



# 2012 TRANSPORTATION SAFETY ACTION PLAN

IMPROVING TRANSPORTATION SAFETY  
IN THE DELAWARE VALLEY





Three stylized traffic cones are positioned at the top of the page. Each cone is dark gray with three white horizontal stripes. They are arranged with one on the left, one in the center, and one on the right.

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The bottom half of the cover features a large, abstract geometric design. It consists of several white lines of varying thicknesses that intersect to form a complex, multi-faceted pattern. The background is a solid light gray color.

*The Delaware Valley Regional Planning Commission is dedicated to uniting the region's elected officials, planning professionals, and the public with a common vision of making a great region even greater. Shaping the way we live, work, and play, DVRPC builds consensus on improving transportation, promoting smart growth, protecting the environment, and enhancing the economy. We serve a diverse region of nine counties: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey. DVRPC is the federally designated Metropolitan Planning Organization for the Greater Philadelphia Region — leading the way to a better future.*



*The symbol in our logo is adapted from the official*

*DVRPC seal and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole while the diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.*

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# Table of Contents

Executive Summary.....	1
<b>C H A P T E R 1</b>	
Why Have a Safety Plan?.....	3
<b>C H A P T E R 2</b>	
Background.....	5
■ Federal Regulations .....	5
■ Pennsylvania’s Approach .....	5
■ New Jersey’s Approach.....	6
■ DVRPC’s Approach .....	6
<b>C H A P T E R 3</b>	
Updating Emphasis Areas for the Delaware Valley.....	9
■ Methodology.....	9
■ Conclusions about Updating Emphasis Areas.....	10
<b>C H A P T E R 4</b>	
Improving Safety in Emphasis Areas .....	13
■ How We Increase Transportation Safety in the Delaware Valley.....	13
■ Emphasis Area 1: Curb Aggressive Driving.....	15
■ Emphasis Area 2: Keep Vehicles on the Roadway and Minimize the Consequences of Leaving the Roadway .....	20
■ Emphasis Area 3: Improve the Design and Operation of Intersections .....	24
■ Emphasis Area 4: Reduce Impaired and Distracted Driving .....	28
■ Emphasis Area 5: Increase Seat Belt Usage.....	34
■ Emphasis Area 6: Ensure Pedestrian Safety.....	37
■ Emphasis Area 7: Sustain Safe Senior Mobility.....	42
<b>C H A P T E R 5</b>	
Recommendations.....	47

## Figures and Tables

Figure 1: Crash Fatalities in the Delaware Valley .....	3
Figure 2: Crash Fatalities Rate per Hundred Million Vehicle Miles Traveled .....	4
Figure 3: Delaware Valley Regional Planning Commission Region.....	6
Table 1: Summary of Actions Taken by the Delaware Valley Regional Planning Commission and Partners on 2009 Emphasis Areas.....	8
Table 2: 2012 Emphasis Areas for the Delaware Valley .....	14
Table 3: Programs in the Delaware Valley That Help Curb Aggressive Driving.....	16
Table 4: Programs in the Delaware Valley That Help Keep Vehicles on the Roadway and Minimize the Consequences of Leaving the Roadway.....	21
Table 5: Programs in the Delaware Valley That Help Improve the Design and Operation of Intersections .....	25

Table 6: Programs in the Delaware Valley That Help Reduce Impaired Driving .....	30
Table 7: Programs in the Delaware Valley That Help Increase Seat Belt Usage .....	35
Table 8: Programs in the Delaware Valley That Help Ensure Pedestrian Safety .....	38
Table 9: Programs in the Delaware Valley That Help Sustain Safe Senior Mobility.....	43
Table 10: Summary of Strategies .....	48
Table 11: Recommended Strategies and How to Accomplish Them .....	51

## Appendices

### A P P E N D I X A

Abbreviations and Acronyms.....	A-1
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### A P P E N D I X B

Regional Safety Task Force .....	B-1
■ Members Participating in the Update of the Plan.....	B-1

# Executive Summary

Between 2008 and 2010, an average of 377 people lost their lives each year in just over 85,000 vehicle crashes on the roads of the Delaware Valley. Implementing recommendations from the *2012 Transportation Safety Action Plan* will reduce vehicle-related crashes and fatalities in the Delaware Valley.

The Delaware Valley Regional Planning Commission (DVRPC)<sup>1</sup> had adopted two safety action plans previously, one in 2006 and one in 2009. The current 2012 document builds upon that work and also continues to implement *Connections: The Regional Plan for a Sustainable Future* (DVRPC Publication 09047). This report and the accompanying *Analysis of Crashes in the Delaware Valley, 2008–2010* (DVRPC Publication 11059) cover trends in the crash data and how to improve safety.

The same analysis was performed for 22 emphasis areas as had been done for the 2009 update. Surprisingly, the same seven emphasis areas were the leading contributing factors to fatalities, although their order changed a bit. In addition to the analysis, there was also a review to include the emphasis areas shared by the Pennsylvania and New Jersey departments of transportation (PennDOT and NJDOT).

The seven emphasis areas in the *2012 Transportation Safety Action Plan* are contributing factors in 95 percent of crash fatalities in the Delaware Valley based on analysis of 2008–2010 data. They are:

1. Curb Aggressive Driving;
2. Keep Vehicles on the Roadway and Minimize the Consequences of Leaving the Roadway;
3. Improve the Design and Operation of Intersections;
4. Reduce Impaired and Distracted Driving;
5. Increase Seat Belt Usage;
6. Ensure Pedestrian Safety; and
7. Sustain Safe Senior Mobility.

**Aggressive driving was a contributing factor in half the crashes that resulted in traffic fatalities in the Delaware Valley, on average, from 2008 to 2010. It is the most significant emphasis area to address to improve safety.**

Many successful programs to address traffic safety already exist in the Delaware Valley. The Plan focuses on key emphasis areas, programs that are already helping, and strategies to improve safety.

Reducing traffic fatalities in the Delaware Valley is an effort of many agencies, organizations, and individuals. This Plan was developed with and endorsed by DVRPC's Regional Safety Task Force (RSTF). The RSTF is a multidisciplinary group that has shaped the 2006, 2009, and 2012 plans. Member organizations include NJDOT, PennDOT, counties, municipalities, Transportation Management Associations (TMAs), law enforcement agencies, and other agencies and organizations. Participants are listed in Appendix B.

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<sup>1</sup> A full list of acronyms used in this report, with definitions, is provided in Appendix A.

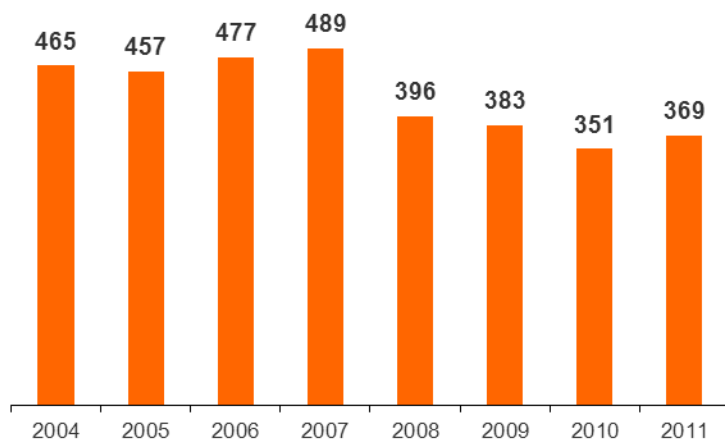




## Why Have a Safety Plan?

The *2012 Transportation Safety Action Plan* aims to reduce vehicle-related crashes and fatalities in the Delaware Valley through focusing on key safety emphasis areas. In the Delaware Valley, there were just over 85,000 reported crashes per year on average between 2008 and 2010, resulting in an average of 377 fatalities per year. A successful transportation safety action plan benefits the entire region and, at a personal level, could save the life of a loved one or a neighbor. Figure 1 shows crash fatalities in the Delaware Valley from 2004 to 2011, to give a sense of change over time.

Figure 1: Crash Fatalities in the Delaware Valley



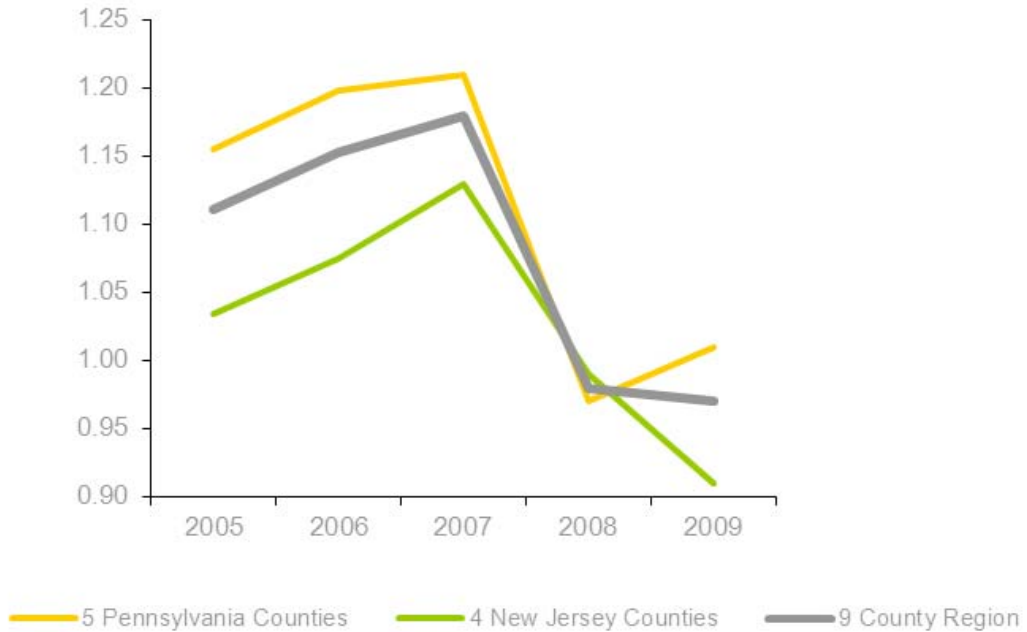
Source: Delaware Valley Regional Planning Commission, 2012.

There are many excellent safety programs underway in the region to reduce crashes and transportation fatalities. The number of fatalities has decreased since 2007. The decrease may be related to various factors. The Plan explains the key safety emphasis areas for the region, suggests strategies to improve safety in these emphasis areas, and highlights existing successful programs.

There are many ways to analyze crash data. These include by absolute numbers, rates, and federal emphasis area analysis. A graphics-rich, attractive summary of each year's data is distributed widely; for example, see the *2010 Annual Crash Data Bulletin for the Delaware Valley*

(DVRPC Publication 12036). In-depth, multiyear analysis is presented in a companion piece to the 2012 *Transportation Safety Action Plan* called *Analysis of Crashes in the Delaware Valley, 2008–2010*. One example of its analysis is shown in Figure 2, which covers the Vehicle Miles Traveled for the nine counties in New Jersey and Pennsylvania that are part of DVRPC.

Figure 2: Crash Fatalities Rate per Hundred Million Vehicle Miles Traveled



Source: Delaware Valley Regional Planning Commission, 2012.

DVRPC had adopted safety action plans in 2006 and 2009. The current document builds upon that work. It also continues to help implement *Connections: The Regional Plan for a Sustainable Future* (DVRPC Publication 09047). This document supports and is closely coordinated with the Pennsylvania and New Jersey Strategic Highway Safety Plans (SHSPs).

# Background

## Federal Regulations

The 2005 federal surface transportation legislation emphasized safety by increasing funding for safety and raising its stature. One way it did so was by requiring each state Department of Transportation (DOT) to develop a data-driven SHSP in coordination with its partners. DVRPC is a partner in planning for the Philadelphia metropolitan region with PennDOT and NJDOT. Based on reviews of various drafts of the next federal transportation bill, safety will remain an important component.

## Pennsylvania's Approach

Pennsylvania developed a Comprehensive Strategic Highway Safety Improvement Plan (CSHSIP) in 2010 with a wide range of partners and support from the PennDOT Bureau of Highway Safety and Traffic Engineering (BHSTE). BHSTE has since become part of the PennDOT Bureau of Maintenance and Operations (BOMO). The SHSP was updated in 2012. Publication of the report is anticipated in July 2012.

Pennsylvania starts with data-driven analysis of fatalities by emphasis area based on five-year averages and then selects a short set of vital focus areas based on further consideration of potential for overall fatality reduction toward goal, cost effectiveness of strategies, ease of strategy implementation, resources available (time, funding, partners), and proven countermeasures.

The vital safety focus areas in the 2012 Plan are:

1. Reducing Impaired Driving /Driving Under the Influence (DUI);
2. Increasing Seat Belt Usage;
3. Infrastructure Improvements;
4. Reducing Speeding and Aggressive Driving;
5. Reducing Distracted Driving;
6. Mature Driver Safety (ages 65+); and
7. Motorcycle Safety.

## New Jersey's Approach

New Jersey completed its CSHSIP, *Driving Down Deaths on New Jersey's Roadways*, in 2007. It was also developed with a range of partners and an analysis of crash data. The Plan identifies eight emphasis areas:

1. Minimize Roadway Departure Crashes;
2. Improve Design/Operation of Intersections;
3. Curb Aggressive Driving;
4. Reduce Impaired Driving;
5. Reduce Young Driver Crashes;
6. Sustain Safe Senior Mobility;
7. Increase Driver Safety Awareness; and
8. Reduce Pedestrian, Bicycle, Rail, and Vehicular Conflicts.

New Jersey started to update its plan in 2009, but work was on hold as of spring 2012 due to reorganization of staffing. The lead administrative agency is the Bureau of Safety Programs within NJDOT. The 2007 Plan was guided by a New Jersey Safety Management Task Force and had technical support from the Rutgers University Transportation Safety Resource Center (TSRC). The TSRC is providing technical support for the current update as well.

## DVRPC's Approach

DVRPC is the Metropolitan Planning Organization for the nine-county Greater Philadelphia Region, referred to as the Delaware Valley. This region consists of five Pennsylvania counties and four New Jersey counties (Figure 3).

The Delaware Valley represents more than just part of Pennsylvania and part of New Jersey. This is especially striking for the five Pennsylvania counties; they represent just 5 percent of the state's land area, 32 percent of the population and 28 percent of the crashes (based on 2010 Census and crash data). The four New Jersey counties represent 21 percent of the state's land area, 18 percent of the population, and 17 percent of the crashes. The DVRPC region shares many of the safety priority issues faced by Pennsylvania and New Jersey in general but also has its own unique character and safety concerns. For this reason, DVRPC prepares a regional safety action plan that draws on the work of each state and also informs the states of specific safety needs in the Philadelphia metropolitan area.

Figure 3: Delaware Valley Regional Planning Commission Region



DVRPC had previously adopted two safety action plans. The most recent, *2009 Safety Action Plan*, addressed the following seven emphasis areas:

1. Curb Aggressive Driving;
2. Reduce Impaired Driving;
3. Keep Vehicles on the Roadway;
4. Sustain Safe Senior Mobility;
5. Increase Seat Belt Usage;
6. Improve the Design and Operation of Intersections; and
7. Ensure Pedestrian Safety.

The RSTF, a multidisciplinary group that has been meeting since 2005, provided substantial guidance for the 2006 and 2009 plans. It has continued meeting quarterly to help inform and guide partners in their consideration of how to proceed with implementing the Plan and generally improving transportation safety. With the adoption of the 2009 Plan, each of the RSTF meetings has focused on one emphasis area. Members of the RSTF include DVRPC, NJDOT, PennDOT, counties, municipalities, TMAs, law enforcement, and others. See Appendix B for the list of members and agencies actively involved in shaping the 2012 Plan.

The *2009 Safety Action Plan* was used by DVRPC and contributed in varying degrees to the ongoing safety planning efforts of other partners in the region. Each of the seven emphasis areas is listed in Table 1 with a very short sample of actions taken since 2009 by DVRPC and its partners. While the motivation for partners to take specific actions may not have always come directly from the Plan, the end results of these actions often do directly address the emphasis areas. DVRPC considers any positive outcomes to help the region reach its safety goals. For further information on the DVRPC studies referenced in Table 1, go to [www.dvrpc.org/Transportation/Safety](http://www.dvrpc.org/Transportation/Safety).

Table 1: Summary of Actions Taken by the Delaware Valley Regional Planning Commission and Partners on 2009 Emphasis Areas

	2009 Emphasis Area	Activities Completed
1	Curb Aggressive Driving	<ul style="list-style-type: none"> <li>■ <i>Taming Traffic: State of Practice Report, Taming Traffic: Context Sensitive Solutions in the DVRPC Region</i></li> <li>■ RSTF Meeting held on October 16, 2009</li> </ul>
2	Reduce Impaired Driving	<ul style="list-style-type: none"> <li>■ RSTF Meetings held on April 1, 2010, and June 19, 2012</li> <li>■ Cherry Hill Township Police Low Speed Vehicle Program</li> </ul>
3	Keep Vehicles on the Roadway and Reduce Run-off-road Crashes	<ul style="list-style-type: none"> <li>■ Local and County Roads Safety Newsletter; <i>The High-Risk Rural Roads Program in the Delaware Valley</i></li> <li>■ RSTF Meeting held on November 17, 2010</li> </ul>
4	Sustain Safe Senior Mobility	<ul style="list-style-type: none"> <li>■ Senior Transportation Workshop on March 9, 2012</li> <li>■ RSTF Meeting held on February 10, 2011</li> </ul>
5	Increase Seat Belt Usage	<ul style="list-style-type: none"> <li>■ RSTF Meetings held on September 10, 2010, and November 29, 2011</li> <li>■ BCTMA—High School Seat Belt Safety Challenge</li> </ul>
6	Improve the Design and Operations of Intersections	<ul style="list-style-type: none"> <li>■ RSAs: Levittown Parkway (Bucks County), CR 534 Blackwood-Clementon Road (Camden County), CR 622 North Olden Avenue (Mercer County)</li> <li>■ CCSAP: Bedminster and Hilltown Townships (Bucks County), Tabernacle Township (Burlington County), Lawrence and West Windsor Townships (Mercer County)</li> <li>■ Corridor Studies: US 30 Corridor; NJ 73 Corridor</li> <li>■ RSTF Meeting held on February 2, 2010</li> </ul>
7	Ensure Pedestrian Safety	<ul style="list-style-type: none"> <li>■ Pedestrian Safety Update; Pedestrian and Bicycle Friendly Policies, Procedures, and Ordinances</li> <li>■ FHWA Pedestrian RSA Workshop on May 1, 2012</li> <li>■ RSTF Meetings held on July 29, 2009, and March 8, 2012</li> </ul>

Source: Delaware Valley Regional Planning Commission, 2012.

Note: BCTMA = Bucks County Transportation Management Association; CCSAP = Congestion and Crash Site Analysis Program; DVRPC = Delaware Valley Regional Planning Commission; FHWA = Federal Highway Administration; RSA = Road Safety Audit; RSTF = Regional Safety Task Force.

## Updating Emphasis Areas for the Delaware Valley

The *2012 Transportation Safety Action Plan* contains the same set of key emphasis areas identified in the 2009 Plan. This is a result of the data but will also help with tracking results. It focuses on emphasis areas shared by the two partner DOTs and on the most important emphasis areas for the Delaware Valley Region. It has been developed in a clear, updatable manner.

The federal requirement of state DOTs is focused on reducing roadway fatalities. As a result, the Pennsylvania and New Jersey SHSPs focus on vehicle crashes (although the current New Jersey Plan also includes Reduce Pedestrian, Bicycle, Rail, and Vehicular Conflicts as one of its eight emphasis areas). The Delaware Valley has among the highest levels of transit use in the nation based on statistics from the American Public Transportation Association, so this Plan also briefly addresses transportation safety for transit riders and may enhance this element in the future. Transportation in the Philadelphia area also includes safety for pedestrians, given the many residents, employees, and tourists who walk as a means of transportation and for other reasons.

### Methodology

DVRPC began this update by contacting PennDOT and NJDOT to facilitate cooperation and communication. The next step was to review changes in data for the 22 national emphasis areas. The changes since the 2009 analysis were presented at a RSTF meeting in May 2011. Key changes and trends are summarized in a companion document, *Analysis of Crashes in the Delaware Valley, 2008–2010*.

Twenty-two national safety emphasis areas are described in the American Association of State Highway and Transportation Officials (AASHTO) *Strategic Highway Safety Plan* published in 1997 and updated in 2004. The AASHTO report includes general strategies to address each emphasis area. It does not limit the emphasis areas or strategies that may be included in state SHSPs.

Pennsylvania and New Jersey each started with analysis of the national emphasis areas. Each state then worked with partners to develop their own SHSP. The key emphasis areas in each of the states' plans are listed in Chapter 2.

DVRPC conducted analysis of as many of the 22 emphasis areas as can be quantified using available data following the federal model of focusing on reducing fatalities. The analysis was sorted by number of fatalities in descending order and showed greater gaps after the first seven emphasis areas. This table was evaluated against the lists of key emphasis areas in

Pennsylvania and New Jersey. All emphasis areas that are in both states' SHSPs fall within the top seven emphasis areas from the DVRPC analysis.

## Conclusions about Updating Emphasis Areas

The set of key emphasis areas is based on a clear methodology that results in a manageable number of emphasis areas on which to take and track action. The seven identified emphasis areas are contributing factors in 95 percent of fatalities in the Delaware Valley. The emphasis areas may be updated as Pennsylvania and New Jersey update their plans, but the basic methodology is a sound way to encourage coordinated, enhanced safety planning in the Delaware Valley region.

Ongoing work on safety action plans has identified a few areas of special interest or for further investigation. These include:

- ◆ widening the evaluation of emphasis areas to consider injury and crash numbers as well as fatalities, perhaps through use of a crash severity index; data on fatalities, injuries, and crashes is provided in *Analysis of Crashes in the Delaware Valley, 2008–2010*;
- ◆ local road safety;
- ◆ young driver safety;
- ◆ safety relating to transit; and
- ◆ transportation security.

In New Jersey and Pennsylvania, a field in the crash database identifies whether the crash was on a local road, although the definition of that term differs between the states. Many crashes (approximately 30 percent) occurred on local roads. Since then, DVRPC has launched an annual newsletter oriented to municipalities to provide analysis and resources to reduce crashes on local and county roads.

Teen and young driver safety is an important subject. The actual number of fatalities involving teen and young drivers was lower than the number of fatalities for any of the seven included emphasis areas for the Delaware Valley. In addition, based on discussion at the RSTF meeting on April 8, 2009, there was a sense that the safety of young drivers is often improved by strategies for other emphasis areas.

Over a million people ride transit in the Delaware Valley each day, so it is important to recognize safety for transit riders. The pedestrian safety emphasis area specifically includes safety for transit riders going to or from their stops; however, more could be done on this subject. Safety concerns in transit are often thought of in the context of engineering solutions, such as bus/train/car design, signalization, etc. A productive area for further attention may be customer safety and incident response. One approach would be further training for transit staff. Transit staff represent the first line of response at station facilities and on transit vehicles.



Safety and security planning for transit coincide in many ways. These include strategies more from the safety side, such as well-lit transit stops, and also from the security side, such as preparing for major events and incidents. Major events include large gatherings, especially during evenings, to ensure that transit facilities remain safe from petty crime and to protect the expanded numbers of riders from other issues affecting personal safety. Major events and incidents also include equipment malfunctions, acts of terrorism, or natural disasters.

Being prepared for major events clearly goes beyond transit. All transportation modes in the region need to work together on preventing, preparing for, responding to, and recovering from major natural and man-made events. Coordination with other emergency support function annexes is also essential. This is largely within the purview of transit operators and transportation agencies, but DVRPC offers support where it would help improve overall transportation safety in the Delaware Valley. For further information, see *Fitting the Pieces Together: Improving Transportation Security Planning in the Delaware Valley* (DVRPC Publication 09018).



# Improving Safety in Emphasis Areas

## How We Increase Transportation Safety in the Delaware Valley

The Delaware Valley is in a strong position to improve safety on its roads and streets. Analysis has identified that just seven emphasis areas were contributing factors in 95 percent of traffic fatalities between 2008 and 2010. Furthermore, one emphasis area was a contributing factor in half the fatalities: Aggressive Driving. These seven emphasis areas are described in Table 2.

Most of the rest of this Plan focuses on the seven key emphasis areas one at a time. The following is provided for each emphasis area:

- ◆ description in national-level documents;
- ◆ Delaware Valley data and background;
- ◆ existing programs by RSTF partners;
- ◆ potential strategies to improve safety for that emphasis area based on national sources and RSTF work, including the meeting held on each emphasis area after adoption of the *2009 Safety Action Plan* and the recommendations work session held on April 19, 2012; and
- ◆ additional resources.

As noted, a range of potential strategies to consider is listed for each emphasis area based on various resources and RSTF work. A subset of these strategies and specific actions that seemed most effective and most doable, selected with guidance from the RSTF, is included in the final chapter as Table 11: “Recommended Strategies and How to Accomplish Them.” This table is a valuable resource itself, and will also be the starting point for detailed discussion and commitment by various partners at the RSTF meeting on that emphasis area. Each RSTF meeting ends with commitment by several partners to take specific actions and report on how they have gone at a defined future meeting. This is part of implementing the Goal, Objectives, and Measurements of the RSTF available at [www.dvrpc.org/ASP/committee/Committee.aspx?p=RSTF](http://www.dvrpc.org/ASP/committee/Committee.aspx?p=RSTF).

Table 2: 2012 Emphasis Areas for the Delaware Valley

	Emphasis Area	Brief Definition
1	Curb Aggressive Driving	Aggressive driving is a combination of dangerous, deliberate, and hostile behaviors or actions by a motor vehicle operator that endanger other persons and disregard public safety. <b>Aggressive driving was a contributing factor for half of the traffic fatalities in the Delaware Valley on average for the period from 2008 to 2010. This is the most significant emphasis area to address in order to improve safety.</b>
2	Keep Vehicles on the Roadway and Minimize the Consequences of Leaving the Roadway	Keeping vehicles on the roadway helps reduce crashes in which vehicles leave the roadway, as they often then hit fixed objects, overturn, and/or roll. Roadway departure crashes are often deadly.
3	Improve the Design and Operation of Intersections	Improving the design and operation of intersections means reducing crashes at both signalized and unsignalized intersections. In locations with pedestrians and bicyclists, it is important to also address their need to cross intersections.
4	Reduce Impaired and Distracted Driving	Impaired driving refers to driving under the influence of alcohol in this analysis due to the data. It also refers to driving while drug-impaired or sleep-deprived. Distracted driving is included with this section as many strategies to reduce it are similar in nature to those for reducing impaired driving.
5	Increase Seat Belt Usage	Wearing a safety belt is highly effective for preventing crash fatalities. All occupants of a vehicle should wear seatbelts.
6	Ensure Pedestrian Safety	Ensuring pedestrian safety involves improving the design and availability of pedestrian facilities on roadways, as well as increasing awareness of the risks and responsibilities both drivers and pedestrians must consider during their interactions.
7	Sustain Safe Senior Mobility	Sustaining safe senior mobility includes recognizing that although many older drivers are still capable, the effects of aging have negative consequences on the safe driving abilities of some seniors. It is important to also address the range of mobility alternatives for seniors.

Source: Delaware Valley Regional Planning Commission, 2012.

## Emphasis Area 1: Curb Aggressive Driving

The National Highway Traffic Safety Administration (NHTSA) defines aggressive driving as "when individuals commit a combination of moving traffic offenses so as to endanger other persons or property." Some behaviors associated with aggressive driving include: exceeding the posted speed limit, following too closely, erratic or unsafe lane changes, improperly signaling lane changes, and running red lights or other traffic control devices.

Sources: [www.nhtsa.gov/people/injury/enforce/aggressdrivers/aggenforce/define.html](http://www.nhtsa.gov/people/injury/enforce/aggressdrivers/aggenforce/define.html), PennDOT, NJDOT.

Aggressive driving was a contributing factor in 50 percent of the traffic fatalities in the Delaware Valley on average for the period from 2008 to 2010. **This is the most significant emphasis area to address in order to improve safety.** See the companion piece, *Analysis of Crashes in the Delaware Valley, 2008–2010*, for more background information.

Both PennDOT and NJDOT are interested in shifting to a consistent national definition of aggressive driving. PennDOT tracks a definition based on NHTSA guidance. They track "the operation of a motor vehicle involving two or more moving violations as part of a single continuous sequence of driving acts, which is likely to endanger any person or property."

PennDOT also continues to track the measure that has been in its reports for many years based on when any one of a list of behaviors contributed to the crash. This is the definition used in the *Analysis of Crashes* document, because it can be tracked over many years and is more similar to the New Jersey definition. The list includes making an illegal U-turn, running a stop sign, running a red light, tailgating, careless passing, passing in no-passing zone, and speeding.

NJDOT has expressed interest in moving toward a new definition that is more stringent, but their current definition is based on crashes with any one of a list of contributing circumstances to aggressive driving crashes. Making the New Jersey data able to support a definition in keeping with NHTSA was one of their recommendations included in this Plan.

### Existing Programs

Table 3 lists many of the programs in the Delaware Valley region that help curb aggressive driving, updated from the *2009 Safety Action Plan*.

Table 3: Programs in the Delaware Valley That Help Curb Aggressive Driving

Engineering	Enforcement	Education
	<p>NJDOT</p> <ul style="list-style-type: none"> <li>Red-light camera programs</li> <li>Safe Corridors program</li> </ul>	<p>DVRPC</p> <ul style="list-style-type: none"> <li>Taming Traffic reports</li> <li>RSAs</li> <li>CCSAP</li> <li>RSTF</li> </ul>
<p>PennDOT</p> <ul style="list-style-type: none"> <li>Pavement “Dot” treatments (solid, oval pavement markings to assist drivers in establishing the recommended following distance); Example: PA 41 (Chester County)</li> </ul>	<p>PennDOT</p> <ul style="list-style-type: none"> <li>Programs to report aggressive driving</li> <li>Aggressive Driving program provides grants to state and local police for speed enforcement , including on Roosevelt Boulevard (Route 1)</li> </ul>	<p>NJDOT</p> <ul style="list-style-type: none"> <li>Aggressive driving awareness campaign</li> </ul>
	<p>NJDHTS</p> <ul style="list-style-type: none"> <li>Obey the Signs or Pay the Fines (formerly Smooth Operator)— campaign to promote courteous driving (Education and Enforcement)</li> </ul>	<p>PennDOT</p> <ul style="list-style-type: none"> <li>Established a network of Comprehensive Traffic Safety Projects (CTSP) in each Pennsylvania DVRPC County (Delaware, Chester, Bucks, Montgomery, and Philadelphia. Education/Outreach Programs are provided throughout the region.</li> </ul>
	<p>New Jersey State Police</p> <ul style="list-style-type: none"> <li>#77 Aggressive Driving Hotline</li> <li>Enhanced enforcement along Safe Corridors, other strategic locations</li> </ul>	<p>NJDHTS</p> <ul style="list-style-type: none"> <li>Obey the Signs or Pay the Fines campaign to promote courteous driving (Education and Enforcement)</li> <li>Put the Brakes on Fatalities Day</li> </ul>
	<p>Philadelphia Parking Authority</p> <ul style="list-style-type: none"> <li>Red-light camera programs</li> </ul>	<p>SEPTA</p> <ul style="list-style-type: none"> <li>Operator training program – (teaches bus drivers to recognize behavior of aggressive drivers)</li> </ul>
	<p>Philadelphia</p> <ul style="list-style-type: none"> <li>Manage enhanced enforcement on Roosevelt Boulevard with funding from PennDOT</li> </ul>	<p>COAD Group, Exton (Chester County)</p> <ul style="list-style-type: none"> <li>Aggressive &amp; Perceptive Driving Program</li> </ul>
	<p>Delaware County</p> <ul style="list-style-type: none"> <li>Manage enhanced enforcement on Route 1 with funding from PennDOT</li> </ul>	
	<p>Burlington County Traffic Safety Task Force</p> <ul style="list-style-type: none"> <li>Speed enforcement (joint effort of Sheriff Dept. and local police) using grants from NJDHTS</li> </ul>	

Source: Delaware Valley Regional Planning Commission, 2012.

Notes: CCSAP = Congestion Crash Site and Analysis Program; COAD = Council on Addictive Diseases; NJDHTS = New Jersey Division of Highway Traffic Safety; NJDOT = New Jersey Department of Transportation; PennDOT = Pennsylvania Department of Transportation; RSA = Road Safety Audit; RSTF = Regional Safety Task Force; SEPTA = Southeastern Pennsylvania Transportation Authority.

## Potential Strategies to Curb Aggressive Driving

The following strategies are a starting point to help curb aggressive driving in the Delaware Valley. Strategies were drawn from the Pennsylvania SHSP; the New Jersey SHSP; the national SHSP (AASHTO); the National Cooperative Highway Research Program's *NCHRP Report 500-1, A Guide for Addressing Aggressive Driving Collisions*; and input from participants in the RSTF.

Aggressive driving will best be reduced through a multidisciplinary approach that fixes the causes of aggressive driving as well as addresses its symptoms. The approach should include enforcing all traffic laws, addressing traffic operations factors that apparently contribute to aggressive driving, and evaluating the results of actions (*NCHRP 500-1*).

Note that legislative strategies recommended by safety partners do not constitute endorsement by specific agencies. Each strategy is usually only listed once in the category below to which it most relates, although there can be overlap.

### Policy

- ▶ *Promote legislative activities aimed at curbing Aggressive Driving (See p. 38 of 2007 New Jersey SHSP for detailed actions), including considering legislation that:*
  - ◆ defines aggressive driving as an enforceable offense and establishes stiff penalties (Draft work on 2012 Pennsylvania SHSP);
  - ◆ allows local police in Pennsylvania to use radar in speed enforcement (Draft work on 2012 Pennsylvania SHSP); and
  - ◆ expands the use of automated enforcement systems, such as red-light and speeding cameras (*2009 Safety Action Plan*).
- ▶ *Expand Intelligent Transportation Systems (ITS) technologies (automated enforcement) and inform public about technology deployment (Draft work on 2012 Pennsylvania SHSP).*
- ▶ *Provide analysis that supports adequate funding for enforcement programs.*
- ▶ *Provide information and analysis to inform policy discussions of aggressive driving and its elements, such as speeding, tailgating, and combinations of aggressive behaviors (see section in 2012 Transportation Safety Action Plan for more detail); include discussion of dangerous behaviors.*
- ▶ *Continue to work with New Jersey and Pennsylvania on definitions of aggressive driving, moving toward the NHTSA definition and a shared regional definition.*

### Engineering Strategies

- ▶ *Encourage consideration of road diets and roundabouts in various transportation plans and programs.*
- ▶ *Use pavement markings, roadway striping, and signage to regulate traffic.*
- ▶ *Evaluate engineering practices, including signage, lane widths, signal timing, and speed limits for their potential to curb Aggressive Driving (2007 New Jersey SHSP, p. 38).*
- ▶ *Evaluate and establish realistic speed limits and design speeds as a systematic approach for the region.*

- ▶ *Identify and prioritize severely congested intersection and corridor improvement needs with a focus on reducing aggressive driving.*
- ▶ *Explore and share information about engineering strategies, such as traffic calming and road diets in reducing aggressive driving.*

### Enforcement Strategies

- ▶ *Share information about areas with high rates of aggressive driving crashes and discuss how various agencies and organizations could further coordinate to improve safety.*
- ▶ *Highly publicize enforcement using saturation patrols and other displays of enforcement to make them more effective (2009 Safety Action Plan).*
- ▶ *Develop a system to identify problem drivers based on variable repeat violations. Educate and impose sanctions against repeat offenders (NCHRP 500-1).*
- ▶ *Share information with prosecutors and judges to help have speed violations and other aggressive driving violations treated seriously and fairly. Particularly, promote that sanctions are upheld against repeat offenders.*
- ▶ *Promote the use of advanced technologies to support enforcement efforts (AASHTO, p. 12).*
- ▶ *Continue to promote citizen reporting options, including cell phones and other methods.*
  - ◆ *Develop aggressive driving hotline for PA (2010 Pennsylvania SHSP).*
- ▶ *Encourage State Police to target aggressive drivers.*

### Education Strategies

- ▶ *Use variable message signs to increase driver awareness and reduce the frustration that may contribute to aggressive driving by some people (NCHRP 500-1).*
- ▶ *Develop a multifaceted educational program, including classroom training and a media campaign that raises awareness of Aggressive Driving and programs, such as Drive Safe PA (formerly Smooth Operator) and Obey the Signs or Pay the Fines (2007 New Jersey SHSP, p. 37; 2009 Safety Action Plan).*
  - ◆ *Highlight statutes in the vehicle code related to aggressive driving (2009 Safety Action Plan).*
  - ◆ *Include education at the testing level (2009 Safety Action Plan).*
  - ◆ *Focus on specific high-incidence demographic and community groups (2009 Safety Action Plan).*
  - ◆ *Use all channels of media, such as newspapers, magazines, television, radio, social networking websites, etc.*
- ▶ *Educate legislators, specifically those on transportation committees, on aggressive driving and their necessary support in helping to curb it by developing effective policies (2009 Safety Action Plan).*
- ▶ *Continue to communicate to the public what aggressive driving and dangerous behaviors are and why they are so dangerous.*
- ▶ *Provide clear information about the effects of different funding levels on how much enforcement is possible and the resulting effects on safety.*
- ▶ *Educate officers and people running Train the Trainer events about the importance of reporting aggressive driving (especially multiple factors for crashes on report forms).*



## Emergency Services Strategies

- ▶ *Educate about the “Steer Clear” law, which requires motorists to move over or slow down when they encounter an emergency scene, traffic stop, or disabled vehicle (recently passed in New Jersey, existing law in Pennsylvania).*
- ▶ *Utilize temporary safety zones to ensure the safety of emergency personnel during emergencies by prohibiting unauthorized individuals and vehicles from entering the safety zones.*
- ▶ *Implement various levels of emergency response signal priority or preemption to assist in tracking and responding to aggressive driving before or after crashes (2009 Safety Action Plan).*
- ▶ *Increase use of Closed-Circuit Television (CCTV) to assist in tracking and responding to aggressive driving before or after crashes (2009 Safety Action Plan).*
- ▶ *Provide the highest level of training and performance standards for emergency responders for all situations, but this may be especially useful for the unpredictable nature of tracking and responding to some aggressive driving situations before or after crashes (2009 Safety Action Plan).*

## Additional Resources

- ▶ *NCHRP Report 500-1, A Guide for Addressing Aggressive Driving Collisions*

## Emphasis Area 2: Keep Vehicles on the Roadway and Minimize the Consequences of Leaving the Roadway

When a vehicle leaves the roadway, the result is often disastrous. Nationally, more than 53 percent of all fatal traffic crashes in 2010 involved vehicles running off the road. The statistics are even worse in rural areas, where two-thirds of fatalities result from vehicles first leaving the road and then overturning or hitting fixed objects such as trees or embankments.

In order to reduce the injuries and fatalities resulting from vehicles leaving the road, efforts must be made to: (1) keep vehicles from leaving the road, (2) reduce the likelihood of errant vehicles overturning or crashing into roadside objects, and (3) minimize the severity of an overturn or crash.

Sources: *Strategic Highway Safety Plan* (AASHTO, 2005), "Traffic Safety Facts 2007" (NHTSA # 811002, 2008), "Traffic Safety Facts, Research Note" (NHTSA # DOT HS 811 552, 2010).

In the Delaware Valley during the period from 2008 to 2010, one or more vehicles left the roadway in 34 percent of traffic fatalities. See the companion piece, *Analysis of Crashes in the Delaware Valley, 2008–2010*, for more background information.

### Existing Programs

Table 4 lists many of the programs in the Delaware Valley region that help keep vehicles on the roadway, updated from the *2009 Safety Action Plan*.

Table 4: Programs in the Delaware Valley That Help Keep Vehicles on the Roadway and Minimize the Consequences of Leaving the Roadway

Engineering	Enforcement	Education
<p>NJDOT</p> <ul style="list-style-type: none"> <li>■ Statewide median cross-over barrier program</li> <li>■ Raised pavement markers program</li> <li>■ Wet weather skid crash reduction program</li> <li>■ Fixed object program</li> </ul>		<p>DVRPC</p> <ul style="list-style-type: none"> <li>■ Taming Traffic reports</li> <li>■ RSAs</li> <li>■ CCSAP</li> <li>■ RSTF</li> </ul>
<p>PennDOT</p> <ul style="list-style-type: none"> <li>■ System-wide approach to install shoulder/edge line rumble strips and improve/install guide rails</li> <li>■ Proposing implementation of safety edge requirement on all 3R projects</li> <li>■ Cable Median Barriers (US 202, North Valley Road to US 322; US 422 limits); I-95 in Philadelphia and Bucks counties</li> </ul>		
<p>Delaware County</p> <ul style="list-style-type: none"> <li>■ Work with planning partners to encourage striped shoulders</li> <li>■ Conduct spot speed studies for concerns on speed limits</li> </ul>		
<p>Gloucester County</p> <ul style="list-style-type: none"> <li>■ System-wide approach to install rumble strips; improve signage and delineation of curves; install traffic calming techniques as appropriate; improve/install guide rail; install skid-resistant pavement as appropriate; improve shoulders</li> <li>■ System-wide sign management program</li> <li>■ Improve/maintain roadway drainage as appropriate</li> </ul>		
<p>Mercer County</p> <ul style="list-style-type: none"> <li>■ Guide rail reviewed annually and end treatments replaced with ET 2000 treatments as needed</li> <li>■ Roadway segments identified for re-surfacing on an annual basis</li> </ul>		
<p>Burlington County</p> <ul style="list-style-type: none"> <li>■ Use of Clearview font on guide signs</li> <li>■ Use of raised pavement markers as appropriate</li> <li>■ Use of wet reflective striping to improve visibility</li> </ul>		

Source: Delaware Valley Regional Planning Commission, 2012.

Notes: CCSAP = Congestion Crash Site Analysis Program; DVRPC = Delaware Valley Regional Planning Commission; NJDOT = New Jersey Department of Transportation; PennDOT = Pennsylvania Department of Transportation; RSA = Road Safety Audit; RSTF = Regional Safety Task Force.

## Potential Strategies to Keep Vehicles on the Roadway and Minimize the Consequences of Leaving the Roadway

The following strategies are a starting point to consider what will help keep vehicles on the roadway in the Delaware Valley and minimize the consequences if vehicles leave it. Strategies were drawn from the Pennsylvania SHSP, the New Jersey SHSP, the national SHSP (AASHTO), and input from participants in the RSTF.

The best way to minimize the consequences of leaving the roadway is to keep vehicles where they belong. In the listing of strategies that follow, strategies to do this are listed first and denoted with a “K.” Strategies that also minimize the consequences of leaving the road are denoted with an “M.” Note that legislative strategies recommended by safety partners do not constitute endorsement by specific agencies.

### Policy

- ▶ *Refine policies to keep vehicles on the roadway to distinguish between the following two types of roads:*
  - ◆ (K)(M) Those with speed limits under 50 miles per hour (MPH) (more city/urban, fewer fatalities, obstacles closer to road); and
  - ◆ (K)(M) Those with speed limits over 50 MPH (more rural, more fatalities, obstacles often farther from road).

### Engineering Strategies

- ▶ *Identify and implement engineering solutions to keep vehicles on the roadway, including a comprehensive program to improve driver guidance through pavement markings and reflectivity; shoulder accommodations; rumble strips and stripes; and improved roadway geometry, curvature, and delineation (2007 New Jersey SHSP p. 23; 2010 Pennsylvania SHSP; AASHTO, p. 26).*
  - ◆ (K) Implement a targeted rumble strip and rumble stripe program (AASHTO, p. 26).
  - ◆ (K) Conduct a region-wide survey/study to pinpoint hotspots for shoulder enlargement.
  - ◆ (K)(M) Improve the design process to explicitly incorporate safety considerations and facilitate better design decisions (AASHTO, p. 26).
  - ◆ (M) Provide guardrails to shield motorists from striking fixed objects (*NCHRP 500-3*).
  - ◆ (K) Provide skid-resistant pavement surfaces (*NCHRP 500-6*).
  - ◆ (K) Develop better ways to maintain critical signage and ensure signs are location specific.
  - ◆ Provide proper warning signs for upcoming curves, road problems, speed limit changes, etc.
  - ◆ Lower speed limits in wet/bad weather conditions.
- ▶ *(K)(M) Make roadsides more “forgiving” while trying not to encourage speeding by selectively widening shoulders, flattening slopes, removing fixed objects, increasing offsets between utility poles, improving substandard guiderrails, and trimming foliage.*

- ▶ *(K) Reduce the number of lane miles with 10-foot travel lanes and posted speed limits of 40 MPH or above in the region. Increase the number of lane miles where the paved shoulder is a minimum of four feet wide where appropriate.*
- ▶ *(K) Develop better guidance to control speed variance through combinations of geometric, traffic control, and enforcement techniques (AASHTO, p. 26).*
- ▶ *(K)(M) Analyze crash data to identify:*
  - ◆ run-off-road locations that have been experiencing crash problems in the region;
  - ◆ crash trends and locations to draw more attention to these conditions so that appropriate agencies can address them; and
  - ◆ locations where pedestrians are victims of run-off-road crashes as especially important locations for safety improvements.
- ▶ *(K) Enhance communication and coordination among agencies to promote best practices and proven countermeasures in keeping vehicles on the roadway.*

### Enforcement Strategies

- ▶ *(K)(M) Enforce realistic speed limits.*
  - ◆ Conduct a regional assessment of possible locations for speed limit changes.
- ▶ *(K) Train law enforcement officers to recognize poor traffic control set-ups and take action to shut down dangerous operations.*

### Education Strategies

- ▶ *Develop, communicate, and implement a comprehensive educational program on the prevention and reduction of roadway departure crashes (2007 New Jersey SHSP pp. 22–23).*
  - ◆ (K) Identify and use educational material to enhance driver attentiveness.
  - ◆ (K) Encourage planning trips with enough time to allow for traffic, construction, weather, defects in the road, etc.
- ▶ *(K) Create safe work zones by educating crews about setting up road work areas as detailed in the Manual on Uniform Traffic Control Devices (MUTCD).*
- ▶ *(M) Publicize the importance of vehicle maintenance to safety.*
- ▶ *(K) Promote best practices used by Pennsylvania and New Jersey, as well as the 2012 Federal Highway Administration (FHWA) proven countermeasures in keeping vehicles on the roadway.*
- ▶ *(K) Clarify how to report crash-prone locations and signage issues, by any citizen and by police (in Pennsylvania on the AA500 police reporting form, officers have a check box if maintenance is required) to departments of transportation.*

### Additional Resources

- ▶ *NCHRP Report 500-3, A Guide for Addressing Collisions with Trees in Hazardous Locations*
- ▶ *NCHRP Report 500-6, A Guide for Addressing Run-Off-Road Collisions*
- ▶ *NCHRP Report 500-7, A Guide for Reducing Collisions on Horizontal Curves*
- ▶ *NCHRP Report 500-8, A Guide for Reducing Collisions Involving Utility Poles*

## Emphasis Area 3: Improve the Design and Operation of Intersections

“Injury and fatality statistics for highway intersections and interchanges are ample evidence that strategies to improve the safety of these crash-prone areas are urgently needed. On average, there are five crashes at intersections every minute and one person dies every hour of every day at an intersection somewhere in the United States.

About one in every four fatal crashes occurs at or near an intersection, one-third of which are signalized. Safety literature also indicates that the two most prominent crash scenarios involve left-turns and being struck from the rear. Furthermore, right-angle collisions are a predominate cause of death at signalized intersections.” (AASHTO, p. 28)

*Sources: Strategic Highway Safety Plan (AASHTO, 2005), “Traffic Safety Facts 2007” (NHTSA # 811002, 2008). [The AASHTO discussion focuses on highway intersections. The Delaware Valley analysis was of all intersections. All intersections will be covered in this Plan.]*

Intersections were a contributing factor for 29 percent of the traffic fatalities in the Delaware Valley on average for each year from 2008 to 2010. Note that these numbers include drivers, passengers, pedestrians, bicyclists, and others. See the companion piece, *Analysis of Crashes in the Delaware Valley, 2008–2010*, for more background information.

### Existing Programs

Table 5 lists many of the programs in the Delaware Valley region that help improve the design and operation of intersections, updated from the *2009 Safety Action Plan*.

Table 5: Programs in the Delaware Valley That Help Improve the Design and Operation of Intersections

Engineering	Enforcement	Education
<p>NJDOT</p> <ul style="list-style-type: none"> <li>■ Rail/highway grade crossing—upgrades and safety education</li> <li>■ Intersection Improvement programs: Left-Turn Crash program, Right-Angle Crash program</li> <li>■ SIT</li> <li>■ Pedestrian program</li> <li>■ LTAP</li> </ul>	<p>Philadelphia Parking Authority</p> <ul style="list-style-type: none"> <li>■ Red-light running camera program</li> </ul>	<p>FHWA</p> <ul style="list-style-type: none"> <li>■ Coordinate with the City of Philadelphia as part of the federal Pedestrian Focus City program</li> </ul>
<p>PennDOT</p> <ul style="list-style-type: none"> <li>■ System-wide approach to identify high-crash intersections</li> <li>■ LTAP</li> <li>■ District 6 safety contract to add 25 signalized intersections with pedestrian countdown signals</li> </ul>	<p>Deptford Township Police</p> <ul style="list-style-type: none"> <li>■ Red-light running camera program</li> </ul>	<p>DVRPC</p> <ul style="list-style-type: none"> <li>■ CCSAP</li> <li>■ Taming Traffic reports</li> <li>■ Transportation Operations Task Force</li> <li>■ RSTF</li> </ul>
<p>SEPTA</p> <ul style="list-style-type: none"> <li>■ Transit First signal prioritization program</li> <li>■ Enhanced Light Rail Trolley lines grade crossing—utilizing gates and flashers or priority preemption with street traffic signals</li> <li>■ Locate bus stops on far side of intersection when possible</li> </ul>		<p>NJDOT, PennDOT</p> <ul style="list-style-type: none"> <li>■ Operation Life Saver program—Safety education for at-grade highway and rail grade crossings</li> </ul>
<p>Burlington County</p> <ul style="list-style-type: none"> <li>■ Use of Clearview font on guide signs</li> <li>■ Use of raised pavement markers as appropriate</li> </ul>		
<p>Gloucester County</p> <ul style="list-style-type: none"> <li>■ Install video detection system on all county-operated signals</li> <li>■ Improve geometry of intersection as appropriate</li> <li>■ Consider roundabouts as an option</li> <li>■ Provide offset left-turn lanes as appropriate</li> </ul>		
<p>Mercer County</p> <ul style="list-style-type: none"> <li>■ Provide all-red clearance intervals at all intersections</li> <li>■ Protected left-turn phase as necessary</li> <li>■ Head-to-head left-turn lanes where possible</li> <li>■ Eliminate skewed intersections where possible</li> <li>■ Outfit signals with OptiCOM system (signal preemption)</li> </ul>		
<p>Philadelphia Streets Department</p> <ul style="list-style-type: none"> <li>■ Pedestrian Safety Countdown Signals</li> </ul>		

Source: Delaware Valley Regional Planning Commission, 2012.

Notes: CCSAP = Congestion Crash Site and Analysis Program; DVRPC = Delaware Valley Regional Planning Commission; FHWA = Federal Highway Administration; LTAP = Local Technical Assistance Program; NJDOT = New Jersey Department of Transportation; PennDOT = Pennsylvania Department of Transportation; RSTF = Regional Safety Task Force; SEPTA = Southeastern Pennsylvania Transportation Authority; SIT = Safety Impact Team.

## Potential Strategies to Improve the Design and Operation of Intersections

The following strategies are a starting point for considering what will help improve the design and operation of intersections in the Delaware Valley. Strategies were drawn from the Pennsylvania SHSP, the New Jersey SHSP, the national SHSP (AASHTO), and input from participants in the RSTF. Note that legislative strategies recommended by safety partners do not constitute endorsement by specific agencies.

### Policy

- ▶ *Consider pursuing legislative changes necessary to use technology to monitor and increase safety at intersections (2009 Safety Action Plan).*
- ▶ *Enhance methodologies and standardization for problem identification, prioritization, and evaluation (2007 New Jersey SHSP, p. 30).*
  - ◆ Establish an Intersection Improvement Program (IIP) for the region to help with analysis, recommendations, and funding.
  - ◆ Implement IIPs on a municipal and county-wide basis.

### Engineering Strategies

- ▶ *Reduce signalized intersection crashes.*
  - ◆ Provide and/or improve turn lanes (2009 Safety Action Plan).
  - ◆ Increase the use of protected left-turn signals as appropriate (2009 Safety Action Plan).
  - ◆ Improve intersection safety by upgrading signalized intersection controls that smooth traffic flow. Target intersections with high incident rates (AASHTO, p. 29).
  - ◆ Improve visibility of signals by using light-emitting diode (LED) bulbs, larger signal heads, and back plates.
  - ◆ Time signals to accommodate pedestrians, install pedestrian countdown timers, and install Yield to Pedestrian Channelizing Devices (2009 Safety Action Plan).
  - ◆ Spread the word to make roadway signage and signalized intersections as clear and simple as possible.
- ▶ *Reduce stop-controlled intersection crashes.*
  - ◆ Expand use of roundabouts as an effective intersection improvement.
  - ◆ Increase visibility of intersection and signage.
- ▶ *Improve sight distance, visibility, and geometry of intersections (2009 Safety Action Plan).*
- ▶ *Locate bus pull-offs and transit stops on the far side of intersections.*
- ▶ *Utilize new technologies, including queue detection and video detection to improve intersection safety (AASHTO, p. 29).*
- ▶ *Improve the PennDOT Crash Records System to create more complete and useable data to be shared with planning partners.*



- ▶ *Share list of intersections experiencing a high frequency of crashes that would benefit from capital improvements or low-cost safety measures to promote cooperative improvement approaches.*

### Enforcement Strategies

- ▶ *Target enforcement at specific problem intersections using automated methods to monitor and enforce intersection traffic control (2007 New Jersey SHSP, p. 31; 2009 Safety Action Plan; AASHTO, p. 29).*
  - ◆ *Use red-light running cameras for detection where allowed (2009 Safety Action Plan).*
  - ◆ *Implement photo radar where allowed (2009 Safety Action Plan).*
- ▶ *Monitor travel speeds on approaches (2009 Safety Action Plan).*
- ▶ *Further publicize to police departments that crash analysis can greatly increase effectiveness and that the data is available.*

### Education Strategies

- ▶ *Educate the public on intersection safety issues (2007 New Jersey SHSP, p. 31).*
  - ◆ *Involve NJDOT, PennDOT, and other applicable agencies in media campaigns for intersection safety.*
  - ◆ *Include effective access management policies with a safety perspective (AASHTO, p. 29).*
- ▶ *Utilize mobile speed display boards to raise awareness of speed limits.*
- ▶ *Make strategies more effective through enhancing coordination of agencies (or agencies and land owners).*

### Emergency Services Strategies

- ▶ *Further coordinate emergency responses between neighboring municipalities and regional resources to speed clearance of crashes and improve speed of access to medical treatment (2009 Safety Action Plan).*
- ▶ *Educate the public on crash scene safe practices to maintain operations of intersections and improve speed of access to medical treatment using programs such as Bystander Care training (2009 Safety Action Plan).*
- ▶ *Collaborate with emergency response services on future Transit First signal prioritization efforts to develop a hierarchy of signal preemption.*

### Additional Resources

- ▶ *NCHRP Report 500-5, A Guide for Addressing Unsignalized Intersection Collisions*
- ▶ *NCHRP Report 500-12, A Guide for Reducing Collisions at Signalized Intersections*

## Emphasis Area 4: Reduce Impaired and Distracted Driving

“Among all traffic safety issues, impaired driving has perhaps the highest profile, and combating it has been vigorously pursued for decades with aggressive campaigns in both the public and private sectors. All states, the District of Columbia, and Puerto Rico have enacted laws making 21 the minimum age for legal consumption of alcohol and establishing a Blood Alcohol Content (BAC) of .08 as the legal definition of impaired driving. Despite these efforts, impaired driving remains a highly difficult issue.” (AASHTO, p. 13)

Nationally, there were 10,228 alcohol-impaired traffic fatalities in 2010—an average of one every 51 minutes.

In addition to driving under the influence of alcohol, there is growing awareness of the danger of other forms of impaired driving. These include driving under the influence of illegal drugs or while impaired by prescription or over-the-counter drugs, as well as driving while sleep deprived.

Distracted driving involves any activity that could divert a person's attention away from the primary task of driving. *All* distractions endanger driver, passenger, and bystander safety. Some of the most dangerous are ones that involve both cognitive and physical distraction. These types of distractions include texting, making cell phone calls, and using a navigation system or in-vehicle computer.

*Sources: Strategic Highway Safety Plan (AASHTO, 2005), “Traffic Safety Facts 2008” (NHTSA # DOT HS 811 155 2008), “Traffic Safety Facts 2010, Alcohol-Impaired Driving” (NHTSA # DOT HS 881 606 2010), and [www.Distracted.gov](http://www.Distracted.gov).*

The impaired driving statistics tracked by NJDOT and PennDOT only cover alcohol-related crashes. It is expensive and more difficult to test for drug impairment, although this is also done to a lesser extent. Integrating drugged driving into the definition of impaired driving should be a consideration. The states also track distracted driving crashes but the data is considered deeply underreported.

Impaired driving was a contributing factor for 28 percent of the traffic fatalities in the Delaware Valley on average for the period from 2008 to 2010. While the percentages for most emphasis areas are similar across the region, impaired driving is different; it is a factor in 34 percent of fatalities in the region's Pennsylvania counties and 19 percent in the New Jersey counties. This may be due in part to differences in how impaired driving is treated from a legal perspective. In New Jersey, DUI is not a criminal offense, which may possibly affect the reported number of DUI crashes.

In New Jersey, impaired driving is a serious motor vehicle (traffic) violation but not a criminal offence as it is in Pennsylvania and most other states. Being found guilty of impaired driving does not become part of a person's criminal record in New Jersey. This is a matter currently being discussed for distracted driving. As of June 2012 there are active bills in the New Jersey

Senate and Assembly that would make it a criminal offence to injure or kill a person due to use of a cell phone while driving (A1074 and S1616).

The dangers of alcohol impairment are not limited to motor vehicle drivers. Pedestrians and bicyclists under the influence of alcohol are also putting themselves at risk.

See the companion piece, *Analysis of Crashes in the Delaware Valley, 2008–2010*, for more background information.

## Existing Programs

Table 6 lists many of the programs in the Delaware Valley region that help reduce impaired driving, updated from the *2009 Safety Action Plan*.

Table 6: Programs in the Delaware Valley That Help Reduce Impaired Driving

Engineering	Enforcement	Education
<p>PennDOT</p> <ul style="list-style-type: none"> <li>■ Ignition interlock contract with DUI Association</li> </ul>	<p>Pennsylvania State Police</p> <ul style="list-style-type: none"> <li>■ Weekly sobriety checkpoints</li> <li>■ Participation in NHTSA Drive Sober or Get Pulled Over Labor Day mobilization and other state mobilizations</li> <li>■ Officers trained as DREs</li> </ul>	<p>NJDHTS</p> <ul style="list-style-type: none"> <li>■ Defensive driving course (includes DUI in curriculum) through counties</li> <li>■ Drunk driving campaign</li> <li>■ DUI training for law enforcement</li> <li>■ Cops in Shops program</li> <li>■ College campus programs</li> </ul>
<p>Pennsylvania DUI Association</p> <ul style="list-style-type: none"> <li>■ Ignition interlock quality assurance program</li> </ul>	<p>New Jersey State and Local Police</p> <ul style="list-style-type: none"> <li>■ State and municipal officers trained as DREs</li> <li>■ Participation in NHTSA Over the Limit. Under Arrest program</li> <li>■ Sobriety checkpoints</li> </ul>	<p>PennDOT</p> <ul style="list-style-type: none"> <li>■ Increased police officers trained in ARIDE</li> <li>■ Provide funding for CTSP to educate communities and enforcement organizations in all counties</li> </ul>
	<p>SEPTA</p> <ul style="list-style-type: none"> <li>■ Random drug and alcohol testing for all safety-sensitive employees (BAC level more stringent than state's)</li> <li>■ Required medication usage form for all employees</li> <li>■ Hours of service and fatigue audits done monthly</li> </ul>	<p>Mid-Atlantic Foundation for Safety and Education</p> <ul style="list-style-type: none"> <li>■ Alcohol awareness program</li> <li>■ Fleet safety program</li> <li>■ Distracted and drowsy driving program</li> <li>■ Partnership with law enforcement</li> </ul>
	<p>Gloucester County</p> <ul style="list-style-type: none"> <li>■ Received funding for increased enforcement (mostly checkpoints, some education)</li> <li>■ DUI Sobriety Checkpoints</li> <li>■ Participation in Over the Limit. Under Arrest program</li> <li>■ Highway Safety Task Force</li> </ul>	<p>The COAD Group—Chester County Highway Safety Program, Alcohol Safe Driving Program</p> <ul style="list-style-type: none"> <li>■ Enforcement collaboration and educational classes</li> <li>■ Alcohol safe driving classes</li> <li>■ Services for people charged with DUI</li> </ul>
	<p>PennDOT</p> <ul style="list-style-type: none"> <li>■ Provide funding for municipal DUI Task Forces which administer DUI checkpoints and other programs</li> <li>■ Contract with the DUI Association to provide support for enforcement and adjudication</li> </ul>	<p>Gloucester Township</p> <ul style="list-style-type: none"> <li>■ Education program for bartenders to learn signs of intoxication; program leverages a DUI grant</li> <li>■ HERO campaign—encourages designated drivers</li> <li>■ DUI pre-prom education program</li> <li>■ DRE training</li> </ul>
		<p>Rutgers University</p> <ul style="list-style-type: none"> <li>■ Comprehensive alcohol traffic education and enforcement program</li> </ul>
		<p>Cherry Hill Township</p> <ul style="list-style-type: none"> <li>■ Low Speed Vehicle Program</li> </ul>
		<p>NSC</p> <ul style="list-style-type: none"> <li>■ Policy kit for companies interested in banning cell phone use for their employees</li> </ul>

Source: Delaware Valley Regional Planning Commission, 2012.

Notes: ARIDE = Advanced Roadside Impaired Driving Enforcement; BAC = Blood Alcohol Content; COAD = Council on Addictive Diseases; CTSP = Comprehensive Traffic Safety Projects; DRE = Drug Recognition Expert; DUI = Driving Under the Influence; HERO = Human Education Resource Officer, in this case used in the name of the organization, HERO Campaign for Designated Drivers; NHTSA = National Highway Traffic Safety Administration; NJDHTS = New Jersey Division of Highway Traffic Safety; NSC = National Safety Council; PennDOT = Pennsylvania Department of Transportation; SEPTA = Southeastern Pennsylvania Transportation Authority.

## Potential Strategies to Reduce Impaired and Distracted Driving

The following strategies are a starting point to consider what will help reduce impaired or distracted driving in the Delaware Valley. Strategies were drawn from the Pennsylvania SHSP, the New Jersey SHSP, the national SHSP (AASHTO), and input from participants in the RSTF. Note that legislative strategies recommended by safety partners do not constitute endorsement by specific agencies.

There is some overlap in strategies that would reduce impaired and distracted driving (for example, in terms of educational efforts). In the range of strategies listed below, (I) refers to strategies to reduce impaired driving, (D) refers to strategies to reduce distracted driving, and (ID) refers to strategies that have potential use in both situations.

### Policy

- ▶ *(I) Strengthen the effectiveness of laws against DUI. Push for legislation change in New Jersey, where impaired driving is not a criminal offense (2007 New Jersey SHSP, p. 49).*
- ▶ *(ID) Update, strengthen, and implement legislation pertaining to impaired driving, including drugged, drowsy, and distracted driving (2007 New Jersey SHSP, p. 46; 2009 Safety Action Plan; AASHTO, p. 13, updated in RSTF discussions).*
- ▶ *(ID) Promote alternative transportation, such as public transit (2009 Safety Action Plan).*
- ▶ *(I) Support legislation for New Jersey use of breathalyzer ignition lock devices that prevent vehicles from starting when the legal alcohol limit is exceeded. These devices are in use in Pennsylvania.*
- ▶ *(ID) Provide information to increase the rate of conviction and reduce plea bargaining for impaired and distracted driving violations. The low rate of conviction as ticketed and lack of point violations undermines enforcement.*
- ▶ *Track effectiveness of laws implemented to reduce impaired and distracted driving (including information on level of enforcement and covering both national and local examples). The analysis should include effect on fatalities and crashes.*

### Engineering Strategies

- ▶ *(ID) Utilize signage, variable message signs, and analysis of problem areas combined with targeted engineering approaches, including rumble strips, signage, guard rails, etc.*

### Enforcement Strategies

- ▶ *Require responsible beverage service policies, increase vigilance at bars, and push for legislation to increase responsibility of bars/bartenders (2009 Safety Action Plan).*
  - ◆ *(I) DUI arrests currently track where the person was drinking—use this to target bars for education.*
- ▶ *Eliminate plea-bargaining and loopholes in prosecution (2009 Safety Action Plan).*
  - ◆ *(ID) Create stricter penalties for multiple offenders in addition to better treatment programs (AASHTO, p. 13).*
  - ◆ *(ID) Increase prosecution and adjudication outreach (2010 Pennsylvania SHSP).*

- ▶ *Increase manpower and funding for checkpoint programs, including the addition of roving patrols and high visibility enforcement efforts (2007 New Jersey SHSP, p. 46; 2010 Pennsylvania SHSP).*
  - ◆ (I) Increase number of sobriety checkpoints (2009 Safety Action Plan).
  - ◆ (I) Use targeted enforcement methods, such as comprehensive sobriety checkpoints and saturation patrols (2009 Safety Action Plan; AASHTO, p. 13).
- ▶ *(I) Enforce and publicize zero-tolerance laws for underage drinkers who drive (2009 Safety Action Plan).*
- ▶ *(ID) Enhance enforcement of commercial motor vehicle hours-of-service regulations, including for transit (2009 Safety Action Plan).*
- ▶ *(I) Build state programs that target drug-impaired driving (AASHTO, p. 13).*

## Education Strategies

- ▶ *Increase public awareness of Impaired Driving and DUI enforcement (2007 New Jersey SHSP, p. 46; AASHTO, p. 13); also could be applied to distracted driving.*
  - ◆ (ID) Use new media, such as YouTube and Facebook to reach a mass audience.
  - ◆ (ID) Work with employers (2009 Safety Action Plan); distracted driving added.
  - ◆ (ID) Participate in national campaigns, such as Over the Limit. Under Arrest program, formerly You Drink, You Drive, You Lose (2009 Safety Action Plan).
- ▶ *Encourage and promote designated driver programs and alternatives to impaired driving (2009 Safety Action Plan).*
  - ◆ (I) Organize a group of community volunteer drivers for impaired drivers (2009 Safety Action Plan).
  - ◆ (I) Use mass transit advertising to raise awareness and promote transit as a safe way to travel if one has been drinking (or is otherwise impaired).
  - ◆ (ID) Support additional funding for prevention programs (2009 Safety Action Plan).
  - ◆ (I) Work with colleges to provide and to market means of transportation other than driving, especially for younger students, such as shuttle bus/safe ride home programs.
- ▶ *Seek opportunities to coordinate Drug Abuse Resistance Education (DARE) programs with Teen Driver Education programs, especially in New Jersey with the new laws for teen drivers.*
  - ◆ (ID) Use fatal vision goggles as an educational tool in schools (2009 Safety Action Plan); a similar approach can also be used with texting.
  - ◆ (I) Coordinate with underage drinking and driving enforcement.
  - ◆ (I) Promote awareness of sleep deprivation as a form of impaired driving (2009 Safety Action Plan).
- ▶ *(I) Work with the enforcement community, commercial drivers, and their organizations to:*
  - ◆ Offer training programs to teach officers how to read truckers' log books to know if they are sleep deprived.
  - ◆ (I) Conduct education campaign oriented to alerting bus and/or truck drivers to dangers of various kinds of impaired driving (2009 Safety Action Plan).
- ▶ *(I) Partner with stores and pharmacists to identify over-the-counter medications and prescription drugs that cause impairment (2009 Safety Action Plan). This may be especially important for mature drivers, based on RSTF discussions.*

- ▶ *Reduce the incidence of drinking and driving in the 21–34 age group. This age group has the highest incidence of impaired driving and has not been directly targeted nationally in the past (AASHTO, p. 13).*
- ▶ *(ID) Continue to educate the public effectively by focusing on fewer messages that are clear, consistent, and coordinated; research indicates people only absorb three messages and respond to repetition.*
- ▶ *(D) Distribute information about organizations that have implemented bans on cell phone use while driving and post model guidelines that others may use.*

#### Emergency Services Strategies

- ▶ *(ID) Continue to install mile markers on roadways, and especially ramps where needed, to make it easier for a person under the influence, tired, or confused to communicate the location of a crash in order to speed up responses (2009 Safety Action Plan),*

#### Additional Resources

- ▶ *New Jersey Intoxicated Driver Resource Center: [www.state.nj.us/humanservices/das/idrcshel.htm](http://www.state.nj.us/humanservices/das/idrcshel.htm)*
- ▶ *NHTSA resources, including National Drunk Driver Database: [www.stopimpaireddriving.org](http://www.stopimpaireddriving.org)*

## Emphasis Area 5: Increase Seat Belt Usage

The combination of air bags and lap and shoulder safety belts offers the most effective safety protection available for passenger vehicle occupants. The nationwide seat belt use was 85 percent in 2010, according to NHTSA estimates.

In 2010 seat belt use in the United States ranged from 72.2 percent in New Hampshire to 97.6 percent in Hawaii and Washington. Jurisdictions with stronger seat belt enforcement laws continue to exhibit generally higher use rates than those with weaker laws. Kansas strengthened its seat belt law to a primary enforcement law, effective June 2010. This state saw a jump in use rate from 77.0 percent in 2009 to 81.8 percent in 2010.

Source: "Traffic Safety Facts, Seat Belt Use in 2010" (NHTSA # DOT HS 811 493, July 2011).

Not using seat belts was a contributing factor for 32 percent of the traffic fatalities in the Delaware Valley on average for each year from 2008 to 2010. This statistic uses analysis of whether anyone in an involved vehicle was not wearing his or her seat belt. See the companion piece, *Analysis of Crashes in the Delaware Valley, 2008–2010*, for more background information.

### Existing Programs

Table 7 lists many of the programs in the Delaware Valley region that help increase seat belt usage, updated from the *2009 Safety Action Plan*.



Table 7: Programs in the Delaware Valley That Help Increase Seat Belt Usage

Engineering	Enforcement	Education
	NJDHTS <ul style="list-style-type: none"> <li>Grant funds available to conduct nighttime enforcement</li> </ul>	Camden County <ul style="list-style-type: none"> <li>Child Safety Seat program (monthly car seat check funded by NJDHTS)</li> </ul>
	New Jersey and Pennsylvania State Police; Local Police <ul style="list-style-type: none"> <li>Participate in Click It or Ticket campaign</li> <li>Targeted enforcement to raise awareness of seat belt laws</li> </ul>	BCTMA <ul style="list-style-type: none"> <li>High School Seat Belt Safety Challenge</li> </ul>
	AAA Mid-Atlantic <ul style="list-style-type: none"> <li>Involved in the legislative efforts in Pennsylvania regarding passenger restraint</li> </ul>	SJTPO <ul style="list-style-type: none"> <li>Seat Belt stencil program</li> <li>Seat Belt Surveys</li> </ul>
		Burlington County <ul style="list-style-type: none"> <li>Child Safety Seat program (funded by NJDHTS)</li> </ul>

Source: Delaware Valley Regional Planning Commission, 2012.

Notes: BCTMA = Bucks County Transportation Management Association; NJDHTS = New Jersey Division of Highway Traffic Safety; SJTPO=South Jersey Transportation Planning Organization; TMA = Transportation Management Association.

## Potential Strategies to Increase Seat Belt Usage

The following strategies are a starting point to consider what will help increase seat belt usage in the Delaware Valley. Strategies were drawn from the Pennsylvania SHSP, the New Jersey SHSP, the national SHSP (AASHTO), and input from participants in the RSTF. Note that legislative strategies recommended by safety partners do not constitute endorsement by specific agencies.

### Policy

- ▶ Provide analysis and information to help legislators consider a primary law for seat belt usage in Pennsylvania for adults over 18; help people know about relevant bills (2009 Safety Action Plan).
- ▶ Improve belt use legislation to cover all ages, seat positions, and vehicles (2009 Safety Action Plan).

### Engineering Strategies

- ▶ Create official (MUTCD-approved) “buckle-up” roadway signs to serve as reminders.

### Enforcement Strategies (also see Policy)

- ▶ Continue highly publicized enforcement campaigns, such as Click It or Ticket (2010 Pennsylvania SHSP; 2009 Safety Action Plan).
- ▶ Consider working with schools to establish periodic checkpoints.

## Education Strategies

- ▶ *Implement periodic, coordinated public information and education initiatives (AASHTO, p. 16).*
  - ◆ Conduct public education and increase visibility to complement high-profile enforcement campaigns, such as the Click It or Ticket program (2009 Safety Action Plan).
  - ◆ Target public agencies and large employers to disseminate safety information about the benefits of wearing a seatbelt to their employees; one way to do this is through a seat belt survey and distribution of results within the organization.
  - ◆ Coordinate efforts and resources of agencies to have more impact (2009 Safety Action Plan).
  - ◆ Raise awareness of the dangers that unbelted passengers pose to other vehicle occupants; this phenomenon is referred to as the “back seat bullet.”
- ▶ *Implement child passenger safety plans.*
  - ◆ Train daycare providers to review and regulate proper usage and installation; provide current information on car-seat recalls and technological improvements.
  - ◆ Better educate law enforcement staff regarding child safety restraints (2009 Safety Action Plan).
  - ◆ Coordinate and publicize child passenger safety programs.
- ▶ *Highlight the importance of complete and accurate crash reporting on safety belt use as a part of ongoing education programs for the enforcement community.*

## Additional Resource

- ▶ *NCHRP Report 500-11, A Guide for Increasing Seat Belt Use*

## Emphasis Area 6: Ensure Pedestrian Safety

Across the United States in 2009, 4,280 pedestrians died in traffic crashes, which is a 4-percent increase from the number reported in 2008. An additional estimated 70,000 people were injured. The pedestrians killed in 2009 accounted for 13 percent of all traffic fatalities.

The highest-priority area of concern involves inadequacies in pedestrian facilities and the lack of good design information for them. Another major concern identified is the lack of awareness of the risks and responsibilities both drivers and pedestrians encounter during their interaction.

*Sources:* "Traffic Safety Facts, Pedestrians" (NHTSA # DOT HS 811 394, 2009), "Traffic Safety Facts, Research Note" (NHTSA # DOT HS 811 552, 2010).

Crashes involving pedestrians were a contributing factor for 22 percent of the traffic fatalities in the Delaware Valley on average for each year, from 2008 to 2010. The vast majority of people who died were pedestrians, but these numbers also include drivers, passengers, bicyclists, and others. See the companion piece, *Analysis of Crashes in the Delaware Valley, 2008–2010*, for more background information.

Crashes involving bicyclists result in much smaller numbers of fatalities than those involving pedestrians. In the Delaware Valley, approximately one-tenth as many bicyclists die in crashes involving motor vehicles as pedestrians. Despite this lower number of fatalities, it is still important for a variety of reasons to improve safety for bicyclists. Many of the strategies and programs that improve safety for pedestrians also improve safety for bicyclists, although there are some unique safety concerns related to bicyclists that are not covered in depth in this report.

### Existing Programs

Table 8 lists many of the programs in the Delaware Valley region that help ensure pedestrian safety, updated from the *2009 Safety Action Plan*.

Table 8: Programs in the Delaware Valley That Help Ensure Pedestrian Safety

Engineering	Enforcement	Education
<p>NJDOT</p> <ul style="list-style-type: none"> <li>■ Funding for pedestrian safety projects and improvements</li> <li>■ LTAP Walkable Communities program</li> </ul>	<p>NJDOT (overlap other categories)</p> <ul style="list-style-type: none"> <li>■ Pedestrian Safety program</li> <li>■ Safe Routes to School program</li> <li>■ Safe Streets to Transit program</li> <li>■ Pedestrian Safety Corridor program</li> </ul>	<p>NJDOT</p> <ul style="list-style-type: none"> <li>■ Statewide driver education curriculum with emphasis on rights and responsibilities of drivers regarding pedestrians</li> <li>■ FHWA-designated Pedestrian Focus State</li> </ul>
<p>PennDOT</p> <ul style="list-style-type: none"> <li>■ YPCDs</li> <li>■ Improve and install crosswalks</li> <li>■ Lighted crosswalks</li> <li>■ Pedestrian countdown signals</li> <li>■ Bicycle/Pedestrian checklists for project development</li> <li>■ Hometown Streets program</li> <li>■ LTAP Walkable Communities program</li> </ul>	<p>Philadelphia Streets Department</p> <ul style="list-style-type: none"> <li>■ Drive CarePhilly—Heed the Speed program (painted optical illusion tricks individuals into thinking a speed bump is ahead)</li> </ul>	<p>PennDOT</p> <ul style="list-style-type: none"> <li>■ Walk Smart and Bike Safe programs and websites (<a href="http://www.dot.state.pa.us/Pedestrian/web/index.htm">www.dot.state.pa.us/Pedestrian/web/index.htm</a> and <a href="http://www.dot.state.pa.us/BIKE/WEB/index.htm">www.dot.state.pa.us/BIKE/WEB/index.htm</a>)</li> <li>■ FHWA-designated Pedestrian Focus State and City (Philadelphia)</li> </ul>
<p>DVRPC</p> <ul style="list-style-type: none"> <li>■ Safe Routes to School program</li> <li>■ Taming Traffic studies</li> <li>■ Pedestrian RSAs</li> </ul>	<p>NJDHTS</p> <ul style="list-style-type: none"> <li>■ Provide funding for targeted police patrols at high pedestrian crash locations</li> </ul>	<p>New Jersey State Police</p> <ul style="list-style-type: none"> <li>■ Youth leadership safety program, including the Pedestrian Safety Lesson; this program provides regular presentations in every school</li> </ul>
<p>SEPTA</p> <ul style="list-style-type: none"> <li>■ Pedestrian devices at railroad stations, including at-grade crosswalks with inter-track fencing, dedicated over- or underpasses, and audio/visual warning devices</li> </ul>	<p>Burlington County Traffic Safety Task Force</p> <ul style="list-style-type: none"> <li>■ Safe Routes to School program in cooperation with local police departments funded by grants from NJDHTS</li> </ul>	<p>NJDHTS</p> <ul style="list-style-type: none"> <li>■ Grants</li> <li>■ Educational and outreach programs</li> <li>■ Legislative initiatives</li> </ul>
<p>Gloucester County</p> <ul style="list-style-type: none"> <li>■ Roadway improvement projects include pedestrian enhancements</li> <li>■ Light-activated crosswalks installed</li> <li>■ No Turn on Red signs installed at intersections with heavy pedestrian presence</li> </ul>	<p>Camden County Traffic Safety Task Force</p> <ul style="list-style-type: none"> <li>■ Safe Routes to School program in cooperation with local police departments funded by grants from NJDHTS</li> </ul>	<p>Burlington County Traffic Safety Task Force</p> <ul style="list-style-type: none"> <li>■ Crossing guard training</li> <li>■ Bike and pedestrian safety public awareness campaign funded by grants from NJDHTS</li> </ul>
<p>Mercer County</p> <ul style="list-style-type: none"> <li>■ Installation of mid-block crosswalks</li> <li>■ Begin to install pedestrian-activated flashers and in-pavement lights</li> <li>■ No Turn on Red signs considered at intersections with exclusive pedestrian phase</li> <li>■ Countdown indicators at all new traffic signals</li> </ul>	<p>General</p> <ul style="list-style-type: none"> <li>■ School crossing guards</li> </ul>	<p>Camden County</p> <ul style="list-style-type: none"> <li>■ Bicycle Safety program, including Bicycle Rodeos</li> <li>■ Bicycle and pedestrian safety public awareness campaign</li> </ul>
<p>Philadelphia Streets Department</p> <ul style="list-style-type: none"> <li>■ Pedestrian countdown signals</li> </ul>		<p>Delaware County</p> <ul style="list-style-type: none"> <li>■ Promote use of mid-block crossing pedestrian signs to municipalities</li> </ul>

Table 8: Programs in the Delaware Valley That Help Ensure Pedestrian Safety (con't.)

Engineering	Enforcement	Education
Princeton Borough, Township, and University <ul style="list-style-type: none"> <li>■ Pedestrian designs and traffic calming</li> </ul>		Gloucester County <ul style="list-style-type: none"> <li>■ Emergency services coordination program</li> <li>■ Project TRASH—teaches fourth graders pedestrian and biking safety habits</li> </ul>
		Mid-Atlantic Foundation for Safety and Education <ul style="list-style-type: none"> <li>■ “Otto the Auto” —talking robot car used for elementary school safety programs</li> <li>■ Safe Crossings programs</li> </ul>

Source: Delaware Valley Regional Planning Commission, 2012.

Notes: DVRPC = Delaware Valley Regional Planning Commission; FHWA = Federal Highway Administration; LTAP = Local Technical Assistance Program; NJDHTS = New Jersey Division of Highway Traffic Safety; NJDOT = New Jersey Department of Transportation; PennDOT = Pennsylvania Department of Transportation; RSA = Road Safety Audit; SEPTA = Southeastern Pennsylvania Transportation Authority; TRASH = Traffic Responsibility and Safety Habits; YPCD = Yield to Pedestrian Channelizing Devices.

## Potential Strategies to Improve Pedestrian

The following strategies are a starting point to consider what will help improve pedestrian safety in the Delaware Valley. Strategies were drawn from the Pennsylvania SHSP, the New Jersey SHSP, the national SHSP (AASHTO), and input from participants in the RSTF. In the following range of strategies, “P” denotes a strategy for pedestrian safety, while “Both” denotes a strategy that is applicable for both pedestrian and bicycle safety. Note that legislative strategies recommended by safety partners do not constitute endorsement by specific agencies.

### Policy

- ▶ *(P) Make the law in Pennsylvania clear that “yield” means vehicles must stop for pedestrians and increase penalties for failing to stop.*
- ▶ *(Both) Design, develop, and implement a transportation system that accommodates all users (2007 New Jersey SHSP, pp. 76–77).*
- ▶ *(P) Enhance local ordinances to complete sidewalk network, including through future land development or other means; ensure that safety is addressed in policy, planning, and land use decisions.*

### Engineering Strategies

- ▶ *(Both) Maintain clear crosswalk markings and other pedestrian crossing safety devices, such as cones, raised crosswalks, adequate lighting, and chevrons painted on the road that give the optical effect of raised crosswalks (NCHRP 500-10).*
- ▶ *(Both) Implement safe-crossing designs for mid-block crossings, including curb extensions and refuge islands as appropriate.*
- ▶ *(Both) Improve signal hardware for pedestrians, including pedestrian signals and timing, accessible pedestrian signals, right-turn on red restrictions, pedestrian countdown signals, etc.*
- ▶ *(P) Work with 55+ communities that may not have been designed for needs of older people (shared item with Sustain Safe Senior Mobility emphasis area).*
- ▶ *(Both) Make sure pedestrian and Americans with Disabilities Act amenities get built into road projects, especially in areas where a high percentage of people do not have access to cars.*
- ▶ *(P) Eliminate on-street parking near intersections to improve pedestrian visibility.*
- ▶ *(P) Promote and expand Local Technical Assistance Walkable Communities Program.*
- ▶ *(Both) Implement measures to reduce traffic speed, such as road narrowing and traffic calming devices at intersection and road segments (NCHRP 500-10).*
- ▶ *(P) Share successes and promote transportation strategies to programs that improve pedestrian safety.*
- ▶ *(Both) Share experiences and evaluate the effectiveness of engineering approaches to improving pedestrian safety in the region.*

### Enforcement Strategies (also see Education Strategies)

- ▶ *(P) Enforce pedestrian-in-crosswalk laws more strictly.*

- ▶ *(Both) Enforce speed limits, especially in school zones.*
- ▶ *(Both) Increase the effectiveness of enforcement by studying a few areas in the region in terms of violations issued and tickets upheld.*

### Education Strategies

- ▶ *(Both) Enhance education of law enforcement officials about pedestrian safety laws where appropriate.*
- ▶ *Provide education, outreach, and training to motivate change in specific behaviors that can lead to fewer pedestrian injuries.*
  - ◆ *(Both) Educate teens about using helmets, crosswalks, etc.; this could be run by schools regularly to reinforce annual presentations by state police.*
  - ◆ *(Both) Educate pedestrians about wearing reflective materials to increase their visibility.*
  - ◆ *(P) Build driver respect and knowledge of laws regarding pedestrians (2009 Safety Action Plan).*
  - ◆ *(Both) Include bicyclist and pedestrian questions on written driving exams.*
- ▶ *Run the New Jersey Pedestrian Decoy Training Program regularly in high pedestrian crash areas, such as the City of Camden (Education and Enforcement).*
  - ◆ *(P) Adopt a program like New Jersey's Pedestrian Decoy Program in Pennsylvania (Education and Enforcement).*
- ▶ *(Both) Continue and emphasize programs to reduce train crashes or near misses with pedestrians, such as Operation Lifesaver.*
- ▶ *Educate, train, and market resources to contractors, legislators and municipalities (2009 Safety Action Plan).*
  - ◆ *(Both) Market pedestrian safety resources to municipal officials (2009 Safety Action Plan).*
  - ◆ *(Both) Establish or distribute walkability checklist for local governments (2009 Safety Action Plan).*

### Emergency Services Strategies

- ▶ *(Both) Encourage better coordination among emergency services to clarify who can respond (focusing on speed rather than geographic boundaries) and on sharing specialized services; especially important in that pedestrians hit by vehicles have a high rate of serious injuries.*

### Additional Resources

- ▶ *NCHRP Report 500-10, A Guide for Reducing Collisions Involving Pedestrians*

## Emphasis Area 7: Sustain Safe Senior Mobility

“The increasing number and percentage of older drivers using the nation’s highways in future decades will pose many challenges. The 65 and older age group, which numbered 35 million in 2000, will swell to 70 million by 2030, accounting for roughly one-fifth of the country’s driving population. The majority of older drivers are capable drivers, but the effects of aging ultimately impact the safe driving abilities of some seniors. Once in a crash, people age 65 and older are far more likely to sustain fatal injuries.” (AASHTO, p. 11)

In 2009 in the United States, 5,288 people age 65 and older were killed and 187,000 were injured in traffic crashes. These older individuals made up 16 percent of all traffic fatalities and 8 percent of all people injured in traffic crashes during the year.

Sources: *Strategic Highway Safety Plan* (AASHTO, 2005), “Traffic Safety Facts 2009—Older Driver” (NHTSA # 811 391, 2009).

In 18 percent of traffic fatalities in the Delaware Valley on average for the period from 2008 to 2010, one of the drivers was a person 65 years of age or older. This includes crashes where the older driver had a role and drivers whose vehicles were hit. The statistic includes everyone who died, regardless of age. It does not count passengers or bystanders who are 65 or older, which would greatly increase that number of seniors who died as a result of crashes. See the companion piece, *Analysis of Crashes in the Delaware Valley, 2008–2010*, for more background information.

### Existing Programs

Table 9 lists many of the programs in the Delaware Valley region that help sustain safe senior mobility, updated from the *2009 Safety Action Plan*.



Table 9: Programs in the Delaware Valley That Help Sustain Safe Senior Mobility

Engineering	Enforcement	Education
<p>PennDOT</p> <ul style="list-style-type: none"> <li>■ Sign Improvements—Clearview font; larger, higher, advance warning signs</li> <li>■ Senior Transit Card</li> </ul>	<p>PennDOT</p> <ul style="list-style-type: none"> <li>■ Encourage physicians' reporting of their patients' capability to drive</li> </ul>	<p>NJDOT, AARP, counties and others throughout New Jersey</p> <ul style="list-style-type: none"> <li>■ Senior defensive driving program</li> <li>■ Senior Safety Task Force</li> </ul>
<p>SEPTA</p> <ul style="list-style-type: none"> <li>■ Courtesy transportation for seniors</li> <li>■ Senior discounts</li> </ul>	<p>NJMVC</p> <ul style="list-style-type: none"> <li>■ Medical board review screening assessment for older drivers</li> </ul>	<p>PennDOT</p> <ul style="list-style-type: none"> <li>■ Program to encourage family members in assisting the surrender of licenses</li> </ul>
<p>New Jersey Transit</p> <ul style="list-style-type: none"> <li>■ Courtesy transportation for seniors</li> <li>■ Reduced fare program</li> </ul>		<p>PATCO</p> <ul style="list-style-type: none"> <li>■ Ambassador program—personnel located at each station to provide assistance</li> </ul>
<p>PATCO</p> <ul style="list-style-type: none"> <li>■ Reduced fare program for seniors</li> </ul>		<p>New Jersey Foundation of Aging, TSRC, and Rutgers University School of Gerontology</p> <ul style="list-style-type: none"> <li>■ Program to help older drivers drive safely and longer while preparing for eventual driving cessation</li> </ul>
<p>Burlington County</p> <ul style="list-style-type: none"> <li>■ Use of Clearview font on signs</li> <li>■ 3M Diamond Grade Sheeting to improve visibility on signs</li> <li>■ Use of raised pavement markers</li> <li>■ Use of wet reflective striping to improve visibility</li> </ul>		<p>AAA</p> <ul style="list-style-type: none"> <li>■ Defensive driving course</li> <li>■ CarFit program (with AARP)</li> <li>■ AAA Core/Senior Driving—<a href="http://www.AAA.com/SeniorDriving">www.AAA.com/SeniorDriving</a></li> </ul>
<p>Gloucester County</p> <ul style="list-style-type: none"> <li>■ Advance warning signs for major street crossings and curves</li> <li>■ Use reflective paint for lane striping</li> </ul>		<p>AARP</p> <ul style="list-style-type: none"> <li>■ Driver education program</li> <li>■ Driver safety course</li> <li>■ Keeping Safe program—Car Safety Tips; When to Stop Driving; Helping Your Parents Stay Mobile</li> <li>■ Livable Communities Campaign</li> </ul>
		<p>Mid-Atlantic Foundation for Safety and Education</p> <ul style="list-style-type: none"> <li>■ "Roadwise Review" DVD</li> <li>■ Mature Operator programs</li> </ul>
		<p>Virtua Hospital and other hospitals</p> <ul style="list-style-type: none"> <li>■ Skill testing for seniors to check for alertness, eye sight, etc.</li> </ul>
		<p>Greater Mercer TMA</p> <ul style="list-style-type: none"> <li>■ Group travel training program</li> <li>■ RideProvide Program</li> </ul>

Source: Delaware Valley Regional Planning Commission, 2012.

Notes: NJDOT = New Jersey Department of Transportation; NJMVC = New Jersey Motor Vehicle Commission; PATCO = Port Authority Transit Corporation; PennDOT = Pennsylvania Department of Transportation; SEPTA = Southeastern Pennsylvania Transportation Authority; TMA = Transportation Management Association; TSRC = Transportation Safety Resource Center.

## Potential Strategies to Sustain Safe Senior Mobility

The following strategies are a starting point to consider what will help sustain safe senior mobility in the Delaware Valley. Strategies were drawn from the Pennsylvania SHSP, the New Jersey SHSP, the national SHSP (AASHTO), and input from participants in the RSTF. Note that legislative strategies recommended by safety partners do not constitute endorsement by specific agencies.

### Policy

- ▶ *Investigate enhanced driver's license testing procedures.*
- ▶ *Partner more closely with the insurance and medical communities for safety planning, especially oriented to seniors.*
- ▶ *Develop a system to address at-risk drivers' roadway safety (2007 New Jersey SHSP, p. 62).*
  - ◆ Implement a program to screen senior drivers for vision problems, including cataract screening.
- ▶ *Provide adequate/efficient mobility alternatives (2009 Safety Action Plan).*
  - ◆ Identify and promote existing alternative transportation services (2007 New Jersey SHSP, p. 62; 2010 Pennsylvania SHSP).
  - ◆ Develop public transportation alternatives for older drivers, especially in suburban and rural areas (2007 New Jersey SHSP, p. 62).
  - ◆ Increase opportunities for carpooling.

### Engineering Strategies

- ▶ *Improve highway infrastructure to safely accommodate older drivers according to guidelines in the FHWA Older Drivers Highway Design Handbook (AASHTO, p. 11).*
- ▶ *Implement engineering solutions, including:*
  - ◆ Upgrade signs, pavement markings, lighting, and sidewalk design according to Older Driver Design Guidelines (2007 New Jersey SHSP, p. 61; Draft 2012 Pennsylvania SHSP; 2009 Safety Action Plan).
  - ◆ Utilize advance warning pavement markings and intersection signs, especially on higher speed roadways (2009 Safety Action Plan).
  - ◆ Improve design for night-time and inclement weather conditions (2009 Safety Action Plan).
- ▶ *Identify locations with high senior populations and crash rates for consideration of improvements.*
- ▶ *Improve maintenance where there are high senior populations, such as snow plowing of bus stops.*
- ▶ *Train engineers on highway design concepts for older drivers (FHWA Older Driver Highway Design Workshop).*

## Education Strategies

- ▶ *Develop a comprehensive educational plan (2007 New Jersey SHSP, pp. 60–61).*
  - ◆ *Recruit members of the senior community and organizations providing senior services (2007 New Jersey SHSP, p. 61).*
- ▶ *Promote mature driver education classes (AAA/AARP/Seniors for Safe Driving) that inform older drivers about new laws, health requirements, and mobility alternatives, and emphasize how they can save people money on insurance (2010 Pennsylvania SHSP).*
- ▶ *Implement an educational approach to assist older driver safety that considers individual capabilities and needs in a fair manner (AASHTO, p. 11).*
- ▶ *Publicize services and coordinate to improve mobility alternatives to driving alone.*

## Additional Resources

- ▶ *American Medical Association—Physician’s Guide to Assessing and Counseling Older Drivers*
- ▶ *NCHRP Report 500-9, A Guide for Reducing Collisions Involving Older Drivers*
- ▶ *Transportation Research Record 2078, Investigation of Actual and Perceived Behavior of Older Drivers on Freeways*
- ▶ *Transportation Research Record 2078, Simulation Framework for Analysis of Elderly Mobility Policies*



## Recommendations

The RSTF endorsed this report at its meeting on June 19, 2012. Participants agree that for the *2012 Transportation Safety Action Plan* to accomplish the goal of reducing traffic fatalities in the Delaware Valley, the recommended strategies must result in action. This requires that partners take ownership of the Plan and assume responsibility for implementing the strategies their organization or agency is best suited to handle. There are many partner organizations that share the responsibility of reducing fatalities in the Delaware Valley, including federal, regional, state, county, and local agencies, as well as other safety stakeholders. Forming strategic partnerships is essential to the success of the Plan. The RSTF helps coordinate the implementation effort by refining tasks and providing a forum for partners to take on manageable items. It tracks completed actions, successes and failures, and steps that remain to be taken.

There are a number of federal, state, and local funding sources available for safety projects and programs. More information is available in the brochure, "Funding Transportation Safety Improvements in the Delaware Valley" (DVRPC Publication 10018).

### Summary of Recommended Strategies

Table 10 summarizes the recommended strategies for each emphasis area. The 36 recommended strategies build on the existing programs and potential strategies discussed throughout this report. As a result, these strategies draw upon national documents, the Pennsylvania and New Jersey SHSPs, and the extensive discussions of the multidisciplinary RSTF. Note that legislative policy strategies recommended by safety partners do not constitute endorsement by specific agencies.

### Recommended Strategies and Actions

Table 11 identifies manageable strategies and actions ready for partners in the Delaware Valley to take on, track progress of, and learn from. Those listed are generally partner organizations with existing programs or expertise relevant to the recommended strategies. They have either specifically volunteered themselves or reviewed drafts of this table. This is not an exclusive or complete list, but rather a starting point for updates at RSTF meetings. Additional participants are very welcome. *Note:* This table is on legal-size paper to provide sufficient room for the contents.

Table 10: Summary of Strategies

Area	Recommended Strategies
Curb Aggressive Driving	<ol style="list-style-type: none"> <li>1. Provide information and analysis to inform policy discussions of aggressive driving and its elements, such as speeding, tailgating, and combinations of aggressive behaviors (see section in <i>2012 Transportation Safety Action Plan</i> for more detail); include discussion of dangerous behaviors.</li> <li>2. Highly publicize enforcement details to make them more effective.</li> <li>3. Continue to communicate to the public what aggressive driving and dangerous behaviors are and why they are so dangerous.</li> <li>4. Share information with prosecutors and judges to help have speed violations and other aggressive driving violations treated seriously and fairly. Particularly, promote that sanctions are upheld against repeat offenders.</li> <li>5. Educate officers and people running Train the Trainer events about the importance of reporting aggressive driving (especially multiple factors for crashes on report forms).</li> <li>6. Continue to work with New Jersey and Pennsylvania on definitions of aggressive driving, moving toward the NHTSA definition and a shared regional definition.</li> <li>7. Explore and share information about engineering strategies, such as traffic calming and road diets in reducing aggressive driving.</li> </ol>
Keep Vehicles on the Roadway and Minimize the Consequences of Leaving the Roadway	<ol style="list-style-type: none"> <li>1. Promote best practices used by Pennsylvania and New Jersey, as well as the 2012 FHWA proven countermeasures in keeping vehicles on the roadway.</li> <li>2. Analyze crash data to identify:               <ol style="list-style-type: none"> <li>a. run-off-road locations that have been experiencing crash problems;</li> <li>b. crash trends and locations to draw more attention to these conditions so that appropriate agencies can address them; and</li> <li>c. locations where pedestrians are victims of run-off-road crashes as especially important locations for safety improvements.</li> </ol> </li> <li>3. Publicize the importance of vehicle maintenance for safely staying on the roadway.</li> </ol>
Improve the Design and Operation of Intersections	<ol style="list-style-type: none"> <li>1. Share list of intersections experiencing a high frequency of crashes that would benefit from capital improvements or low-cost safety measures to promote cooperative improvement approaches.</li> <li>2. Spread the word to make roadway signage and signalized intersections as clear and simple as possible.</li> <li>3. Educate the public on crash scene safe practices to maintain operations of intersections and improve speed of medical treatment.</li> </ol>
Reduce Impaired and Distracted Driving	<ol style="list-style-type: none"> <li>1. Provide information for informed policy action on including distracted and drowsy driving as impaired driving, strengthening laws against DUI, and making DUI a criminal offense in New Jersey.</li> <li>2. Track effectiveness of laws implemented to reduce impaired and distracted driving (including information on level of enforcement and covering both national and local examples). The analysis should include effect on fatalities and crashes.</li> </ol>

Table 10: Summary of Strategies (continued)

Area	Recommended Strategies
	<ol style="list-style-type: none"> <li>3. Provide information to increase the rate of conviction and reduce plea bargaining for impaired and distracted driving violations. The low rate of conviction as ticketed and lack of point violations undermines enforcement.</li> <li>4. Continue to educate the public effectively by focusing on fewer messages that are clear, consistent, and coordinated; research indicates people only absorb three messages and respond to repetition.</li> <li>5. Promote and publicize education and enforcement initiatives, including new and innovative approaches; identify evolving needs and publicize educational opportunities.</li> <li>6. Distribute information about organizations that have implemented bans on cell phone use while driving, and post model guidelines that others may use.</li> </ol>
Increase Seat Belt Usage	<ol style="list-style-type: none"> <li>1. Provide analysis and information to help legislators consider a primary law for seat belt usage in Pennsylvania for adults over 18; help people know about relevant seat belt bills.</li> <li>2. Coordinate and publicize child passenger safety programs.</li> <li>3. Help increase the visibility of enforcement campaigns, such as Click It or Ticket, and education campaigns, such as Graduated Driver License (GDL) outreach.</li> <li>4. Raise awareness of and increase seat belt usage for young drivers, as well as mature drivers, both being populations of special safety concern.</li> <li>5. Promote and share Buckle Up messaging.</li> </ol>
Ensure Pedestrian Safety	<ol style="list-style-type: none"> <li>1. Share experiences and evaluate the effectiveness of engineering approaches to improving pedestrian safety in the region.</li> <li>2. Increase the effectiveness of enforcement of traffic safety laws for drivers and pedestrians by studying a few areas in the region in terms of violations issued and tickets upheld.</li> <li>3. Improve understanding of pedestrian safety laws and regulations; promote information about education, outreach, and training that improve pedestrian safety, addressing both drivers and pedestrians.</li> <li>4. Document effectiveness of Pedestrian Decoy and similar programs and distribute to other police and planning agencies in the region.</li> <li>5. Promote adoption of Livable Communities and Complete Streets policies. <i>This is a shared strategy with Sustain Safe Senior Mobility.</i></li> <li>6. Explore additional data sets to better capture the complete picture of pedestrian and bicyclist crashes.</li> </ol>

Table 10: Summary of Strategies (continued)

Area	Recommended Strategies
Sustain Safe Senior Mobility	<ol style="list-style-type: none"> <li>1. Partner more closely with the insurance and medical communities for safety planning, especially oriented to seniors.</li> <li>2. Identify locations of high senior populations and crash rates for consideration of improvements.</li> <li>3. Promote maintenance of essential facilities, such as keeping sidewalks clear and in good repair, and snow plowing of bus stops.</li> <li>4. Publicize services and coordinate to improve mobility alternatives to driving alone.</li> <li>5. Promote mature driver education classes (AAA/AARP/Seniors for Safe Driving) that inform older drivers about new laws, health requirements, and mobility alternatives, and emphasize how they save people money on insurance.</li> <li>6. Promote Livable Communities and Complete Streets policies with regards to senior safety and mobility options. <i>This is a shared strategy with Pedestrian Safety.</i></li> </ol>

Source: Delaware Valley Regional Planning Commission, 2012.

Notes: DUI = Driving Under the Influence; FHWA = Federal Highway Administration; NHTSA = National Highway Traffic Safety Administration.



Table 11: Recommended Strategies and How to Accomplish Them

This table provides specific actions for the priority strategies and identifies lead agencies to do them. It is a valuable starting point but will be further refined at the RSTF meeting on the emphasis area. The resulting actions will be tracked to help the RSTF become more effective. The Recommended Strategies column also indicates the main category of the approach: Policy, Engineering, Enforcement, Education, or Emergency Services. Note that legislative policy strategies recommended by safety partners do not constitute endorsement by specific agencies. It will usually be most effective to address each emphasis area from various angles.

Area	Recommended Strategies	Action and Lead Agencies (to be refined at RSTF meetings)
Curb Aggressive Driving	<ol style="list-style-type: none"> <li>1. Provide information and analysis to inform policy discussions of aggressive driving and its elements, such as speeding, tailgating, and combinations of aggressive behaviors (see section in <i>2012 Transportation Safety Action Plan</i> for more detail); include discussion of dangerous behaviors. [Policy]</li> <li>2. Highly publicize enforcement details to make them more effective. [Enforcement]</li> <li>3. Continue to communicate to the public what aggressive driving and dangerous behaviors are and why they are so dangerous. [Education]</li> <li>4. Share information with prosecutors and judges to help have speed violations and other aggressive driving violations treated seriously and fairly. Particularly, promote that sanctions are upheld against repeat offenders. [Enforcement]</li> <li>5. Educate officers and people running Train the Trainer events about the importance of reporting aggressive driving (especially multiple factors for crashes on report forms). [Enforcement]</li> <li>6. Continue to work with New Jersey and Pennsylvania on definitions of aggressive driving, moving toward the NHTSA definition and a shared regional definition. [Policy]</li> <li>7. Explore and share information about engineering strategies, such as traffic calming and road diets in</li> </ol>	<ol style="list-style-type: none"> <li>1. Actions include the following:               <ol style="list-style-type: none"> <li>a. Investigate, coordinate, and if possible hold legislative symposia in Pennsylvania and New Jersey <b>(DVRPC, DOTs, many other partners)</b>.</li> <li>b. If the symposium does not move forward beforehand, investigate potential of an agenda item on holding a legislative symposium at the fall 2012 Pennsylvania Planning Partners Meeting <b>(PennDOT, DVRPC)</b>.</li> <li>c. If a symposium is not possible, provide information on aggressive driving to legislators <b>(RSTF with DVRPC staff)</b>.</li> </ol> </li> <li>2. Agencies doing specific visible enforcement programs <b>(Pennsylvania and New Jersey state police, municipal police)</b> provide a few sentences, and RSTF agencies <b>(as many as possible)</b> will put on websites or in newsletters. Investigate an easy electronic way to share this information among agencies <b>(DVRPC)</b>.</li> <li>3. Actions include:               <ol style="list-style-type: none"> <li>a. Discuss creative ways to educate about and motivate to reduce aggressive driving, dangerous behaviors, and road rage. Different approaches will interest different audiences. Include the concept of a car as a deadly weapon <b>(RSTF)</b>.</li> <li>b. Reach out to non-traditional safety partners, such as TV and radio news stations, SEPTA, and job advertising agencies to post information to reduce aggressive driving. This is also applicable to other emphasis areas <b>(RSTF partners)</b>.</li> </ol> </li> <li>4. Build on PennDOT and NJDOT work with judges and prosecutors to develop an approach for the Delaware Valley. Work with partners to summarize rates of conviction as ticketed in nine counties. Send a letter of background to appropriate Pennsylvania magistrates, Philadelphia Traffic Court judges, and New Jersey Municipal Court judges and/or professional organizations <b>(PennDOT, RSTF with DVRPC staff support)</b>. <i>This is coordinated with Reducing Impaired Driving.</i></li> <li>5. Start by reaching out in New Jersey as low numbers of officers are filling in the second contributing factor necessary for upgrading the definition of aggressive driving to the national approach <b>(NJDOTS, NJDOT, New Jersey State Police, police agencies, other New Jersey RSTF partners)</b>. State police may be leaders on this.</li> <li>6. Actions include:               <ol style="list-style-type: none"> <li>a. Explore and agree on the desired definition <b>(NJDOT, PennDOT, RSTF)</b>.</li> <li>b. Work on how to generate the data needed from police reporting forms <b>(NJDOT, NJDOTS, PennDOT, state police, DVRPC)</b>. Note: Pennsylvania has the capability to retrieve information on NHSTA aggressive driving crashes.</li> <li>c. An aspiration is to add a box for aggressive driving to the New Jersey and possibly Pennsylvania crash report forms.</li> </ol> </li> <li>7. Actions include:</li> </ol>

Table 11: Recommended Strategies and How to Accomplish Them (continued)

Area	Recommended Strategies	Action and Lead Agencies (to be refined at RSTF meetings)
	reducing aggressive driving. [Engineering]	<ul style="list-style-type: none"> <li>a. Promote role of traffic calming and signal coordination as ways of reducing aggressive driving and road rage (<b>DOTs, police agencies</b>).</li> <li>b. Share success stories and provide before/after study data: for example, on DVRPC website (<b>RSTF partners and DVRPC</b>).</li> <li>c. Potentially select a location to try or share with municipalities and others (<b>RSTF</b>).</li> </ul>
Keep Vehicles on the Roadway and Minimize the Consequences of Leaving the Roadway	<ul style="list-style-type: none"> <li>1. Promote best practices used by Pennsylvania and New Jersey, as well as the 2012 FHWA proven countermeasures in keeping vehicles on the roadway. [Education]</li> <li>2. Analyze crash data to identify: <ul style="list-style-type: none"> <li>a. run-off-road locations that have been experiencing crash problems in the region;</li> <li>b. crash trends and locations to draw more attention to these conditions so that appropriate agencies can address them; and</li> <li>c. locations where pedestrians are victims of run-off-road crashes as especially important locations for safety improvements. [Engineering]</li> </ul> </li> <li>3. Publicize the importance of vehicle maintenance to safely staying on the roadway. [Education]</li> </ul>	<ul style="list-style-type: none"> <li>1. RSTF Presentation of DOT efforts (<b>DOTs</b>) with discussion by others (especially <b>police officers, emergency responders</b>) to determine how to improve coordination. When NJDOT completes their standards, present and encourage New Jersey counties to send appropriate staff (NJDOT, New Jersey counties, DVRPC).</li> <li>2. Prepare analysis (<b>PennDOT, NJDOT, DVRPC, Rutgers TSRC</b>), share locations and methodologies used, and discuss with RSTF to decide what the group might be able to do to improve safety (<b>RSTF</b>). The crash data treats hitting a pedestrian the same as hitting a tree, so RSTF analysis should specifically identify locations where people are being hit by vehicles leaving the roadway. This discussion should include a range of countermeasures, including the FHWA proven countermeasures.</li> <li>3. With engineering leadership (<b>PennDOT, NJDOT</b>), prepare a brief statement for use by various agencies (<b>RSTF</b>).</li> </ul>
Improve the Design and Operation of Intersections	<ul style="list-style-type: none"> <li>1. Share list of intersections experiencing a high frequency of crashes that would benefit from capital improvements or low-cost safety measures to promote cooperative improvement approaches. [Engineering]</li> <li>2. Spread the word to make roadway signage and signalized intersections as clear and simple as possible. [Engineering]</li> <li>3. Educate the public on crash scene safe practices to maintain operations of intersections and improve speed of medical treatment. [Emergency Services]</li> </ul>	<ul style="list-style-type: none"> <li>1. Prepare a brief handout (<b>DOTs</b>) and discuss possible cooperative approaches in addition to those underway (<b>RSTF</b>). One example is DVRPC's CCSAP.</li> <li>2. Actions to promote include: <ul style="list-style-type: none"> <li>a. Improve signage and place it properly in advance of the intersection; remove or relocate signs from the intersection where possible.</li> <li>b. Have one overhead signal head per lane with a back plate.</li> <li>c. Re-time signals with every project.</li> <li>d. Continuously perform regular, routine maintenance on traffic signals and signage.</li> <li>e. Consider 2012 FHWA proven countermeasures (<b>DOTs, New Jersey counties, municipalities</b>).</li> </ul> </li> <li>3. Actions include: <ul style="list-style-type: none"> <li>a. Based on RSTF discussion (<b>Emergency Service Providers</b>), add appropriate links or information to websites (<b>RSTF partners</b>).</li> <li>b. Educate the motoring public about the laws with an emphasis on driver's responsibilities in Move It and Move Over laws (<b>RSTF partners</b>).</li> </ul> </li> </ul>
Reduce Impaired and Distracted Driving	<ul style="list-style-type: none"> <li>1. Provide information for informed policy action on including distracted and drowsy driving as impaired driving, strengthening laws against DUI, and making DUI a criminal offense in New Jersey. [Policy]</li> <li>2. Track effectiveness of laws implemented to reduce impaired and distracted driving (including information on level of enforcement and covering both national and local examples). The analysis should include effect on fatalities and crashes. [Policy]</li> <li>3. Provide information to increase the rate of conviction and reduce plea bargaining for impaired and</li> </ul>	<ul style="list-style-type: none"> <li>1. Try to facilitate legislative symposia (<b>DVRPC with partners</b>), provide information to legislators (<b>RSTF, PennDOT, NJDOT, NJDHTS, MADD, others</b>). <i>This is coordinated with Curbing Aggressive Driving.</i></li> <li>2. Gather national examples (<b>NHTSA-Region 2</b>) and Pennsylvania/New Jersey information (<b>state police, NJDHTS, PennDOT, DVRPC</b>).</li> <li>3. Build on PennDOT and NJDOT work with judges and prosecutors to develop an approach for the</li> </ul>

Table 11: Recommended Strategies and How to Accomplish Them (continued)

Area	Recommended Strategies	Action and Lead Agencies (to be refined at RSTF meetings)
	<p>distracted driving violations. The low rate of conviction as ticketed and lack of point violations undermines enforcement. [Policy]</p> <p>4. Continue to educate the public effectively by focusing on fewer messages that are clear, consistent, and coordinated; research indicates people only absorb three messages and respond to repetition. [Education]</p> <p>5. Promote and publicize education and enforcement initiatives, including new and innovative approaches; identify evolving needs and publicize educational opportunities. [Education]</p> <p>6. Distribute information about organizations that have implemented bans on cell phone use while driving, and post model guidelines that others may use. [Education]</p>	<p>Delaware Valley. Summarize rates of conviction as ticketed in nine counties. Send a letter of background to appropriate Pennsylvania magistrates, Philadelphia Traffic Court judges, and New Jersey Municipal Court judges and/or professional organizations (<b>PennDOT, NJDHTS, RSTF with staff support</b>). <i>This is coordinated with Curbing Aggressive Driving.</i></p> <p>4. Select shared material (<b>RSTF</b>) for clear communication through websites and newsletters (<b>RSTF partners</b>). Maintain list of shared messages online (<b>DVRPC</b>).</p> <p>5. Actions include:</p> <p>a. Add to websites and newsletters, and otherwise publicize new and innovative approaches, such as high school video contests and impaired driver simulation programs (<b>RSTF partners, including Gloucester County Highway Safety Task Force, BCTMA, Cherry Hill Police Department</b>).</p> <p>b. Help distribute material in Pennsylvania regarding new distracted driving law (<b>Pennsylvania RSTF members</b>).</p> <p>6. Coordinate with agencies leading such efforts (<b>National Safety Council</b>) and share information (<b>RSTF</b>).</p>
<p>Increase Seat Belt Usage</p>	<p>1. Provide analysis and information to help legislators consider a primary law for seat belt usage in Pennsylvania for adults over 18; help people know about relevant seat belt bills. [Policy]</p> <p>2. Coordinate and publicize child passenger safety programs. [Education]</p> <p>3. Help increase the visibility of enforcement campaigns, such as Click It or Ticket, and education campaigns, such as Graduated Driver License (GDL) outreach. [Education]</p> <p>4. Raise awareness of and increase seat belt usage for young drivers, as well as mature drivers, both being populations of special safety concern. [Education]</p> <p>5. Promote and share Buckle Up messaging. [Education]</p>	<p>1. Analyze differences in number of crashes where not wearing a seat belt was a contributing factor in New Jersey and Pennsylvania, distribute and include in symposium; try to inform parents of bills that would make their children safer as a key audience (<b>RSTF</b>).</p> <p>2. Share events with request for RSTF members to help publicize them (<b>Burlington County Sheriff's Department, Children's Hospital of Philadelphia, Camden County DHTS, Safe Kids Southeastern Pennsylvania and New Jersey</b>), noting that when children outgrow child safety seats they need to use booster seats.</p> <p>3. Add to websites and newsletters (<b>many RSTF partners</b>); emphasize the need for people to wear seat belts at night.</p> <p>4. Actions include the following along with coordination with senior driver safety:</p> <p>a. Conduct seat belt surveys at high schools (<b>Chester County Highway Safety</b>).</p> <p>b. Investigate seat belt survey at NJDOT headquarters and other major employers (<b>NJDOT, others</b>).</p> <p>c. Keep a tally of the schools participating in high school seat belt safety programs (<b>possibly a TMA in each state</b>). TMAs have been very active in this emphasis area and should be key partners in this and related actions.</p> <p>5. Actions include:</p> <p>a. Investigate using Buckle Up stencils at driveway exits, such as exits from NJDOT facilities (<b>NJDOT</b>).</p> <p>b. All RSTF members should always buckle up and require all passengers to wear seat belts (<b>RSTF</b>).</p> <p>c. All RSTF members should check if there is a seat belt policy in their workplace and, if not, try to have one adopted; other RSTF members offer model policies (<b>RSTF</b>).</p> <p>d. Contact major line-painting companies and ask if they would offer to use these stencils either for free or for a small cost as people may not otherwise know about them (<b>DOTs to provide</b></p>

Table 11: Recommended Strategies and How to Accomplish Them (continued)

Area	Recommended Strategies	Action and Lead Agencies (to be refined at RSTF meetings)
		contacts, RSTF outreach).
Ensure Pedestrian Safety	<ol style="list-style-type: none"> <li>1. Share experiences and evaluate the effectiveness of engineering approaches to improving pedestrian safety in the region. [Engineering]</li> <li>2. Increase the effectiveness of enforcement of traffic safety laws for drivers and pedestrians by studying a few areas in the region in terms of violations issued and tickets upheld. [Enforcement]</li> <li>3. Improve understanding of pedestrian safety laws and regulations; promote information about education, outreach, and training that improve pedestrian safety, addressing both drivers and pedestrians. [Education]</li> <li>4. Document effectiveness of Pedestrian Decoy and similar programs and distribute to other police and planning agencies in the region. [Enforcement]</li> <li>5. Promote adoption of Livable Communities and Complete Streets policies. [Policy] <i>This is a shared strategy with Sustain Safe Senior Mobility.</i></li> <li>6. Explore additional data sets to better capture the complete picture of pedestrian and bicyclist crashes. [Emergency Services/Education]</li> </ol>	<ol style="list-style-type: none"> <li>1. Prepare brief analysis of the effectiveness of approaches, such as use of best available technologies (including rapid flashing beacons and pedestrian countdown signals), roundabouts, and buffered bike lanes (<b>Mercer County Engineering Division, Philadelphia Streets Department, others</b>). Include Philadelphia analysis of the safety improvements related to striping Spruce and Pine bike lanes.</li> <li>2. Start by analyzing the number of pedestrian crashes, resulting violations, and final results in one municipality (<b>Cherry Hill Police Department, DVRPC</b>).</li> <li>3. Actions include: <ol style="list-style-type: none"> <li>a. Prepare and/or help distribute a brief guide in each state (<b>state and/or local police, TMAs, AAA, nonprofits</b>). Cover the levels of fines for drivers and for pedestrians who violate laws and consider whether they are adequate deterrents. Include what enforcement is legal on private property, such as large parking lots.</li> <li>b. Education and outreach have been done but need constant reinforcements, so distribute information (<b>RSTF partners</b>).</li> <li>c. Promote multimodal eduforcement programs, such as Give Respect, Get Respect (<b>City of Philadelphia, others</b>) A new source may be material developed for the Philadelphia and New Jersey federal pedestrian safety focus initiative (<b>pedestrian advocacy groups, TMAs, federal Pedestrian Safety Focus Initiative</b>).</li> </ol> </li> <li>4. Prepare brief study (<b>NJDHTS, PennDOT, DVRPC</b>); discuss and distribute (<b>RSTF</b>).</li> <li>5. Actions include: <ol style="list-style-type: none"> <li>a. Prepare list of states, counties, and municipalities in the region that have adopted such policies (<b>DVRPC</b>).</li> <li>b. Present <i>Complete Streets Handbook</i> when ready (<b>City of Philadelphia, possibly NJDOT and others</b>).</li> <li>c. Reach out to municipalities and counties to encourage next steps (<b>RSTF</b>).</li> </ol> </li> <li>6. Work with partners to assess data sets and how to analyze (<b>DVRPC, PennDOT, NJDHTS</b>); discuss brief findings and next steps (<b>RSTF</b>).</li> </ol>



Table 11: Recommended Strategies and How to Accomplish Them (continued)

Area	Recommended Strategies	Action and Lead Agencies (to be refined at RSTF meetings)
Sustain Safe Senior Mobility	<ol style="list-style-type: none"> <li>1. Partner more closely with the insurance and medical communities for safety planning, especially oriented to seniors. [Policy]</li> <li>2. Identify locations of high senior populations and crash rates for consideration of improvements. [Engineering]</li> <li>3. Promote maintenance of essential facilities, such as keeping sidewalks clear and in good repair, and snow plowing of bus stops. [Engineering]</li> <li>4. Publicize services and coordinate to improve mobility alternatives to driving alone. [Education]</li> <li>5. Promote mature driver education classes (AAA/AARP/Seniors for Safe Driving) that inform older drivers about new laws, health requirements, and mobility alternatives, and emphasize how they save people money on insurance. [Education]</li> <li>6. Promote Livable Communities and Complete Streets policies with regards to senior safety and mobility options. [Policy] <i>This is a shared strategy with Pedestrian Safety.</i></li> </ol>	<ol style="list-style-type: none"> <li>1. There are several strategies to pursue, including:               <ol style="list-style-type: none"> <li>a. Bring in at least one member of each the insurance and medical communities to an RSTF meeting to promote dialogue and cooperation (<b>DVRPC/RSTF</b>).</li> <li>b. Publicize existing insurance rate reductions for completing safety training courses and ask if they can be increased/made more widespread; seek a discount on insurance at any age for taking a safety class in Pennsylvania similar to New Jersey (<b>RSTF</b>).</li> <li>c. Work with doctors on why it is important to advise people when they should not drive and to have mobility information displayed in their offices. Report lessons learned back to RSTF (<b>RSTF partners</b>).</li> <li>d. Reach out to major drug store chains to provide information to pharmacists or otherwise coordinate with some pharmacists on issues of medication and driving—while applicable to all ages, people may take more medicines as they grow older and become more at risk for drug side-effects. Report lessons learned for use by other RSTF members (<b>DVRPC or other RSTF partners</b>).</li> <li>e. Promote things mature individuals can do to test and maintain their ability to drive safely, including online tools, such as Drivewise (<b>RSTF partners</b>).</li> <li>f. Help distribute information on steps family members, friends, and neighbors can take if they are concerned about a senior person’s driving (<b>RSTF</b>).</li> </ol> </li> <li>2. Prepare draft map (<b>DVRPC</b>) and refine it (<b>RSTF</b>) for use by implementing agencies (<b>DOTs, counties, and others</b>).</li> <li>3. Discuss (<b>RSTF</b>) to identify key needs and initial locations; identify a few actions (<b>RSTF partners</b>).</li> <li>4. Discuss and agree on items or links (<b>TMA, AARP, AAA, other agencies, RSTF</b>) and add to websites and newsletters (<b>RSTF partners</b>).</li> <li>5. Promote and add links to websites as appropriate. An element of such classes is teaching people how to assess when they should retire from driving (<b>AARP, AAA, agencies for aging, RSTF partners</b>).</li> <li>6. Actions include:               <ol style="list-style-type: none"> <li>a. Prepare list of states, counties, and municipalities in the region that have adopted such policies (<b>DVRPC</b>).</li> <li>b. Present <i>Complete Streets Handbook</i> when ready (<b>City of Philadelphia, possibly NJDOT and others</b>).</li> <li>c. Reach out to municipalities and counties to encourage next steps (<b>RSTF</b>).</li> </ol> </li> </ol>

Source: Delaware Valley Regional Planning Commission, 2012.

Notes: BCTMA = Bucks County Transportation Management Association; CCSAP = Congestion Crash Site and Analysis Program; DOT = Department of Transportation; DHTS = Division of Highway Traffic Safety; DUI = Driving Under the Influence; DVRPC = Delaware Valley Regional Planning Commission; FHWA = Federal Highway Administration; MADD = Mothers Against Drunk Driving; NHTSA = National Highway Traffic Safety Administration; NJDHTS = New Jersey Division of Highway Traffic Safety; PennDOT = Pennsylvania Department of Transportation; RSTF = Regional Safety Task Force; SEPTA = Southeastern Pennsylvania Transportation Authority; TMA = Transportation Management Association; TSRC = Transportation Safety Resource Center.



APPENDIX A







# Abbreviations and Acronyms

AARP	American Association of Retired Persons
AASHTO	American Association of State Highway and Transportation Officials
ARIDE	Advanced Roadside Impaired Driving Enforcement (NHTSA)
BAC	Blood Alcohol Content
BCTMA	Bucks County Transportation Management Association
BHSTE	Bureau of Highway Safety and Traffic Engineering (PennDOT)
BOMO	Bureau of Maintenance and Operations (PennDOT)
CCSAP	Congestion Crash Site Analysis Program
CCTV	Closed-Circuit Television
COAD	Council on Addictive Diseases
CSHSIP	Comprehensive Strategic Highway Safety Improvement Plan
CTSP	Comprehensive Traffic Safety Projects (PennDOT)
DARE	Drug Abuse Resistance Education
DHTS	Division of Highway Traffic Safety
DOT	Department of Transportation
DRE	Drug Recognition Expert
DUI	Driving Under the Influence
DVRPC	Delaware Valley Regional Planning Commission
FHWA	Federal Highway Administration
IIP	Intersection Improvement Program
ITS	Intelligent Transportation Systems
LED	Light-Emitting Diode
LTAP	Local Technical Assistance Program
MADD	Mothers Against Drunk Driving
MPH	Miles per Hour
MUTCD	Manual on Uniform Traffic Control Devices
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NJDHTS	New Jersey Division of Highway Traffic Safety
NJDOT	New Jersey Department of Transportation
PATCO	Port Authority Transit Corporation
PennDOT	Pennsylvania Department of Transportation
RSA	Road Safety Audit
RSTF	Regional Safety Task Force
SEPTA	Southeastern Pennsylvania Transportation Authority
SHSP	Strategic Highway Safety Plan
SIT	Safety Impact Team
TMA	Transportation Management Association
TSRC	Transportation Safety Resource Center (Rutgers University)
YPCD	Yield to Pedestrian Channelizing Device



APPENDIX B





# Regional Safety Task Force

## Members Participating in the Update of the Plan

The list that follows includes active participants in shaping the *2012 Transportation Safety Action Plan*. It does not include everyone who receives the Regional Safety Task Force e-mails.

**Highlighting honors participants who have served as co-chairs over the two years when work was underway.**

Organization	Website	Representative(s)
AAA Mid-Atlantic	<a href="http://www.aaamidatlantic.com">www.aaamidatlantic.com</a>	Jim Lardear, Tracy Noble, Jenny Robinson
AARP–Pennsylvania (Montgomery County)	<a href="http://www.aarp.org/states/pa">www.aarp.org/states/pa</a>	Ray Rauanheimo
Bicycle Access Council	<a href="http://www.bicycleaccess-pa.org">www.bicycleaccess-pa.org</a>	Joe Stafford
Brain Injury Association of New Jersey	<a href="http://www.bianj.org">www.bianj.org</a>	Susan Quick
Buckle-Up Pennsylvania	<a href="http://www.buckleuppa.org">www.buckleuppa.org</a>	Gordon Beck
Bucks County Planning Commission	<a href="http://www.buckscounty.org/government/departments/CommunityServices/PlanningCommission/index.aspx">www.buckscounty.org/government/departments/CommunityServices/PlanningCommission/index.aspx</a>	Richard Brahrer
Bucks County Transportation Management Association	<a href="http://www.bctma.com">www.bctma.com</a>	<b><u>Bill Rickett</u></b>
Burlington County Engineering Department	<a href="http://www.co.burlington.nj.us/departments/engineers/index.htm">www.co.burlington.nj.us/departments/engineers/index.htm</a>	Carol Ann Thomas
Camden County Highway Traffic Safety	<a href="http://www.camdencounty.com/health/safety/traffic/safety.html">www.camdencounty.com/health/safety/traffic/safety.html</a>	Diane Kozak, Sam Spino
Cherry Hill Township Police Department	<a href="http://www.cherryhillpolice.com">www.cherryhillpolice.com</a>	Officer James Philbin, <b><u>Sgt. Michael Rann</u></b>
Chester County Highway Safety Project	<a href="http://www.coadgroup.com/highwaySafety.asp">www.coadgroup.com/highwaySafety.asp</a>	Lori Aguilera, Charles Vilotti
Chester County Planning Commission	<a href="http://www.chesco.org/planning">www.chesco.org/planning</a>	Bill Deguffroy, Natasha Manbeck
Citizens		Warren Strumpfer, Dennis Winters
City of Philadelphia Mayor's Office of Transportation and Utilities	<a href="http://www.phila.gov/motu/initiatives-transportation.html">www.phila.gov/motu/initiatives-transportation.html</a>	Charles Carmalt
City of Philadelphia Planning Commission	<a href="http://philaplanning.org/">http://philaplanning.org/</a>	Debby Schaaf
City of Philadelphia Streets Department	<a href="http://www.phila.gov/streets">www.phila.gov/streets</a>	Charles Denny, Jabulani Moyo, Patrice Nuble
Cross County Connection Transportation Management Association	<a href="http://www.driveless.com">www.driveless.com</a>	Bill Ragozine
Delaware County Transportation Management Association	<a href="http://www.dctma.org">www.dctma.org</a>	Trish McFarland

Members Participating in the Update of the Plan (continued)

Organization	Website	Representative(s)
Delaware River Port Authority	<a href="http://www.drpa.org">www.drpa.org</a>	Sgt. Joe Zito
Delaware Valley Regional Planning Commission	<a href="http://www.dvrpc.org">www.dvrpc.org</a>	Stacy Bartels, Jesse Buerk, Laurie Matkowski, Regina Moore, Kevin Murphy, Zoe Neaderland, John Ward
Delaware Valley Regional Planning Commission Goods Movement Task Force	<a href="http://www.dvrpc.org/Freight/DVGMTF.htm">www.dvrpc.org/Freight/DVGMTF.htm</a>	Kelvin MacKavanagh
Federal Highway Administration–New Jersey	<a href="http://www.fhwa.dot.gov/njdiv">www.fhwa.dot.gov/njdiv</a>	Caroline Trueman
Federal Highway Administration–Pennsylvania	<a href="http://www.fhwa.dot.gov/padiv">www.fhwa.dot.gov/padiv</a>	Mike Castellano
Fiocco Engineering	<a href="http://www.fioccoengineering.com">www.fioccoengineering.com</a>	Joe Fiocco
Greater Valley Forge Transportation Management Association	<a href="http://www.gvftma.com">www.gvftma.com</a>	Shayne Trimbell
MBO Engineering, LLC	<a href="http://www.mboengineering.com">www.mboengineering.com</a>	Pat Ott
Mercer County Engineering Department	<a href="http://www.state.nj.us/counties/mercerc/department_s/transportation/eng">www.state.nj.us/counties/mercerc/department_s/transportation/eng</a>	George Fallat
Mercer County Planning Division	<a href="http://www.state.nj.us/counties/mercerc/department_s/planning">www.state.nj.us/counties/mercerc/department_s/planning</a>	Matthew Lawson
Montgomery County Planning Commission	<a href="http://planning.montcopa.org">http://planning.montcopa.org</a>	Wes Ratko
National Highway Traffic Safety Administration–Region 2	<a href="http://www.nhtsa.gov">www.nhtsa.gov</a>	Francisco Gomez, Tom Louizou, Richard Simon,
New Jersey Department of Transportation	<a href="http://www.state.nj.us/transportation">www.state.nj.us/transportation</a>	Bill Beans, Kevin Conover
New Jersey Division of Highway Traffic Safety	<a href="http://www.nj.gov/oag/hts">www.nj.gov/oag/hts</a>	Zach Hosseini, Violet Marrero, <a href="#">Ray Reeve</a>
New Jersey State Police	<a href="http://www.njsp.org">www.njsp.org</a>	Capt. Tina Arcaro
Pam Fischer Consulting	<a href="http://www.linkedin.com/pub/dir/Pam/Fischer">www.linkedin.com/pub/dir/Pam/Fischer</a>	Pam Fischer
Port Authority Transit Corporation	<a href="http://www.ridepatco.org">www.ridepatco.org</a>	Dave Fullerton
Pennsylvania Department of Transportation–Central Office	<a href="http://www.dot.state.pa.us">www.dot.state.pa.us</a>	Ryan McNary, Gary Modi, Jeff Roecker
Pennsylvania Department of Transportation–District 6	<a href="http://www.dot.state.pa.us/PennDOT/Districts/district6.nsf/District%206-0%20Homepage">www.dot.state.pa.us/PennDOT/Districts/district6.nsf/District%206-0%20Homepage</a>	Lou Belmonte, <a href="#">Larry Bucci</a> , Brad Rudolph
PROvuncular, LLC	<a href="http://www.provuncular.com">www.provuncular.com</a>	Mike Dennis
Public Health Management Corp.–Street Smarts	<a href="http://www.phmc.org">www.phmc.org</a>	Donna Ferraro, Lauren Amway, Katherine Olsen
Rutgers University–Transportation Safety Resource Center	<a href="http://cait.rutgers.edu/tsrc">http://cait.rutgers.edu/tsrc</a>	Andy Kaplan, Carissa Sestito
Safe Kids Southern New Jersey–Cooper Hospital	<a href="http://www.cooperhealth.org/departments-programs/safe-kids-southern-new-jersey">www.cooperhealth.org/departments-programs/safe-kids-southern-new-jersey</a>	Maureen Donnelly
South Jersey Transportation Planning Organization	<a href="http://www.sjtpo.org">www.sjtpo.org</a>	Tim Chelius, Jennifer Marandino

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Abstract: Over 377 people die in crashes on the roads of the nine-county Delaware Valley in an average year. Approximately 45,000 people are injured in approximately 85,000 crashes. The *2012 Transportation Safety Action Plan* defines key safety emphasis areas, a range of strategies for each of the seven key emphasis areas, and specific actions to reduce the number of fatalities.

The *2012 Transportation Safety Action Plan* was developed with guidance from the multidisciplinary Regional Safety Task Force (RSTF). The table of recommended strategies and how to accomplish them is an agreed-upon starting point for how partners will work together to improve transportation safety in the region. Each meeting of the RSTF includes refining a set of actions and reporting back on progress. The *2012 Transportation Safety Action Plan* supersedes the 2007 and 2009 editions and will be updated. Analysis of crash data for the region is provided in *Analysis of Crashes in the Delaware Valley, 2008–2010* (DVRPC Publication 11059).

Staff Contact:

Zoe Neaderland  
Manager of Transportation Safety and Congestion Management  
☎ (215) 238-2839  
✉ [ZNeaderland@dvrpc.org](mailto:ZNeaderland@dvrpc.org)

Delaware Valley Regional Planning Commission  
190 N. Independence Mall West, 8th Floor  
Philadelphia PA 19106  
Phone: (215) 592-1800  
Fax: (215) 592-9125  
Internet: [www.dvrpc.org](http://www.dvrpc.org)



190 N INDEPENDENCE MALL WEST  
8TH FLOOR  
PHILADELPHIA, PA 19106  
215-592-1800

