrian safety information and messaging is provided at each step of the driver training, licensing and vehicle registration process, including driver education, the driver's manual, the written exam, approved defensive driver and other driver improvement courses, and vehicle registration and registration renewal; MVC offices and website could convey key messages and provide online tutorials on sharing the road safely.

***Discussion:*** MVC, as the leader in driver education, has the ability to elevate the importance of communicating the rights and responsibilities of drivers towards pedestrians and to demonstrate New Jersey's commitment to pedestrian safety as a priority. Opportunities to deliver messaging about safe driving could include videos played at MVC facilities, quizzes or interactive tutorials provided on the MVC website, and pedestrian safety information cards at MVC vehicle inspection centers.

***Lead:*** NJDOT

***Supporting Agencies and Organizations:*** MVC, DHTS

### 2.1.c. Senior Mobility Education

***Action:*** Continue to offer education to decision-makers and seniors pertaining to improving mobility for seniors.

***Discussion:*** Data indicates that in New Jersey the rate of pedestrians killed or severely injured in crashes increases progressively by age group, with the highest rate among seniors, especially those older than 84 (Chapter 2, Table 2). This underscores the importance of educating decision-makers and seniors on the issues facing older adults. Both NJDOT and NJTPA have hosted Senior Mobility Workshops that bring seniors and local officials, engineers, and planners together to discuss barriers to senior pedestrian mobility and engineering methods available to improve walkability for seniors, such as using slower walking speeds for signal timing and utilizing pedestrian refuge islands to create shorter crossing distances. As the population continues to age, it becomes more important to expand the education of decision-makers and seniors on how to adapt the state's transportation system to meet the needs of its older residents and assist those who wish to continue to reside in their homes safely, independently and comfortably, regardless of age, income or abilities.

***Lead:*** NJDOT, DHTS

***Supporting Agencies and Organizations:*** NJ Transit, MVC, MPOs, NJTPA, CAIT, TMAs, AARP, County Offices of Planning, Engineering and Aging, and the NJ Travel Independence Program

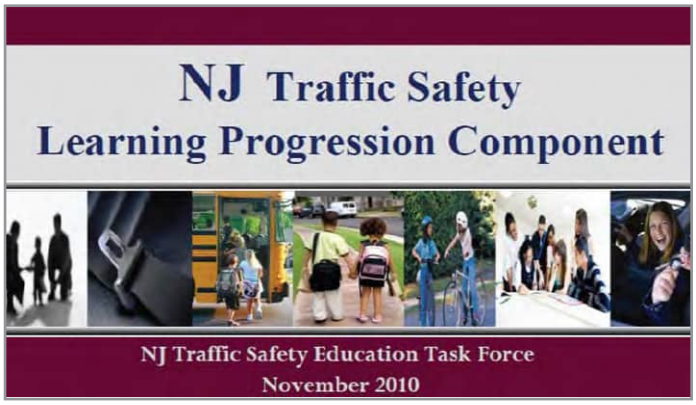
### 2.1.d. Traffic Safety Education Curriculum

***Action:*** Encourage schools to implement a state-of-the-art K-12 traffic safety education curriculum.

***Discussion:*** The traffic safety curriculum developed by Kean and Rowan Universities and funded by DHTS can be a starting point with further review and discussion. The curriculum can help schools meet multiple Cumulative Progress Indicators (CPIs) for the New Jersey Core Curriculum Content Standards. Examples might be to identify procedures associated with pedestrian, bicycle, and traffic safety by the end of Grade 2, and by the end of Grade 4, examine the impact of unsafe behaviors when traveling in vehicles, as a pedestrian, and when using other modes of transportation. This transportation safety curriculum is available at www. brainybunch.info/teacher-resources/lesson-plans, a website developed by the Brain Injury Alliance of New Jersey, and could, with further review and discussion, be implemented in all New Jersey schools.

***Lead:*** NJDOE, DHTS

***Supporting Agencies and Organizations:*** NJDOT, VTC, Kean and Rowan Universities, Brain Injury Alliance of New Jersey, TMAs, NJAHPERD, New Jersey Travel Independence Program (NJTIP) at VTC, Operation Lifesaver, Higher Education Programs including Teachers in Training, School Districts




The NJ Traffic Safety curriculum includes teacher training, along with detailed lesson plans and Power Point presentations for all grade levels. *Image: www.BrainyBunch.info*

## 2.2 Technical Assistance

### 2.2.a. Pedestrian Safety Outreach and Support

***Action:*** Continue to provide outreach and support to organizations and committees dedicated to fostering a safer walking environment.

***Discussion:*** Currently supported by NJDOT with FHWA funds, the NJ Bicycle and Pedestrian Resource Center has been coordinating quarterly meetings of the NJ Bicycle and Pedestrian Advisory Council (BPAC) and established the NJ Ambassadors in Motion (AIM) program to perform pedestrian and bicyclist safety outreach. NJDOT should continue to support committees and programs that are dedicated to and advocate for pedestrian safety.

***Lead:*** NJDOT, VTC

***Supporting Agencies and Organizations:*** TMAs, Municipalities

### 2.2.b. NJ Safe Routes to School (SRTS) Program

***Action:*** Continue to support the unique services and expertise provided for non-infrastructure elements of the NJ Safe Routes to School program.

***Discussion:*** NJDOT's Safe Routes to School program has been very effective at managing education and enforcement initiatives that, along with infrastructure improvements, contribute to pedestrian safety throughout NJ. Through its efforts the SRTS program has cultivated an extensive network of supporting Safe Routes to School partners, programs, schools and municipalities that further advance pedestrian safety. Supported by NJDOT through funding provided by FHWA and managed by VTC, the NJ SRTS Resource Center provides assistance to schools and communities with education, encouragement, enforcement, and evaluation activities directly and through the state's eight TMAs. Although MAP- 21 consolidated several federal funding programs, including Safe Routes to School, into the Transportation Alternatives Program (TAP), New Jersey kept funding at 2012 levels for Safe Routes to School as well as the Recreational Trails Program and Transportation Enhancements.

***Lead:*** NJDOT, VTC

***Supporting Agencies and Organizations:*** TMAs, Municipalities, School Districts, SRTS National Partnership, NJ State Network and Advocates

NJDOT's Safe Routes to School Urban Demonstration Program in 2008 resulted in unique community SRTS Action Plans for schools in Camden, Trenton and Newark. *Image: The RBA Group*

### 2.2.c. Municipal Grants Management Training

***Action:*** Develop and provide training for municipalities on managing grants (currently under development).

***Discussion:*** Some municipalities have had difficulty utilizing grants awarded through NJDOT's Division of Local Aid. These include funding of projects to enhance pedestrian safety. Training will assist grantees in meeting the grant requirements necessary to utilize awarded funds.

***Lead:*** NJDOT

Supporting Agencies and Organizations: Counties, Municipalities, MPOs and TMAs

Municipalities can join forces to implement PSE programs. In May 2013, six police departments in Essex County conducted a joint corridor enforcement operation on Bloomfield Avenue that combined media outreach, enforcement and education. *Image: Civic Eye Collaborative*

## 2.3 Enforcement

### 2.3.a. Local Enforcement Programs and Officer Training

***Action:*** Continue to support Pedestrian Safety Enforcement (PSE) programs that focus on enforcement of driver behavior to stop and stay stopped for pedestrians at crosswalks; also undertake pedestrian safety training for police/traffic safety officers and crossing guards and support related enforcement efforts focused on speeding, DUI, aggressive and distracted driving; support education regarding risks of distracted walking and walking while under the influence.

***Discussion:*** Pedestrian safety is a shared responsibility. There is no one cause of crashes involving pedestrians.

Pedestrians and motorists must both do their part to keep pedestrians safe. Pedestrian Safety has been identified as a National Priority Area by the National Highway Traffic Safety Administration (NHTSA) and Federal Highway Administration (FHWA) and is therefore eligible for Section 402 funds. DHTS uses Section 402 funds to support local law enforcement agencies in conducting enforcement campaigns that focus on pedestrian safety laws such as the Pedestrian Decoy program to apprehend drivers who fail to stop for pedestrians at crosswalks and to increase police officer deployment at DWI checkpoints. These programs have been very successful at educating the public on pedestrian safety laws and roadway user roles and responsibilities.

***Lead:*** NJDOT, DHTS

***Supporting Agencies and Organizations:*** Law Enforcement, Municipal Courts, Counties, Municipalities

### 2.3.b. Targeted Speeding Enforcement

***Action:*** Support and promote targeted speed enforcement in areas of high pedestrian demand and/or risk.

***Discussion:*** Targeted speed enforcement efforts that cross jurisdictional lines must integrate the various law enforcement agencies. The NJ DHTS-supported "Operation 130 Safe Passage" is an example of a multi-jurisdictional enforcement operation to make a high crash corridor safer for pedestrians. The 18-month, $225,000 project is funded by DHTS, and 12 of the municipal and county law enforcement agencies that patrol Route 130 are participating. The agencies signed shared services agreements, which allow them to cross jurisdictions to enforce traffic laws. Targeted enforcement in school zones, areas of high pedestrian demand and risk, is another example of efforts requiring coordination among jurisdictions, including schools.

***Lead:*** NJDOT, DHTS

***Supporting Agencies and Organizations:*** Law Enforcement, Counties, Municipalities

### 2.3.c. Targeted Enforcement at Rail Stations and Grade Crossings

***Action:*** Target high-risk rail station and grade crossing locations for enforcement of laws prohibiting illegal and dangerous actions, including near school locations.

***Discussion:*** In 2010 and 2011, there were a total of 81 incidents involving NJ TRANSIT trains at grade crossings or along the tracks in New Jersey, resulting in 51 deaths. Of the 51 deaths, 30 were either accidental in nature or undetermined as to whether they were accidental or intentional. Conducting high-profile police enforcement at targeted, high-risk locations can help prevent pedestrians from ducking under crossing gates or disregarding other warning devices and help to reduce the number of pedestrian fatalities at grade crossings.

***Lead:*** NJ TRANSIT

***Supporting Agencies and Organizations:*** NJDOT, DHTS, Local Law Enforcement, Freight and Passenger Rail Operators

## 2.4 Policies & Legislation

### 2.4.a. Vision Screening Requirements

***Action:*** Facilitate implementation of laws regarding periodic vision screening of licensed drivers.

***Discussion:*** All new drivers in New Jersey have their vision screened at the time of their initial licensing. After this they are not automatically or periodically retested. It is recommended that all drivers in New Jersey be screened each time they renew their license, regardless of age.

***Lead:*** NJDOT

***Supporting Agencies and Organizations:*** MVC, Law Enforcement, Advocacy Organizations, NJ Society of Optometric Physicians, NJ Academy of Ophthalmology

### 2.4.b. Pedestrian Safety Legislation

***Action:*** Review, evaluate and support legislation that advances pedestrian access and safety needs.

***Discussion:*** Advocacy groups have asserted that existing laws have not been enforced vigorously enough to support pedestrian interests. They have proposed a number of

legislative initiatives that would focus on the interests of vulnerable road users and could, if enacted, reduce the incidence of pedestrian crashes and fatalities. These include: increased penalties for drivers if their actions have resulted in injury or death to a pedestrian; allowing lower speed limits (e.g. 20 mph) to be established on certain residential and local access streets; and requiring drivers to slow down or move over when approaching a pedestrian or bicyclist on the road.

***Lead:*** NJDOT, Legislature, Governor

***Supporting Agencies and Organizations:*** Advocacy Organizations

# Goal 3 – Improve And Expand Pedestrian Infrastructure

***Improve and expand the transportation infrastructure for pedestrians throughout the state in accordance with state-of-the-practice standards and guidelines.***

Improving the transportation infrastructure to better accommodate pedestrian access and develop an environment conducive to pedestrian safety has been an ongoing priority for NJDOT. Since the 2005 publication of **Pedestrian Safety Management Plan In New Jersey: A Strategic Assessment**, NJDOT has taken significant steps in meeting this goal by adopting a Complete Streets policy and instituting Complete Streets into the project development process. The institution of this systematic approach provides a mechanism to address pedestrian safety issues.

The crash data analysis (Chapter 2, "Dimensions of the Problem") identifies specific high risk conditions associated with New Jersey's crash rates that need to be addressed, such as the absence of street lighting, inadequate midblock crossings and excessive crossing distances. FHWA's systemic risk approach involves inventorying the highway system and prioritizing locations with high-risk factors. By utilizing a systemic risk approach, applying FHWA's proven countermeasures, targeting resources where they can be most effective, and providing funding and technical assistance to other levels of government, NJDOT can facilitate achievement of the Plan's mission – reduction of pedestrian fatalities and serious injuries by 20% in five years.

Actions to improve and expand pedestrian infrastructure are organized into four categories:

***Category 3.1 "Project Development Process"*** should consistently address pedestrian access and safety which should also be given priority in project selection.

***Category 3.2 "Engineering Guidelines"*** should be updated where necessary to incorporate FHWA's proven countermeasures and address high risk factors indicated in New Jersey's pedestrian fatalities history.

***Category 3.3 "Programs"*** such as Safe Streets to Transit, the Rail Crossing Safety Pilot Project, Complete Streets, Safe Routes to School that directly address pedestrian safety should continue to be prioritized, funded, and implemented.

Category 3.4 "Funding and Technical Assistance" should target pedestrian safety and plan implementation at regional, county, and local levels wherever possible.

## 3.1 NJDOT Project Development Process

### 3.1.a. Pedestrian Safety Management System (PSMS)

***Action:*** Update the pedestrian safety management system to help prioritize capital investment.

***Discussion:*** A pedestrian safety management system currently under development by CAIT will ensure a systematic performance appraisal of existing conditions and safety benefits provided by various improvements that are or could be implemented to maintain system performance standards. It will strengthen the process and mechanism for initiating projects to provide safe pedestrian accommodations. It will also help to identify areas of high senior pedestrian crashes.

***Lead:*** NJDOT

***Supporting:*** CAIT

### 3.1.b. Capital Investment Priorities

***Action:*** Establish priorities for pedestrian safety capital improvements using the PSMS.

***Discussion:*** Establishing data-driven priorities for pedestrian safety capital improvements will elevate pedestrian safety improvements in a manner that is consistent with NJDOT's Complete Streets Policy.

***Lead:*** NJDOT

### 3.1.c. Highway Access Permit Application Checklist

***Action:*** Develop an updated checklist and methodology for evaluating pedestrian safety associated with all state highway access permit applications to be used by the Office of Bicycle and Pedestrian Programs (OBPP).

***Discussion:*** While the OBPP currently reviews some highway access permit applications, the process needs to be expanded. OBPP input would be provided for every application to insure that access permits do not create problems for pedestrians, and developers would be required to address the needs of pedestrians.

***Lead:*** NJDOT

### 3.1.d. Complete Streets Implementation

***Action:*** Continue to implement NJDOT's Complete Streets Policy and complete a yearly report to document the extent to which NJDOT infrastructure projects are in compliance with its Complete Streets Policy, especially pertaining to pedestrian safety infrastructure.

***Discussion:*** NJDOT has undertaken numerous activities to implement Complete Streets since the adoption of its policy including hosting Complete Streets workshops to educate NJDOT staff and local representatives and developing a checklist to assist Project Managers and designers in developing proposed alternatives in adherence to the policy. NJDOTs Complete Streets policy and implementation is a model for local and county governments. It is appropriate that NJDOT's activities continue to include support for local and county governments in adopting Complete Streets policies and practices through education and training. Completing an annual report on the Complete Streets activities will help NJDOT document progress, showcase their success in implementing Complete Streets, and identify what might need to be improved.

***Lead:*** NJDOT

## 3.2 Engineering Guidelines

### 3.2.a. Lighting Standards

***Action:*** Strengthen the focus on pedestrian safety in lighting standards and guidelines and create a pedestrian lighting guide for local governments.

***Discussion:*** Darkness is a well-documented factor correlated with more severe pedestrian crashes. It significantly reduces pedestrian visibility to motorists, and reduces driver reaction time. Nationally, 70% of all pedestrian fatalities in 2011 occurred during nighttime hours. Pedestrian crashes in New Jersey are consistent with the national pattern, with 68% of fatal crashes occurring in dark conditions. The figure for state highways is even higher, with 84% of fatal pedestrian crashes on state highways occurring in the dark. Agencies can rely on reference manuals and technical documents for guidance when designing and installing roadway lighting for motorists, but there is no specific state manual, design guide or standard for pedestrian lighting on state highways and roads. Moreover, there is no warrant to determine the need or desirability of pedestrian lighting in state-sponsored projects.

***Lead:*** NJDOT

## 3.3 Programs

### 3.3.a. Access to Transit

***Action:*** Evaluate, prioritize and implement projects to improve safe pedestrian access to transit facilities (including bus stops and rail stations) and assess suitability of bus stop locations.

***Discussion:*** New Jersey is the most densely populated state. The high population density indicates a potential for shorter trips including a greater number of walking and transit trips. In fact, the state has over twice the share of the national average among states of residents taking transit to work, many of whom walk to and/or from the bus and rail stations. Many transit passengers access stations and stops along busy highways and often must cross these

roadways after dark or during inclement weather. Many crashes occur on congested urban street systems and along highway corridors.

***Lead:*** NJDOT, NJ TRANSIT

***Supporting Agencies and Organizations:*** DHTS, MPOs, TMAs, Counties, Municipalities

Access to the bus stop at Route 42 and Greentree Drive in Turnersville was improved with a bus pull out and sidewalks. *Image: Parsons Brinckerhoff*

### 3.3.b. Pilot Program for Rail Crossing Safety

***Action:*** Continue to participate in the Federal Railroad Administration's (FRA) pilot program to implement and evaluate engineering safety treatments at rail crossings.

***Discussion:*** NJDOT and NJ TRANSIT have been implementing engineering recommendations as part of an ongoing effort to ramp up rail safety across the state based on recommendations from 2012's New Jersey Safety along Railroads – Short-Term Action Plan. As part of the pilot program, NJDOT and NJ TRANSIT have installed the "Another Train Coming" warning system at Plauderville Station in Garfield. The Volpe Center, part of the U.S. Department of Transportation's Research and Innovative Technology Administration, is participating in the evaluation and analysis of the warning sign's effectiveness under an agreement with the Federal Railroad Administration.

***Lead:*** NJDOT, NJ TRANSIT

***Supporting Agencies and Organizations:*** FRA, Volpe National Transportation Systems Center


"Another Train Coming" pilot program at Plauderville Station in Garfield. *Image: Marco DeSilva, Volpe Center*

## 3.4 Infrastructure Funding And Technical Assistance

### 3.4.a. County and Local Funding and Technical Assistance

***Action:*** Continue funding and technical assistance for county and local projects that address pedestrian safety; prioritize funding to disadvantaged communities with high- risk intersections, corridors and/or neighborhoods.

***Discussion:*** Various State Transportation Fund Programs administered by NJDOT's Division of Local Aid and Economic Development have been the primary source of funding for pedestrian access and safety by local communities. OBPP's Local Bicycle/Pedestrian Planning Technical Assistance Program is one of the sources of such assistance.

***Lead:*** NJDOT

### 3.4.b. Federal Funding for Pedestrian Safety Projects

***Action:*** Increase use of Highway Safety Improvement Program (HSIP) and other federal funding for pedestrian safety projects, e.g. the Pedestrian Safe Corridors Program; identify data-driven projects and apply systemic risk methodology.

***Discussion:*** To the extent possible, prioritize and track the use of available MAP-21 federal funds for projects and programs that address pedestrian access and safety needs. Systemic risk factors could be developed as part of the pedestrian safety management system (action 3.1.a). Potential risk factors could include the absence of street lighting at marked crosswalks, bus stops or school crossings, crossing distances over certain thresholds at these or other locations with pedestrian generators present, for example. Should new categories of data become available that show significant correlations with pedestrian crashes such as crashes related to socio-economic variables, these should also be recognized as risk factors. Once factors correlated with pedestrian injuries are developed, locations with those factors would be inventoried and these would become priority locations for lighting treatments, median refuge islands or other appropriate countermeasures, helping to systematically reduce pedestrian risk.

***Lead:*** NJDOT, MPOs

In 2009, Ferry Street in Newark, the Ironbound's central artery and gateway, was enhanced with improved sidewalks, planters and decorative lighting. The project, funded by NJDOT and the City of Newark, also added new street furniture, special pavement, signage and traffic lights to improve safety for pedestrians. *Image: archinect.com / John Carluccio*

Pedestrian improvements to the school zone around Renaissance at Rand School in Montclair, including solar powered lighting, were the result of a federal grant received in 2007. The Rand School was one of the three schools to participate in the NJDOT SRTS Pilot Program. For more, visit www.nj.gov/transportation/community/srts/demonstration.shtm. *Image: Arterial*

### 3.4.c. Complete Streets Policies and Implementation

***Action:*** Continue to encourage municipalities and counties to adopt and implement Complete Streets policies.

***Discussion:*** Several of the NJDOT Local Aid programs, including Municipal Aid, Local Bikeways Program, and Safe Streets to Transit, use a competitive selection process in which applicants are evaluated based on a scoring system. The system awards an extra point to towns if they have a Complete Streets policy and an implementation plan, thus creating an incentive to support and implement Complete Streets across the state. In this way, Complete Streets can become the default way of doing business among transportation agencies at all levels. A statewide system of roadways accommodating all users and abilities will emerge over time.

***Lead:*** NJDOT

***Supporting Agencies and Organizations:*** Municipalities, Counties, MPOs

# Action Plan Summary Tables

## Goal 1 – Governance & Management Structure

*Establish a **governance and management structure** to facilitate coordinated implementation of pedestrian safety initiatives statewide and gauge the success of* **New Jersey's Pedestrian Safety Action Plan**.

Table 4: Goal 1 Actions

| | Actions | Lead Agency | Supporting Agencies and Organizations |
|---|---|---|---|
| **1.1** | **PARTNERSHIPS & COORDINATION** | | |
| 1.1.a | Collaborate with partner state agencies, regional, county & local governments and other stakeholders through a Task Force to coordinate initiatives and track progress | NJDOT, DHTS | FHWA, NHTSA, State Agencies, MPOs, TMAs, County/Local Representatives, hospitals, advocates |
| 1.1.b | Include Action Plan recommendations in the Strategic Highway Safety Plan | NJDOT | |
| 1.1.c | Participate in traffic safety forums and conferences | NJDOT, DHTS | FHWA, CAIT, VTC |
| 1.1.d | Partner with the health community | NJDOT, DHTS, NJDOH | ShapingNJ, NJAHPERD, Brain Injury Alliance of NJ, New Jersey Health Impact Collaborative at the Bloustein School, County Depts. of Aging and Health, hospitals and trauma centers |
| 1.1.e | Prepare a "Who's Who" compendium | NJDOT | |
| **1.2** | **DATA MANAGEMENT & ANALYSIS** | | |
| 1.2.a | Improve Plan4Safety pedestrian crash data management system | NJDOT, DHTS, CAIT, STRCC | MPOs, Law Enforcement |

## Goal 2 – Foster Behavioral Change

*Foster **behavioral change** among users of public rights of way to promote an environment of mutual respect, courtesy and acceptance.*

Table 5: Goal 2 Actions

| | Actions | Lead Agency | Supporting Agencies and Organizations |
|---|---|---|---|
| **2.1** | **EDUCATION** | | |
| 2.1.a | Consider a long-range plan for a statewide public education campaign | DHTS | NJDOT, MPOs, Advocacy Groups, County and Local Government, AAA, AARP |
| 2.1.b | Coordinate with the Motor Vehicle Commission to emphasize pedestrian safety education | NJDOT | MVC, DHTS |
| 2.1.c | Continue senior mobility education | NJDOT, DHTS | NJ Transit, MVC, MPOs, CAIT, TMAs, NJTPA, AARP, NJ TIP, County Offices of Planning, Engineering and Aging |
| 2.1.d | Encourage schools to implement a state-of-the-art traffic safety education curriculum | NJDOE, DHTS | Kean and Rowan Universities, Brain Injury Alliance of New Jersey, NJDOT, VTC, TMAs, NJAHPERD, |
| **2.2** | **TECHNICAL ASSISTANCE** | | |
| 2.2.a | Continue to provide outreach and support to organizations dedicated to fostering a safer walking environment | NJDOT, VTC | TMAs, Municipalities |
| 2.2.b | Continue to support the NJ Safe Routes to School program's education & enforcement activities | NJDOT, VTC | TMAs, Municipalities, School Districts |
| 2.2.c | Provide municipal grants management training | NJDOT | Counties, Municipalities, MPOs, TMAs |
| **2.3** | **ENFORCEMENT** | | |
| 2.3.a | Support and promote local enforcement programs and officer and crossing guard training | NJDOT, DHTS | Law Enforcement, Municipal Courts, Counties, Municipalities |
| 2.3.b | Support and promote targeted speed enforcement | NJDOT, DHTS | Law Enforcement, Counties, Municipalities |
| 2.3.c | Target enforcement at rail stations and grade crossings including near school locations | NJ TRANSIT | NJDOT, DHTS, Local Law Enforcement, Freight & Passenger Rail Operators |
| **2.4** | **POLICIES & LEGISLATION** | | |
| 2.4.a | Facilitate implementation of laws regarding periodic vision screening of licensed drivers | NJDOT | MVC, Law Enforcement, Advocacy Organizations, NJ Society of Optometric Physicians, NJ Academy of Ophthalmology |
| 2.4.b | Review, evaluate and support pedestrian safety legislation | NJDOT Legislature, Governor | Advocacy Organizations |

## Goal 3 – Improve & Expand Pedestrian Infrastructure

*Improve and expand the **transportation infrastructure for pedestrians** throughout the state in accordance with state-of-the-practice standards and guidelines.*

Table 6: Goal 3 Actions

| | Actions | Lead Agency | Supporting Agencies and Organizations |
|---|---|---|---|
| **3.1** | **PROJECT DEVELOPMENT PROCESS** | | |
| 3.1.a | Update the pedestrian safety management system (PSMS) | NJDOT | CAIT |
| 3.1.b | Establish priorities for pedestrian safety capital improvements using the PSMS | NJDOT | |
| 3.1.c | Update highway access permit application checklist and methodology | NJDOT | |
| 3.1.d | Implement and document Complete Streets projects | NJDOT | |
| **3.2** | **ENGINEERING GUIDELINES** | | |
| 3.2.a | Strengthen the focus of guidance and standards on pedestrian lighting and create a guide for local governments | NJDOT | |
| **3.3** | **PROGRAMS** | | |
| 3.3.a | Improve pedestrian access to transit | NJDOT, NJ TRANSIT | DHTS, MPOs, TMAs, Counties, Municipalities |
| 3.3.b | Continue rail crossing safety pilot program | NJDOT, NJ TRANSIT | FRA, Volpe National Transportation Systems Center |
| **3.4** | **INFRASTRUCTURE FUNDING AND TECHNICAL ASSISTANCE** | | |
| 3.4.a | Continue funding and technical assistance for county and local pedestrian safety projects | NJDOT | |
| 3.4.b | Increase use of federal HSIP funding for pedestrian safety projects | NJDOT, MPOs | |
| 3.4.c | Continue to encourage municipalities and counties to adopt & implement Complete Streets policies and plans | NJDOT | Municipalities, Counties, MPOs |

# Chapter 6: Implementation

## Introduction

The final major component of the Plan is a series of performance measures developed for each of the three major goals. In addition to the overarching performance measure developed for the Plan mission, to reduce fatalities and serious injuries by 20% over the next five years, these goal-specific measures are the primary evaluation tools proposed to track implementation efforts.

The performance measures developed for this Plan will ensure that success toward goal achievement is tracked both in terms of outputs (or the reach or extent of implementation efforts), as well as outcomes (or the effectiveness of implementation accomplishment in goal achievement).

It is anticipated that Year 1 of the Plan evaluation will focus on assembling baseline/historic data, where available, for the various performance measures and indicators identified herein. This will allow targets to be set for Plan implementation activities for Years 2 through 5. Where new sources of data need to be collected, establishment of baseline conditions will likely continue beyond Year 1. Some of these proposed measures are based on available or easily found data, while others will require new data collection efforts. The proposed Pedestrian Safety Task Force (Action 1.1.a) could also advise and assist NJDOT of strategies for additional data collection useful for future evaluation.

Based on input from the Steering Committee and NJDOT, the following performance measures are proposed for the Action Plan.

*Image: The RBA Group*

## Goal 1: Governance and Management Structure

### Performance Measures

- A "Who's Who" in Pedestrian Safety" is completed and updated annually.

## Goal 2: Foster Behavior Change

### Performance Measures

- Extent of public exposure to statewide media campaigns and awareness of/compliance with pedestrian rights and responsibilities.

  ***Potential tracking strategies:***

  - Number of media exposures
  - Before and after survey of attitudes/awareness
  - Systematic observational studies of compliance
  - Pre-and post- media campaign
- Compliance with pedestrian and motorist rights, responsibilities and laws.

  ***Potential tracking strategies:***

  - Number of warnings/citations for distracted walking/ driving, speeding, aggressive driving, transgressing pedestrian crosswalk laws and "jaywalking" among others
  - Number of warnings/citations for or documented incidents of illegal and dangerous behavior at rail station and grade crossing locations
  - Systematic observational studies of compliance
- Extent and effectiveness of outreach to target populations.

  ***Potential tracking strategies:***

  - Number of seniors participating in Senior Mobility Workshops or other senior-focused pedestrian safety programs

- Tracked performance measures for programs of the NJ BPRC and NJ SRTSRC as noted in both Centers' Strategic Plans

- Extent and effectiveness of enforcement measures.

  ***Potential tracking strategies:***

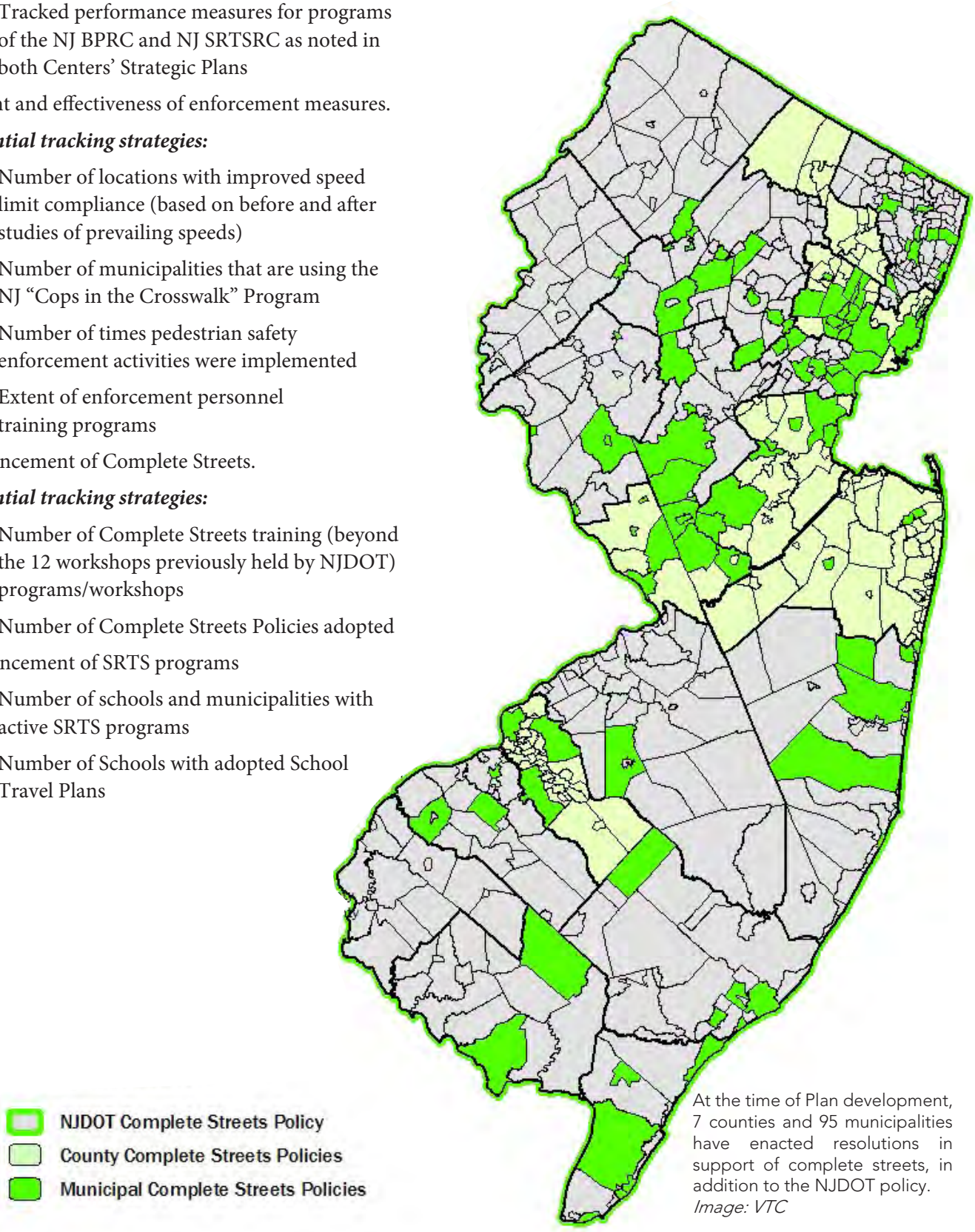
  - Number of locations with improved speed limit compliance (based on before and after studies of prevailing speeds)
  - Number of municipalities that are using the NJ "Cops in the Crosswalk" Program
  - Number of times pedestrian safety enforcement activities were implemented
  - Extent of enforcement personnel training programs

- Advancement of Complete Streets.

  ***Potential tracking strategies:***

  - Number of Complete Streets training (beyond the 12 workshops previously held by NJDOT) programs/workshops
  - Number of Complete Streets Policies adopted

- Advancement of SRTS programs
  - Number of schools and municipalities with active SRTS programs
  - Number of Schools with adopted School Travel Plans




At the time of Plan development, 7 counties and 95 municipalities have enacted resolutions in support of complete streets, in addition to the NJDOT policy. *Image: VTC*

# Goal 3: Improve and Expand Pedestrian Infrastructure

## Performance Measures

- Completed pedestrian safety facilities.

  ***Potential tracking strategies:***

  - Miles of sidewalk installed
  - Number of midblock crosswalks with enhanced pedestrian treatments
  - Number of intersections with enhanced pedestrian treatments
  - Number of corridors/pedestrian zones with improved pedestrian lighting
  - Completed transit station/bus stop access improvements
  - Completion/effectiveness of engineering measures pilot program as outlined in the **NJ Safety along Railroads – Short-Term Action Plan**

- Changes in crash rates.

  ***Potential tracking strategies:***

  - Before and after crash rates in improved corridors

- Improvements in the access permitting process.

  ***Potential tracking strategy:***

  - Number and percent of total access permit applications reviewed by NJDOT Office of Bicycle and Pedestrian Programs

- Funding levels/technical assistance levels.

  ***Potential tracking strategies:***

  - Number and funding amount of NJDOT Local Aid administered projects (both Trust Fund and federally funded) specifically addressing pedestrian safety improvements
  - Number of communities receiving technical assistance by the NJDOT Office of Bicycle and Pedestrian Programs
  - Amount of federal funds (HSIP) obligated and spent for pedestrian safety projects

# Conclusions and Next Steps

Although there may be logical arguments that the current pedestrian crash experience in New Jersey is "explainable" given our unique circumstances, the fact is that the incidence and rate of pedestrian fatalities and serious injuries in New Jersey is just too high. The "sea change" which will, hopefully lead to a new vision and consciousness with regard to our transportation needs and focus, may have commenced but has surely not yet been accomplished. A renewed and concerted effort is required.

This ambitious **Pedestrian Safety Action Plan** sets out an approach for such an effort. It is premised on the belief that a coordinated effort led by those state agencies with principal involvement in pedestrian safety programs and projects, supported by their federal partner agencies, employing the methods detailed in the Plan can have a meaningful impact on levels of pedestrian fatalities and serious injuries in New Jersey.

While this Plan will be spearheaded by the state agencies principally involved, the hoped for changes will not be manifest unless and until all the players become partners. This includes not only those state agencies with a leading part to play, but also other levels of government: regional, county, municipal along with other, non-governmental partners.

The obvious next steps include the adoption of this Plan by the principal parties with lead roles, coupled with "buy in" by those who must participate in its implementation. These demonstrations of support and participation will lay the foundation for implementing the Plan's actions; and the rest, as they say, is success.


Route 52 Ocean City Bridge Project. *Image: The RBA Group*

# List of Acronyms

**AARP** – American Association of Retired Persons

**ADA** – Americans with Disabilities Act

**BPAC** – Bicycle and Pedestrian Advisory Committee

**BTDS** – Bureau of Transportation Data and Safety

**CAIT** – Rutgers Center for Advanced Infrastructure and Transportation

**CS** – Complete Streets

**DHTS** – New Jersey Division of Highway Traffic Safety

**DVRPC** – Delaware Valley Regional Planning Commission

**FHWA** – Federal Highway Administration

**FRA** – Federal Railroad Administration

**HIA** – Health Impact Assessment

**HSIP** – Highway Safety Improvement Program

**HTSPAC** - Highway Traffic Safety Policy Advisory Council

**KSI** – Killed and Severely Injured

**L&PS** – New Jersey Department of Law and Public Safety

**LTAP** – New Jersey Local Technical Assistance Program

**MPO** – Metropolitan Planning Organization

**MUTCD** – Manual of Uniform Traffic Control Devices

**MVC** – New Jersey Motor Vehicle Commission

**NHTSA** – National Highway Traffic Safety Administration

**NJAHPERD** - New Jersey Association for Health, Physical Education, Recreation and Dance

**NJAIM** – New Jersey Ambassadors in Motion

**NJBPRC** – New Jersey Bicycle and Pedestrian Resource Center

**NJDHS** – New Jersey Department of Human Services

**NJDOE** – New Jersey Department of Education

**NJDOH** – New Jersey Department of Health

**NJDOT** – New Jersey Department of Transportation

**NJPTOA** – New Jersey Police Traffic Officers Association

**NJTIP** - New Jersey Travel Independence Program

**NJTPA** – North Jersey Transportation Planning Authority

**OBPP** – New Jersey Department of Transportation, Office of Bicycle and Pedestrian Programs

**ONF** – New Jersey Dept. of Health, Office of Nutrition and Fitness

**PSAP** – Pedestrian Safety Action Plan

**PSE** – Pedestrian Safety Enforcement Program

**PSRA** – Pedestrian Safety Road Audit

**RWJF** - Robert Wood Johnson Foundation

**SHSP** – Strategic Highway Safety Plan

**SIT** – Safety Impact Team

**SJTPO** – South Jersey Transportation Planning Organization

**SJTSA** – South Jersey Traffic Safety Alliance

**SRTS** – Safe Routes to School

**SSTT** – Safe Streets to Transit

**TMA** – Transportation Management Association

**TOD** – Transit-Oriented Development

**TSRC** – Transportation Safety Resource Center at CAIT

**TSRCC** - Traffic Safety Records Coordination Committee

**TTF** – Transportation Trust Fund

**VTC** – Alan M. Voorhees Transportation Center at Rutgers University

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