2015 Regional Transportation Safety Action Plan

SOUTHWESTERN PENNSYLVANIA COMMISSION
2015 Regional Transportation Safety Action Plan

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Executive Summary

In the U.S., traffic accidents are the 3rd leading cause of death for individuals 0-44 years of age and the leading cause of death for individuals 15-24. Within the SPC region alone, a total of 120,755 crashes occurred between 2009 and 2013. Of those crashes, 57,041 resulted in an injury and 1,213 lives were lost. While these statistics are grim, total, injury and fatal crashes have been decreasing or stabilizing within the region. Still, much work is needed to significantly improve safety on the region’s roadways.

With the passing of the Moving Ahead for Progress in the 21st Century Act (MAP-21) in 2012, new requirements for performance management regarding the Highway Safety Improvement Program were established to ensure the most efficient investment of federal transportation funds. It is anticipated that a final rule, expected in late 2015, will establish four national safety performance measures: Number of Fatalities, Fatality Rate (fatalities per vehicle miles of travel), Number of Serious Injuries, and Serious Injury Rate (serious injuries per vehicle miles of travel). Each measure is to be representative of a 5-year rolling average instead of single year periods to negate abnormalities.

State DOTs and MPOs will be responsible for establishing targets and achieving significant reductions in each of the four safety performance measures. This plan is the first step in establishing safety targets and tracking safety performance for the SPC region. The most recent 5-year period of crash data (2009-2013) was analyzed to track safety performance within the SPC region. The following safety focus areas were identified based on a review of the available crash data (2009-2013) and feedback from SPC safety stakeholders:

1) Run-off-Road Crashes
2) Hit Fixed Object Crashes
3) Head-on and Cross-median Crashes
4) Signalized Intersection Crashes
5) Aggressive Driving Crashes
6) Secondary Crashes on Limited Access Roads
7) Mature Driver Crashes
8) Pedestrian and Bicycle Crashes

SPC’s safety stakeholders include representatives from our planning partners and their health/safety personnel, SPC’s Traffic Incident Management (TIM) teams, and SPC’s Transportation Operations & Safety Committee.

In addition to the regional safety focus areas, County Safety Trend Profiles (graphical representation of crash and fatality trends) and the top-10 local road crash locations for each county were identified to assist safety stakeholders in prioritizing projects and programs (see Appendix A).

1 Source: Centers for Disease Control and Prevention (CDC), National Center for Health Statistics: http://www.worldlifeexpectancy.com/pennsylvania-cause-of-death-by-age-and-gender
Safety stakeholders and SPC have created and implemented numerous strategies over the years to improve safety within the region. This plan identifies successful strategies/programs within the region and identifies new and innovative strategies to improve safety. Section 8.2 of this plan highlights a potential program with safety strategies to reduce crashes in the eight (8) identified safety areas and a location-specific pilot safety project as a result of an SPC Road Safety Audit.
1. Transportation Safety Overview

Traffic crashes are the 8th leading cause of death globally and the leading cause of death for young people ages 15-24 (see chart). More than 1.24 million people die annually while another 20 to 50 million sustain non-fatal injuries on roadways around the world. If current trends continue, roadway related traffic deaths will become the fifth leading cause of death around the world by 2030.

In the United States, traffic accidents rank 21st amongst all the causes of death, including heart disease, lung cancers, stroke, etc. When examining the data more closely, a troubling trend emerges when looking at individuals under 44 years of age. For individuals 0-44 years of age, traffic accidents are the 3rd leading cause of death behind poisoning and suicide according to the Centers for Disease Control. For young people (15-24), road traffic accidents are the leading cause of death ahead of suicide, poisoning and homicide.

The National Highway Traffic Safety Administration say that highway crashes alone have an annual price tag of around $871 billion in economic loss and social harm, with speeding accounting for $210 billion of that figure.

Through 2011, fatalities on US roadways had decreased 26% over the previous 6 years, resulting in the lowest number of fatalities since 1949. However, in 2012, there were 33,561 fatalities and 2.36 million injuries on US roads; a slight increase in both fatalities and injuries from 2011. While significant progress has been made in recent years to prevent injuries and fatalities, there is room for significant improvement.
1.1 Toward Zero Deaths

The concept of zero deaths was conceived in Sweden in 1994, and was titled Vision Zero. Vision Zero is a roadway safety initiative based on the idea that no loss of life is acceptable. The core concept behind Vision Zero is the fact that humans make mistakes and that the road system should be designed to account for those mistakes to prevent loss of life. In 1997 Vision Zero was approved by Swedish parliament. Since its implementation, Vision Zero has been extremely successful in Sweden, continuing to improve roadway safety while traffic volumes continue to increase.

Such a radical vision for safety was not adopted without meeting some resistance. The largest opponents of Vision Zero were not really political, but on the expert side. The largest resistance was from political economists and experts in the transportation sector. Most individuals did not believe zero fatalities were achievable and that fatalities were just a consequence of transporting people.

Vision Zero or TZD was developed to change the mindset of experts and the public that roadway fatalities are not just a fact of transporting people but a civil rights issue. Vision Zero changes the idea that safety work is about correcting human behavior to that people make mistakes and the system should be designed to account for those mistakes. Since its conception in 1997, several countries (Netherlands, United Kingdom, Norway, etc.), state DOTs (Rhode Island, Virginia, Michigan, Minnesota, Pennsylvania, etc.) and cities (Boston, New York City, San Francisco) have adopted the goal of zero fatalities.

PennDOT adopted TZD in 2012 and began incorporating it into its annual PA Strategic Highway Safety Plan.

So what is Toward Zero Deaths? The vision, Toward Zero Deaths (TZD), is the National Strategy on Highway Safety that brings together stakeholders by defining the common vision to drive individual and collaborative efforts to improve highway safety. TZD is intended to provide a roadmap for the future by identifying key safety focus areas and ensuring progress by providing a collaborative environment for stakeholders to share experience and knowledge. TZD is a mechanism for uniting safety stakeholders nationwide and focusing on the core elements to bring this shared safety vision to reality.
1.2 The Four E’s of Highway Safety

When considering the safety of a roadway, it is important to think about the roadway, the vehicle, and all roadway users (drivers, pedestrians, and bicyclists). As a result, it is imperative that the approach to safety solutions be multidisciplinary in nature. The most common application of this multidisciplinary approach exists in the form of the “Four E’s”\(^2\) of highway safety:

- **Engineering** to deploy safety countermeasures (improvements);

  | PennDOT - Safety Improvement Projects and Bridge Replacements/Rehabilitations |
  | District 10: [Philadelphia Street Road Diet, Indiana Borough](http://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/flyr3_in.cfm) |
  | District 11: S.R. 51 @ S.R. 168 Left Turn Offset and Flashing Signal Safety Project |
  | District 12: Upgrading S.R. 519 @ S.R. 1055 Intersection to Double Roundabout |

  | SPC – Road Safety Audit Program identifies safety projects |

- **Education** of drivers, pedestrians, cyclists, and other system users;

  | PennDOT – Community Traffic Safety Program Education and Outreach |
  | Safety Partners - [Southwest Regional Traffic Safety Network](http://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/flyr3_in.cfm) |
  | IUP Institute for Rural Health and Safety’s Center for Transportation – [IUP Community Traffic Safety Project](http://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/flyr3_in.cfm) |
  | Carnegie Mellon - [University Transportation Center](http://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/flyr3_in.cfm) and [Traffic21](http://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/flyr3_in.cfm) |
  | University of Pittsburgh - [Center for Sustainable Transportation Infrastructure](http://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/flyr3_in.cfm) |
  | Allegheny County Health Department (ACHD) – [Traffic Safety Education Project](http://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/flyr3_in.cfm) |
  | Bike Pittsburgh – [City Cycling Classes](http://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/flyr3_in.cfm) |

- **Enforcement** of safety laws and regulations; and,

  | PennDOT – [Alcohol Highway Safety Program](http://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/flyr3_in.cfm) |
  | Pennsylvania Aggressive Driving Enforcement and Education Project |
  | PSP – Special Traffic Enforcement Program (STEP) – high-visibility enforcement campaigns and innovative aggressive driving enforcement programs |
  | Municipal Police Departments – participate in DUI, Click-it or Ticket and Aggressive Driver enforcement programs |

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\(^2\) Federal Highway Administration - [http://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/flyr3_in.cfm](http://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/flyr3_in.cfm)
• Emergency medical services to improve response and incident clearance times.

SPC – Regional Traffic Incident Management (TIM) Steering Committee and Local TIM teams

IUP Institute for Rural Health and Safety's Center for Emergency Services – Emergency Medical Services Training

The Four E’s play an important role in road safety and are essential in moving toward zero deaths. Each component is essential and, when taken together as a unified approach, has had great success helping to achieve the lowest crash rates in decades. By addressing these four components in a holistic manner, the National Highway Traffic Safety Administration (NHTSA), state DOTs, law enforcement, and other stakeholders hope to both prevent crashes and also to minimize the impacts of crashes that do occur.

1.3 Hot Spot vs. Systemic Safety Improvements

For decades, priority safety locations were identified by evaluating crash data to determine the problem areas or “hot spots” for safety improvement projects. While this technique has been successful in reducing highway crashes, there is compelling evidence indicating that severe crashes are actually widely distributed across state and local highway systems, and very few individual locations in rural areas and on local systems experience a high number or sustained occurrence of severe crashes. As a result, states will have trouble meeting their safety performance goals by only investing in “hot spot” locations. Because of this, roadway agencies have been putting more emphasis on lower-cost systemic improvements that can be deployed on a wider percentage of the roadway network.

The "Moving Ahead for Progress in the 21st Century Act" (MAP-21) continues the Highway Safety Improvement Program (HSIP) as a core Federal-aid highway program and emphasizes reducing fatal and serious injury crashes on all public roads. The legislation acknowledges that a state’s HSIP should identify projects to improve safety not only on the basis of crash history, but

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3 FHWA Research and Technology: [http://www.fhwa.dot.gov/publications/publicroads/13mayjun/03.cfm](http://www.fhwa.dot.gov/publications/publicroads/13mayjun/03.cfm)
also on crash potential. MAP-21 places a significant emphasis on systemic safety improvements as part of the safety management process. MAP-21 clarifies that systemic safety improvements are eligible highway safety improvement projects and encourages each state to consider systemic safety improvements as they update their strategic highway safety plan (SHSP).

Systemic safety planning is the process of evaluating an entire system using a defined set of criteria to identify candidate locations for safety investments to reduce the occurrence of and the potential for severe crashes. The systemic approach to safety is a complementary analytical technique intended to supplement the traditional site analysis approach and results in a more comprehensive safety management program.

The systemic approach to safety:
- Identifies a "problem" based on system-wide data where crashes are often spread across the network with few or no locations experiencing a "cluster" of crashes during a typical 3- to 5-year analysis period.
- Looks for characteristics (e.g., geometry, volume, or location) frequently present in severe crashes. These characteristics, known as risk factors, refer to a common characteristic of the locations where severe crashes occurred; therefore, the presence of a risk factor at other locations is an indicator of the potential for a future severe crash. These risk factors can be used to identify and prioritize locations with few or no crashes that could be potential candidates for safety investments.
- Focuses on deploying one or more low-cost countermeasures to address the underlying circumstances contributing to crashes on a majority of roads.

SOURCE: FHWA Systematic Safety Project Selection Tool
http://safety.fhwa.dot.gov/systemic/fhwasa13019/chap1.cfm


2.1 Requirements

In 2012, President Obama signed into law the Moving Ahead for Progress in the 21st Century Act (MAP-21). MAP-21 is the successor to SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users), which guided national transportation policy between 2005 and 2012. MAP-21 continues the Highway Safety Improvement Program (HSIP) as a core Federal-aid highway program and emphasizes reducing fatal and serious injury crashes on all public roads. The goal of the HSIP is to attain a large reduction in traffic fatalities and serious injuries on all public roads. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads that is centered on performance. The legislation acknowledges that a state’s HSIP should identify projects to improve safety not only on the basis of crash history, but also on crash potential.

In addition to continuing the HSIP program, MAP-21 transformed the Federal-aid highway program by establishing new requirements for performance management to ensure the most efficient investment of Federal transportation funds. Performance management refocuses attention on national transportation goals, increases the accountability and transparency of the
Federal-aid highway program, and strives for improved project decision-making through performance-based planning and programming.

In the spring of 2014 the FHWA issued notices of proposed rulemaking (NPRM) for MAP-21. These NPRMs propose changes to existing legislation to address provisions included in MAP-21, as well as to incorporate clarifications to better explain existing regulatory language. Four NPRMs issued for highway safety influence the way states and MPOs do business, specifically with the introduction of safety performance measures and the setting of targets to mark progress.

**Safety Performance Measures NPRM (23 CFR 490.207)**

Section 490.207 proposes four measures to be used by state DOTs:

1) Serious Injuries per Vehicle Miles Traveled (VMT)
2) Fatalities per VMT
3) Total Number of Serious Injuries
4) Total Number of Fatalities

Each of the four measures would be representative of a 5-year rolling average (rather than a single-year period), where fatality-related measures would be derived from the Fatality Analysis Reporting System (FARS) and serious injury-related measures would be derived from the State motor vehicle crash database. State DOTs will calculate serious injury and fatality rates per one hundred million VMT as documented in the Highway Performance Monitoring System (HPMS).

**Establishment of Performance Targets NPRM (23 CFR 490.209)**

Section 490.209 proposes the process to be used by state DOTs and MPOs to establish targets for each of the four safety measures. To the extent practicable, the performance measures common to the state’s Highway Safety Plan (HSP) and the state Highway Safety Improvement Program (HSIP) (fatalities, fatality rate, and serious injuries) should be defined identically, as coordinated through the state Strategic Highway Safety Plan.

While common performance measures are proposed in this NPRM, NHTSA is subject to a statutory requirement under MAP–21 that revisions to performance measures be coordinated with the Governors Highway Safety Association. The DOT also proposes that states would establish targets identical to those for common performance measures. This NPRM proposes that state DOTs will establish the targets for these measures in the annual HSIP report, while State Highway Safety Offices (SHSO) will establish the targets for measures in the HSP. For this reason, state DOTs and SHSOs should coordinate the targets so they are able to report identical targets for the common measures.

The SHSOs established these targets beginning with HSPs for fiscal year 2014. The MAP–21 requires state DOTs to establish statewide targets not later than one year after the effective date of this rule. This rule proposes to require state DOTs to begin reporting this target information in the HSIP annual report due August 31 following the effective date of this rule.
State DOTs would have the flexibility to also establish one aggregate target for urbanized areas and one aggregate target for non-urbanized areas for each performance measure.

In accordance with MAP–21, MPOs would be required to establish targets for their entire Metropolitan Planning Area in coordination with the state DOT not later than 180 days after the date the respective state DOT establishes their safety targets. It is proposed in this rule that MPOs would establish targets for their Metropolitan Planning Area by either supporting the state DOT target or defining a target unique to its metropolitan area. The MPOs would be required to re-establishing targets each time the state DOT establishes a safety target.

**Assessing Significant Progress Toward Achieving Performance Targets NPRM (23 CFR 490.211)**

Section 490.211 proposes the method FHWA will use to assess whether state DOTs have achieved or have made significant progress toward the achievement of their safety targets in accordance with 23 U.S.C. 148(i). State DOTs that have overall achieved their safety targets would not need to demonstrate significant progress. The FHWA would determine significant progress from FARS data for the number of fatalities, FARS and HPMS data for the fatality rate, state-reported data for the number of serious injuries, and state-reported data and HPMS data for the serious injury rate. The FHWA would consider a State DOT to have made significant progress toward achieving each target if the actual outcome for each target is at or below the upper bound of a 70 percent prediction interval, which would be set based on the projection point from a 10-year historical trend line. The FHWA would only consider a state DOT to have made overall significant progress if that state DOT achieved or made significant progress for at least 50 percent of their safety targets.

State DOTs that the FHWA determine not to have achieved overall significant progress for their safety targets would need to comply with 23 U.S.C. 148(i). Although this provision is directed at state DOTs, MPOs could also be indirectly impacted by consequences to the state DOT for non-compliance. The method by which the FHWA will review performance progress of MPOs is discussed in the updates to the Statewide and Metropolitan Planning regulations.

**Reporting on Performance Targets for the Highway Safety Improvement Program (23 CFR 490.213)**

Section 490.213 proposes safety performance reporting for state DOTs and MPOs. State DOTs would establish and report their safety targets and progress toward their safety targets in the annual HSIP report in accordance with 23 CFR 924. Targets established by the MPO would be reported to their state DOTs on an annual basis in a manner that is agreed upon by both parties. The MPOs would report on progress toward the achievement of their targets in their System Performance Report as part of their transportation plan, in accordance with 23 CFR 450. In addition, state DOTs should include similar information in their transportation plans.

Although clarity is still needed regarding a few topics presented in the NPRMs, the proposed changes and additional provisions provide a sound approach to tracking progress and meeting objectives in the pursuit of lowering injuries and fatalities on our transportation system.
2.2 Guidance

Transportation Safety Planning (TSP) is a comprehensive, system-wide, multimodal, proactive process that better integrates safety into surface transportation decision-making. Federal law requires that the State and Metropolitan transportation planning processes be consistent with Strategic Highway Safety Plans. It is important for the processes to consider projects and strategies to increase the safety of the transportation system for motorized and non-motorized users. Federal guidance for planning for safety is available from the following resources.

**Highway Safety Manual (HSM)**
[http://www.highwaysafetymanual.org/Pages/default.aspx](http://www.highwaysafetymanual.org/Pages/default.aspx)

Prior to the HSM, there were no widely accepted tools for engineers to use to quantify the potential for reductions in crash frequency and severity when making transportation facility design and operations decisions. The HSM equips transportation professionals with knowledge, techniques, and methodologies to quantify the safety-related effects of transportation decisions – similar to the way operational impacts are quantified in the Highway Capacity Manual. It provides factual information and tools in a useful form to facilitate roadway planning, design, operations, and maintenance decisions based on the explicit consideration of their effects on potential future crash frequency and severity.

Benefits include an improved decision-making process for applying safety treatments, resulting in potential cost savings to highway agencies. Time spent justifying a safety decision can be reduced by conducting a definitive, science-based analysis; and safety elements can be integrated in the most cost-effective manner in the project development process.

**Interactive Highway Safety Design Model (IHSDM)**

The Interactive Highway Safety Design Model (IHSDM) is a suite of software analysis tools used to evaluate the safety and operational effects of geometric design decisions on highways. IHSDM is a decision-support tool. It provides estimates of a highway design's expected safety and operational performance and checks existing or proposed highway designs against relevant design policy values. Results of the IHSDM support decision-making in the highway design process. Intended users include highway project managers, designers, and traffic and safety reviewers in state and local highway agencies and in engineering consulting firms.

**Proven Safety Countermeasures**

This guidance memorandum takes into consideration the latest safety research to advance a group of countermeasures that have shown great effectiveness in improving safety. Safety practitioners are encouraged to consider this set of research-proven countermeasures. Downloadable fact sheets are available for the nine countermeasures discussed.
The guide is a basic reference to assist State Highway Safety Offices (SHSOs) in selecting effective, evidence-based countermeasures for traffic safety problem areas. Focus areas include: Alcohol-Impaired and Drugged Driving, Seat Belts and Child Restraints, Aggressive Driving and Speeding, Distracted and Drowsy Driving, Motorcycle Safety, Young Drivers, Older Drivers, Pedestrians and Bicycles.

The guide describes major strategies and countermeasures that are relevant to SHSOs and summarizes strategy/countermeasure use, effectiveness, costs and implementation time. It also provides references to important research summaries and individual studies.

Performance Based Planning and Programming Guidebook
Performance-based planning and programming (PBPP) refers to the application of performance management principles within the planning and programming processes of transportation agencies to achieve desired performance outcomes for the multimodal transportation system. The Guidebook has been designed to help state DOTs, MPOs, RTPOs, transit agencies, and other partner organizations understand the key elements of a PBPP process and the relationship of these elements within existing planning and programming processes. The Guidebook is designed to highlight effective practices to help transportation agencies in moving toward a performance-based approach to planning and programming.

Systemic Safety Project Selection Tool: Identify and Treat High-Risk Road Features
http://safety.fhwa.dot.gov/systemic/fhwasa13019/
The Systemic Safety Project Selection Tool presents a process for incorporating systemic safety planning into traditional safety management processes. The Systemic Tool provides a step-by-step process for conducting systemic safety analysis; considerations for determining a reasonable distribution between the implementation of spot safety improvements and systemic safety improvements; and, a mechanism for quantifying the benefits of safety improvements implemented through a systemic approach. The tool is intended for use by transportation safety practitioners in state, county, and local government agencies to plan, implement, and evaluate systemic safety improvement programs and projects that best meet their capabilities and needs.

Safety Data & Analysis Technical Assistance Program
This program provides technical assistance, training, and resources to help agencies develop analyses that integrate crash, road inventory, and traffic data to pinpoint vital safety improvements in a holistic way.
Agencies can receive either formal or informal technical analysis support in a flexible format, including one-on-one sessions with experts. Quarterly webinars are open to all interested agency representatives and cover broader data topics to supplement the individualized sessions.

FHWA Safety Focused Decision Making Framework
This document provides guidance regarding the safety planning decision-making environment where transportation organizations take a holistic programmatic approach and optimize the selection of roadway safety infrastructure improvements across a roadway system using performance management practices to track progress and achieve safety performance targets.

Tools and Practices for System Wide Safety Improvement
http://safety.fhwa.dot.gov/tsp/fhwasa13033/
This is a gap analysis on the current safety planning environment as it relates to projects, current tools and activities, and the desired future state. This work is the precursor of the Safety Focused Decision Making Guide.

Integrating Road Safety into NEPA Analysis: A Practitioner's Primer
This primer presents strategies to capitalize on the National Environmental Policy Act (NEPA) process as an effective tool for maximizing the safety benefits of transportation projects.

Transportation Planner’s Safety Desk Reference
http://tsp.trb.org/assets/FR1_SafetyDeskReference_FINAL.pdf
This document discusses the planner’s role in transportation safety and the incorporation of safety into the transportation planning process. Each emphasis area section includes: overview of the problem; data defining the problem; descriptions of safety strategies that are most relevant to planners; crash modification factors that can be used to determine the reduction in crashes anticipated from specific safety improvements; and, additional resources and best practices, where available.

Safety Performance Measure Primer – A Tool for Integrating Safety in the Planning Process
http://safety.fhwa.dot.gov/tsp/fhwahep09043/
This Primer is a tool to help state and local practitioners, transportation planners, and decision-makers identify, select, and use safety performance measures as a part of the transportation planning process. The Primer draws from current literature, professional experience, and state DOT and MPO practice. Key elements of the Primer include: a definition of performance measures; a step-by-step description and flowchart showing how safety performance measures can be identified and integrated into the transportation planning process; characteristics of effective performance measures; a checklist to assess an organization's current status with
respect to the use of safety performance measures in the transportation planning and decision-making process; a list of references; and case studies of noteworthy practice.

Making the Case for Transportation Safety – Ideas for Decision Makers
http://tsp.trb.org/assets/Briefing%20Book%20hi-res.pdf
This document presents 20 case studies of noteworthy transportation safety practices throughout the U.S. involving stakeholders at all levels of transportation safety. It features examples from state DOTs, Tribes, transit agencies, MPOs, highway safety offices, and enforcement agencies. The document also describes the importance of integrating safety into the transportation planning process and lists transportation safety resources.

3. Statewide Planning for Transportation Safety

Providing a safe, efficient and reliable road network is a key responsibility of State Departments of Transportation. The Highway Safety Act of 1966 established highway safety programs for each state designed to reduce the number of traffic crashes, deaths, injuries and property damage. In order to secure funding, each state must submit to The National Highway Traffic Safety Administration (NHTSA) a Highway Safety Plan (HSP) which discusses the process used to identify highway safety problems, measurable safety goals and countermeasures.

3.1 Statewide Planning Linkages

Statewide safety planning has evolved based on federal guidelines and knowledge development. In accordance with the Highway Safety Act of 1966 (P.L. 89-564), PennDOT is responsible for developing an annual comprehensive plan designed to reduce crashes on Pennsylvania roadways. The annual Pennsylvania Highway Safety Plan document states goals, identifies problems and recommends mitigation countermeasures for the safety focus areas identified in the Strategic Highway Safety Plan (SHSP).

In 2012, PennDOT updated the SHSP, which serves as a blueprint to reduce fatalities and major injuries on Pennsylvania’s roadways (state and local). The plan targets priority safety focus areas that have the most influence on improving highway safety throughout the state. To develop the plan, a comprehensive approach was utilized to engage state and national experts along with safety stakeholders and partners from both the public and private sector by creating a Highway Safety Steering Committee. SPC was represented on the SHSP Steering Committee and assisted in the development of the plan. As the region’s MPO, SPC plays an important role in implementing and prioritizing the highway safety improvements strategies within the plan.

The SHSP identified The “Vital Seven” Safety Focus Areas (SFA) for all safety stakeholders within the Commonwealth. They were chosen because implementing improvements in these areas can have the highest impact on reducing overall highway fatalities. The Vital Seven Safety
Focus Areas are: **Reducing Impaired Driving (DUI), Increasing Seat Belt Usage, Infrastructure Improvements** (Head-on Collisions, Roadway Departure, and Intersection Crashes), **Reducing Speeding & Aggressive Driving, Reducing Distracted Driving, Mature Driver Safety, and Motorcycle Safety.**

In the past, SPC has followed PennDOT’s lead in identifying safety focus areas and safety projects for programming/funding. Previous Long Range Transportation Plans referenced PennDOT’s SHSP and did not document regional safety goals. This safety plan is an effort to identify additional safety focus areas and establish safety goals for each focus area based on crash trends in the region. The goal is to identify and program safety projects/initiatives, in addition to PennDOT’s strategies, to continue to improve safety within the SPC region.

### 3.2 PennDOT District Safety Planning Process

Within PennDOT, each of its Districts is responsible for developing and implementing a District Safety Plan each year. At its core, the District Safety Plan includes lists of planned safety projects and initiatives chosen by analyzing crash data and working with the planning partners to mitigate safety problems at targeted locations in the District. In theory this is an effective process to improve safety; however, better collaboration is needed between District staff and SPC staff to plan and program safety project/initiatives within the region. This would assure that SPC’s other stakeholders have input into the process of identifying and prioritizing safety strategies and projects.

SPC’s Transportation Operations & Safety Committee (TOSC) quarterly meetings are an opportunity for SPC and the Districts to discuss the District Safety Plans. In addition to those quarterly meetings, a safety plan sub-committee could be formed to collaborate and coordinate safety improvement projects/initiatives through the District Safety Plans and SPC’s Safety Plan.

#### 3.2.1 District Safety Plan Structure

The projects and initiatives identified in the District Safety Plans are divided into separate sections based on the following categories:

- **Safety Projects** – infrastructure-related safety projects
  - TIP (Non-HSIP, Section 148) Safety Projects
  - Section 148 HSIP Funding
  - Low-Cost Improvement Projects
    - Low-Cost Safety Improvement Projects (LCSIP)
    - Low-Cost Risk Management Projects (LCRMP)

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**Centerline Rumble Strips**

The number of statewide fatalities in head-on crashes has declined by 47 percent since 2000 thanks to the installation of over 5,000 miles of centerline rumble strips.
2015 Regional Safety Action Plan

- Other Maintenance Safety Projects
  - Local Road Safety Projects and Initiatives
    - Safety Press Officer Planned Activities – soft-side initiatives
    - Non-Compliant Shoulder Rumble Strip Tracking – non-bicycle compliant rumble strip replacement
    - District Strategic Highway Safety Plan (DSHSP) – District specific plan based on the PA Strategic Highway Safety Plan’s target safety focus areas

Safety improvements and initiatives are constructed or implemented based on the project categories previously discussed. The majority of projects and initiatives can be constructed or implemented within a year, while some larger-scale/complex projects need to be planned and programmed through the TIP.

After projects have been completed, the Highway Safety and Traffic Operations Division performs safety evaluations of projects in compliance with federal regulations. These evaluations determine the effectiveness of implemented safety projects and countermeasures. Accurate project completion dates are also required to prepare the annual reports and effectiveness studies required by FHWA.

3.3 MPO Safety Programs

MPOs have always played an important role in improving safety along Pennsylvania roadways. As the planning partners for PennDOT, MPOs provide input regarding safety to PennDOT Districts and program safety projects within their respective regions through the Transportation Improvement Program (TIP). MPOs also incorporate safety into their work programs through efforts such as safe routes to school, incident management, corridor studies, road safety audits and Long Range Transportation Plans. With the passing of MAP-21 and proposed rulemaking for MPO safety performance measures, the MPO’s role in safety will continue to evolve.

Safety and operations within Southwestern Pennsylvania has been a focal point for SPC. As the MPO for the region, SPC is one of the responsible agencies for planning and programming safety improvement projects and initiatives while working closely with PennDOT Districts 10-0, 11-0 and 12-0.

To supplement District safety programs within the region, SPC has established various initiatives to improve safety. Two of the most prominent and successful initiatives have been the Traffic Incident Management (TIM) and Road Safety Audit (RSA) programs. The Regional TIM Program has been successful in improving incident response/clearance times through collaboration, information sharing, improved communication and training of incident
responders. The RSA Program has been successful in identifying intersection and/or corridor safety improvements on the region’s roadways.

To further enhance highway safety within the region, SPC is working to develop a systematic regional safety planning process at the MPO level. This Safety Action Plan is the initial step in identifying crash trends/locations and developing potential solutions within the 10-county region. The goal of the plan is to create a safety program within SPC to assist local agencies and safety stakeholders with infrastructure-based safety projects as well as other initiatives such as educational campaigns, increased enforcement, public outreach, etc.

4. Regional Transportation Safety Collaboration

Safety planning is the responsibility of all transportation agencies and levels of government within a region. To effectively improve safety within a region, all stakeholders must collaborate and coordinate with one another to plan, program and develop solutions to improve safety. Safety solutions can range from legislation to educational safety campaigns to infrastructure improvements. As discussed earlier, a multi-faceted approach (4 E’s of Highway Safety) is necessary to improve safety and to continue advancing Toward Zero Deaths. Partnerships between public, private, institutional and non-profit agencies are needed to identify, develop and implement safety strategies. A multidisciplinary approach is essential when implementing safety initiatives and projects across jurisdictional boundaries.

4.1 Regional Operations and Safety Committee

SPC’s Transportation Operations and Safety Committee (TOSC) provides a central regional forum to coordinate operations and safety planning and continued development, advancement, and implementation of the Regional Operations Plan. The Transportation Operations and Safety Committee is comprised of public, private, institutional and non-profit agency representatives. This committee typically meets three times per year or when special activities or initiatives require.

The current meeting structure provides attendees with an update of operations and safety initiatives within the region and a forum for dialogue regarding areas of concern and innovative practices. To continue to improve safety within the region, it is important that the TOSC institutionalize the process of engaging safety stakeholders in developing safety objectives and tracking progress toward these objectives. This could be done by establishing a safety-focused subcommittee or work group of the TOSC.

Stakeholders are invited to participate in TOSC meetings on a regular basis or a special event could be held annually to present/discuss specific safety related items.
By improving safety, planners, engineers and operators can help institutionalize the concept of working together among transportation agencies, public safety officials, and other public and private sector interests within Southwestern Pennsylvania.

### 4.2 Plan Development Process

A performance-based approach to planning for safety involves the development of safety objectives that tie to the broad goals and policies set forth in the [Pennsylvania Strategic Highway Safety Plan 2012](#) and [Pennsylvania Highway Safety Plan 2015](#). These objectives should inform the transportation investment decision-making process, which identifies projects and programs for implementation. This approach is utilized to address a full range of safety issues, such as high crash locations, impaired driving, aggressive driving, distracted driving and mature/teen driver safety among others. It is coordinated with the Regional Operations Plan (ROP) which helps identify, define and prioritize operational strategies to improve mobility and safety.

Ultimately, the development process is a management tool to assist in planning and implementing safety strategies in a collaborative and sustained manner. It is important that the development process be integrated with Statewide and District safety planning efforts.
4.3 Regional Planning Linkages

Effectively linking planning and safety depends on regional planning tools working together to institutionalize safety planning into the overall planning cycle. SPC has done this by integrating the Safety Action Plan as the safety component of the long range transportation plan (LRTP). These plans in turn feed project programming in the Transportation Improvement Program (TIP) and the Unified Planning Work Program (UPWP).
### Planning Linkage

<table>
<thead>
<tr>
<th>Congestion Management Process</th>
<th>Considerations</th>
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| http://www.spcregion.org/trans_cong.shtml | - The Congestion Management Process (CMP) is a regional planning tool designed to provide a systematic way to help manage congestion and provide information on transportation system performance. It identifies congested corridors and recommends strategies for congestion mitigation.  
- The CMP is intended to be directly integrated into the planning process and is an example of the objectives-driven, performance-based approach to planning for operations with a focus on congestion.  
- The CMP includes methods to monitor and evaluate the performance of the multimodal transportation system and a process for periodic assessment of the effectiveness of implemented strategies. |

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<tr>
<th>Regional Operations Plan</th>
<th>Considerations</th>
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| http://www.spcregion.org/trans_ops_rop.shtml | - The Regional Operations Plan (ROP) is a regional planning tool to identify, define and prioritize operationally-focused projects and programs for the region.  
- The ROP identifies operational objectives and establishes performance measures to track regional system performance.  
- The ROP is integrated into the planning process by identifying areas of need and potential projects and programs to be included in the LRTP. |

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<tr>
<th>Long Range Transportation Plan</th>
<th>Considerations</th>
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| http://www.spcregion.org/trans_lrp.shtml | - The purpose of the Long Range Transportation Plan (LRTP) is to guide public investment into multimodal transportation facilities within the context of the Regional Vision set forth in the plan.  
- The plan contains long-range investment strategies (20+ years) and a high-level capital improvement program (e.g., line items for certain types of investment like bridge rehab, betterment projects, and operations and safety programs, and |
### Planning Linkage

<table>
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<th>Considerations</th>
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<td>individually listed large-scale projects).</td>
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<td>▪ By formally linking the Regional Operations Plan, Safety Plan and Long Range Transportation Plan, operational and safety projects are institutionalized into the planning process allowing them to be moved forward in the TIP and UPWP.</td>
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<td>▪ The TIP is the short-range capital improvement program that is drawn from the LRTP. It outlines the projects that will be undertaken over a 4-year period and delineates when different phases of the projects will be funded.</td>
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<tr>
<td>▪ The UPWP is the MPO’s annual work program that details the projects and programs that the MPO staff will be working on for the fiscal year.</td>
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<td>▪ Key safety initiatives requiring SPC resources are integrated into the UPWP.</td>
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**Transportation Improvement Program (TIP)**

**Unified Planning Work Program**
4.4 Regional Safety Initiatives

To comprehensively improve safety within the region, partnerships are necessary with a variety of safety stakeholders including government, public, private, institutional and non-profit agency representatives. A number of ongoing safety initiatives have been implemented throughout the region to address the “4 E’s” of Safety. Below are some examples of non-traditional safety initiatives that focus on education, enforcement and emergency medical services.

Education

**Allegheny County Health Department Traffic Safety Education Project** - The Traffic Safety Education Project (TSEP) aims to reduce local injuries and deaths due to avoidable vehicle crashes. Programming, information, education, and collaboration are provided in Allegheny, Beaver and Lawrence counties through a grant from PennDOT.

The Traffic Safety Education Project partners with the following organizations on multiple initiatives: PennDOT District 11, Allegheny County Pretrial, Pennsylvania DUI Association, AAA East Central, Allegheny County Police Department, Pennsylvania State Police, Pennsylvania Traffic Injury Prevention Project. Some of the annual activities include:

- **Safe Driving Communities Annual Law Enforcement Conference** - Safe Driving Communities is a coalition of local traffic safety partners to conduct an annual multi-regional law enforcement conference to provide general and specific highway and traffic safety information. This annual conference provides up-to-date training for law enforcement officers in Allegheny, Beaver, and Lawrence counties.

- **Safe Kids Walk This Way** - Safe Kids Allegheny County conducts “Walk This Way” to improve conditions for child pedestrians. Walk This Way is celebrated on International Walk to School Day at a local walkable school district. Since its inception, the Walk This Way program has grown to include four main components: Awareness and Advocacy Activities, Infrastructure Improvements including safe school zones, Research, and Education Safety Programs. Safe Kids Allegheny County and Children’s Hospital of Pittsburgh work locally with Allegheny County Health Department Traffic Safety Education Project, PennDOT District 11, local police forces, and other local traffic safety educators to conduct this initiative.

A child participates in a pedestrian safety bean bag toss game at Safe Kids Walk This Way.
• **Allegheny County Teen Driving Competition** - The Allegheny County Teen Driving Competition is held annually at the Pittsburgh Technical Institute allowing area high school students to compete against one another in a perceptual test, driving course, and knowledge assessment for cash and a chance to compete at the state competition in May hosted by the Pennsylvania Motor Trucking Association.

• **Beaver and Lawrence Counties Fatal Awareness Conference** - The Beaver and Lawrence Counties Fatal Awareness Conference is a program geared towards licensed high school youth in Beaver and Lawrence counties. This full-day conference utilizes motivational speakers, law enforcement presentations, and other highway safety professionals. These educators present to students in hopes of reducing motor vehicle crashes and fatalities due to impaired driving, distracted driving, speeding, and failing to buckle-up. Additionally, Allegheny County Pretrial hosts an annual Fatal Awareness Conference for students of Allegheny County.

• **Home Run for Motorcycle Safety at PNC Park** - Home Run for Motorcycle Safety is an annual event held by the Greater Pittsburgh Motorcycle Safety Council (GPMSC) at PNC Park on Pittsburgh’s North Shore. The event focuses on the safety of motorists and motorcyclists as the motorcycle riding season kicks off. Ballpark attendees are encouraged to take “The Pledge” to ride and drive safety to help keep our roads crash and fatality free.

**Regional Street Smarts Project** - Street Smarts is an educational campaign to provide safety information to commuters. As part of the campaign, staff from the Airport Corridor Transportation Association, Oakland Transportation Management Association, Pittsburgh Downtown Partnership, BikePgh, City of Pittsburgh, PennDOT and SPC’s CommuteInfo Program have teamed up to produce and distribute information cards promoting safe commuting by bike, car, and walking. In addition, cards promote safety in construction zones and respecting other travelers. Under the tagline “Don’t Be a Road Zombie”, each card emphasizes simple steps and common-sense tips that anyone can take to make commuting safer, no matter how they travel.

**IUP Highway Safety Center Project** - The IUP Highway Safety Project (IUP HSP) is a federally-funded grant through the Pennsylvania Department of Transportation with the Institute for Rural Health and Safety of Indiana University of Pennsylvania. Since 1987, the project goals are to increase seat belt use rates and public awareness about highway safety issues in the five-county area of Armstrong, Butler, Clarion, Indiana, and Jefferson through targeted enforcement campaigns and judicial support.
Bike Pittsburgh City Cycling Classes – Provides city cycling classes to participants in a controlled, protected environment. Confident City Cycling is intended for riders who know how to ride a bike, and are looking for instruction on how to operate it safely on city streets. These mobile classes meet monthly from April to October in different neighborhoods around the city. They are structured to give participants education and experience navigating different traffic patterns, intersection layouts and types of bike infrastructure.

Enforcement

PSP DUI Enforcement Program – The Pennsylvania State police (PSP) and their Selective Traffic Enforcement Against Drunk-Driving (STEAD-D) program conducts impaired driving enforcement operations on a sustained basis that are coordinated with mobilizations.

Municipal DUI Enforcement Program – PennDOT offers enforcement grants that fund over 600 municipal police departments that encompass the road segments with the highest DUI crash numbers statewide. Participating departments conduct DUI enforcement operations, including sobriety checkpoints, roving patrols, phantom checkpoints, and Cops in Shops operations.

Municipal Aggressive Driving Enforcement and Education Program – Municipal police participation in aggressive driving enforcement operations are coordinated, supported and administrated through a statewide project offered by PennDOT. Enforcement sub-grants utilize an allocation formula based on aggressive driving-related data. Eligible governmental units are identified based on police jurisdictional coverage of high-crash areas and other data. The officers perform enforcement for both distracted and aggressive drivers.

Municipal Occupant Protection Enforcement and Education Programs – Municipal police participation in occupant protection enforcement operations are coordinated, supported, and administrated through a statewide project offered by PennDOT for 600 municipal police departments. Eligible governmental units are identified based on police jurisdictional coverage of high-crash areas, population density and other data.

PSP Special Traffic Enforcement Program (STEP) – STEP is a State Police program designed to increase traffic safety and reduce the number of crashes through innovative traffic enforcement operations. Enforcement and media campaigns are conducted during seven major holiday travel periods.
The Pennsylvania Aggressive Driving Enforcement and Education Project (PAADEEP) -
The Pennsylvania Aggressive Driving Enforcement and Education Project (PAADEEP) is a
statewide initiative that utilizes crash data to identify aggressive driving locations. High visibility
target enforcement, coordinated earned media, public awareness and training are conducted
on these roadways to reduce the number of needless aggressive driving injuries and deaths.
The partnership is comprised of municipal police departments, the Pennsylvania State Police,
PennDOT, the US Department of Transportation and community groups and organizations.

Buckle Up Pennsylvania (BUPA) - Buckle Up PA is a project funded through
PennDOT dedicated to raising the seat belt usage level in Pennsylvania
through increased enforcement, public awareness and education. The
partnership is comprised of municipal police departments, the Pennsylvania
State Police, PennDOT, the US Department of Transportation and
community groups and organizations.

Southwest Regional Traffic Safety Network – This regional network is part of the Pennsylvania
Traffic Safety Network (PATN). The grant is administrated through the City of Washington in
Washington County and has provided traffic safety programs in Fayette, Greene, Washington
and Westmoreland counties for over 25 years in 3 major areas of concern, or Safety Focus
Areas: Aggressive Driving, Unbelted Occupants, and Alcohol Related Fatalities. Other common
topics include distracted driving, heavy trucks, older drivers, and younger drivers.

Park the Phone - This program brings awareness to the
dangers of texting and driving. The program has been
successfully conducted on college campuses and in high
schools in the PennDOT District 12 area (Fayette, Greene,
Washington and Westmoreland counties). The program
involves the placing of portable signs and posters on
campus along with a pledge drive for drivers to sign
pledging not to “text and drive”.

Emergency Medical Services

IUP Highway Safety Center Emergency Services Training – Offers Pennsylvania Department of
Health-certified training courses as well as other programs to emergency services providers.
These programs attempt to address the training needs in emergency services locally, regionally,
and statewide.
5. Safety Goals and Objectives

The region’s long range plan, Mapping the Future: The Southwestern PA Plan, establishes the regional vision of “Transportation and land use that supports and enhances the regional economy and the communities within it.” Having a safe and reliable transportation system is an important component of that vision. The long range plan establishes two overarching goals that pertain to transportation safety:

- Transportation and development choices will reflect a priority on safe and secure multimodal and intermodal networks for both people and goods.
- The region’s infrastructure system will be designed to protect and enhance public health and the environment.

To achieve these overall goals, three broad safety objectives have been established:

- Reduce the number and rate of traffic crashes
- Reduce the number and rate of transportation-related fatalities
- Reduce the number and rate of transportation-related serious injuries

The ultimate target of these objectives is to work continuously toward zero deaths and injuries on our roadway system.

6. Safety Performance Measures

Section 1203 of MAP-21 declared that performance management will transform the Federal-aid highway program and refocus it on national transportation goals, increase accountability and transparency of the Federal-aid highway program, and improve project decision-making through performance-based planning and programming. In March 2014, the Federal Highway Administration (FHWA) issued a Notice of Proposed Rule-Making (NPRM) to establish performance measures for the Highway Safety Improvement Program. The final rule, which will be issued in September 2015, is expected to establish the following four national performance measures:

- Number of Fatalities;
- Fatality Rate (fatalities per vehicle miles of travel);
- Number of Serious Injuries; and,
- Serious Injury Rate (serious injuries per vehicle miles of travel).

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In order to focus on long-term trends rather than potential year-by-year anomalies, each of these measures will be tracked using a five-year rolling average rather than a single year period.

PennDOT has established a target of reducing the five-year average number of fatalities and serious injuries in Pennsylvania by half from the 2006-2010 average (1,413 fatalities and 3,858 serious injuries) through 2026-2030 (706 fatalities and 1,929 serious injuries). If Daily Vehicle Miles of Travel (DVMT) remain steady or increase, which can be expected given historic trends, this reduction in fatalities and injuries would also have a dramatic impact on reducing Fatality and Serious Injury Rates.

SPC endorses PennDOT’s established target of reducing the five-year average number of fatalities and serious injuries by half from the 2006-2010 average through 2026-2030. As illustrated in the graphs below, this would mean reducing the five-year average number of fatalities in the 10-county region from 260 to 130 and the five-year average number of serious injuries from 784 to 392.
In order to track performance toward the objective of reducing the overall number and rate of traffic crashes, SPC monitors those performance measures in addition to the measures being established at the national level.
Note: A reportable crash is an roadway incident that results in an injury or death or the motor vehicle becomes disabled and cannot be driven under its own power.
As illustrated in Appendix A of this report, SPC will also continue to analyze a variety of other performance data in order to gauge the effectiveness of specific programs and initiatives such as the number of pedestrian crashes, injuries and fatalities; the number of intersection-related crashes, injuries and fatalities; the number of run off the road crashes, injuries and fatalities; the number of bicycle and motorcycle crashes, injuries and fatalities; etc.

### 7. Safety Focus Areas

Safety focus areas were developed based on the summary findings and figures shown in Appendix A, input received from our safety stakeholders, and public feedback.

Based on figures shown in the Regional Overview Section of Appendix A, the following SPC region wide trends are noted:

- The overall crash rate, injury crashes, and the overall fatality rate has stabilized region wide and statewide over the five-year period 2009-2013.
- For the year 2012-2013, there was a slight increase in alcohol related fatalities in the SPC region; statewide there was a decrease in alcohol related fatalities.
- For each year over the last five-year reporting period (2009-2013), the SPC region's crash rate for drug-related crashes has increased, as has the statewide crash rate.
- For each year over the last five-year reporting period (2009-2013), the SPC region's crash rate for head-on/opposite direction side swipe crashes is higher than the respective statewide crash rate.
- For the year 2012-2013, the signalized intersection fatality rate increased significantly in the SPC region, while there was a slight decrease in the crash rate for this crash type statewide.
- For each year of the most recent four-year reporting period (2010-2013), the single vehicle run off the road crash rate and the hit fixed object crash rate have been higher than the respective statewide rates.
- The aggressive driver crash rates have increased each year for the last five-year reporting period, both regionally and statewide.
- For each year over the last five-year reporting period (2009-2013), the regional crash rate for distracted driver crashes has increased, as has the statewide crash rate.
- Mature driver crash rates have generally been on the rise both regionally and statewide.
- Secondary crash rates on limited access roadways generally increased both regionally and statewide over the five-year reporting period (2009-2013)

Even though the pedestrian and bicycle crash and fatality rates vary regionally and statewide, the public and stakeholder feedback received by SPC indicate that significant decreases in these rates should be a regional priority. In SPC’s Mapping the Future public outreach, respondents indicated that annual roadway related bicycle and pedestrian fatalities and injuries should be considered an important regional performance measure in long-range planning. This feedback also indicated that generally, annual fatality and serious injury rates are also important regional performance measures.
County-by-County Breakdown Section of Appendix A provides a more in-depth County-by-County analysis of crashes, which can be useful to County planning departments, PennDOT Districts, and other partners in terms of pinpointing trends at a subregional level and determining high crash locations on the local road network.

Based on all of the above data, the proposed regional safety focus areas for Southwestern Pennsylvania (including which primary "E" of highway safety is involved) are:

- DUI crashes (Education and Enforcement)
- Drug-related crashes (Education and Enforcement)
- Unbelted crashes (Education and Enforcement)
- Aggressive driving crashes (Education, Engineering and Enforcement)
- Secondary crash rates (Education, Engineering, Enforcement, and Emergency Medical Services)
- Distracted driver crashes (Engineering, Education and Enforcement)
- Signalized intersection crashes (Engineering and Enforcement)
- Mature driver crashes (Engineering and Education)
- Pedestrian and bicycle crashes (Engineering and Education)
- Head-on/opposite direction side swipe crashes (Engineering)
- Run off the road crashes (Engineering)
- Hit fixed object crashes (Engineering)

### 8. Safety Projects & Program Implementation

MAP-21 provided Pennsylvania with an annual appropriation of $92.6 million in Highway Safety Improvement Program (HSIP) funding. This is almost double the HSIP funding previously authorized under SAFETEA-LU.

A revised distribution of HSIP funds was presented and tentatively agreed to by the statewide Financial Guidance Workgroup. The revised distribution included statewide set-asides that target $16 million for implementation of the [Roadway Departure Implementation Plan (RDIP)](https://www.dot.state.pa.us/hsi/documents/rdip.pdf), $10 million for the implementation of the [Intersection Safety Implementation Plan (ISIP)](https://www.dot.state.pa.us/hsi/documents/isip.pdf) and $9 million discretionary that could be used to help address other systematic improvements such as rumble strips (Center/Shoulder/Edge-Line), [Cable Median Barrier (CMB)](https://www.dot.state.pa.us/hsi/documents/cmb.pdf), [High Friction Surface Treatment (HFS)](https://www.dot.state.pa.us/hsi/documents/hfs.pdf), as well as statewide high crash locations. The other $57.6 million included a $500,000 base allocation for each MPO and RPO, with the remainder allocated based on formula distribution of 50% Fatalities and Major Injury Crashes and 50% Crashes.

The statewide goal was to obligate $30 million for these projects in FFY 2014 (by June 2014) as follows:

- Approximately $16 million in new projects that help to start implementing the RDIP
- Approximately $10 million in new projects that help to start implementing the ISIP
• Approximately $4 million of currently approved/programmed HSIP project that could be advanced, or projects currently programmed that meet HSIP criteria but are not currently funded with HSIP.

The RDIP and ISIP parts of the above program were formulated to primarily address Run off the Road and Intersection Crashes on state roadways.

8.1 Current Safety Related Initiatives

8.1.1 SPC’s Regional Traffic Signal Program

The primary goal and objective of SPC’s Regional Traffic Signal Program is to optimize operations and safety for all users of signalized intersections. Approximately $8.75 million dollars of CMAQ, State, and Local funds have been invested in signal equipment upgrades and coordinated retiming at over 400 traffic signals in the first two cycles of this program since 2008. Approximately $10 million of similar funding will be additionally invested in the 3rd and 4th cycles of this program, which are on the SPC’s Transportation Improvement Program. SPC administers this program by acting as the local project sponsor that executes the necessary agreements and consolidates project locations. SPC has qualified staff that oversees the preliminary engineering and final design phases of the project. SPC coordinates the bid and construction phases with the PennDOT Districts. The Regional Traffic Signal Program could be used as a template process for development of a Regional Safety Improvement Program. Some of the safety related measures that have been implemented as part of the Regional Traffic Signal Program include:

• Coordination of adjacent traffic signals, which decreases vehicular stops; this reduces the probability for rear-end crashes
• Verifying and implementing adequate vehicular clearance intervals (yellow and all red timings)
• Verifying and implementing adequate pedestrian crosswalk timings ("walk" and "don't walk")
• Installing additional signal indications when inadequate sight lines exist to the existing signal indications
• Installing new Light Emitting Diode (LED) vehicular and pedestrian indications that increase visibility to the driver
• Implementing protected-only left turn phasing where required reduces the probability of left turn crashes
• Implementing exclusive pedestrian signal phasing where pedestrian volumes are high, crosswalk lengths are long, and/or intersection operations are complex
• Implementing No Turn on Red restrictions where existing sight lines are inadequate
• Implementing new signage and pavement marking, which provides guidance to motor vehicles stopping in advance of the marked crosswalk and keeps the crosswalk clear for pedestrians; this can reduce right-on-red conflicts
8.1.2 Road Safety Audits (RSAs)

An RSA is a proactive process that provides prioritized suggestions that can be implemented in stages as time and resources permit. As a service to its Planning Partners, SPC has developed an RSA program as part of its Transportation Operations & Safety planning efforts. The methodology for this program is based on the 8-step RSA process developed by the Federal Highway Administration.

To date, SPC has completed 22 Road Safety Audits across the region. They include the following locations that were identified with our planning partners as areas in need of a safety examination:

- Franklin Road at Peters Road, Cranberry Township
- Freeport Road from Morgan Street to Montana Avenue, Brackenridge Borough & Harrison Township
- SR 519 at SR 1055, North Strabane Township
- Liberty Avenue from 12th Street to Herron Avenue, City of Pittsburgh
- SR 21 at Ceylon Road and Glades Run Road, Cumberland Township
- State Street from Old Youngstown Road/Washington Street to Scotland Lane, Union Township
- SR 51 from SR 168 to Cannelton Road, South Beaver & Darlington Townships
- SR 21 from Duck Hollow Road/Dixon Boulevard to Business Route 40, South Union Township & City of Uniontown
- SR 22 from Conemaugh River/County Line to Snyder Lane, Blairsville Borough & Burrell Township
- SR 228 from Deer Creek Road to Freeport Street, Clinton Township
- SR 56 from SR 66 to Balsinger Road, Apollo Borough & Kiskiminetas Township
- SR 68/356 from Alameda Park Road to McKean Street, Butler Township & City of Butler
- SR 51 from Allegheny/Westmoreland County Line to Fellsburg & Willowbrook Roads, Rostraver Township
- SR 837 (Carson Street) from Station Square Entrance B / Commerce Drive to 33rd Street, City of Pittsburgh
- SR 136 from Allegheny / Westmoreland County Line to U.S. 30 Bypass, Rostraver Township to the City of Greensburg
- SR 837 (Carson Street) from Station Square to the West End, City of Pittsburgh
- SR 954 from US 422 to Philadelphia Street, White Township & Indiana Borough
- Lincoln High School and Hartman, Holy Redeemer & Northside Elementary Schools, Ellwood City Borough
- O’Neil Boulevard, Hartman Street & Eden Park Boulevard, City of McKeesport
- South Braddock Avenue from Meade Street to Kenmawr Avenue / Hawkins Village, City of Pittsburgh, Edgewood Borough, Swissvale Borough, Rankin Borough
- US 119 from Youghiogheny River (Memorial Bridge) to SR 982, Bullskin Township, Connellsville Township & City of Connellsville
- Monroeville Boulevard from James Street to Pitcairn Road, Monroeville
Some of the safety suggestions within these RSAs related to traffic signals, signage, pavement markings, and sight distance have now been completed by the respective road owners. However, many local roadway owners do not have the resources to complete even the lower cost improvements.

SPC is expanding this effort to include an operations component to the audit.

### 8.1.3 Traffic Incident Management (TIM)

TIM is a multi-disciplinary effort to improve the way we respond to incidents that impact traffic flow on regional roadways. The primary goals of TIM are encompassed in the National Unified Goal (NUG) for Traffic Incident Management and include ensuring the safety of first responders; clearing the roadways quickly in order to reduce traffic congestion and minimize the potential for secondary crashes; and, having reliable interoperable communications between responding agencies. The goal is to help first responders communicate, collaborate, train together and build relationships outside of an actual incident, so that way they can work more effectively together when they get on an actual incident scene.

TIM efforts in Southwestern Pennsylvania began in May 2011 with a 2-day Advanced TIM Workshop conducted by the Federal Highway Administration. As an action item from that workshop, SPC initiated a Regional TIM Steering Committee in August 2011. Since that time, the Regional TIM Steering Committee and staff have been working on a number of issues including:

- initiating the start-up of five (5) Local TIM teams that meet regularly to discuss incident issues and after action reviews
- providing National Traffic Incident Management training to over 170 emergency responders
- developing a TIM Program Guidebook to encourage development of more TIM teams

Feedback on these efforts has been very positive and SPC hopes to continue building on this effort throughout the region. SPC's TIM program has been highlighted nationally in an article in Traffic Technology International magazine ([http://www.spcregion.org/JOTS2/TIM.pdf](http://www.spcregion.org/JOTS2/TIM.pdf)).

### 8.2 Identified Safety Projects and Initiatives

Based on a review of the available crash data and the feedback received from our stakeholders, SPC and its planning partners propose to move forward with a Safety Program that would be comprehensive with regard to all Federal-aid roadways, and in keeping with federal priorities for this region and the PennDOT SHSP, an emphasis will be placed on safety needs for local roadways (county and municipal). The proposed Safety Program will incorporate FHWA Office of Safety's mission and guidance and will include the following foundational strategies:
• Provide additional support for educational and public awareness efforts to reduce impaired driving. Coordinate with stakeholders already involved in this effort to identify additional support needs.
• Provide additional support for educational and public awareness efforts to reduce unbelted and distracted driving crashes. Coordinate with stakeholders already involved in these efforts to identify additional support needs.
• Implement an infrastructure safety improvement program to include all roadways, but with an emphasis on safety needs for local roads. Supported project elements could include the following.

Regionwide
  o Run-off-Road crash reduction: In recent years, these type of crashes account for over 50% of fatal crashes in the region. Improvements to reduce these type of crashes would include:
    ▪ Installation of edgeline/shoulder rumble strips, widened shoulders, curve warning and delineation devices, guiderail, and skid-resistant surface treatments; and
    ▪ Continue to support and work with institutions, PennDOT and FHWA to advance connected and autonomous vehicle technology to reduce run-off-road instances.
  o Hit Fixed Object crash reduction: In recent years, these type of crashes account for nearly 43% of fatal crashes in the region. Improvements to reduce these types of crashes would include installation of fixed object delineation, guiderail and guiderail transitions, and removing frequently hit objects.
  o Head-on and Cross-median crash reduction: Improvements to reduce these types of crashes would include installation of centerline rumble strips, median barriers, curve warning and delineation devices, and widened shoulders or lanes.
  o Signalized Intersection crash reduction: Building on the success of the SPC's Regional Traffic Signal Program, improvements to increase signalized intersection safety would include installation of LED signal indications, backplates, retro-reflective tape, RED signal ahead signs, supplemental signal heads, pavement markings, signage, pedestrian countdown signals, modified phasing and timings (protected turn phases), turning movement restrictions, coordination/synchronization, geometric improvements (positive offset turn lanes, curbs, radii, drainage, resurfacing), complete signalization upgrade, and roundabouts.
  o Aggressive Driving crash reduction: Aggressive driving behavior is a factor in over 52% of all crashes in our region. Reduce aggressive driving by supporting projects that:
    ▪ Utilize Intelligent Transportation Systems (ITS) technologies like speed timing devices and other automated enforcement devices
    ▪ Utilize strategies such as road diets, roundabouts, traffic calming, and signal retiming
2015 Regional Safety Action Plan

- Conduct speed limit studies along known aggressive driving corridors to minimize speed variability
- Provide additional support for law enforcement officials to conduct regular enforcement in known aggressive driving corridors
- Provide additional support for educational and public awareness efforts to reduce aggressive driving
  
  - Secondary crash reduction: Building on SPC’s TIM initiative, reduce secondary crashes by supporting projects that:
    - Improve Emergency/Incident Response Time by
      - Improving communication systems;
      - Providing adequate training, exercises, and incident reviews to emergency responders
      - Continue to create new local TIM teams
    - Utilize ITS devices to improve situational awareness and traveler information with regard to vehicles approaching an incident or weather event
    - Provide additional support for educational and public awareness efforts to reduce secondary crashes
    - Continue to support and work with institutions, private partners, PennDOT and Pennsylvania Turnpike to improve incident information through innovative technologies such as websites, social media and mobile phone applications
  
  - Mature Driver crash reduction: Reduce mature driver crashes by supporting projects that:
    - Enhance accommodation for the mature driver through improvements to signage, pavement markings, and lighting
    - Continue to support and work with private partners, transit authorities and PennDOT to provide safe, efficient and convenient transportation programs/options for mature drivers to reduce their dependency on personal vehicles
    - Provide additional support for mature driver educational efforts
  
  - Pedestrian and Bicycle crash reduction: Reduce pedestrian and bicycle related crashes by supporting projects that:
    - Improve pedestrian and bicycle infrastructure (includes ADA ramps, sidewalks, enhanced crosswalks and pavement markings, bulbouts, traffic calming, lighting, school zones, yield-to-pedestrian channelizing devices, bike lanes, bicycle-safe drainage grates, pedestrian push buttons, pedestrian countdown signals, signage, turn prohibitions, pedestrian signal timing and phasing), and separate pedestrian/bike only facilities
    - Reduce pedestrian exposure to vehicular traffic and improve sight distance between vehicles and pedestrians
    - Provide additional support for educational and public awareness efforts to reduce pedestrian and bicycle crashes
9. Innovations in Safety

Innovations in Safety

Innovations in Safety

Innovations in Safety

Intelligent Transportation Systems (ITS) technologies can be applied effectively to improve safety. ITS is the application of information processing, communications, and advanced electronics to transportation facilities. Some of the ITS applications that are used to keep roadways in our region safer include:

- Dynamic message signage to alert motorists of incidents and congestion
- CCTV Cameras that are monitored at a Regional Traffic Management Center (RTMC); this allows the RTMC to monitor incidents and dispatch Parkway Patrol Vehicles and others to the scene of an incident
- Highway Advisory Radio that transmits roadway conditions to a radio station
- Fixed Anti-Icing Spray Technology Sites that automatically spray anti-icing agents onto a bridge based on sensor surface readings

Dedicated Short Range Communications (DSRC) is a two-way short to medium-range wireless communications capability that permits very high data transmission critical in communications-based active safety applications. DSRC will enable future development of Vehicle to Vehicle (V2V) and Vehicle to Infrastructure (V2I) applications (“Connected Vehicles”) and has the potential to significantly reduce many of the most deadly types of crashes through real-time advisories alerting drivers to imminent hazards, like veering close to the edge of the road or vehicles suddenly stopped ahead. SPC is working with university researchers and PennDOT on future testbed corridors for DSRC technology.
Appendix A

Crash data from 2009-2013 was analyzed from PennDOT’s CDART system. CDART is PennDOT’s crash database which contains all reportable crashes within the Commonwealth of Pennsylvania. A reportable crash is an incident that occurs on a highway or trafficway open to the public by right that results in an injury/death or the motor vehicle becomes disabled and cannot be driven under its own power. 2014 crash data was not analyzed since the crash numbers were not final when the safety plan was prepared.

Regional Crash Trends

This section provides a compilation of regional data illustrating the characteristics of reportable crashes over the past five years and compares crash trends within the SPC region to the rest of the state. The crash trend analysis primarily focuses on the Vital Seven Safety Focus Areas identified in Pennsylvania’s statewide comprehensive highway safety plan: Reducing Impaired Driving (DUI), Increasing Seat Belt Usage, Infrastructure Improvements (Head-on Collisions, Roadway Departure, and Intersection Crashes), Reducing Speeding & Aggressive Driving, Reducing Distracted Driving, Mature Driver Safety, and Motorcycle Safety. In addition to the Vital Seven, other safety focus areas and periods of time were evaluated to identify other crash trends.
Overall Crash Characteristics

Crashes by Month of Year
(2009-2013) SPC Region

Crashes by Day of Week
(2009-2013) SPC Region
Crashes by Time of Day
(2009-2013) SPC Region

Reportable Crashes - Weather Conditions
2009-2013 SPC Region
Fatal Crash Characteristics

Fatal Crashes by Month of Year
(2009-2013) SPC Region

% of Crashes that are Fatal by Month of Year
2009-2013 SPC Region
Fatal Crashes by Time of Day
(2009-2013) SPC Region

% of Crashes that are Fatal by Time of Day
2009-2013 SPC Region
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Fatal & Serious Injury Crashes - Illumination
2009-2013 SPC Region

Daylight: 53%
Street Lights: 24%
Dark: 18%
Dusk: 2%
Dawn: 2%
Unknown: 2%
Other: 2%

Severity by Crash Type
2009-2013 SPC Region

Motorcycles  Pedestrian  Bicycle  Alcohol-Related  Heavy Trucks  Work Zones  Rear Ends on Interstates (i.e. Secondary)

- 500  1,000  1,500  2,000  2,500  3,000  3,500  4,000

Fatalities  Major Injuries  Moderate Injuries  Minor Injuries  Unknown / PDO
Severity Index by Crash Type
2009-2013 SPC Region

Severity Index = \((\text{Fatalities} + \text{Major Injuries}) \times 12\) + \((\text{Moderate Injuries} \times 3)\) + \((\text{Minor Injuries} \times 2)\) + \((\text{Unknown Injuries or Property Damage Only} \times 1)\)
Total Crashes

Statewide
Crashes statewide show a disproportionate trend in relation to Daily Vehicle Miles Traveled (DVMT). While DVMT is decreasing, crashes have an increasing trend from 2009-2013. This results in an increasing crash rate from 2009 -2013.

SPC Region
Crashes within the SPC region have been relatively stable from 2009-2013. However, due to a reduction in the DVMT this results in an increasing crash rate from 2009-2013.
Injury Related Crashes

Statewide
Injury related crashes statewide are in decline from 2009-2013. Due to the reduction in DVMT, there is a stable trend for the injury related crash rate.

SPC Region
Injury related crashes within the SPC region have shown a slight decrease from 2009-2013. However, due to the reduction in DVMT within the region, the injury related crash rate has stabilized.
Fatalities

Statewide
Statewide fatalities declined from 2009-2013. Due to the reduction in DVMT, there is stable trend in fatal crash rate similar to the overall crash rate.

SPC Region
Fatalities within the SPC region have a stable trend from 2009-2012, with a significant reduction in 2013. While fatalities have shown a stable trend, the fatal crash rate has shown a slight increase due to the reduction in DVMT if 2013 is not considered.
Alcohol Related Crashes

Statewide
Alcohol related crashes and fatalities show a decreasing trend.

SPC Region
SPC region alcohol related crashes show an erratic trend while fatalities appear to show a decreasing trend.
Alcohol Related Fatalities

<table>
<thead>
<tr>
<th>Year</th>
<th>Statewide</th>
<th>SPC Region</th>
<th>Statewide DVMT</th>
<th>SPC Region DVMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>334</td>
<td>62</td>
<td>324</td>
<td>47</td>
</tr>
<tr>
<td>2010</td>
<td>606</td>
<td>47</td>
<td>324</td>
<td>66</td>
</tr>
<tr>
<td>2011</td>
<td>274</td>
<td>36</td>
<td>66</td>
<td>66</td>
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<tr>
<td>2012</td>
<td>222</td>
<td>45</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
<td>222</td>
<td>45</td>
</tr>
</tbody>
</table>

Alcohol Related Fatality Rate
(per million vehicle-miles of travel)

- Statewide
- SPC Region

Fatality Rate

2009 2010 2011 2012 2013
Drug Related Crashes

Statewide
Drug related crashes show an increasing trend while fatalities remain stable.

SPC Region
Similar to the statewide trend, SPC region drug related crashes show an increasing trend while fatalities remain stable.
**Drug Related Fatalities**

- **Fatalities:**
  - 2009: 108
  - 2010: 120
  - 2011: 116
  - 2012: 128
  - 2013: 147

- **DVMT x 100,000:**
  - 2009: 24
  - 2010: 20
  - 2011: 20
  - 2012: 27
  - 2013: 20

**Drug Related Fatality Rate**

*(per million vehicle-miles of travel)*

- **Fatality Rate:**
  - 2009: 0.001
  - 2010: 0.001
  - 2011: 0.001
  - 2012: 0.001
  - 2013: 0.001

**Graph Legend:**
- **Statewide**
- **SPC Region**
- **Statewide DVMT**
- **SPC Region DVMT**
Unbelted Crashes

Statewide
Statewide statistics for unbelted crashes show a peak in 2011 while unbelted fatalities show a stable trend.

SPC Region
Similar to the statewide trend, SPC region unbelted crashes peaked in 2011 while unbelted fatalities show a decreasing trend.

![Unbelted Crashes graph]

![Unbelted Crash Rate graph]

(per million vehicle-miles of travel)
Head on and Side Swipe Crashes

Statewide
Statewide crashes for head on and side swipe collisions show a decreasing trend while fatalities remain stable.

SPC Region
SPC region crashes and fatalities for head on and cross-median collisions show a stable trend.
**Signalized Intersection Crashes**

**Statewide**
Statewide crashes at signalized intersections show an increasing trend while fatalities show a stable trend.

**SPC Region**
Similar to the statewide trend, SPC region crashes at signalized intersections show an increasing trend while fatalities show a stable trend.

![Signalized Intersections Crashes](chart1)

![Signalized Intersections Crash Rate](chart2)

*Signalized Intersections Crash Rate (per million vehicle-miles of travel)*

- **Chart 1** shows the number of crashes at signalized intersections from 2009 to 2013, with a stable trend for fatalities and an increasing trend for crashes.
- **Chart 2** illustrates the crash rate per million vehicle-miles of travel for both statewide and SPC region from 2009 to 2013, indicating an increasing trend for the SPC region.
2015 Regional Safety Action Plan

**Signalized Intersection Fatalities**

<table>
<thead>
<tr>
<th>Year</th>
<th>Statewide</th>
<th>SPC Region</th>
<th>Statewide DVMT</th>
<th>SPC Region DVMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>82</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>96</td>
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<td></td>
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<tr>
<td>2011</td>
<td>87</td>
<td>10</td>
<td></td>
<td></td>
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<tr>
<td>2012</td>
<td>86</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>82</td>
<td>16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Signalized Intersection Fatality Rate**

(per one hundred thousand vehicle-miles of travel)

- **Statewide**
- **SPC Region**
Signalized Intersection Crash Types
2009-2013 SPC Region

- Angle: 46%
- Rear End: 28%
- Hit Fixed Object: 7%
- Head On: 5%
- Pedestrian: 7%
- Same Direction Sideswipe: 3%
- Opp Direction Sideswipe: 2%
- Non-Collision: 7%
- Unknown: 2%
- Backing: 3%
Run-off-Road Crashes

Statewide
Statewide statistics for single vehicle run-off-the-road crashes show a stable trend while fatalities show a declining trend.

SPC Region
Single vehicle run-off-the-road crashes appear to be increasing in the SPC region, while fatalities appear to have peaked in 2011.
Hit Fixed Object Crashes

Statewide
Statewide statistics for hit fixed object crashes show an increasing trend while fatalities show a declining trend.

SPC Region
Similar to the statewide trend, SPC region statistics for hit fixed object crashes show an increasing trend while fatalities show a declining trend.
Speeding Related Driving Crashes

Statewide
Statewide statistics for speeding related crashes show an increasing trend while fatalities show a declining trend.

SPC Region
SPC region statistics for speeding related crashes show a stable trend while fatalities show a declining trend.
Speeding Related Fatalities


- Statewide
- SPC Region
- Statewide DVMT
- SPC Region DVMT

Speeding Related Fatality Rate
(per million vehicle-miles of travel)


- Statewide
- SPC Region
Aggressive Driver Crashes

Statewide
Statewide statistics for aggressive driver crashes show an increasing trend while fatalities show a declining trend.

SPC Region
Similar to the statewide trend, SPC region statistics for aggressive driver crashes show an increasing trend while fatalities show a stable trend except for 2013.
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Aggressive Driving Fatalities

Year | fatalities | DVMT x 100,000
--- | --- | ---
2009 | 778 | 1152
2010 | 808 | 1437
2011 | 789 | 1442
2012 | 751 | 1586
2013 | 679 | 1089

Aggressive Driving Fatality Rate
(per million vehicle-miles of travel)

Year | Fatality Rate
--- | ---
2009 | 0.0074
2010 | 0.0076
2011 | 0.0078
2012 | 0.0070
2013 | 0.0065

SPC Region | Statewide

Statewide DVMT | SPC Region DVMT
Distracted Driving Crashes

Statewide
Statewide distracted driving related crashes show an increasing trend while fatalities show a stable trend.

SPC Region
SPC region distracted driving crashes show an increasing trend while fatalities appear to have peaked in 2010-2011.
Mature Driver Crashes

Statewide
Statewide statistics for both crashes and fatalities for mature drivers show an increasing trend.

SPC Region
Similar to the statewide trend, SPC region statistics for both crashes and fatalities for mature drivers show an increasing trend except for 2013.
Young Driver

Statewide
Statewide statistics for both crashes and fatalities for young drivers show a decreasing trend.

SPC Region
Within the SPC region young driver crashes show a decreasing trend while fatalities remain stable.
Pedestrian Safety

Statewide
Statewide statistics for both crashes and fatalities for pedestrians show a stable trend.

SPC Region
SPC region pedestrian crashes show a stable trend while fatalities show an erratic trend, increasing one year then dropping the next.
Bicycle Safety

Statewide
Statewide bicycle related crashes show a stable trend while fatalities show a declining trend.

SPC Region
Within the SPC region, bicycle related crashes and fatalities show a stable trend.
Motorcycle Safety

Statewide
Statewide motorcycle related crashes show a stable trend while fatalities show a decreasing trend.

SPC Region
Both crashes and fatalities for motorcycle related crashes show a stable trend.
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Motorcyclist Fatalities

Motorcyclist Fatality Rate
(per one hundred thousand vehicle-miles of travel)
Secondary Crashes (Rear-ends on Limited Access Facilities Only)

Statewide
Statewide statistics for both crashes and fatalities for secondary incidents show an increasing trend.

SPC Region
Secondary crashes show an increasing trend while fatalities show a stable trend.
Secondary Crash Fatalities
(Limited Access Roads Only)

![Secondary Crash Fatalities Graph](chart1.png)

**Year**
- 2009: 13
- 2010: 30
- 2011: 34
- 2012: 30
- 2013: 31

**Fatalities**
- Statewide
- SPC Region
- Statewide DVMT
- SPC Region DVMT

**Secondary Fatality Rate-Limited Access Rds**
(per million vehicle-miles of travel)

![Secondary Fatality Rate Chart](chart2.png)

**Year**
- 2009
- 2010
- 2011
- 2012
- 2013

**Fatality Rate**
- Statewide
- SPC Region
County-by-County Safety Trend Profiles and Priority Locations

In addition to overall trends within the SPC region, crash data from 2009-2013 were examined on a county level to identify overall trends within each county and safety concern locations on the local road network.

PennDOT analyzes and identifies high crash locations on state roads. This plan supplements those analyses by examining local road data as well. Local road crash data is not as robust as the data on state roads. Exact locations of crashes are not documented as clearly on the local road system especially when they occur away from an intersection or landmark. However, the local road crash data from PennDOT does provide enough detail to identify trends and high crash segments/locations.

Local road crash locations were prioritized by the Bureau of Maintenance and Operations within PennDOT by the total number of injuries and fatalities. If two locations had the same number of injuries and fatalities, the number of total crashes was used to determine the higher priority location.

To identify safety trends on a county level, a Safety Trend Profile was developed. Safety trends were determined utilizing the crash rates from 2009 – 2013. A best fit linear trend line was established based on the crash rates, the severity of the slope of the trend line was utilized to determine the resulting trend (i.e. increasing, decreasing or stable).

The overall purpose of the Safety Trend Profile is to provide a graphical representation of crash and fatality trends for each county in addition to providing SPC regional and statewide trends for comparison. This presentation allows safety analysts to quickly compare the county trends with the trends of the SPC region and all of Pennsylvania to determine safety focus areas which are the highest priority for implementing safety countermeasures/initiatives. The Safety Trend Profile consists of state and local road crash data.

Trend Profile Category Descriptions

Statewide Trend - Crashes & Fatalities
Statewide Trend based on 2009 - 2013 Crash & Fatality Rates
SPC Region Trend – Crashes and Fatalities
SPC Region Trend based on 2009 - 2013 Crash & Fatality Rates
County Trend – Crashes & Fatalities
County Trend based on 2009 - 2013 Crash & Fatality Rates
Crashes 2009-2013
Number of Reportable Crashes per Safety Focus Area from 2009-2013
## Allegheny County

### Safety Trend Profile

<table>
<thead>
<tr>
<th>Category</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>DWI Crashes</td>
<td>156</td>
<td>152</td>
<td>155</td>
<td>166</td>
<td>170</td>
</tr>
<tr>
<td>DWI Fatalities</td>
<td>9</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Non-DWI Crashes</td>
<td>327</td>
<td>327</td>
<td>327</td>
<td>327</td>
<td>327</td>
</tr>
<tr>
<td>Non-DWI Fatalities</td>
<td>155</td>
<td>155</td>
<td>155</td>
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<tr>
<td>Crash Trends</td>
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<td>DWI Crash Trend</td>
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<tr>
<td>Non-DWI Crash Trend</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County Trend</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary:** Allegheny County ranks 8th in DWI, Number of Crashes and Number of Fatalities.
## Allegheny County Local Road High Crash Locations (2009-2013)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Street Name</th>
<th>Municipality</th>
<th>Start Latitude/Longitude</th>
<th>Start Cross Street</th>
<th>End Latitude/Longitude</th>
<th>End Cross Street</th>
<th>Injured</th>
<th>Fatal</th>
<th>Injury/Fatal</th>
<th>Total Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fifth Avenue</td>
<td>Pittsburgh City</td>
<td>40.44898, -79.93234</td>
<td>Bellefonte St</td>
<td>40.45311, -79.91946</td>
<td>Denniston St</td>
<td>102</td>
<td>0</td>
<td>102</td>
<td>176</td>
</tr>
<tr>
<td>2</td>
<td>Centre Avenue</td>
<td>Pittsburgh City</td>
<td>40.43998, -79.99417</td>
<td>Sixth Ave</td>
<td>40.44102, -79.98601</td>
<td>Pride St</td>
<td>84</td>
<td>0</td>
<td>84</td>
<td>92</td>
</tr>
<tr>
<td>3</td>
<td>Frankstown Avenue</td>
<td>Pittsburgh City</td>
<td>40.45799, -79.90403</td>
<td>N Dallas Ave</td>
<td>40.45555, -79.88807</td>
<td>Brushton Ave</td>
<td>68</td>
<td>1</td>
<td>69</td>
<td>64</td>
</tr>
<tr>
<td>4</td>
<td>P J McArdle Road</td>
<td>Pittsburgh City</td>
<td>40.42927, -79.99915</td>
<td>Liberty Bridge</td>
<td>40.42918, -79.99922</td>
<td>Liberty Bridge</td>
<td>67</td>
<td>0</td>
<td>67</td>
<td>125</td>
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<tr>
<td>5</td>
<td>Highland Avenue</td>
<td>Pittsburgh City</td>
<td>40.45710, -79.92519</td>
<td>Alder St</td>
<td>40.46667, -79.92248</td>
<td>E Liberty Blvd</td>
<td>67</td>
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<td>87</td>
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<tr>
<td>6</td>
<td>Grant Street</td>
<td>Pittsburgh City</td>
<td>40.43941, -79.99692</td>
<td>Fifth Ave</td>
<td>40.44382, -79.99391</td>
<td>Liberty Ave</td>
<td>63</td>
<td>0</td>
<td>63</td>
<td>70</td>
</tr>
<tr>
<td>7</td>
<td>Park Manor Drive</td>
<td>Robinson Township</td>
<td>40.45071, -80.16475</td>
<td>Robinson Ln</td>
<td>40.44792, -80.16243</td>
<td>Steubenville Pike</td>
<td>60</td>
<td>0</td>
<td>60</td>
<td>86</td>
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<tr>
<td>8</td>
<td>Negley Avenue</td>
<td>Pittsburgh City</td>
<td>40.45120, -79.93045</td>
<td>Howe St</td>
<td>40.44580, -79.92713</td>
<td>Fair Oaks St</td>
<td>49</td>
<td>0</td>
<td>49</td>
<td>83</td>
</tr>
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Source: PennDOT Bureau of Maintenance and Operations
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<th>SPC Region Trend</th>
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**Summary:** Armstrong County ranks 9th in DVMT & Number of Crashes and 8th in Number of Fatalities.
# Armstrong County Local Road High Crash Locations (2009-2013)

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<th>Rank</th>
<th>Street Name</th>
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<th>Start Cross Street</th>
<th>End Latitude/Longitude</th>
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Source: PennDOT Bureau of Maintenance and Operations
## Beaver County Safety Trend Profile

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<th>SPC Region Trend</th>
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### Crash Categories

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**Summary:** Beaver County ranks 5th in DVMT & Number of Crashes and 6th in Number of Fatalities.
# Beaver County Local Road High Crash Locations (2009-2013)

<table>
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<tr>
<th>Rank</th>
<th>Street Name</th>
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<th>Start Latitude/Longitude</th>
<th>Start Cross Street</th>
<th>End Latitude/Longitude</th>
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*Source: PennDOT Bureau of Maintenance and Operations*
## Butler County Safety Trend Profile

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### Key
- **Increasing Trend**
- **Decreasing Trend**
- **Stable or No Significant change**

**Summary:** Butler County ranks 4th in DVMR & Number of Crashes and 5th in Number of Fatalities.
### Butler County Local Road High Crash Locations (2009-2013)

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*Source: PennDOT Bureau of Maintenance and Operations*
## Fayette County Safety Trend Profile

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<th>SPC Region Trend</th>
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**KEY**

Increasing Trend: ↑
Decreasing Trend: ↓
Stable or No Significant change: =

**Summary:** Fayette County ranks 6th in DVMT & Number of Crashes and 4th in Number of Fatalities.
### Fayette County Local Road High Crash Locations (2009-2013)

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<th>Start Cross Street</th>
<th>End Latitude/Longitude</th>
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**Summary:** Greene County ranks 10th in DVMT, Number of Crashes, and Number of Fatalities.
## Greene County Local Road High Crash Locations (2009-2013)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Street Name</th>
<th>Municipality</th>
<th>Start Latitude/Longitude</th>
<th>Start Cross Street</th>
<th>End Latitude/Longitude</th>
<th>End Cross Street</th>
<th>Injured</th>
<th>Fatal</th>
<th>Injury/Fatal</th>
<th>Total Crashes</th>
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<tbody>
<tr>
<td>1</td>
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<td>Franklin Township</td>
<td>39.89675,-80.16109</td>
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<td>Carmichaels Borough</td>
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*Source: PennDOT Bureau of Maintenance and Operations*
## Indiana County Safety Trend Profile

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<tr>
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<th>Statewide Trend</th>
<th>SPC Region Trend</th>
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### Summary

Indiana County ranks 7th in DVMT, Number of Crashes, and Number of Fatalities.
Indiana County Local Road High Crash Locations (2009-2013)

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<th>Rank</th>
<th>Street Name</th>
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<th>Start Cross Street</th>
<th>End Latitude/Longitude</th>
<th>End Cross Street</th>
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<th>Fatal</th>
<th>Injury/Fatal</th>
<th>Total Crashes</th>
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<td>William Penn Hwy</td>
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<td>Indiana Borough</td>
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<td>Indiana Borough</td>
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Source: PennDOT Bureau of Maintenance and Operations
### Lawrence County Safety Trend Profile

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<tr>
<th>Safety Focus Area</th>
<th>Statewide Trend</th>
<th>SPC Region Trend</th>
<th>County Trend</th>
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<tr>
<td>Total Crash Rate</td>
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<td>Total Fatality Rate</td>
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#### Crash and Fatality Trends

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<td>43</td>
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#### Summary
- Lawrence County ranks 8th in DVMT, Number of Crashes, and Number of Fatalities.
<table>
<thead>
<tr>
<th>Rank</th>
<th>Street Name</th>
<th>Municipality</th>
<th>Start Latitude/Longitude</th>
<th>Start Cross Street</th>
<th>End Latitude/Longitude</th>
<th>End Cross Street</th>
<th>Injured</th>
<th>Fatal</th>
<th>Injury/Fatal</th>
<th>Total Crashes</th>
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*Source: PennDOT Bureau of Maintenance and Operations*
## Washington County Safety Trend Profile

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<th>Safety Focus Area</th>
<th>Statewide Trend</th>
<th>SPC Region Trend</th>
<th>County Trend</th>
<th>2009</th>
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### Summary:
Washington County ranks 3rd in DVM/MT, Number of Crashes, and Number of Fatalities.
## Washington County Local Road High Crash Locations (2009-2013)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Street Name</th>
<th>Municipality</th>
<th>Start Latitude/Longitude</th>
<th>Start Cross Street</th>
<th>End Latitude/Longitude</th>
<th>End Cross Street</th>
<th>Injured</th>
<th>Fatal</th>
<th>Injury/Fatal</th>
<th>Total Crashes</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Bobby Vinton Boulevard</td>
<td>Canonsburg Borough</td>
<td>40.26284, -80.17251</td>
<td>Bobby Vinton Blvd</td>
<td>40.26276, -80.17278</td>
<td>Walgreens Parking Lot</td>
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<tr>
<td>2</td>
<td>Trinity Point Drive</td>
<td>South Strabane Township</td>
<td>40.18044, -80.22248</td>
<td>E Beau St</td>
<td>40.18650, -80.22297</td>
<td>Washington Rd</td>
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<td>3</td>
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<td>Washington City</td>
<td>40.18313, -80.26258</td>
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<td>Washington City</td>
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<td>W Chestnut St</td>
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<td>Ohare Road</td>
<td>Cecil Township</td>
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<td>Maplewood Dr</td>
<td>40.28364, -80.20994</td>
<td>SR 980</td>
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<td>Henderson Ave</td>
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<td>Chartiers Township</td>
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<td>Peters Township</td>
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<td>40.27225, -80.10816</td>
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<td>10</td>
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<td>Chartiers Township</td>
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<td>Platt Estate Rd</td>
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<td>Pike St</td>
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*Source: PennDOT Bureau of Maintenance and Operations*
## Westmoreland County Safety Trend Profile

<table>
<thead>
<tr>
<th>Safety Focus Area</th>
<th>Statewide Trend</th>
<th>SPC Region Trend</th>
<th>County Trend</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
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<tbody>
<tr>
<td>DVMT</td>
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<tr>
<td>Total Crash Rate</td>
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<td>Total Fatality Rate</td>
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</table>

### Key
- **Increasing Trend**: Arrow pointing up
- **Decreasing Trend**: Arrow pointing down
- **Stable or No Significant change**: Arrow pointing horizontally

**Summary**: Westmoreland County ranks 2nd in DVMT, Number of Crashes, and Number of Fatalities.
## Westmoreland County Local Road High Crash Locations (2009-2013)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Street Name</th>
<th>Municipality</th>
<th>Start Latitude/Longitude</th>
<th>Start Cross Street</th>
<th>End Latitude/Longitude</th>
<th>End Cross Street</th>
<th>Injured</th>
<th>Fatal</th>
<th>Injury/Fatal</th>
<th>Total Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mount Pleasant Road</td>
<td>Hempfield Township</td>
<td>40.27800, -79.52833</td>
<td>Finoli Dr</td>
<td>40.29121, -79.53594</td>
<td>Dornin St</td>
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<td>2</td>
<td>Leechburg Road</td>
<td>New Kensington City</td>
<td>40.58765, -79.74663</td>
<td>Craigell Rd</td>
<td>40.58691, -79.74945</td>
<td>Tarentum Bridge Rd</td>
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<td>3</td>
<td>Maple Avenue</td>
<td>Greensburg City</td>
<td>40.30372, -79.54356</td>
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<td>40.29845, -79.54291</td>
<td>S Maple Ave</td>
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<td>4</td>
<td>Tarr Hollow Road</td>
<td>Municipality of Murrysville</td>
<td>40.42715, -79.67265</td>
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</table>

Source: PennDOT Bureau of Maintenance and Operations