2020

REGIONAL TRANSPORTATION SAFETY ACTION PLAN

SOUTHWESTERN PENNSYLVANIA COMMISSION
SPC

Southwestern Pennsylvania Commission

2020

Officers
Chairman: Rich Fitzgerald
Vice Chairman: Tony Amadio
Secretary-Treasurer: Leslie A. Osche

Executive Director: Vincent Valdes

Allegheny County
Rich Fitzgerald
Lynn Heckman
Clifford Levine
Robert J. Macey
David Miller

Armstrong County
Darin Alviano
Michael Coonley
Pat Fabian
Donald K. Myers
Jason L. Renshaw

Beaver County
Tony Amadio
Daniel Camp
Kelly Gray
Charles Jones
Jack Manning

Butler County
Kevin Boozel
Kim Geyer
Mark Gordon
Richard Hadley
Leslie A. Osche

Fayette County
Scott Dunn
Joe Grata
Fred Junko
Dave Lohr

Greene County
Mike Belding
Rich Cleveland
Jeff Marshall
Betsy McClure
Blair Zimmerman

Indiana County
Robin Gorman
Sherene Hess
Mark Hilliard
Mike Keith
Byron G. Stauffer, Jr.

Lawrence County
Morgan Boyd
Loretta Spielvogel
James Gagliano
Amy McKinney
Daniel J. Vogler

Washington County
Larry Maggi
Scott Putnam
Nick Sherman
Diana Irey Vaughan
Christopher Wheat

Westmoreland County
Tom Ceraso
Gina Cerilli
Douglas Chew
Sean Kertes
Robert Regola

City of Pittsburgh
Scott Bricker
Rev. Ricky Burgess
William Peduto
Mavis Rainey
Aurora Sharrard

Pennsylvania Department of Transportation (2 Votes)
Kevin McCullough
Cheryl Moon-Sirianni
Larry Shifflet
Joe Szczur

Governor's Office
Jessica Walls-Lavelle

Pennsylvania Department of Community & Economic Development
Johnna Pro

Port Authority of Allegheny County (1 Vote)
Katharine Kelleman
Ed Typanski

Transit Operators Committee
Sheila Gombita

Federal Highway Administration*
Alicia Nolan

Federal Transit Administration*
Theresa Garcia-Crews

U.S. Environmental Protection Agency*
Laura Mohollen

Federal Aviation Administration*

U. S. Economic Development Administration*

*Nonvoting Members

The preparation of this publication was financed in part through grants from the United States Department of Transportation's Federal Highway Administration and Federal Transit Administration; the U.S. Department of Commerce; the Appalachian Regional Commission; the Commonwealth of Pennsylvania; the Department of Transportation of the Commonwealth of Pennsylvania; and, the counties of Allegheny, Armstrong, Beaver, Butler, Fayette, Greene, Indiana, Lawrence, Washington, Westmoreland, and the City of Pittsburgh. The views and opinions of the authors or agency expressed herein do not necessarily state or reflect those of these agencies.

This document is available in alternate formats upon request. SPC will provide translation and interpretation services upon request at no charge. Please call SPC at (412) 391-5590 for more information.

Italiano

Questo documento è disponibile in formati alternativi su richiesta. SPC fornirà servizi di traduzione e interpretazione su richiesta senza alcun costo. Per piacere, chiami SPC al numero (412) 391-5590 per maggiori informazioni.

Espanol

El presente documento está disponible en formatos alternativos bajo solicitud. SPC ofrece servicios de traducción e interpretación gratis bajo solicitud. Comuníquese con SPC al (412) 391-5590 para obtener más información.

中文

本文件可根據要求以其他格式提供。

SPC將根據要求提供免費筆譯和口譯服務。詳情 請致電（412）391-5590與SPC聯系。

Nepali:

यो फाराम अनुरोध गिरएमा वैकिल्पक ढाँचाहरूमा उपलब्ध छन्। अनुरोध गरेमा िबना शुल्क SPC लेअनुवादन र दोभाषेसेवा उपलब्ध गराउँछ। थप जानकारीको लािग SPC (412) 391-5590 मा फोन गनुहर्ोस्।

Gujarati:

આ દસ્તાવેજ િવનંતી પર વૈકિલ્પક ફોમેંટ્સમાંઉપલબ્ધ હોય છે.SPC કોઈપણ શુલ્ક લીધા િવના િવનંતી પર અનુવાદ અનેઅથર્ ઘટન સવેાઓ રીપાડશે.વધુમાિહતી માટેકૃપા કરી (412) 391-5590 પર SPCનેકૉલ કરો.

Oriya:

ଏହିଡକ୍ୟୁମେଣ୍ଟର ଅନୁରୋଧରେ ବୈକଳ୍ପିକ ଫର୍ମାଟରେ ଉପଲବ୍ଧ। କୌଣସିଚାର୍ଜ୍ଛଡ଼ା ଏସପିସି ଅନୁବାଦ ଏବଂ ବ୍ୟାଖ୍ୟା ସେବା ପ୍ରଦାନ କରିବ। ଦୟାକରିଅଧିକସୂଚନା ପାଇଁଏସପିସି(412) 391-5590 ରେ କଲ୍କରନ୍ତୁ।

Punjabi:

ਇਹ ਦਸਤਾਵੇਜ਼ਬੇਨਤੀ ਕਰਨ 'ਤੇਿਵਕਲਪਕ ਰੂਪਾਂਿਵੱਚ ਉਪਲਬਧ ਹੈ। SPC ਿਬਨਾਂਿਕਸੇਖਰਚ 'ਤੇਬੇਨਤੀ 'ਤੇ ਅਨੁਵਾਦ ਅਤੇਦੁਭਾਸ਼ੀਆ ਸੇਵਾਵਾਂਪਦਰ੍ਾਨ ਕਰੇਗਾ। ਵਧੇਰੇਜਾਣਕਾਰੀ ਲਈ ਿਕਰਪਾ ਕਰਕੇSPC ਨੂੰ(412) 391-5590 'ਤੇਕਾਲ ਕਰੋ।

Sinhalese:

ඉල්ලීම මත මෙම ලේඛනය විකල්ප ආකෘතිවලින්ලබාගත හැකිය. SPC විසින්කිසිදුගාස්තුවක්අය කිරීමකින්තොරව භාෂා පරිවර්තන හා භාෂණ පරිවර්තන සේවාවන් සපයනුඇත. කරුණාකර වැඩිදුරවිස්තර සඳහා (412) 391-5590 ඔස්සේ SPC අමතන්න.

Marathi:

हा दस्तऐवज िवनंतीनुसार पयायर्ी स्वरूपांमध्ये उपलब्ध आह.ेिवनंतीनुसार SPC भाषांतर आिण अथिर् ववरण सवेा िवनामूल्य पदार्न करेल. अिधक मािहतीसाठी कृपया SPC ला (412) 391-5590 येथेकॉल करा.

Bengali:

অনুরোধ জানালে এই ডকুমেন্টটি অন্যান্যফরম্যাটেও পাওয়া যায়। অনুরোধ জানালে SPC কোনও চার্জ ছাড়াই অনুবাদ এবং ব্যাখ্যা করার পরিষেবা প্রদান করবে। আরও তথ্যের জন্যঅনুগ্রহ করে (412) 391-5590 নম্বরে SPC কে ফোন করুন।

Hindi:

यह दस्तावेज़ अनुरोध पर वकैिल्पक फॉरमेट मंे उपलब्ध है। एस पी सी (SPC) अनुवाद और व्याख्या सवेाएं अनुरोध पर िबना शुल्क उपलब्ध कराएगी। कृपया अिधक जानकारी केिलए (412) 391-5590 पर एस पी सी (SPC) को कॉल करंे।

Sindhi:

ھي دستاويز درخواست تي متبادل فارميٽس ۾ موجود آھي.
SPC درخواست تي بغير ڪنھن معاوضي جي ترجمي ۽ تشريح جون خدمتون فراهم ڪندي.
وڌيڪ معلومات لاءِ 412 391-5590 تي SPC کي ڪال ڪريو.

Urdu:

یہ دستاویز درخواست کیے جانے پر متبادل اشکال میں دستیاب ہے۔
SPC درخواست کیے جانے پر ترجمہ اور ترجمانی کی خدمات مفت فراہم کرے گا۔
مزید معلومات کے لیے SPC کو 5590-391 (412) پر کال کریں۔

The Southwestern Pennsylvania Commission (SPC) hereby gives public notice that it is the policy of the Commission to assure full compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 on Environmental Justice, and related statutes and regulations in all programs and activities. Title VI and other related statutes require that no person in the United States of America shall, on the grounds of race, color, sex, national origin, age, or disability, be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which SPC receives federal financial assistance. Any person who believes they have been aggrieved by an unlawful discriminatory practice by SPC under Title VI has a right to file a formal complaint with the Commission. Any such complaint must be in writing and filed with SPC's Title VI Coordinator within one hundred eighty (180) days following the date of the alleged discriminatory occurrence. For more information, or to obtain a Title VI Discrimination Complaint Form, please see our website at: www.spcregion.org or call 412-391-5590.

Table of Contents

Electronic Appendices

Appendix A – Federal Safety Performance Data
Appendix B – Regional Safety Data (Annual Crashes and Fatalities)
Appendix C – District and County Safety Data (Annual Crashes and Fatalities)
Appendix D – Regional Safety Focus Area Trend Analysis (Steering Committee Meeting 2)
Appendix E – District Specific Safety Focus Area Trend Analysis (Stakeholder Committee Mtgs 1, 2, & 3)
Appendix F – HSM Network Screened and Crash Cluster Top 40 District Location Maps
Appendix G – Bicycle and Pedestrian Safety Hot Spot Maps
Appendix H – Non-motorized Connectivity and Infrastructure Projects
Appendix I – Steering and Stakeholder Committee Meeting Presentation Materials and Summaries
Appendix J – COVID-19 Impacts on the Region
Appendix K – SPC Transportation and Community Funding Programs

Executive Summary

The Regional Transportation Safety Action Plan (SAP) is the essential planning tool to aid in identifying strategies and project locations to achieve the safety goals set forth in the region's long range transportation plan, *SmartMoves for a Changing Region* and attaining the five federal safety performance measure targets for the region. The SAP is meant to supplement PennDOT's Strategic Highway Safety Plan by identifying regional safety focus and location specific improvement areas. It serves as a wide-ranging, comprehensive approach to improving transportation safety through meaningful collaboration with key regional transportation safety stakeholders as identified in **TABLE 4** and **TABLE 5.**

The 2020 SAP is an update to the inaugural 2015 plan, which established the document framework, regional stakeholders, safety performance measurement, and process for identifying safety strategies. The 2020 update builds upon the initial SAP framework by monitoring safety performance and identifying potential safety solutions through a data-driven, collaborative process. The 2020 SAP expanded upon the original framework by incorporating FHWA's Data Driven Safety Analysis[1] tools to reduce the subjectivity of more traditional safety analysis such as high crash frequency clusters/locations. Predictive and systemic analysis was conducted to improve confidence in identifying safety areas of concern with the highest potential for improvement and to identify potential safety solutions and strategies.

Safety stakeholders within the region have performed admirably in consistently reducing fatalities and serious injuries as part of the federal safety performance requirements. Since the 2015 SAP, a serious injury definition change implemented by Federal Highway Administration (FHWA) and adopted by PennDOT resulted in a significant increase in the number of injury crashes being classified as serious injury crashes. As a result, the 2030 serious injury crash target identified in the 2015 SAP was revised. In 2018 and 2019, the SPC Executive Committee, at the recommendation of staff, continued to support the goal of 2% annual reductions across all federal performance metrics per the 2015 SAP. The Federal Performance Metric process allows SPC to reevaluate this goal annually.

To aid in identifying safety areas with the highest potential for improvement, a regionwide safety analysis was conducted by analyzing crash frequency and fatality data from PennDOT and FHWA databases to determine regionwide safety trends. A total of 33 crash types were analyzed to determine safety focus areas for the region and PennDOT districts which can be found **APPENDIX B** – Regional Safety Data (Annual Crashes and Fatalities) and **APPENDIX C** – District and County Safety Data (Annual Crashes and Fatalities). Safety focus areas for the region and districts were determined by identifying disconcerting trends (increase or stagnation in crashes/fatalities) for each of the 33 crash types. A summary of the safety focus areas for the region and districts are in **TABLE 1**.

Table 1: Safety Focus Areas

Regional Safety Focus Areas	District Specific Safety Focus Areas
• Drug related crashes • Distracted driving crashes • Run-off-road crashes • Head-on crashes • Signalized intersection crashes • Aggressive driving crashes • Secondary crashes • Mature driver crashes • Non-motorized (ped/bike) crashes • Intersection crashes • Transit-related crashes • Heavy truck crashes • Drowsy driver crashes	• Hit fixed object crashes (District 10) • Hit tree crashes (District 10) • Hit utility pole crashes (District 10) • Motorcycle crashes (District 10) • Speeding crashes (Districts 10 & 11) • Unbelted crashes (District 11) • Work zone crashes (District 11) • Stop-controlled crashes (Districts 11 & 12) • Red-light running crashes (District 12)

[1] https://safety.fhwa.dot.gov/rsdp/ddsa.aspx

Location specific safety areas were investigated within each district of the SPC region to assist practitioners in identifying the locations with greatest potential for safety improvement for all modes within the region. Due to the severe disparity in the total number of crashes when comparing motorized to non-motorized crashes, and the unintentional bias of the Highway Safety Manual (HSM) analysis towards motorized vehicles, non-motorized safety analysis was conducted separately from the motorized analysis to ensure pedestrian and bicycle safety concern areas were not overlooked. Non-motorized safety locations were prioritized by grouping crashes together within a 500-foot buffer +/- of one another on the same road or roadway type unless otherwise indicated. Stakeholders were solicited for feedback on the prioritized safety locations within their area of influence.

A summary of the motorized top 40 priority safety hot spots using HSM network screened data and feedback for each district is provided in **TABLE 11 (DISTRICT 10), TABLE 12 (DISTRICT 11),** and **TABLE 13 (DISTRICT 12)** within the report. Stakeholder-identified priority locations that did not have an HSM network screened crash history are included at the bottom of each District table for future monitoring. The highest ranking locations in each District using this methodology are summarized in **TABLE 2**.

Table 2: Highest Ranking HSM Network Screened Locations for each District

District	Location	Excess Crashes
10	Mars Crider Road from seg 50/112 to seg 70/846	2.8
11	Saw Mill Run Blvd/West End Bridge at Carson Street	20.4
12	Rt 40 (Main Street) from seg 260/214 to seg 270/1535	5.0

A summary of the non-motorized priority safety hot spots is provided in **TABLE 14 AND TABLE 15 (DISTRICT 10), TABLE 16 AND TABLE 17 (DISTRICT 11), TABLE 18 AND TABLE 19 (CITY OF PITTSBURGH),** and **TABLE 20 AND TABLE 21 (DISTRICT 12)**. The City of Pittsburgh was analyzed separately since the majority of the non-motorized priority locations within District 11 would have resided in the city. The highest ranking locations in each district and the City of Pittsburgh using this methodology are summarized in **TABLE 3**.

Table 3: Highest Ranking Non-motorized Locations for each District & City of Pittsburgh

District	Pedestrian Location
10	Butler: Main St, New Castle St to Cunningham St
11	McKeesport: Lysle Blvd at Evans St
11	Pittsburgh: Forbes Ave at Chatham Square
12	Washington: Main St, Chestnut St to Walnut St

District	Bicycle Location
10	Butler: Chestnut St, New Castle St to Cunningham St
11	McCandless Twp: Pearce Mill Rd at Tennis Court Rd
11	Pittsburgh: Carson St, 20th St to 22nd St
12	Connellsville: Pittsburgh St, Apple St to Wills Rd

A comprehensive set of safety strategies and solutions was developed for inclusion in the 2020 SAP. The identified strategies and solutions are broken into 2 categories: a) Soft-side, Programmatic, and Infrastructure Strategies and; b) Safety Project Locations. Soft-side, Programmatic, and Infrastructure Strategies are identified in **TABLE 24** for each of the Safety Focus Areas discussed earlier in **TABLE 1** along with the responsible stakeholder(s) for each safety initiative. Safety project locations are identified in Tables 11-21 but require additional safety analysis to identify the necessary improvements to enhance safety. Per PennDOT policy, practitioners should apply the HSM methodology when conducting more detailed safety analysis of the initially ranked locations in Tables 11-21, which requires the calculation of a benefit:cost ratio for each potential project at the conclusion of the safety analysis. Projects with the highest benefit:cost ratio should be prioritized for safety funding and Transportation Improvement Program (TIP) programming.

Most importantly, two overarching safety needs/opportunities were identified during the development of this plan: continued evolution of Connected Automated Vehicle (CAV) technology and the development of a regional safety-related program to educate, administer, and aid local municipalities in delivering Highway Safety Improvement Projects (HSIP). The safety analysis conducted indicates continued, steady safety improvement over the last 5 years, but to make a significant impact on future safety in the region, CAV research and development must continue to evolve. Also, more resources for the local road network is needed from the regional, District, and county levels in order to achieve the goals, objectives, and safety targets identified in this SAP.

Introduction

The Regional Transportation Safety Action Plan (SAP) is intended to provide data-driven safety information to decision makers at all levels of government to program safety solutions and projects within the Southwestern Pennsylvania Commission (SPC) region. Stakeholders from all levels of government, advocacy groups, and safety organizations were consulted in the development of this plan. It provides a high-level assessment of safety at the regional, District, and location specific levels. It is to be used by transportation practitioners and infrastructure owners to focus their attention on safety areas with the greatest opportunity for improvement to achieve the safety goals and objectives identified in this plan. Targeted and detailed safety analysis will be required in addition to the analysis documented in this plan to prioritize suggested safety solutions for programming at specific locations.

To ensure a wide-ranging, comprehensive approach to improving transportation safety within the SPC region, a multitude of transportation safety stakeholders were identified by SPC to aid in the development of this plan. Participation was split into two groups, steering committee and key regional stakeholders. The steering committee was essential in establishing the regional goals, objectives and safety focus areas, while the key regional stakeholders aided in identifying district specific safety focus areas and safety hot spots. Both committees were an integral part in developing the suggested safety solutions and strategies within this document. Steering and stakeholder committee members are identified in **TABLE 4** and **TABLE 5** respectively. SPC wishes to thank the steering and stakeholder committee members that are listed below for their time and efforts on this plan.

Table 4: Steering Committee Members

Organization	Name	Roles/Responsibilities
Allegheny County	Ann Ogoreuc	Assistant Director, Mobility and Transportation Initiatives
	Anthony Schneider	Planner
Allegheny County Health Dept.	Nicole Barnett	Project Coordinator
City of Pittsburgh	Katy Sawyer	Municipal Traffic Engineer
FHWA	Clint Beck	Senior Transportation Engineer
French Engineering	Jim French	Consultant SAP Safety Analyst/Author
PennDOT BOMO	Thomas Glass	Transportation Planning Manager
	Gavin Gray	Safety Section Division Chief
PennDOT District 10-0	Dave Thomaswick	District Traffic Engineer
	Terry Wolford	District Safety Engineer
PennDOT District 11-0	Douglas Barch	District Assistant RTMC Manager
	Todd Kravits	District Traffic Engineer
	Bill Lesterick	District Safety Engineer
	Jeff Thompson	Assistant Traffic Engineer
PennDOT District 12-0	Cory Craft	District Safety Engineer
	Bryan Walker	District Traffic Engineer
SPC	Dom D'Andrea	Manager, Operations, and Safety
	Tom Klevan	Manager, Multimodal Planning/Regional Transit Projects Coord.
	Evan Schoss	Transportation Planner
	Joshua Spano	Transportation Planner and SAP Project Manager
	Andy Waple	Transportation Planning Director
WRA	Ross Buchan	Consultant SAP Safety Analyst/Author

Table 5: Key Regional Stakeholder Committee Members

Organization	Name	Roles/Responsibilities
Airport Corridor Trans. Association	Lynn Manion	Executive Director
Allegheny County Public Works	Megan Sexton	Assistant Deputy Director
Armstrong County	Darin Alviano	Executive Director
Beaver County Planning	Joe West	Assistant Director
BikePGH	Eric Boerer	Advocacy Director
	Scott Bricker	Executive Director
Butler County Planning	Joel MacKay	Planner
Fayette County Planning & Community Development	Arthur Cappella	Chief Community Development Specialist
Greene County	Jeremy Kelly	Planning Director
	Austin McDaniel	Planning Associate
Indiana County Planning & Development	Josh Krug	Chief Planner
Lawrence County Planning & Community Development	Amy McKinney	Director
Oakland TMA	Mavis Rainey	Executive Director
PennDOT District 10-0	Brian Allen	District Executive
	Alice Hammond	Civil Engineer Manager
	Bill Rankin	Safety Engineer
	Mike Shanshala	Maintenance Services Engineer
	Harold Swan	Transportation Planning Specialist Supervisor
PennDOT District 11-0	Johnny Balay	Traffic Control Specialist
	Frank Cippel	District Assistant Traffic Engineer
	Jonathan Ferensic	Traffic Control Technician
	Ruth McCelland	Civil Engineer
	Cheryl Moon-Sirianni	District Executive
	Kathryn Power	District RTMC Manager
	Sepher Sadigh	Civil Engineer Trainee
	Scott Tutie	Engineer
PennDOT District 12-0	Gary Barber	Civil Engineer Manager
	Eric Bell	Senior Civil Engineer Supervisor
	Rob Dean	Assistant District Highway Engineer
	William Kovach	District Executive
	Jay Ofsanik	Safety Press Officer
	Joe Szczur	Since Retired, District Executive
Pennsylvania Turnpike Commission	Todd Leiss	Traffic Incident Management Coordinator
Pittsburgh Bike Share	Sara Khalil	Director of Operations
Port Authority	Amy Silbermann	Director of Planning
Town & Country Transit	Patti Lynn Baker	Executive Director
Washington County	Jeff Leithauser	Development Manager
	Jason Theakston	Land Use Planner
Westmoreland County	Daniel Carpenter	Deputy Director
	Conner Shapiro	Planning Coordinator

National Transportation Safety Perspective

In the United States, 36,560 people were killed in traffic crashes in 2018, a 2.4% reduction from 2017 (37,473 fatalities). The decline in traffic deaths marks the second consecutive year that motor vehicle fatalities decreased even though estimated vehicle miles traveled increased by 0.3% from 2017 to 2018. The 2018 fatality rate per 100 Million Vehicle Miles Traveled (MVMT) decreased by 3.4%, the lowest fatality rate since 2014. However, not all crash types experienced improvement. Pedestrian, bicycle, and heavy-truck related fatal crashes increased in 2018. Pedestrian and bicycle fatalities increased by 3.4% (6,283) and 6.3% (857) respectively while heavy-truck related fatalities increased by 0.9% in 2018[2].

An initial look at the 2019 Fatality Analysis Reporting System (FARS) data indicates a continued declining trend in traffic fatalities. Projections indicate an estimated 36,120 people died in 2019 from motor vehicle crashes, a 1.2% decrease from 2018. It's estimated that the fatality rate per 100 MVMT decreased another 3% in 2019 marking the second lowest fatality rate per 100 MVMT since National Highway Traffic Safety Association (NHTSA) started recording fatal crash data[3]. While progress has been made in recent years to prevent injuries and fatalities on our nation's roadways, significant improvement is required to achieve the ultimate goal of zero deaths.

Toward Zero Deaths

Toward Zero Deaths (TZD) is a national strategy involving a multitude of stakeholders and agencies within highway safety to eliminate all fatalities and reduce serious injuries on our nation's roadways. TZD is intended to provide a roadmap for the future by identifying safety emphasis areas and ensuring progress by providing a collaborative environment for stakeholders to share experience and lessons learned.

TZD is a mechanism for uniting safety stakeholders nationwide and focusing on the core elements to bring this shared safety vision to reality. Both SPC and PennDOT have adopted this vision and are proud TZD partners. This document is a critical component of SPC's TZD strategy to achieve the ultimate goal of zero fatalities and serious injuries. The SAP incorporates input from key regional safety stakeholders and documents safety focus areas and strategies. It provides a process for thoughtful discussion and collaboration amongst all transportation safety stakeholders to continue to improve safety within the region.

Safety Goals & Objectives

SPC's current long range transportation plan (LRTP)*, SmartMoves for a Changing Region,* provides us the vision of a "world-class, safe and well maintained integrated transportation system that provides mobility for all, enables resilient communities, and supports a globally competitive economy". One of the goals outlined in the LRTP to effectuate the vision is to implement "major projects that maintain our existing system while also enhancing safety, accessibility, mobility, and connectivity across the region". The purpose of this 2020 SAP is to facilitate the identification of safety enhancement strategies and project locations to achieve the vision and goals of the LRTP.

[2] https://www.nhtsa.gov/press-releases/roadway-fatalities-2018-fars
[3] https://www.nhtsa.gov/press-releases/early-estimates-traffic-fatalities-2019

Purpose

An essential planning tool to aid in identifying strategies and project locations to achieve the safety goals set forth in the region's long range transportation plan: *SmartMoves for a Changing Region.*

The SAP is meant to build upon the PA safety focus areas identified in PennDOT's Strategic Highway Safety Plan by identifying safety priority areas for the region while also examining location specific safety target areas. Specific goals and objectives for the 2020 SAP update are as follows.

Goals

- **Regularly attain the 5 federal safety performance measure targets for the region**
- **Enhance, maintain, and support soft-side programs to improve transportation safety**
- **Identify safety improvement projects to be incorporated in the TIP and LRTP using a data-driven process**
- **Improve safety on the local road network**

Objectives

- **Reduce the number and rate of fatalities on all public roads**
- **Reduce the number and rate of serious injuries on all public roads**
- **Reduce the number of non-motorized fatalities and non-motorized serious injuries on all public roads**
- **Identify and reduce crashes in all SAP regional safety focus areas on an annual basis working Toward Zero Deaths**

SAP Development & Update Process

Safety planning is the responsibility of all transportation agencies and levels of government within the region. To effectively improve safety within the region, all stakeholders must collaborate and coordinate with one another to plan, program and develop solutions to improve safety. To ensure collaborative safety planning, SPC established a Regional Transportation Safety Action Plan (SAP) process in 2015 to monitor safety performance and identify potential solutions to achieve the goals and objectives identified in the region's LRTP and PennDOT's Strategic Highway Safety Plan.

The 2015 SAP established the document framework, regional stakeholders, safety performance measurement, and process for identifying safety strategies. The intention of future updates is to build upon the initial 2015 SAP framework by monitoring safety performance and identifying potential safety solutions through a data-driven, collaborative process every 4 to 5 years. The 2020 SAP expanded upon the original framework by incorporating FHWA's Data Driven Safety Analysis[4] tools to reduce the subjectivity of more traditional safety analysis such as high crash frequency clusters/locations. Predictive and systemic analysis was conducted to improve confidence in identifying safety areas of concern with the highest potential for improvement. Solutions identified within this plan and through subsequent safety analysis will be used to support soft-side programs, systemic safety improvement programs, and

[4] https://safety.fhwa.dot.gov/rsdp/ddsa.aspx

program safety projects through the Highway Safety Improvement Program (HSIP), LRTP, and Transportation Improvement Program (TIP).

Whenever possible, future SAP updates will be coordinated with the release of PennDOT's most recent crash and Highway Safety Manual (HSM) network screening data to ensure the most recent safety data is being analyzed. It is anticipated that HSM network screening data will be regularly updated on 4 or 5 year cycles.

Federal Safety Performance Measurement

In 2016, FHWA authorized the final rulemaking for regulation (23 CFR 490.207(a)), which established five safety performance measures for the purpose of carrying out the HSIP and achieving the national goals set forth in the Moving Ahead for Progress in 21st Century Act (MAP-21) and reauthorized as part of the Fixing America's Surface Transportation (FAST) Act. The five safety performance measures are:

- Number of Fatalities (all public roads)
- Rate of Fatalities (all public roads-per 100 MVMT)
- Number of Serious Injuries (all public roads)
- Rate of Serious Injuries (all public roads-per 100 MVMT)
- Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries (all public roads)

As part of the rulemaking for the five safety performance measures, FHWA also established criteria for target setting, monitoring, and reporting each of the measures. A summary of the applicable safety performance measure attributes for the SAP are:

- Each safety performance measure is based on 5-year rolling average
- All rate measures are expressed in 100 MVMT
- Performance measures and targets are applicable to all public roads regardless of ownership
- State DOTs and MPOs will be responsible for establishing targets and achieving significant improvement in each safety performance measure
- MPOs are responsible for reporting safety targets to their respective DOT

If a DOT has not met or made significant improvement toward meeting its targets annually, the DOT must submit an Implementation Plan that describes actions, including funding adjustments, that will facilitate making significant improvement toward meeting its targets. Otherwise, federal funding may be withheld from the DOT until a recovery plan is established.

For more information regarding FHWA's measurement and assessment of the five federal safety performance measures, see **APPENDIX A** – Federal Safety Performance Data.

Regional Performance

TABLE 6 summarizes the established targets and actual performance for the 2014-2018 reporting period for the SPC region. The targets established for the SPC region were agreed upon by PennDOT and SPC and were based off of 2% annual reduction for all five of the federal safety performance measures. As shown in the table, based on actual results, none of the targets were achieved for the 2018 reporting period. A large factor in missing the target was a significant increase in the number of serious injury crashes included in the data. The federal definition for serious injury changed, which resulted in the counting of more of the previously classified moderate injuries as serious injuries. Pennsylvania converted to the new definition in January 2016. In 2016 alone, this conversion in Pennsylvania resulted in the counting of an additional 1,300 injuries (or 45% more) as serious injuries. This also had an impact on the 2017 and 2018 calculations.

Table 6: SPC Region 2014-2018 Safety Performance Metric Targets and Performance

Federal Performance Measure	5-year Rolling Averages	
	TARGET (BASELINE)	ACTUAL
	2014-2018	2014-2018
Number of Fatalities	221.5	223.8
Fatality Rate	1.072	1.096
Number of Serious Injuries	759.7	777
Serious Injury Rate	3.667	3.806
Number of Non-motorized Fatalities and Serious Injuries	97.9	103.6

Note: See APPENDIX A – Federal Safety Performance Data for crash graphics for each of the 5 federal performance measures.

Targets were reestablished using a baseline that incorporated the 2018 crash data. TABLE 7 summarizes the adjusted 2014-2018 baseline and the new 2015-2019 and 2016-2020 reporting period targets assuming the 2% annual reduction that was adopted by SPC.

Table 7: SPC Region Target Establishment Comparison

Federal Performance Measure	5-year Rolling Averages		
	BASELINE	2% TARGET	2% TARGET
	2014-2018	2015-2019	2016-2020
Number of Fatalities	223.8	219.6	224.1
Fatality Rate	1.096	1.06	1.084
Number of Serious Injuries	777	795.7	907.4
Serious Injury Rate	3.806	3.839	4.390
Number of Non-motorized Fatalities and Serious Injuries	103.6	104.7	122.2

Comparing the 2015-2019 reporting period target to the actual performance, the SPC region is missing the mark for each of the federal safety performance measures as shown in TABLE 8. However, when examining the data more closely, the region's performance is not as dire as the numbers may suggest. It is important to note that the serious injury definition change from 2016 is still factored into the 5-year rolling average targets and actual values, which explains the wide disparity between the target baseline and actual values. The 2016-2020 reporting period will provide a better perspective as to where the

region resides regarding serious injury reductions. The slight increase in the number of fatalities is due to what appears to be an anomaly in 2018 where fatalities increased by 53. 2019 data indicates a fatality reduction of 131, which is consistent with the continued steady decline in fatalities since 2015.

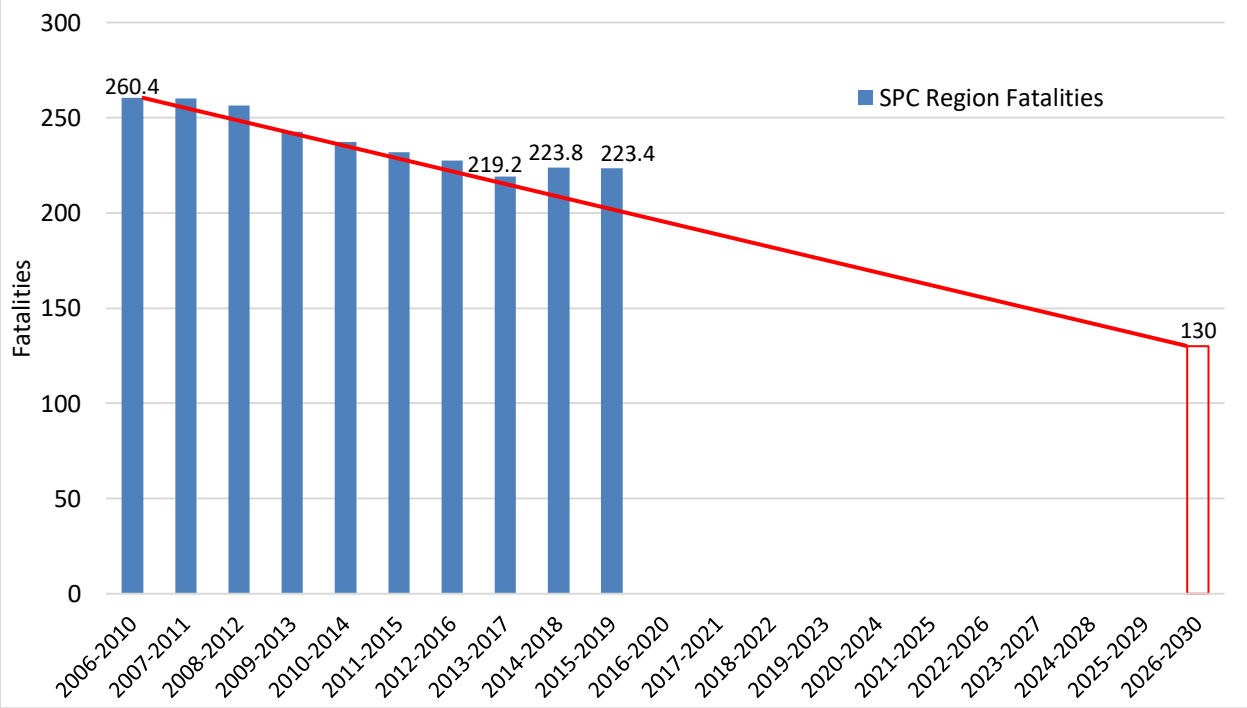
Table 8: SPC Region 2015-2019 Safety Performance Metric Targets and Performance

Federal Performance Measure	5-year Rolling Averages	
	TARGET (BASELINE)	ACTUAL
	2015-2019	2015-2019
Number of Fatalities	219.6	223.4
Fatality Rate	1.06	1.085
Number of Serious Injuries	795.7	842.0
Serious Injury Rate	3.839	4.089
Number of Non-motorized Fatalities and Serious Injuries	104.7	114.4

Note: See **APPENDIX A** – Federal Safety Performance Data for crash graphics for each of the 5 federal performance measures.

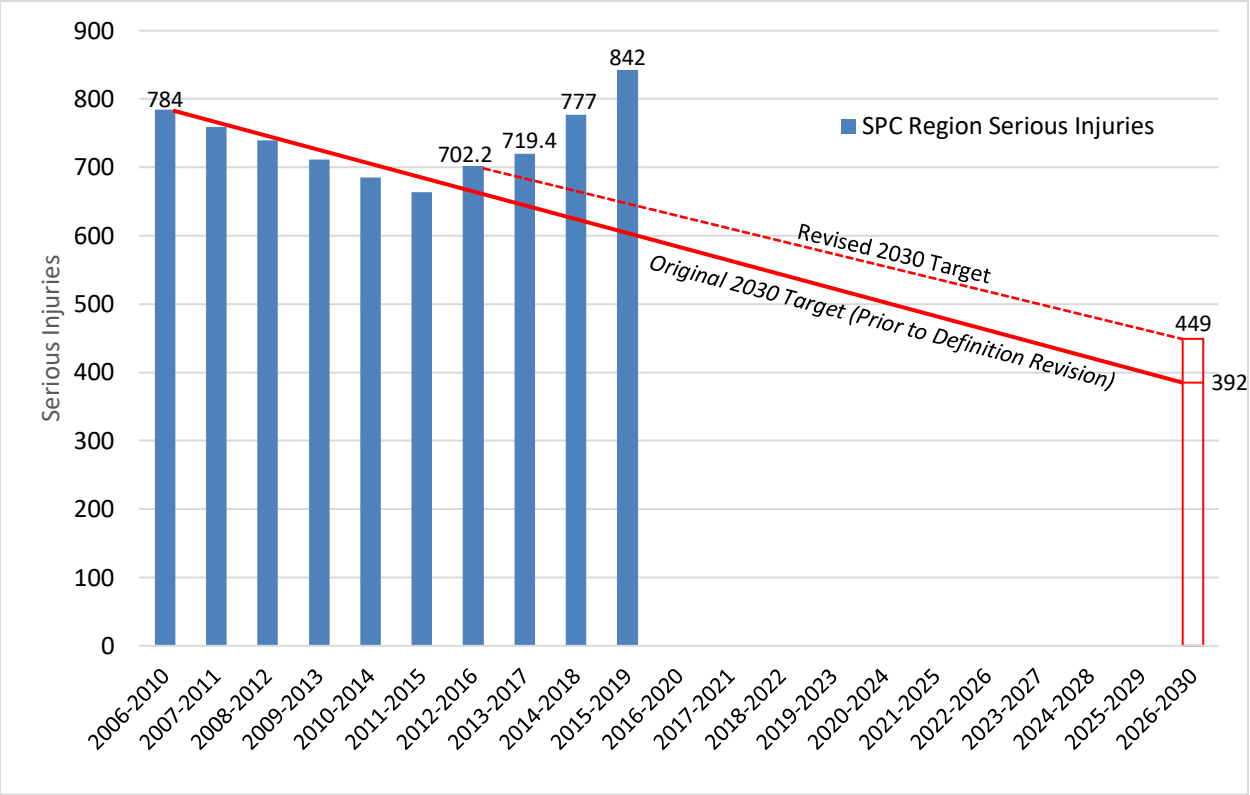
When examining regional fatalities from 2006-2019, the region has performed admirably in consistently reducing the number of fatalities on the roadway network with the exception of 2018 as shown in **FIGURE 1**. However, the annual decrease has not been substantial enough to meet the 2% annual targets with the recent uptick in fatalities in 2018, hence the target readjustments for 2019 and 2020. Significant reductions in annual fatalities will be necessary over the next 10 years in order to reach the 2030 target of 130 fatalities as previously established in the 2015 SAP.

Figure 1: SPC Region Fatality Target Performance Tracking (2006-2030)



When examining regional serious injuries from 2006-2019, the region was on pace to meet the 2030 target of 392 until the serious injury definition change in 2016 as shown in **FIGURE 2**. Due to the definition change, the 2030 target was reestablished at 449 based on the 2016 serious injury data. In addition to the definition change, the number of serious injuries appear to be on the rise since 2016. Significant reductions in annual serious injuries will be necessary over the next 10 years in order to reach the revised 2030 target of 449 serious injuries.

Figure 2: SPC Region Serious Injury Target Performance Tracking (2006-2030)



The following subsections investigate safety within the SPC region in greater detail to identify overarching safety areas of emphasis and specific locations within each district with the highest potential for safety improvement based on recent crash history (2014-2018). The safety data and suggested solutions presented are critical for reducing the number of fatalities and serious injuries to obtain the 2030 targets established for the region.

Safety Focus Areas

A regionwide safety analysis was conducted to aid in determining soft-side and programmatic strategies and infrastructure improvements to improve transportation safety. Crash frequency and fatality data from PennDOT's crash reporting system was used to determine regionwide safety trends. Additionally, federal rail and transit databases were queried to examine transit and rail related crashes and fatalities within the region. A total of 33 crash types were analyzed to determine safety focus areas for the region and districts. County level safety data was examined and reported as well. Safety focus areas were determined by identifying disconcerting trends in the total number of crashes or fatalities for a specific crash type. For example, if the crash and/or fatality data was stagnant or increasing, then it was identified as a safety focus area. To ensure regional consensus on the focus areas, all safety focus areas were vetted through the steering and stakeholder committees for confirmation. Crash and fatality analysis for each crash type can be found **APPENDIX B** – Regional Safety Data (Annual Crashes and Fatalities) and **APPENDIX C** – District and County Safety Data (Annual Crashes and Fatalities).

It is important to note that all crash types are an area of concern and are monitored throughout the region. The designation of a safety focus area within this plan is to aid practitioners in optimizing resources on the areas where the greatest impact on improving safety can be achieved.

CRASH TYPES EXAMINED

- Alcohol related
- Drug related
- Seatbelt
- Head on
- Intersection
- Signalized intersection
- Stop-controlled intersection
- Red light running
- Run-off-road
- Hit guiderail
- Hit Fixed object
- Hit tree
- Hit utility pole
- Speeding
- Aggressive driving
- Distracted driving
- Drowsy driving
- 65+ year old driver
- 65-74 year old driver
- 75+ year old driver
- Young driver (16-17)
- 16 year old driver
- 17 year old driver
- Train
- Motorcycle
- Work zone
- Winter condition
- Pedestrian
- Bicycle
- Heavy truck
- Secondary (Interstate rear-ends)
- Transit related
- Rail related

Safety Data Availability & Methodology

PennDOT's PA Crash Information Tool (PCIT) system was utilized to obtain all of the crash data to be analyzed with the exception of the transit and rail crash data. Transit and rail crash data was obtained through the Federal Transit Administration's National Database[5] and the Federal Rail Administration's Safety Data and Reporting Database[6]. The total number of crashes and fatalities were used as the metrics for the safety focus area evaluation. This was done to align with the previous analysis conducted during the 2015 SAP to more easily track performance. The 2015 SAP analyzed crash data from 2009-2013, therefore, safety data from 2009-2018 was examined for each crash type to determine if safety was improving, stagnant, or declining.

It is important to note Pennsylvania's 2019 crash data was released during the development of this plan. Therefore, the 2019 crash data was not tabulated as part of the trend analysis to determine the safety focus areas. However, steering and stakeholder committees had the ability to

[5] https://www.transit.dot.gov/ntd/ntd-data

[6] https://cms8.fra.dot.gov/accident-and-incident-reporting/highwayrail-grade-crossing-incidents/208-highway-rail-crossings

declare additional safety focus areas if consensus was achieved among the members, thus anecdotally factoring in 2019 crash data. The 2019 crash data has been incorporated into the crash type safety analysis graphics in **APPENDIX B** – Regional Safety Data (Annual Crashes and Fatalities) and **APPENDIX C** – District and County Safety Data (Annual Crashes and Fatalities), albeit the trend assessment was determined using 2009-2018 data.

Regional Trends

Regional safety focus areas were identified by assessing the cumulative number of crashes and fatalities for each crash type for all 10 counties. The safety analysis determined the majority of the original 2015 SAP safety focus areas were still in need of improvement and should be carried over to the 2020 SAP, see **APPENDIX D** – Regional Safety Focus Area Trend Analysis (Steering Committee Meeting 2). Only unbelted and hit fixed object crashes had improved enough to remove from the 2020 safety focus areas. Stagnant or increasing trends were observed in four new areas; intersection, transit-related, heavy truck, and drowsy driver crashes therefore these new crash types were added to the 2020 safety focus areas. A total of 13 safety focus areas have been identified as indicated in **TABLE 9**.

Table 9: 2020 Safety Focus Areas

Original 2015 Safety Focus Areas	Additional 2020 Safety Focus Areas
• Drug related crashes • Unbelted crashes* • Distracted driving crashes • Run-off-road crashes • Hit fixed object crashes* • Head-on crashes • Signalized intersection crashes • Aggressive driving crashes • Secondary crashes • Mature driver crashes • Non-motorized (ped/bike) crashes	• Intersection crashes • Transit related crashes • Heavy truck crashes • Drowsy driver crashes

* Unbelted crashes and Hit fixed object crashes were not 2020 Regional Safety Focus Areas

District Specific Trends

District specific safety focus areas were identified to examine more localized safety trends within the SPC region and to aid the districts in targeting safety focus areas more specific to their locale. The district trend analysis was conducted using the cumulative number of crashes and fatalities for each crash type for all of the counties within each district, see **APPENDIX E** – District Specific Safety Focus Area Trend Analysis (Stakeholder Committee Meetings 1, 2, & 3). **TABLE 10** summarizes district specific safety focus areas based on input from the districts and the district specific safety and trend analysis completed. It is important to note that all of the previously discussed regional safety focus areas are applicable to each district; the district specific safety focus areas are an addition.

Table 10: District Specific Safety Focus Areas

District 10 (Armstrong, Butler, & Indiana Counties)

- Hit fixed object crashes
- Hit tree crashes
- Speeding crashes
- Hit utility pole crashes
- Motorcycle crashes

District 11 (Allegheny, Beaver, & Lawrence Counties)

- Speeding crashes
- Unbelted crashes
- Stop-controlled intersection crashes
- Work zone crashes

District 12 (Fayette, Greene, Washington, & Westmoreland Counties)

- Red-light running crashes
- Stop-controlled intersection crashes

Note: All regional safety focus areas from TABLE 9 are applicable to each District.

Safety Hot Spots

Location specific safety areas were investigated within each district of the SPC region to aid in determining systemic infrastructure solutions and identifying potential safety project locations. The safety hot spot analysis was conducted to assist practitioners in identifying the locations with greatest potential for safety improvement for all modes within the region. Due to the severe disparity in the total number of crashes when comparing motorized to non-motorized crashes, and the unintentional bias of the Highway Safety Manual (HSM) analysis towards motorized vehicles, a non-motorized safety analysis was conducted separately from the motorized analysis to ensure pedestrian and bicycle safety concern areas were not overlooked.

Motorized Safety Locations

Two data sets were used to analyze location specific safety hot spots. The primary data set used was PennDOT's *Highway Safety Manual* (HSM) network screening data from the crash reporting period of 2012-2016. Per the direction of PennDOT Central Office, the HSM network screening data was used as the primary data set to determine safety hot spots for motorized traffic. Any other crash data sets were only to supplement the HSM network screening data.

PennDOT Central Office anticipates releasing new HSM network screened locations in 2021.

A supplemental data set of crash clusters for the years 2014-2018 was examined from PennDOT's Crash Data Analysis and Retrieval Tool (CDART) system. This data set was used to validate the HSM network screened data locations and to identify locations to monitor in the future. It is important to note that before a crash cluster location would be considered a safety hot spot, the HSM methodology should be applied in order to accurately compare the crash cluster location with other known HSM network screened safety hot spots as noted in the subsequent section.

Assessment Methodology

The 2012-2016 HSM network screening data was the primary data set used for the safety hot spot analysis. It contained 100+ screened locations for every county in the state consisting of both roadway segment and intersection safety locations. Specific datum within the data set included location information, roadway characteristics, traffic volumes, and HSM predictive safety values (i.e. observed crashes, expected crashes, predicted crashes, and excess crashes). Per PennDOT policy, the excess value shall be utilized to initially rank locations in need of safety improvements. The excess value is calculated by subtracting the predicted crashes from the expected crashes. A positive excess value means the roadway segment or intersection is underperforming from a safety perspective and is in need of improvement. Therefore, the excess value from the HSM predictive safety values was utilized to rank locations with the greatest need for safety improvement within each district. An initial ranking of the top 40 locations[7] with the highest excess values was compiled for each district.

Crash cluster data from 2014-2018 was used to verify HSM network screened locations and identify locations to be monitored in the future. In order to compare the HSM network and crash cluster data, a top 40 ranking for the highest crash cluster locations was required. The crash cluster data set included location information, roadway characteristics, traffic volumes, and crash information datum. Similar to

[7] Forty locations for each district was determined after examining the cumulative number of positive excess values within each district and considering funding/programming limitations to study or implement improvements at all of the locations.

the excess value for the HSM data, the crash cluster data set used a calculated value (i.e. delta value) to compare location specific crash results with crash results for similar roadways throughout the state. Therefore, the delta value was used to rank the top 40 locations within each district. However, delta value ranges between roadway segment and intersection locations varied significantly, thus roadway segments and intersections were analyzed separately to lessen the bias when comparing the two crash cluster data sets. The 20 highest delta value roadway segment and intersection locations were identified to compare with the top 40 HSM network screened locations.

The top 40 HSM network screened locations and top 40 crash cluster data locations for each district were mapped and distributed to the appropriate district for concurrence and feedback using Wikimaps. No new safety hot spot locations were identified from the crash cluster data set; therefore, no additional HSM network screening analysis or revisions were required of the original top 40 locations from the 2012-2016 HSM network screening data.

District Safety Hot Spots

A summary of the top 40 priority safety hot spots and feedback for each district is provided in **TABLE 11 (DISTRICT 10), TABLE 12 (DISTRICT 11),** and **TABLE 13 (DISTRICT 12)**. Stakeholder identified priority locations that did not have a crash history are included at the bottom of each district table for future monitoring. Static maps of the top 40 HSM network screened locations and top 40 crash cluster data can be found in **APPENDIX F** – HSM Network Screened and Crash Cluster Top 40 District Location Maps. Additionally, interactive GIS map links for the top 40 locations of each district can be requested through SPC.

The district safety hot spots should continue to be monitored over the next several years and compared with the new PennDOT HSM network screening data to be released in 2021.

Table 11: District 10 HSM Network Screened Locations Initial Ranking (2012-2016 Data)

Rank	Location	Observed Crashes	Predicted Crashes	Expected Crashes	Excess Crashes	District Feedback
1	Mars Crider Rd, seg 50/112 to seg 70/846	10.2	5.69	8.49	2.8	
2	New Castle Rd At Duffy Rd	8	1.74	4.12	2.38	
3	Mars Crider Rd At Adams Ridge Blvd	7.8	5.06	7.33	2.27	
4	Perry Hwy, seg 50/350 to seg 50/2059	5.4	3.09	5.17	2.08	
5	Rowan Rd, seg/096 to seg 10/813	3.4	1.01	2.9	1.89	
6	Beaver St At Clay St	4.2	1.07	2.92	1.85	
7	SR 0286 Hwy/Oakland Ave, seg 434/1779 to seg 480/478	9.8	6.62	8.43	1.81	
8	New Castle Rd, seg 450/1127 to seg 450/2589	4.4	2.12	3.92	1.8	
9	Pittsburgh Rd, seg 290/043 to seg 300/1295	7.8	5.77	7.52	1.75	
10	Route 0068 At Meridian Rd / Benbrook Rd	6	2.9	4.48	1.58	
11	Perry Hwy At Mall Entrance Rd / St Francis Way	6.2	3.9	5.23	1.33	
12	Branchton Rd At Harmony Rd	3.6	0.54	1.83	1.29	
13	New Castle Rd SR 3036 Hwy At SR 0356 Hwy/Private Dwy	6	3.79	5.05	1.26	
14	Pittsburgh Rd, seg 140/102 to seg 140/694	2.2	0.81	1.99	1.18	
15	South Pike Rd, seg 90/3190 to seg 100/800	3.2	0.99	2.16	1.17	
16	Mars Crider Rd, seg 90/1994 to seg 100/1951	4.4	2.43	3.55	1.12	
17	Route 0068 At Eberhart Rd	4.8	2.34	3.45	1.11	
18	William Penn Hwy, seg 132/467 to seg 152/295	3.4	1.7	2.77	1.07	
19	Evans City Rd, seg 350/2068 to seg 360/110	3	1.11	2.17	1.06	
20	N Main St Ext At Filbert Rd	5.2	0.96	2.02	1.06	
21	Mercer Rd, seg 30/050 to seg 30/2538	3	1.06	2.09	1.03	
22	Perry Hwy At Ogle View Rd/Rowan Rd	7.2	5.72	6.71	0.99	
23	Mars Crider Rd, seg 130/142 to seg 140/592	3.6	1.77	2.72	0.95	
24	West Sunbury Rd, seg 70/1153 to seg 80/361	3.6	1.16	2.09	0.93	
25	Franklin Rd, seg 50/569 to seg 50/1578	2.2	0.91	1.83	0.92	
26	William Flinn Hwy, seg 550/1297 to seg 560/2162	3.8	1.8	2.7	0.9	
27	Pittsburgh Rd, seg 200/391 to seg 200/1171	1.8	0.65	1.55	0.9	
28	Mars Crider Rd, seg 190/540 to seg 210/1055	5.8	4.36	5.24	0.88	
29	N Main St Ext, seg 450/1186 to seg 460/481	2.4	0.8	1.66	0.86	
30	SR 0119 Hwy/Old Wm Penn Hwy At Pine Ridge Rd/Park and Ride Rd	2.6	1.25	2.1	0.85	
31	New Castle Rd, seg 70/2631 to seg 80/1553	3	1.37	2.22	0.85	
32	Perry Hwy, seg 220/217 to seg 220/404	1.6	0.16	0.98	0.82	
33	SR 0119 Hwy, seg 780/823 to seg 780/1922	2.4	0.46	1.22	0.76	
34	6th St At Washington St	4.2	0.73	1.49	0.76	
35	Evans City Rd, seg 320/1247 to seg 340/1447	6.8	5.67	6.38	0.71	
36	Philadelphia St, seg 10/008 to seg 20/3003	3.8	2.27	2.96	0.69	
37	Franklin St, seg 760/220 to seg 770/1357	3	1.46	2.14	0.68	
38	Pittsburgh Rd, seg 310/1573 to seg 310/2145	1.6	0.83	1.5	0.67	
39	6th St At Locust St	3.4	0.9	1.55	0.65	
40	Old Plank Rd, seg 30/2589 to seg 40/228	1.8	0.3	0.95	0.65	

TABLE KEY: Roadway Segments Intersections

Table 12: District 11 HSM Network Screened Locations Initial Ranking (2012-2016 Data)

Rank	Location	Observed Crashes	Predicted Crashes	Expected Crashes	Excess Crashes	District Feedback
1	Saw Mill Run Blvd West End Bridge At Carson St	35.8	8.62	29.01	20.39	
2	Liberty Bridge At McArdle Rd	24.2	6.21	18.62	12.41	
3	Ohio River Blvd, seg 30/179 to seg 30/2022	10	2.23	9.38	7.15	
4	Ohio River Blvd At McKees Rocks Bridge/Brighton Hts Blvd	18.8	9.68	16.79	7.11	
5	Rodi Rd, seg 40/916 to seg 60/599	15.8	7.28	14.35	7.07	
6	Saw Mill Run Blvd At Whited St/Colerain St	15.4	3.11	9.62	6.51	
7	West Carson St, seg 590/200 to seg 600/236	18.6	12.19	18.22	6.03	
8	Washington Ave/Washington Pk, seg 130/1379 to seg 150/455	16.6	10.34	16.16	5.82	
9	Liberty Br, seg 110/000 to seg 110/2683	14.6	9.04	14.27	5.23	
10	Rodi Rd, seg 20/1470 to seg 40/730	12.8	6.61	11.75	5.14	
11	Library Rd, seg 110/035 to seg 120/566	10	3.59	8.72	5.13	
12	Saw Mill Run Blvd At Edgebrook Ave	12	2.74	7.28	4.54	
13	Saw Mill Run Blvd At Bausman St/Private Dwy	12	4.92	9.45	4.53	
14	Constitution Blvd, seg 390/2194 to seg 390/2453	5.6	1.02	5.33	4.31	
15	Frankstown Rd, seg 220/1217 to seg 250/545	11.8	6.37	10.66	4.29	
16	Millers Run Rd, seg 100/707 to seg 100/1085	5.2	0.88	4.81	3.93	
17	Beulah Rd, seg 132/2397 to seg 152/529	7.6	2.62	6.45	3.83	
18	Saw Mill Run Blvd, seg 380/2000 to seg 386/1105	12	8.02	11.76	3.74	
19	Frankstown Rd, seg 162/2003 to seg 180/278	8	3.93	7.59	3.66	
20	West Liberty Ave, seg 60/1700 to seg 90/169	10.8	6.96	10.53	3.57	
21	Ohio River Blvd, seg 60/354 to seg 60/1990	8.8	5.28	8.59	3.31	
22	Coal Hollow Rd/Beulah Rd, seg 122/2032 to seg 132/1995	7.4	3.38	6.48	3.1	
23	Washington St, seg 220/1244 to seg 230/565	5.6	1.31	4.4	3.09	
24	Frankstown Rd At Coal Hollow Rd/Beulah Rd/Laketon Rd	9.6	4.74	7.8	3.06	
25	Penn Ave At N Dallas Av /S Dallas Ave	9.2	4.23	7.21	2.98	
26	Brodhead Rd, seg 40/1079 to seg 60/400	8.6	5.76	8.6	2.84	
27	Frankstown Rd, seg 210/272 to seg 210/1466	5	1.41	4.21	2.8	
28	Golden Mile Hwy, seg 50/1000 to seg 50/2742	5.4	1.56	4.36	2.8	
29	Saw Mill Run Blvd At Crane Ave	9	4.64	7.43	2.79	
30	5th Ave/Washington Blvd At Frankstown Ave	9	4.63	7.34	2.71	
31	Baum Blvd At Millvale Ave	8.2	2.71	5.4	2.69	
32	Northern Pk, seg 10/1736 to seg 20/1307	5.6	2.63	5.27	2.64	
33	Rochester Rd, seg 10/500 to seg 30/741	8.4	3.85	6.4	2.55	
34	Penn Ave At Brushton Ave	7.6	1.91	4.41	2.5	
35	Bennett St/Frankstown Ave/Rd, seg 150/839 to seg 162/10	5	1.49	3.98	2.49	
36	Clairton Blvd, seg 230/1048 to seg 250/160	15	12.38	14.87	2.49	
37	Greentree Rd, seg 130/000 to seg 140/415	5.6	2.97	5.39	2.42	Extend segment to Greentree/ Cochran Road
38	Frankstown Rd At Robinson Blvd Verona Rd	8	3.79	6.19	2.4	
39	Steubenville Pk, seg 190/2310 to seg 210/200	7.2	4.31	6.71	2.4	
40	North State St, seg 170/1019 to seg 180/733	5.8	2.93	5.28	2.35	
Additional Safety Hot Spots within Allegheny County						
N/A	SR 3048 (West Main Street) from Hammond St to Chestnut St	N/A	N/A	N/A	N/A	Pedestrian safety priority area for Allegheny County. Investigate road diet.

TABLE KEY: Roadway Segments Intersections

Table 13: District 12 HSM Network Screened Locations Initial Ranking (2012-2016 Data)

Rank	Location	Observed Crashes	Predicted Crashes	Expected Crashes	Excess Crashes	District Feedback
1	Route 040 (Main St), seg 260/214 to seg 270/1535	11.4	5.54	10.52	4.98	Project in preliminary design
2	Memorial Blvd, seg 680/872 to seg 690/1019	5.4	2.12	4.84	2.72	
3	Route 0980 At Chartiers Run Rd/Ohare Rd	4.8	2.11	4.1	1.99	Poor sight distance from O'hare Rd. Speeding on SR 980. Implemented all-way stop 2018
4	Route 0136 At Brownlee Rd	4.2	1.73	3.46	1.73	Several fatalities. Poor sight distance. Signs/markings upgrade and all way stop in 2019
5	Rostraver Rd At Tri County Ln	4.2	1.77	3.47	1.7	
6	Morganza Rd At Bobby Vinton Blvd	5.4	2.17	3.75	1.58	Completed project in 2018
7	Leechburg Rd At Serpentine Rd	4.2	1.84	3.35	1.51	Priority safety area for Allegheny Twp.
8	Route 0130 At Walnut St	5.2	2.07	3.38	1.31	
9	Route 021 (Mcclellandtown Rd), seg 270/1642 to seg 300/230	6.6	4.37	5.62	1.25	Completed project in 2017
10	Route 040 (National Pk), from seg 400/500 to seg 410/1163	5	3.39	4.61	1.22	Issues due to speeding and sharp curves
11	Lincoln Hwy At Colonial Manor Rd	5.2	2.93	4.13	1.2	Project under design
12	National Pk At Old National Pk/Daisytown Rd	3	1.19	2.31	1.12	Received complaints regarding turning vehicles from Daisytown Rd
13	Jefferson Ave At Chestnut St	5.4	3.59	4.6	1.01	Applied for CMAQ grant in Fall 2019
14	Saltsburg Rd At Avonmore Rd	3.2	1.71	2.69	0.98	
15	High St, seg 350/000 to seg 360/1758	4.6	2.82	3.76	0.94	
16	Route 0201 (Vanderbilt Rd), seg 60/1055 to 80/755	4.4	2.66	3.58	0.92	Installed signs but still experiencing issues
17	Route 0119 (University Dr), seg 494/25 to seg 494/1131	2.4	1.35	2.23	0.88	High speeds from end of bypass to multilane highway with signals
18	Blue Star Rd/Gillespie Rd, seg 240/3247 to seg 250/497	2.4	0.39	1.27	0.88	
19	Route 040 (Main St), seg 10/406 to seg 10/727	1.6	0.69	1.52	0.83	Project in preliminary design
20	Lincoln Hwy At Rocky Rd/Ronda Ct	6.6	5.4	6.19	0.79	
21	Henderson Ave At Allison Ave	3.6	1.28	2.05	0.77	
22	Hartley Hill Rd At Academy Rd/Stone Church Rd	2.4	1.13	1.89	0.76	
23	Roy E Furman Hwy At Glade Run Rd	2.4	1	1.74	0.74	Poor alignment. Installed additional signs in the past.
24	Route 040 (National Pk), seg 470/2770 to seg 480/693	2.4	0.91	1.64	0.73	Completed RSA August 2020
25	Route 0031 At Route 0711 (Main St)	3	2.01	2.73	0.72	
26	Hartley Hill Rd At New Salem Rd/Kenney Rd	2.6	1.53	2.25	0.72	
27	PA War Veterans Memorial Hwy At Hyde Park Rd	5.2	3.51	4.22	0.71	
28	Melwood Rd At Markle Rd	2.4	1.15	1.85	0.7	
29	Leckrone Highhouse Rd, seg 60/921 to seg 70/1531	3	1.15	1.85	0.7	
30	Greengate Rd At Radebaugh Rd	3.2	1.08	1.76	0.68	
31	Route 040 (National Pk), seg 140/464 to seg 160/177	4.8	3.64	4.31	0.67	Issues recently. Vehicles turning out of side roads are problematic
32	Leechburg Rd/Leechburg Hill Rd At PA War Veterans Memorial Hwy	2.6	1.5	2.16	0.66	Priority safety area for Allegheny Twp.
33	Mars Hill Rd At Guffey Rd/Dick Station Rd	2.2	1.08	1.74	0.66	

Rank	Location	Observed Crashes	Predicted Crashes	Expected Crashes	Excess Crashes	District Feedback
34	Leechburg Rd/Freeport Rd At Craigdell Rd	4.2	2.9	3.56	0.66	Priority safety area for Lower Burrell Twp.
35	Dilliner Pt Marion Rd At Diamond St/Mapletown Rd	2	0.79	1.42	0.63	
36	Pittsburgh Rd At Constitution St/Barneys Rd	3.6	2.25	2.87	0.62	
37	Dilliner Rd/Dilliner Pt Marion Rd, seg 50/1971 to seg 66/671	2.2	0.65	1.27	0.62	
38	Route 040 (National Pk), seg 460/307 to seg 470/889	3.2	2.11	2.72	0.61	Completed RSA August 2020
39	4th St At Hillis St	3.6	2.25	2.84	0.59	Project for traffic calming and new signals
40	Roy E Furman Hwy, seg 440/2019 to seg 450/1270	2.6	1.19	1.77	0.58	
Additional Safety Hot Spots within Allegheny Township						
N/A	Route 056 (Leechburg Rd) At West Leechburg Township Line	N/A	N/A	N/A	N/A	Priority safety area for Allegheny Twp. Stormwater/ drainage issues and poor visibility from SR 56 to bridge.
N/A	Route 056 (Leechburg Rd) At Route 356	N/A	N/A	N/A	N/A	Priority safety area for Allegheny Twp. Need turn lane SR 56 and signal upgrade.

TABLE KEY: Roadway Segments Intersections

Non-motorized Safety Locations

Non-motorized (i.e. pedestrians and bicyclists) safety was investigated from both a high-level network and location specific perspective. Because pedestrian and bicycle crashes tend to be fewer in number and widely dispersed, especially in the outlying areas, and because the infrastructure used to support non-motorized travel is not as complete or mature as the infrastructure used to support vehicular travel, regional and network level analyses were included. The findings of both analyses are presented in the sections that follow, with the City of Pittsburgh presented in a dedicated section from the remainder of District 11 because of the intensity of pedestrian and bicycle activity in the city.

Assessment Methodology

The pedestrian and bicycle crashes for the 2014-2018 crash reporting period were evaluated at three levels, regional, District, and location specific. All non-motorized crashes were plotted geographically using ArcGIS to conduct the safety analysis. Crash clusters were identified by grouping crashes within 500 feet +/- of one another on the same road or roadway type. If two or more crash clusters had the same cumulative crash frequency, crash severity was used to prioritize locations. If crash frequency and crash severity was equal, the total number of pedestrian or bicycle crashes in the immediate area was considered to determine the higher ranking location. For each district and the City of Pittsburgh, the top 3 to 5 clusters with the highest number of crashes were identified and plotted on a map, with pedestrian crash and bicycle crash clusters plotted separately. These figures were presented in the stakeholder meetings and are provided in **APPENDIX G** – Bicycle and Pedestrian Safety Hot Spot Maps.

Additionally, pedestrian and bicycle priority locations were distributed to the appropriate stakeholders for concurrence and feedback using Wikimaps. No new safety hot spot locations were identified; however, a number of pedestrian and bicycle connectivity needs were identified through Wikimap responses. The suggested connectivity and infrastructure projects will have varying positive impacts on safety and are presented in **APPENDIX H** – Non-motorized Connectivity and Infrastructure Projects. Each suggested

project's benefits and costs should be evaluated separately by project sponsors for potential future TIP consideration.

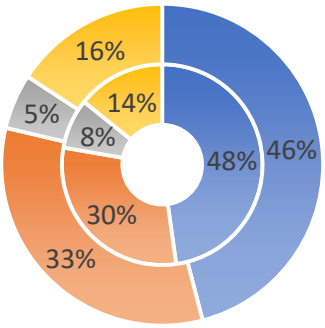
Regional Trends

Statistics were generated from the crash data on a regional and District basis. Key factors, such as intersection/non-intersection, collision type, month, age of driver, lighting, and school zone were queried to determine if any relevant trends emerged. These findings were presented at the stakeholder meetings and are discussed herein.

At the highest level, the crash data supports national trends indicating that the biggest challenges in pedestrian safety are completing the sidewalk network and finding safe ways for pedestrians to cross at unsignalized locations. For bicycles, the biggest safety challenges are in intersections and in developing/completing a bicycle network that can be traversed without high levels of stress (i.e. for riders having lower levels of bicycling skill). Addressing these two major safety needs should not necessarily be tied to localized crash clusters, but instead should be the product of a systemic network planning effort and potential changes in design standards. Major findings of the 2014-2018 non-motorized crash review at the regional level are summarized in **FIGURE 3**.

Figure 3: Regional Non-motorized Crash Trends from 2014-2018

Non-motorized Crashes



Inner Ring = Bicycle Crashes (584 Total)
Outer Ring = Pedestrian Crashes (2670 Total)

Fatal Bicycle Crashes

More prominent on high-speed, high-volume, and high-level of stress roadways.

56% of all pedestrian crashes were at intersections

32% Signalized

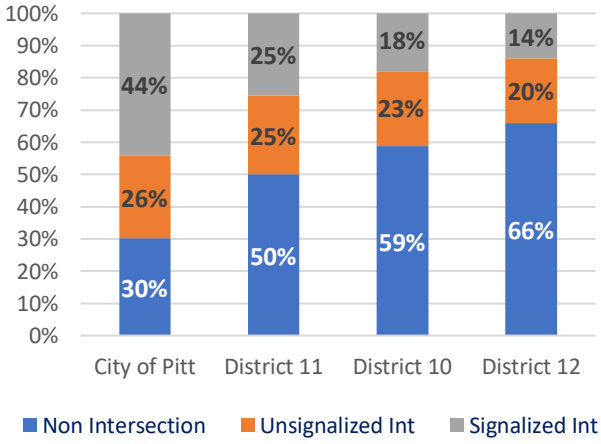
24% Unsignalized

65% of all bicycle crashes were at intersections

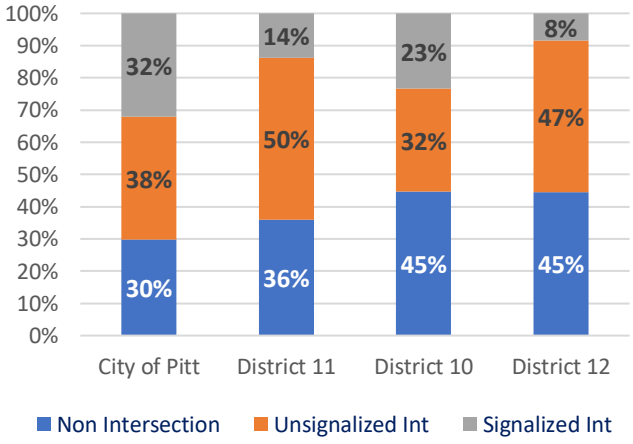
23% Signalized

42% Unsignalized

Pedestrian Crashes By Setting



Bicycle Crashes By Setting



PA Bike Routes

Pa bike routes and adjacent roads are experiencing higher crashes than the surrounding area, including 1 of the region's 13 fatalities.

Regional Bike Trails

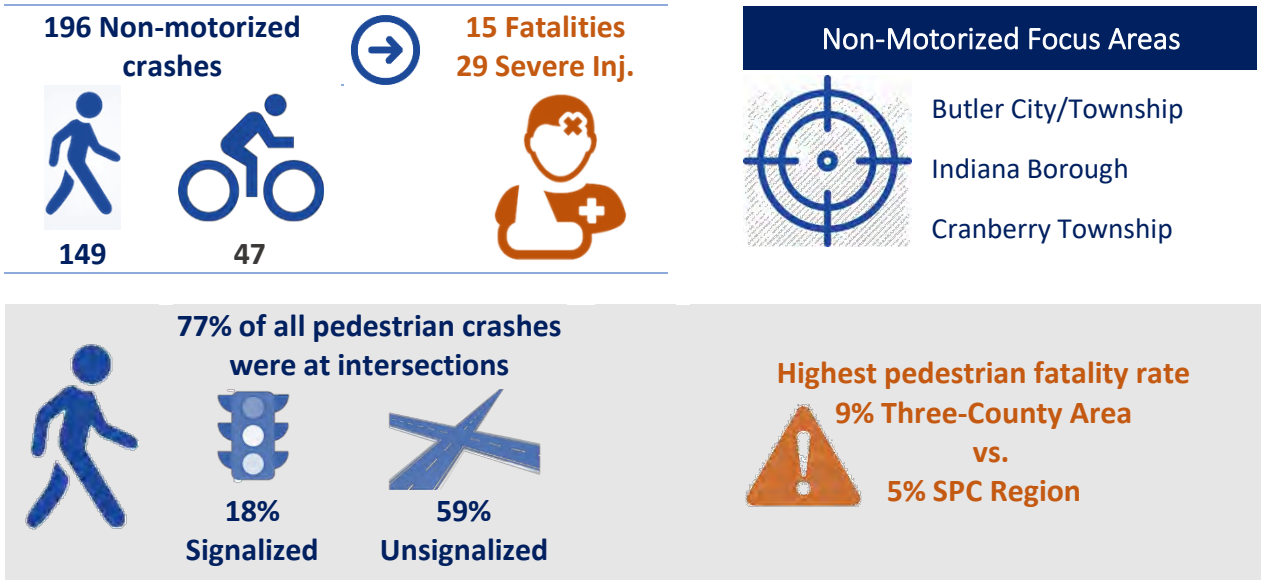
Connecting and adjacent roads are experiencing higher crashes than surrounding areas, in particular the river valleys.

District 10

Network Level

The key findings of the pedestrian/bicycle network-level crash analysis of District 10 counties in the SPC region (Armstrong, Butler, and Indiana Counties) from 2014-2018 are summarized in **FIGURE 4**.

Figure 4: District 10 (Armstrong, Butler, & Indiana Counties) Non-motorized Crash Trends from 2014-2018



Location Specific

The pedestrian and bicycle crash clusters identified are summarized in **TABLE 14** and **TABLE 15** respectively; location maps can be found in **APPENDIX G** – Bicycle and Pedestrian Safety Hot Spot Maps.

Table 14: District 10 Pedestrian Crash Priority Locations (2014-2018 Crash Data)

Rank	Location		Total Crashes	Severe Injury Crashes	Fatal Crashes
	Locale	Road Segment/Intersection			
1	City of Butler	Main Street, New Castle Street to Cunningham Street	3	1	0
2	City of Butler	Cunningham Street, Main Street to McKean Street	3	1	0
3	Indiana Borough	Philadelphia Street, 6th Street to 7th Street	3	0	0
4	Indiana Borough	Maple Street, Pratt Drive to Garman Avenue	3	0	0
5	City of Butler	Wayne Street, Main Street to McKean Street	3	0	0

Table 15: District 10 Bicycle Crash Priority Locations (2014-2018 Crash Data)

Rank	Location		Total Crashes	Severe Injury Crashes	Fatal Crashes
	Locale	Road Segment/Intersection			
1	City of Butler	Chestnut Street, New Castle Street to Cunningham Street	3	1	0
2	Indiana Borough	Philadelphia Street, 5th Street to 6th Street	2	0	0
3	City of Butler	Main Street, Brady Street to New Castle Street	2	0	0

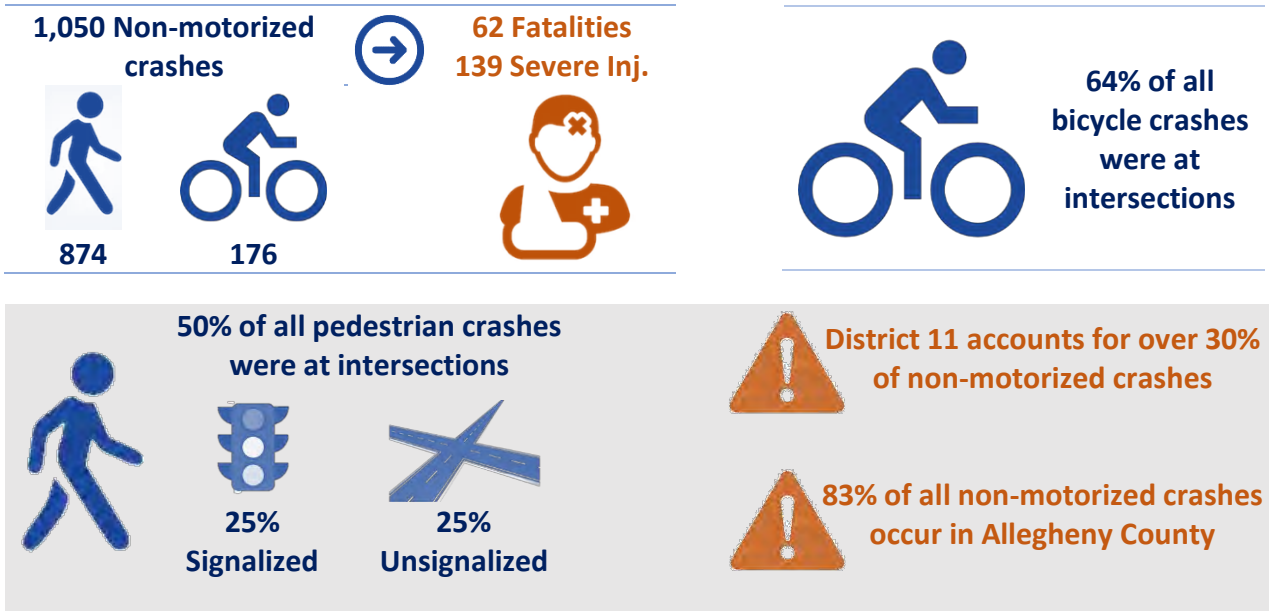
Note: The allowable distance between crashes to identify a cluster was increased to over 700 feet and only 3 locations are identified due to the dispersion in the crashes.

District 11

Network Level

The key findings of the pedestrian/bicycle network-level crash analysis for District 11 (excluding the City of Pittsburgh) from 2014-2018 are summarized in **FIGURE 5**.

Figure 5: District 11 (excluding the City of Pittsburgh) Non-motorized Crash Trends from 2014-2018



Pedestrian Focus Areas

- McKeesport (73 Crashes)
- Mt Lebanon (44 Crashes)
- Penn Hills (40 Crashes)
- New Castle (38 Crashes)
- Monroeville (36 Crashes)

Bicycle Focus Areas

- Connections to Bike Trails
- Pa Bicycle Route A
- Frankstown Road
- Mt Royal Boulevard
- Perry Highway

Location Specific

The pedestrian and bicycle crash clusters identified are summarized in **TABLE 16** and **TABLE 17** respectively; location maps can be found in **APPENDIX G** – Bicycle and Pedestrian Safety Hot Spot Maps.

Table 16: District 11 Pedestrian Crash Priority Locations (2014-2018 Crash Data)

Rank	Location		Total Crashes	Severe Injury Crashes	Fatal Crashes
	Locale	Road Segment/Intersection			
1	City of McKeesport	Lysle Boulevard at Evans Street	7	3	0
2	City of McKeesport	Lysle Boulevard at Coursin Street	6	0	1
3	Mount Lebanon Twp	Washington Road at Cedar Boulevard	5	0	0
4	Penn Hill Twp	Frankstown Road at Verona Road	5	0	0
5	City of McKeesport	Eden Park Boulevard at O'Neil Boulevard	4	0	2

Note: Locations were based on the number of crashes with a 200 foot cluster length due to the high number of crashes.

Table 17: District 11 Bicycle Crash Priority Locations (2014-2018 Crash Data)

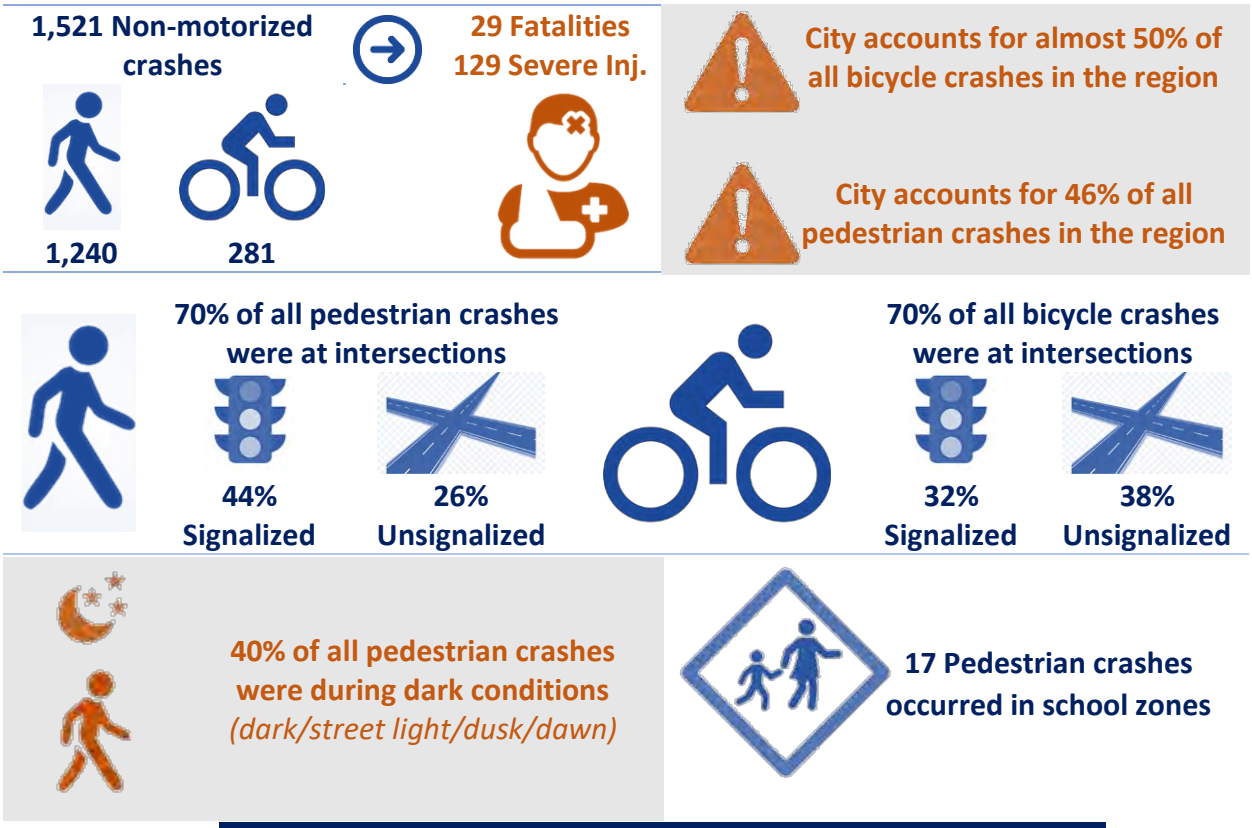
Rank	Location		Total Crashes	Severe Injury Crashes	Fatal Crashes
	Locale	Road Segment/Intersection			
1	McCandless Twp	Pearce Mill Road at Tennis Court Road	4	0	0
2	Ellwood City	Lawrence Avenue at 4th Street	2	0	0
3	New Brighton Borough	Allegheny Street at New Brighton Middle School	2	0	0
4	West View Borough	Highland Avenue at Perry Highway	2	0	0
5	Castle Shannon Borough	Library Road at Grove Road	2	0	0

City of Pittsburgh

Network Level

The key findings of the pedestrian/bicycle network-level crash analysis for the City of Pittsburgh from 2014-2018 are summarized in **FIGURE 6**.

Figure 6: City of Pittsburgh Non-motorized Crash Trends from 2014-2018



Bicycle Focus Areas

NEIGHBORHOODS

Downtown
Oakland
Shadyside
East Liberty

CORRIDORS

Liberty Ave
Carson St, Southside
Neville St
Fifth Ave, Downtown to Rt 8

Location Specific

The pedestrian and bicycle crash clusters identified are summarized in **TABLE 18** and **TABLE 19** respectively; location maps can be found in **APPENDIX G** – Bicycle and Pedestrian Safety Hot Spot Maps.

Table 18: City of Pittsburgh Pedestrian Crash Priority Locations (2014-2018 Crash Data)

Rank	Location		Total Crashes	Severe Injury Crashes	Fatal Crashes
	Neighborhood	Road Segment/Intersection			
1	Uptown	Forbes Avenue at Chatham Square	10	0	0
2	South Side Flats	Carson Street at 18th Street	9	0	0
3	Downtown	Ross Street at 6th Avenue	8	1	0
4	Highland Park	Negley Avenue at Stanton Avenue	7	2	0
5	Downtown	William Penn Place at 7th Avenue	7	1	0

Note: Due to the high number of pedestrian crashes in the City and the general concentration of crashes in intersections, the cluster length was narrowed to 100 feet

Table 19: City of Pittsburgh Bicycle Crash Priority Locations (2014-2018 Crash Data)

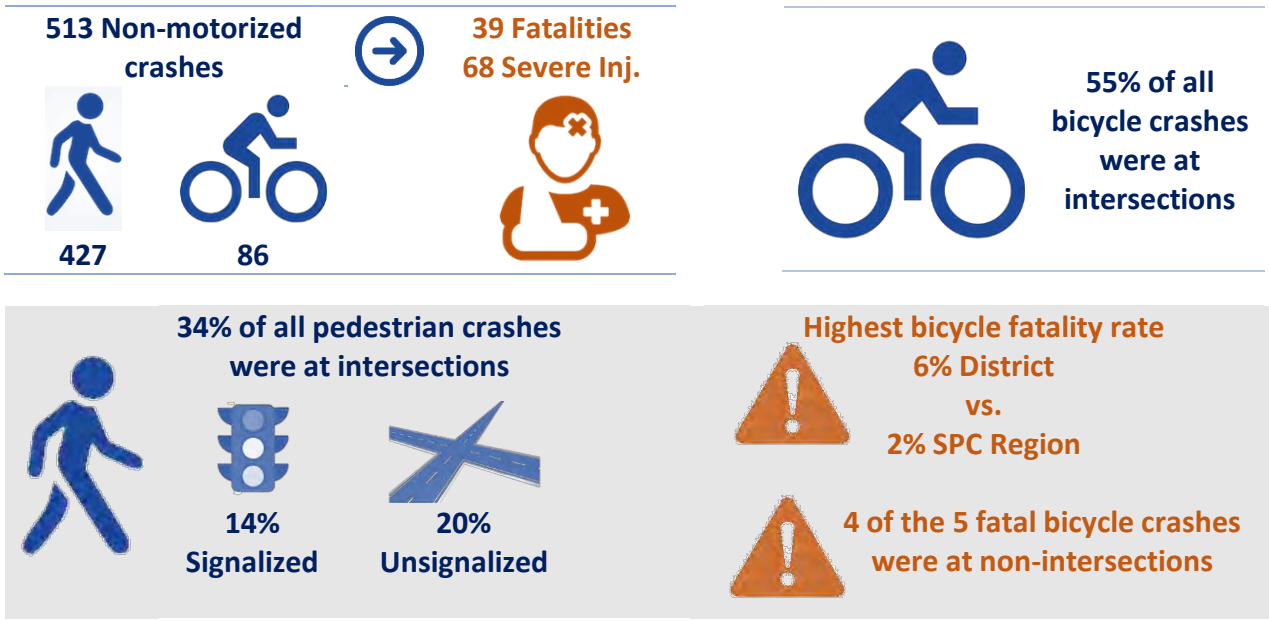
Rank	Location		Total Crashes	Severe Injury Crashes	Fatal Crashes
	Neighborhood	Road Segment/Intersection			
1	South Side Flats	Carson Street, 20th Street to 22nd Street	4	1	0
2	South Side Slopes	18th Street near Josephine Street	3	1	0
3	Bloomfield	Liberty Avenue, Pearl Street to Cedarville Street	3	0	0
4	East Liberty	Highland Avenue at Penn Avenue/Kirkwood Street	3	0	0
5	Strip District	Liberty Avenue, 32nd Street to Herron Avenue Bridge	3	0	0

District 12

Network Level

The key findings of the pedestrian/bicycle network-level crash analysis for District 12 from 2014-2018 are summarized in **FIGURE 7**.

Figure 7: District 12 Non-motorized Crash Trends from 2014-2018



Location Specific

The pedestrian and bicycle crash clusters identified are summarized in **TABLE 20** and **TABLE 21** respectively; location maps can be found in **APPENDIX G** – Bicycle and Pedestrian Safety Hot Spot Maps.

Table 20: District 12 Pedestrian Crash Priority Locations (2014-2018 Crash Data)

Rank	Location		Total Crashes	Severe Injury Crashes	Fatal Crashes
	Locale	Road Segment/Intersection			
1	City of Washington	Main Street, Chestnut Street to Walnut Street	5	0	0
2	City of Uniontown	Fayette Street, Mount Vernon Avenue to Mill Street	4	1	1
3	City of Greensburg	Pittsburgh Street, Urania Avenue to Welty Court	4	1	0
4	City of New Kensington	SR 366, SR 56 to SR 780	4	1	0
5	City of Washington	Maiden Street, Main Street to College Street	3	1	0

Table 21: District 12 Bicycle Crash Priority Locations (2014-2018 Crash Data)

Rank	Location		Total Crashes	Severe Injury Crashes	Fatal Crashes
	Locale	Road Segment/Intersection			
1	City of Connellsville	Pittsburgh Street from Apple Street to Wills Road	3	0	0
2	City of Latrobe	Ligonier Street from Weldon Street to Walnut Street	2	0	0
3	City of New Kensington	Victoria Avenue from Locust Street to McCargo Street	2	0	0
4	City of New Kensington	6th Avenue from 4th Street to 5th Street Extension	2	0	0

Note: The allowable distance between crashes to identify a cluster was increased to over 700 feet and only 4 locations are identified due to the dispersion in the crashes.

2019 and 2020 Safety Data Implications

Due to the timing of the 2020 SAP update, additional safety analysis and documentation was required for the recently released Pennsylvania 2019 crash data and the start of the 2020 COVID-19 pandemic.

2019 Crash Data Results

During the publishing of the 2020 SAP, the Pennsylvania 2019 crash data was made available. Due to the timing of the 2019 crash data release, the regional, District, and location specific safety analysis was not reexamined for potential trend and location revisions on account of the 2019 data. However, it is important to note that through the steering committee and stakeholder meeting process, the 2019 crash data was anecdotally applied to the safety focus area and location specific safety analysis.

Total crashes decreased by 842 from 2018 to 2019 in the SPC region.

While the 2019 crash data was not integrated into the safety focus area determination and location specific analysis, it was compared to all of the crash types reviewed for the safety focus areas through a regional lens. Overall, 2019 was a better year for the region in comparison to 2018 with the number of total crashes in the region decreasing by 842 crashes. This is the lowest number of reportable crashes within the region since 2010. All counties within the region experienced a decrease in crashes except for Beaver County, which observed a slight uptick in crashes (+24). Crash and fatality reductions were observed in all 33 crash types except for the categories in **TABLE 22**.

Table 22: Crash Type Increases for the SPC Region from 2018 to 2019

Crash Frequency		Fatalities	
Crash Type	**Increase from 2018 to 2019**	**Crash Type**	**Increase from 2018 to 2019**
Head-on	+140	Head-on	+18
Aggressive driving	+81	Alcohol related	+9
Speeding	+49	Red light running	+4
Motorcycle	+38	17 year old driver	+3
Distracted driving	+36	Young driver (16-17)	+2
Bicycle	+20	Heavy truck	+2
Pedestrian	+12	Drug related	+1
Intersection	+6	Train	+1
		Bicycle	+1

Excluding crash categories with 4 or fewer fatalities due to the irregular nature of fatalities, all of the crash types noted in **TABLE 22** are 2020 SAP regional or district specific safety focus areas. It will be critical for safety stakeholders to reverse the disconcerting trends by examining the 2019 crash data in greater detail and deploying the potential strategies and solutions outlined in the **SUGGESTED STRATEGIES AND SAFETY PROJECT LOCATIONS** section. All of the 2019 crash frequency and fatality data can be found in **APPENDIX B** – Regional Safety Data (Annual Crashes and Fatalities) and **APPENDIX C** – District and County Safety Data (Annual Crashes and Fatalities) crash graphics.

COVID-19 Impacts

At the time of this writing in October 2020, the United States is in the midst of the COVID-19 pandemic. This has had an impact on surface transportation travel and safety, which is summarized in **APPENDIX J** – COVID-19 Impacts on the Region, so that data and trends from 2020 can be put in proper context during future revisions of the SAP. Significant attention will need to be paid to the 2020 (and potentially 2021) crash data on a disaggregated basis, as the pandemic is likely to have different impacts depending on the mode of transportation and/or crash type under investigation. This will be an important consideration for the SAP since it examines trends in fairly specific detail. While it may be possible to rely on some national level guidance on the interpretation of crash data from the pandemic, each state developed their own response to the pandemic, leading to different conditions from state-to-state and even region-to-region.

Suggested Strategies and Safety Project Locations

Based on the safety analysis discussed in the previous sections, a comprehensive set of strategies and solutions were developed for inclusion in the 2020 SAP. As part of the safety solution development process, current regional safety initiatives were documented to identify opportunities to bolster current safety programs or establish new programs to meet the ever-changing safety needs of the region. The identified strategies and solutions are broken into 2 categories: 1) Soft-side, Programmatic, and Infrastructure Strategies; and 2) Safety Project Locations.

Current 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. Partnerships between public, private, institutional and non-profit agencies are essential to identify, develop, and implement safety strategies; especially when safety initiatives cut across jurisdictional boundaries impacting multiple stakeholders.

SPC region stakeholders understand the importance of partnering on transportation safety and have collaborated to improve safety within the region through a multitude of safety initiatives. **TABLE 23** summarizes the region's most prominent transportation safety initiatives, which address engineering, education, enforcement, and emergency medical services aspects of safety.

In particular, educational initiatives that are led through local champions should be coordinated with statewide efforts deriving from PennDOT's Safety Section within the Bureau of Operations and Maintenance to ensure consistent messaging and strategies are being deployed throughout the region and state.

Table 23: Engineering, Education, Enforcement, and Emergency Medical Services Regional Safety Initiatives

Program	Partners	Program Description
ENGINEERING		
SPC Transportation Operations & Safety Committee	Traffic & safety engineers/planners within SPC region	Provides regional forum to coordinate operational and safety planning. Meetings are held quarterly.
SPC Signals Program	SPC, Districts 10, 11, & 12	Provides technical assistance and potential funding to municipalities for signal improvements.
SPC Road Safety Audit Program	SPC, Districts 10, 11, & 12, County Partners	Provides safety analysis assistance in identifying potential road safety issues and opportunities for safety improvements.
Automated Work Zone Speed Enforcement Program	PennDOT, PA Turnpike, PSP	Deploys automated speed enforcement technology to reduce speeds, change driver behavior, and improve work zone safety for motorists and workers.
PennDOT District 10 – Dead Tree Removal Program	District 10	Removes dying ash trees and previously struck trees within PennDOT right of way.
PennDOT District 11 – Road Safety Audit Program	District 11	Provides safety analysis assistance in identifying potential road safety issues and opportunities for safety improvements prior to betterment projects.
EDUCATION		
PennSTART	PennDOT, PA Turnpike, Penn State University	State-of-the-art training facility and testing facility to address transportation safety and operational needs of PA including connected automated vehicles.
Community Traffic Safety Projects (CTSP) Southwest Regional Traffic Safety Network	CTSP, PennDOT, PSP	Assist with technical and program development, training, coordination of media contacts, and acquisition of materials/equipment to reduce aggressive driving, unbelted, DUI, distracted driving, and young/mature driver crashes.
Indiana University of PA - Institute for Rural Health and Safety	IUP	Provides driver education, improvement programs, and first responder and emergency response team training.
Carnegie Mellon University - Transportation Center and Traffic21	Carnegie Mellon, PennDOT	Provides research and development services for intelligent transportation systems and connected automated vehicle technology.
University of Pittsburgh - Center for Sustainable Transportation Infrastructure	University of Pittsburgh, PennDOT	Provides research and development services for sustainable transportation systems.
Allegheny County Health Department (ACHD) – Traffic Safety Education Project	ACHD	Provides programming, information, and education services for traffic safety in Allegheny and Lawrence Counties.
BikePGH – City Cycling Classes	BikePGH	Provides cycling classes and workshops for cyclists of all skill levels.
PA Department of Health Walkworks[8]	PA Dept of Health, University of Pitt.	Identifies and promotes safe walking routes, educational programs, and provides grant opportunities for active transportation plans and policies.

[8] https://www.health.pa.gov/topics/programs/WalkWorks/Pages/WalkWorks.aspx

Program	Partners	Program Description
EDUCATION		
Buckle Up Pennsylvania	PennDOT, PSP, USDOT, Community Groups	Provides enforcement, public awareness, and education services to raise the seat belt usage level in PA.
PA Motorcycle Safety Program	PennDOT	Provides motorcycle safety training classes that include motorcycle skills tests.
PA Operation Lifesaver	PA Operation Lifesaver, PennDOT	Promotes rail safety through public awareness campaigns and education initiatives including free safety presentations.
Go Orange PA	PA Turnpike, PennDOT	Public safety campaign to promote worker safety and to change driver behavior within work zones.
ENFORCEMENT		
PSP – Special Traffic Enforcement Program (STEP)	PSP	Provides high-visibility enforcement campaigns and innovative aggressive driving enforcement programs.
Impaired Driving Enforcement	PennDOT, PSP, Local Police Departments	Provides drug-impaired enforcement and training services.
Click-it or Ticket	PennDOT, PSP, Local Police Departments	Provides unbelted enforcement and training services.
PA Aggressive Driving Enforcement and Education Project	PennDOT, PSP, Local Police Departments	Uses crash data to identify aggressive driving locations for high visibility targeted enforcement and public awareness.
EMERGENCY SERVICES		
SPC Traffic Incident Management (TIM) Program	SPC	Delivers traffic incident management services, products, and facilitates a dialogue between practitioners.
PennTIME	PA Turnpike, PennDOT, SPC	PA-wide Traffic Incident Management program to provide structure, guidance, training, and promote TIM within the commonwealth.
PA Yellow DOT	PennDOT, PA Turnpike, PSP, Dept of Health	Assists citizens in the “golden hour” of emergency care following a traffic crash if they may not be able to communicate themselves by placing a yellow dot decal in the rear window.

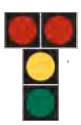
Soft-side, Programmatic, and Infrastructure Strategies

Soft-side, programmatic, and infrastructure strategies were identified for the region and District specific safety focus areas. The potential solutions identified in this section were developed based on the safety analysis discussed previously and discussions with steering and stakeholder committee members. It is important to consider the safety focus area evaluation was conducted from a macroscopic perspective; therefore, more targeted and detailed analysis should be conducted by the responsible parties to prioritize the solutions identified in TABLE 24.

Table 24: Regional and District Specific Soft-side, Programmatic, and Infrastructure Strategies

Safety Focus Area	Area of Influence	Strategy	Responsible Party
Drug related crashes	Region	1) Increase drug related enforcement activities. 2) Expand DUI educational/safety campaigns to include drug related crashes.	1-2: PennDOT (Central Office & Districts), PSP, Local Police Depts
Distracted driving crashes	Region	1) Expand distracted driving educational/safety campaigns. 2) Increase distracted driver enforcement activities. 3) Work with legislators to increase penalties and improve enforceability of the existing distracted driving law.	1-2: PennDOT (Central Office & Districts), PSP, Local Police Depts
Run-off-road crashes	Region	1) Expand edgeline rumble strip program. 2) Improve delineation and curve warning signage along state and local roads. 3) Widen shoulders and/or increase recoverable roadside area where appropriate. Consider implementation of Safety Edge where appropriate, per FHWA guidelines.	1-3: PennDOT Districts, Local Municipalities, & SPC
Head-on crashes	Region	1) Expand centerline rumble strips program. 2) Investigate/deploy access management strategies to reduce opportunities for head-on crashes.	1-2: PennDOT Districts, Local Municipalities, & SPC
Signalized intersection crashes	Region	1) Expand SPC's Regional Traffic Signal and PennDOT's Green Light Go Programs to improve signal delineation, signing, markings, operation, and additional safety related items. 2) Investigate/deploy RED SIGNAL AHEAD signs and supplemental signal heads on appropriate intersection approaches. 3) Investigate/deploy Flashing Yellow Arrows (FYAs) in lieu of standard protect/permitted 5-section heads. 4) Review potential at high crash locations for implementation of roundabouts. 5) Investigate feasibility to expand Automated Red Light Running program infrastructure in Cities/Municipalities within the region.	1-5: PennDOT Districts, Local Municipalities, & SPC
Intersection crashes	Region	1) Incorporate innovative designs, countermeasures (i.e. delineators, signs, markings, rumble strips), or technologies to eliminate or improve warning of stop controlled intersections. 2) Investigate opportunities to improve sight distance beyond minimum requirements. 3) Investigate opportunities to modify left turns to include positive offset.	1: PennDOT Districts & Local Municipalities 2-3: PennDOT Districts, Local Municipalities, & SPC
Aggressive driving crashes	Region	1) Expand aggressive driving educational/safety campaigns. 2) Increase aggressive driving enforcement on documented aggressive driving corridors. 3) Investigate/deploy road diets to reduce the number of passing lanes on suburban/urban corridors where high volumes of turning traffic exists without dedicated turn lanes. 4) Reassess speed limits regularly to ensure the appropriate speed limit is set to minimize speed variability. 5) Utilize FHWA's USLIMITS2 Tool to aid in setting appropriate speed limits for all roadway types.	1-2: PennDOT (Central Office & Districts), PSP, Local Police Depts 3-5: PennDOT Districts, Local Municipalities, & SPC
Drowsy driver crashes	Region	1) Expand the centerline and edgeline rumble strip programs.	1: PennDOT Districts, Local Municipalities, & SPC
Secondary crashes	Region	1) Promote the use of PA511 and WAZE for real-time travel information. 2) Expand deployment of ITS devices related to active traffic management to alert motorists of traffic or weather incidents and advise as to safe movements. 3) Continue to support and expand Traffic Incident Management within the region through SPC's TIM Teams. 4) Continue to monitor, develop, and deploy strategies to reduce incident response/clearance times. 5) Continue to investigate and support development of CMFs for the deployment of ITS devices to reduce secondary crashes in order to leverage future HSIP funds for ITS device programming.	1-5: PennDOT Districts, Local Municipalities, & SPC

Safety Focus Area	Area of Influence	Strategy	Responsible Party
Mature driver crashes	Region	1) Collaborate with transit and ride-sharing providers to improve ease of mobility for mature drivers. 2) Promote insurance benefits for PennDOT's Mature Driver Improvement Courses and work with insurers to increase benefits. 3) Develop educational safety and training campaigns for mature drivers and promote Older Driver Safety Awareness Week. 4) Ensure signing and pavement marking minimum retroreflectivity is met. Review minimum font size standards.	1: PennDOT Districts, Local Municipalities, SPC, & Transit Authorities 2-4: PennDOT (Central Office & Districts), Local Municipalities, & SPC
Transit-related crashes	Region	1) Review design practices and current standards for lane widths and curb radii where transit vehicles are present. 2) Review design practices for locations of bus stops and impacts to the surrounding pedestrian infrastructure (i.e. transit stop access). 3) Investigate/deploy road diets to deploy transit only or transit-bike shared lanes. 4) Promote the safety benefits of using transit (0.17 crash rate) over automobiles (1.19 crash rate).	1-4: PennDOT Districts, Local Municipalities, SPC, & Transit Authorities
Non-motorized (ped/bike) crashes	Region	1) Evaluate pedestrian/bicycle connections to/from bike trails. 2) Expand project analysis areas to incorporate parallel and adjacent roadways when bicyclists are present to aid in determining the best location for bicycle routing/infrastructure. 3) Review and incorporate bike and sidewalk connections into existing and programmed projects where appropriate. 4) Investigate/deploy road diets to add bike lanes where appropriate on corridors. 5) Investigate/deploy traffic calming solutions to mitigate vehicle speeds and shorten crossing distances. 6) Review design practices and current standards for lane widths, shoulders, and curb radii where pedestrians and bicycles are present. 7) Develop policies for right turn on red in high pedestrian/bicycle locations. 8) Develop local jurisdiction policies requiring installation of non-motorized infrastructure through public and/or private projects. 9) Develop educational/safety campaigns for vehicle/bike conflicts at intersections. 10) Deploy more of the safety countermeasures outlined in FHWA's Every Day Counts Initiative STEP (Safe Transportation for Every Pedestrian) where appropriate. STEP includes countermeasures such as rectangular rapid flashing beacons (RRFBs), leading pedestrian intervals, crosswalk visibility enhancements, raised crosswalks, pedestrian crossing/refuge islands, pedestrian hybrid beacons, and road diets. 11) Collaborate with pedestrian/bicycle advocacy groups to refine PA's signing, pavement marking, and signal standards to better accommodate non-motorized users. 12) Review/revise the current process for designating PA bike routes. 13) Improve enforcement of maintenance of sidewalks, crosswalks, and curb ramps.	1-5: PennDOT Districts, Local Municipalities, SPC, & Bicycle Advocacy Organizations 6-11: PennDOT (Central Office & Districts), SPC, Bicycle Advocacy Organizations 12: Local Municipalities
	City of Pittsburgh	1) Review of school zone traffic control and education efforts to encourage compliance. 2) Review intersection/street lighting for dark areas where non-motorized crashes are occurring during dark conditions. 3) Review of pedestrian crossing safety at known high use unsignalized locations. 4) Pilot/deploy separate bicycle signals at intersections. 5) Investigate deployment of protected bicycle lanes where high volumes of bicycles are anticipated. 6) Pilot/deploy near-miss technology for high volume/bike locations (opportunity to integrate into Pittsburgh's Smart Spines Project).	1-6: PennDOT District 11, City of Pittsburgh, & SPC

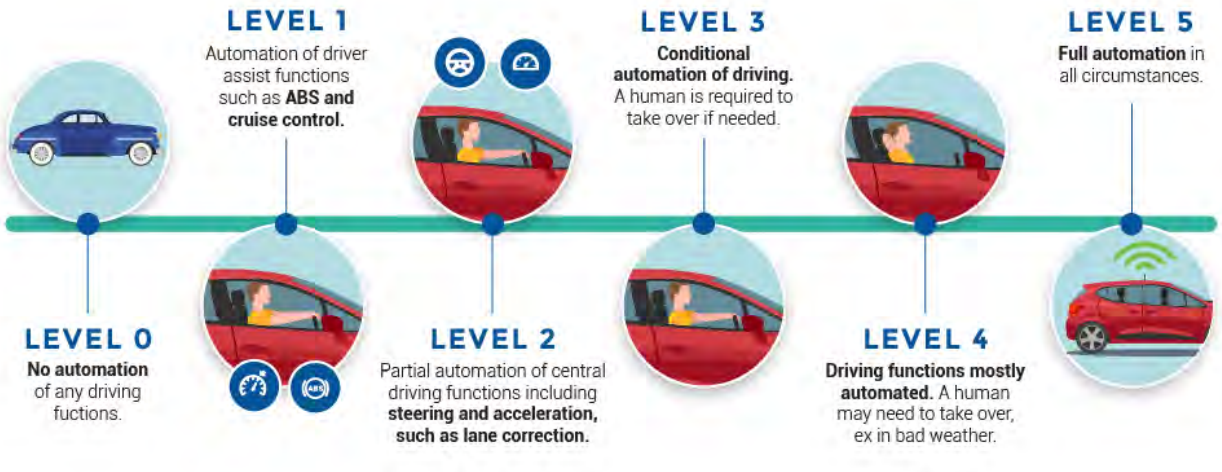
Safety Focus Area	Area of Influence	Strategy	Responsible Party
Intersection crashes	Region	1) Incorporate innovative designs, countermeasures (i.e. delineators, signs, markings, rumble strips), or technologies to eliminate or improve warning of stop controlled intersections. 2) Investigate opportunities to improve sight distance beyond minimum requirements. 3) Investigate opportunities to modify left turns to include positive offset.	1: PennDOT Districts & Local Municipalities 2-3: PennDOT Districts, Local Municipalities, & SPC
Heavy truck crashes	Region	1) Expand deployment of ITS devices and radio alert systems to alert truck drivers of work zone queues and traffic incidents. Consider deploying radio alert systems on freeway service patrol vehicles. 2) Collaborate with trucking companies to continue to advance lane departure systems. 3) Collaborate with trucking and GPS companies to ensure trucks are only utilizing designated truck routes.	1: PennDOT Districts & Local Municipalities 2-3: PennDOT (Central Office & Districts), Local Municipalities, & SPC
Hit fixed object crashes	D10	1) Investigate opportunities to remove, redesign, relocate, reduce impact, shield, or better delineate fixed objects within hit fixed object problem corridors. 2) Consider expanding dead and problematic tree removal program to include additional fixed objects.	1: PennDOT District 10 & Local Municipalities 2: PennDOT District 10
Hit tree crashes	D10	1) Expand dead and problematic tree removal program.	1: PennDOT District 10
Hit utility pole crashes	D10	1) Investigate opportunities to remove, redesign, relocate, reduce impact, shield, or better delineate utility poles.	1: PennDOT District 10
Motorcycle crashes	D10	1) Expand motorcycle educational/safety campaigns and encourage wearing helmets. 2) Investigate new materials to minimize the use of binder/gravel during inclement weather over the winter. 3) Work with legislators to require motorcyclists to wear helmets.	1-2: PennDOT (Central Office & District 10) 3: PennDOT (Central Office & Districts), SPC, CTSP, & PSP
Speeding crashes	D10/D11	1) Review design practices to ensure traffic calming is considered on appropriate corridors. Incorporate desired design/posted speeds into PennDOT Connects process. 2) Deploy proven speed reduction countermeasures on appropriate corridors where speeding issues are documented. 3) Utilize FHWA's USLIMITS2 Tool and similar metrics/research to aid in setting appropriate speed limits for all roadway types. 4) Explore revising 67 Pa Code 212.108 to allow the use of other data besides the 85th percentile speed to set speed limits. 5) Investigate opportunities to expand automated speed enforcement to corridors of concern within the District (i.e. currently deployed on Roosevelt Blvd in District 6).	1-3: PennDOT (Central Office & Districts), Local Municipalities, & SPC 4-5: PennDOT Central Office
Unbelted crashes	D11	1) Increase seatbelt enforcement activities. 2) Expand seatbelt educational/safety campaigns.	1-2: PennDOT District 11, ACHD, PSP, Local Police Depts
Work zone crashes	D11	1) Expand work zone educational/safety campaigns. 2) Request the deployment of Automated Work Zone Speed Enforcement within the District. 3) Work with PA State Police and local jurisdictions to provide additional work zone enforcement support.	1-3: PennDOT (Central Office & District 11), Local Municipalities, PSP, Local Police Depts, & PA Turnpike
Stop-controlled crashes	D11/D12	1) Incorporate innovative designs, countermeasures (i.e. delineators, signs, markings, rumble strips), or technologies to eliminate or improve warning of stop controlled intersections. 2) Investigate opportunities to improve sight distance beyond minimum requirements.	1: PennDOT Districts 11, 12, & Local Municipalities
Red-light running crashes	D12	1) Investigate change and clearance intervals at known red-light running crash safety areas. 2) Investigate opportunity to pilot dual-circular red indication signal heads on red-light running approaches. 3) Investigate feasibility to expand Automated Red Light Running program infrastructure in cities/municipalities within the region. 	1-2: PennDOT District 12 2: PennDOT Central Office & District 12

In addition to the targeted strategies identified, an overarching, comprehensive solution to transportation safety for the region is the evolution and integration of Connected Automated Vehicle (CAV) technologies. CAV is the only strategy that is truly cross-cutting in that it has the potential to significantly reduce fatalities and severe injuries in all crash categories, potentially making the ultimate goal of zero deaths and severe injuries a reality.

PennDOT understands the immense potential for CAV and has made a strategic investment in CAV technologies by establishing a Transformational Technologies Division. PennDOT's Transformational Technologies Division[9] is responsible for identifying and investigating emerging technologies, providing a venue for collaboration and information sharing, and ensuring consistency and interoperability as technology is deployed within the commonwealth. PennDOT is actively partnering with other DOTs, research institutions, automotive manufacturers, and technology companies to ensure it stays at the forefront of the CAV revolution. The epicenter of research and development for CAV technologies within PA is located in the City of Pittsburgh, which is home to Carnegie Mellon University, Uber, Google, Aptiv, Argo AI, and Aurora that are all actively testing their CAV technology in the city.

Automotive manufacturers have already begun to implement CAV technologies within the new vehicle fleets as result of the ongoing research. Automated vehicle driving functions such as automatic braking and lane correction are widely available in most new vehicles and are considered a level 2 autonomous driving technology. In order to continue to evolve to full automation (level 5), automated vehicle testers must be afforded the opportunity to continue to test and refine their technology within real-world scenarios. It is critical that PennDOT, SPC, and the City of Pittsburgh continue to support the development and testing of CAV technologies responsibly within the city and region through legislation, strategic planning, testing facilities/corridors, partnerships, and funding opportunities. The ultimate goal of zero deaths and severe injuries may not be possible without the evolution of this technology over the next several decades.

Figure 8: Levels of Autonomous Driving Technology



9 https://www.penndot.gov/ProjectAndPrograms/ResearchandTesting/Autonomous%20_Vehicles/Pages/Automated%20Vehicle.aspx

Safety Project Locations

The scope of the analysis conducted for this document was to identify motorized and non-motorized safety locations with the greatest opportunity for improvement within each district. Each of the locations in the **SAFETY HOT SPOTS** section (Tables 11 through 21) provides practitioners with the tools to set limits and determine scope for the additional safety analysis to be performed. Per PennDOT policy, practitioners should apply the HSM methodology when conducting more detailed safety analysis of the initially ranked locations, which requires the calculation of a benefit:cost ratio for each potential project at the conclusion of the safety analysis. Projects with the highest benefit:cost ratio should be prioritized for safety funding and Transportation Improvement Program (TIP) programming. For more information on PennDOT's HSM process and procedures, please refer to *PennDOT's Safety Infrastructure Improvement Website*[10] and *PennDOT Publication 638*[11] and *638A*[12].

Additionally, regional stakeholders and roadway owners should compare programmed projects with the safety hot spots identified in this study to determine the feasibility to incorporate safety improvements if not already part of the project's scope of work. Interactive GIS maps were developed that overlays TIP projects with the motorized and non-motorized safety hot spot locations identified. These maps can be requested through SPC to aid in assessing the feasibility of incorporating safety analysis/countermeasures into the design of the programmed project.

Safety locations that require a broader scope of analysis or where the project limits are not clearly defined should consider a Road Safety Audit (RSA) or safety study to aid in completing the additional safety analysis. SPC conducts at least 1 RSA annually in each district and routinely requests candidate locations for study. Because non-motorized crashes tend to be fewer in number and widely dispersed, especially in the outlying areas, broader scoped studies which evaluate neighborhoods, small town centers, or entire corridors should be considered. Broader non-motorized safety studies should be targeted for the locations in **TABLE 25** based on the non-motorized safety assessment.

Table 25: Non-motorized Potential Safety Study Locations within SPC Region

District 10
•City of Butler: Central Business District
•Indiana Borough: Central Business District
District 11
•City of McKeesport: Lysle Boulevard from Gibson Way to Evans Street
•City of Pittsburgh: Liberty Avenue from Stanwix Street to Aiken Avenue (*Safety Project Under construction from Grant St to Heron Ave/continue to monitor*)
•City of Pittsburgh: Butler Street from Lawrenceville to Morningside
•City of Pittsburgh: Carson Street from Smithfield Street to Hot Metal Street (*Safety Project Under construction/continue to monitor*)
District 12
•City of Greensburg: Central Business District
•City of Uniontown: Central Business District
•City of Washington: Central Business District

[10] PennDOT Safety Improvement Website: https://www.penndot.gov/TravelInPA/Safety/Pages/Safety-Infrastructure-Improvement-Programs.aspx
[11] PennDOT Publication 638: http://www.dot.state.pa.us/public/pubsforms/Publications/PUB%20638.pdf
[12] PennDOT Publication 638A: http://www.dot.state.pa.us/public/pubsforms/Publications/PUB%20638a.pdf

Safety Project & Program Implementation

Programming and implementation are the most challenging aspects of ensuring any transportation safety plan is successful. This section focuses on the most challenging aspect of implementation, which is funding. A variety of potential funding mechanisms and existing programs within SPC that local stakeholders can utilize for safety implementation are identified to aid in implementing the solutions identified in this plan.

Partners identified in TABLE 24 must work together to find common ground on safety programs, project designs, locations, and funding mechanisms.

Funding Sources

There are a number of federal and state funding sources available for the implementation of safety programs and projects. This section identifies traditional federal and state funding sources along with lesser known grant and reimbursement programs. A summary of potential funding mechanisms are provided below along with a brief description of the funding program and eligibility requirements.

Highway Safety Improvement Program (HSIP)

The HSIP are federal funds that are administered by state departments of transportation. The purpose of the HSIP is to significantly reduce traffic fatalities and serious injuries on public roads, including non-state-owned public roads and roads on tribal land. HSIP funds are eligible for work on any public road or publicly owned bicycle or pedestrian pathway or trail, or on tribal lands for general use of tribal members, that improves safety for its users.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

CMAQ program provides a flexible funding source to state and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for former nonattainment areas that are now in compliance (maintenance areas). The CMAQ program has been a key funding mechanism for helping urban areas meet air quality goals and supporting investments that encourage alternatives to driving alone and improve traffic flow.

Municipal Liquid Fuels Program

The Municipal Liquid Fuels Program funds a range of projects to support construction, reconstruction, maintenance and repair of public roads or streets. Funds are only available to municipalities who submit annual reports (MS 965 Actual Use Report, MS 965P Project and Miscellaneous Receipts and MS965S Record of Checks) to PennDOT and make its deposits and payments or expenditures in compliance with Section 2.6 Appropriate Use of Funds.

Transportation Improvement Program (TIP)

Each Metropolitan Planning Organization (MPO) is required, under 49 U.S.C. 5303(j), to develop a Transportation Improvement Program (TIP)—a list of upcoming transportation projects—covering a period of at least four years. The TIP should include capital and non-capital surface transportation projects, bicycle and pedestrian facilities and other transportation enhancements, Federal Lands Highway projects, and safety projects included in the state's Strategic Highway Safety Plan.

Surface Transportation Program

The Surface Transportation Program (STP) (23 U.S.C. 133) is one of the main sources of flexible funding available for transit or highway purposes. STP provides the greatest flexibility in the use of funds. These funds may be used (as capital funding) for public transportation capital improvements, car and vanpool projects, fringe and corridor parking facilities, bicycle and pedestrian facilities, and intercity or intracity bus terminals and bus facilities. As funding for planning, these funds can be used for surface transportation planning activities, wetland mitigation, transit research and development, and environmental analysis. Other eligible projects under STP include transit safety improvements and most transportation control measures.

Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grants Program

BUILD, formerly known as the Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants Program, provides a unique opportunity for the DOT to invest in road, rail, transit, and port projects that promise to achieve critical national objectives. This program was initiated to provide funding for capital (and later, planning) investments to improve the nation's highway, bridge, public transportation, rail, and port infrastructure.

Grant and Reimbursement Programs

SPC and PennDOT are committed to assisting local governments and agencies in the preparation, planning, and execution of their community's priority safety projects through grant and reimbursement programs. For a comprehensive list of programs and their requirements, refer to **APPENDIX K** – SPC Transportation and Community Funding Programs.

Safety Related Programs

SPC has several programs that safety partners can leverage for technical support, education and training, or implementation of transportation/safety projects. These programs provide financial support through matching fund payments or complementary services. A summary of the most applicable programs to aid in implementing the safety solutions identified are highlighted below.

SPC's Regional Traffic Signal Program

SPC has developed a Regional Traffic Signal Program that includes technical assistance to municipalities as well as potential funding to assist in upgrading signal systems in the region. Since 2008, SPC and its planning partners have been assisting local governments with improving traffic signal operations by optimizing traffic signal timings and upgrading existing traffic signal equipment. After three cycles of implementation, $11 million has been invested into traffic signals within the region, which yielded a $51 of public benefit for every $1 spent in terms of reduced delay, vehicular stops, fuel consumption, and reduced emissions.

SPC's Road Safety Audit (RSA) Program

SPC has developed a RSA program to assess existing or future roads using an independent, multidisciplinary team to identify potential road safety issues and opportunities for proactive safety improvements. SPC conducts 3 RSAs annually and typically requests one project location within each PennDOT District in the region. SPC has conducted over 40 RSAs to date which are complementary to the roadway owners.

SPC's Traffic Incident Management (TIM) Program

SPC has developed a TIM program to promote awareness and information sharing among the region's emergency responders. SPC facilitates this program by providing useful resources, and training opportunities, and aids in building relationships and communication protocols between the appropriate responder disciplines. SPC has successfully established 5 TIM teams within the region with two currently active: I-79/I-76 Local TIM Team and Pittsburgh's Tunnels TIM Team.

For additional information regarding the programs discussed, refer to SPC's Operations and Safety[13] webpage.

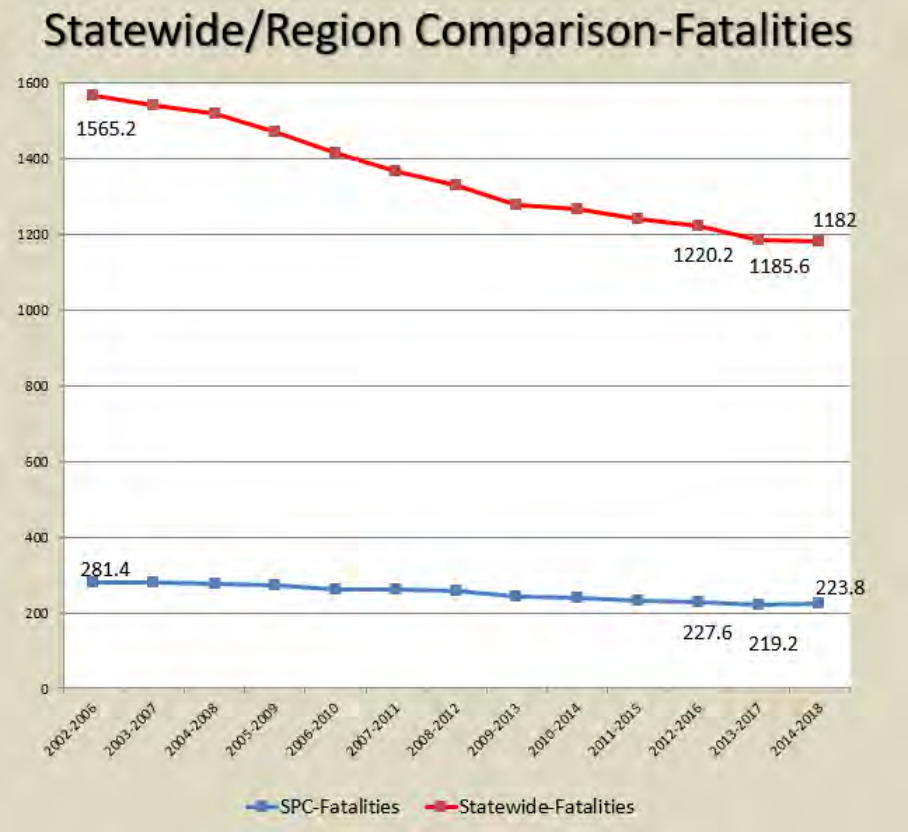
Future Program Needs

During the outreach phase of this plan, there was discussion among the steering committee regarding the continuing underutilization of allotted HSIP funds within the SPC region. This is particularly problematic on the local road network where approximately 20% of all crashes are occurring. In most situations, local municipalities are unaware of the availability/requirements for HSIP funding and/or do not have the 10% match that is required for the obligation of HSIP funds. During brainstorming sessions, the steering committee members agreed a new safety-related program is needed to educate, administer, evaluate, and aid local municipalities in developing and delivering safety projects. SPC, PennDOT, and Allegheny County agreed to work with PennDOT Central Office to explore the possibility of either developing a new local roads safety program, expanding existing programs such as Green Light Go or SPC's Regional Traffic Signal Program, or at minimum, identifying potential funding mechanisms for the local match to aid in delivering HSIP projects on the local road network within the region.

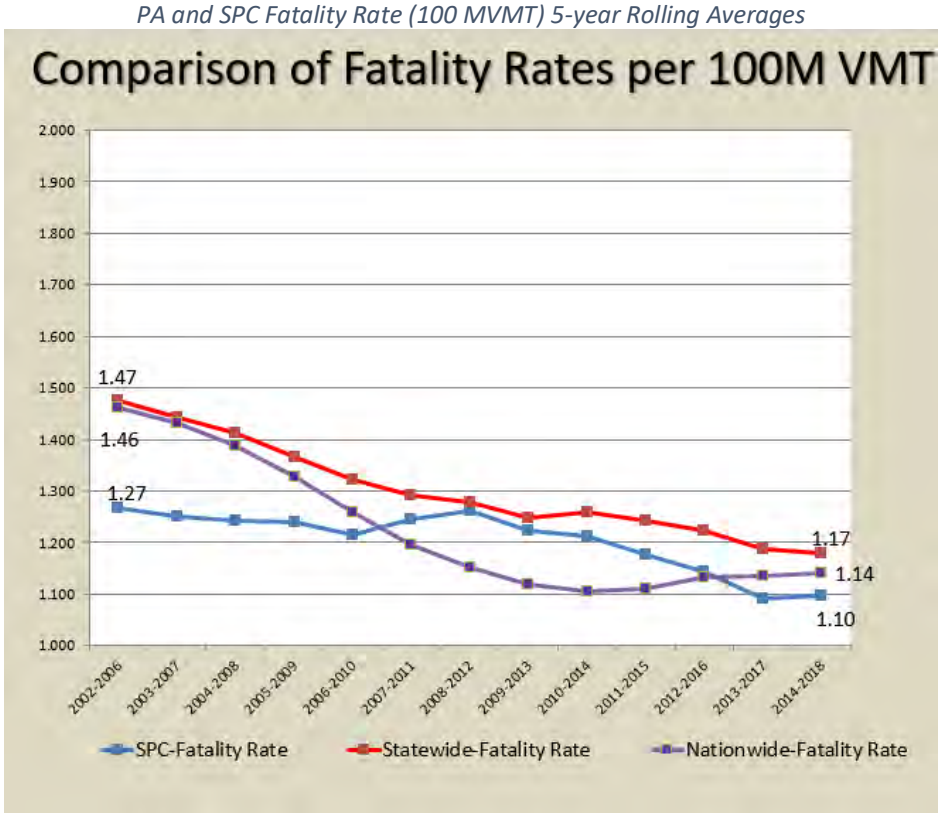
[13] https://www.spcregion.org/programs-services/transportation/operations-safety/

Appendix A – Federal Safety Performance Data

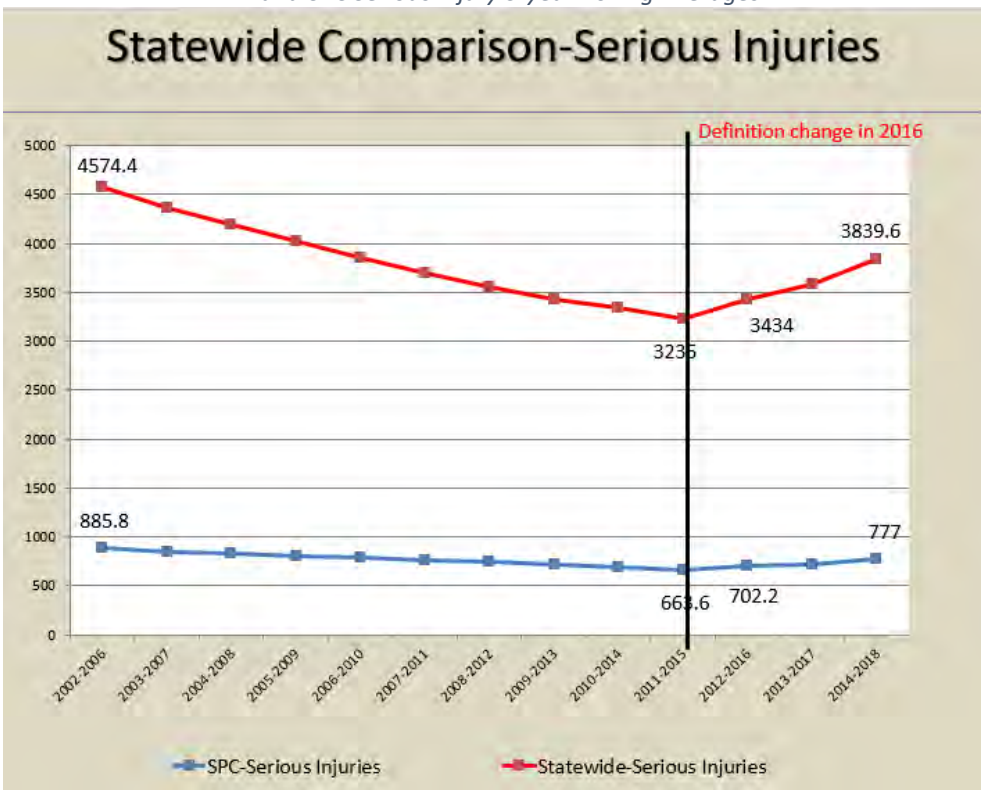
PA and SPC Fatality 5-year Rolling Averages



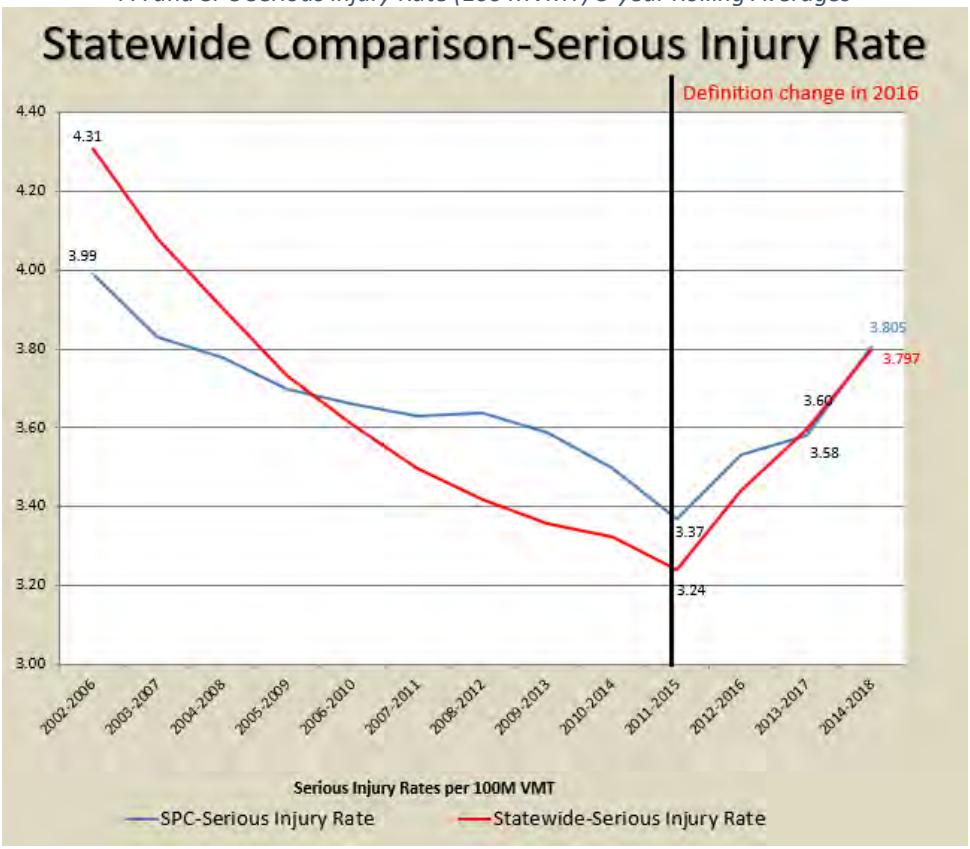
PA and SPC Fatality Rate (100 MVMT) 5-year Rolling Averages



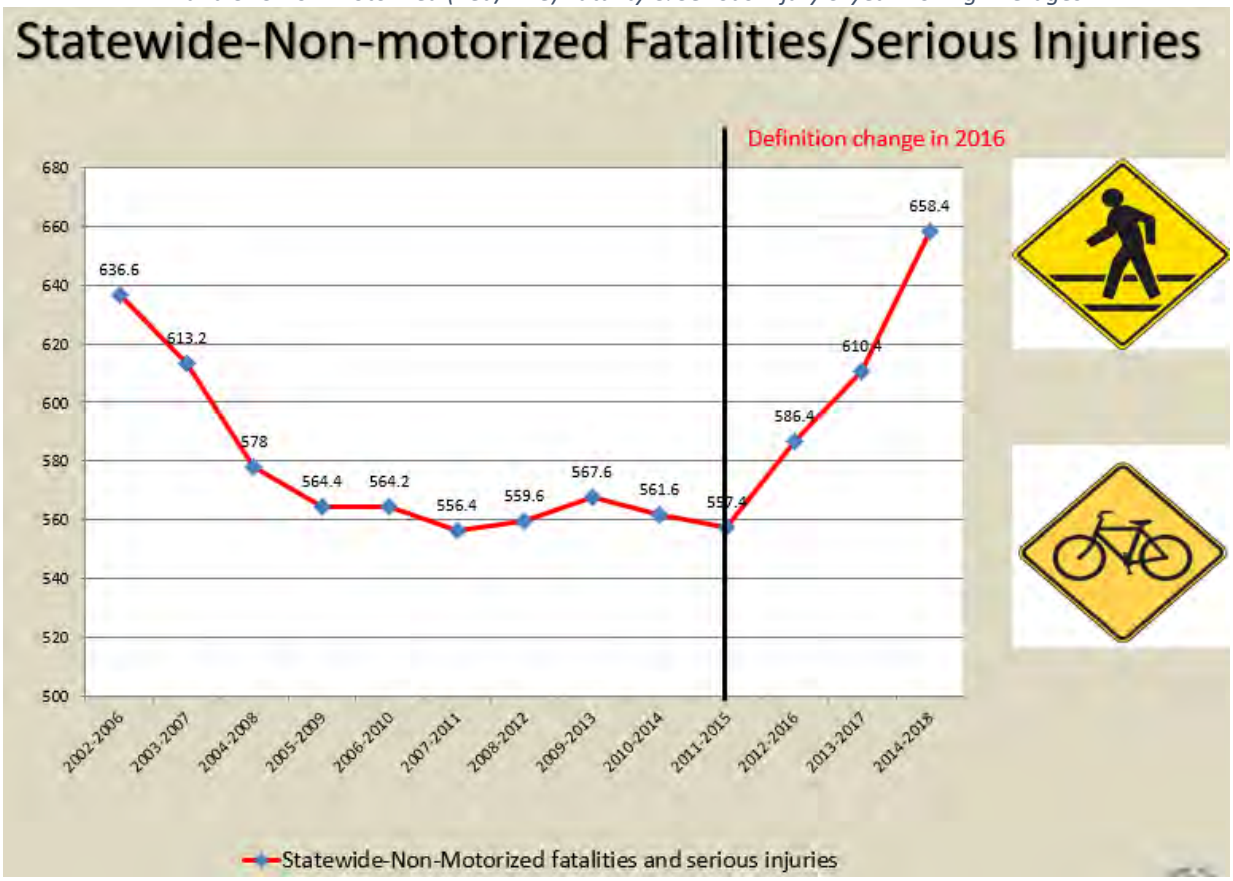
PA and SPC Serious Injury 5-year Rolling Averages



PA and SPC Serious Injury Rate (100 MVMT) 5-year Rolling Averages



PA and SPC Non-motorized (Ped/Bike) Fatality & Serious Injury 5-year Rolling Averages



Guidance: FHWA Procedure for Safety Performance Measure Computation and State Target Achievement Assessment

Contents

1 Overview

Safety Performance Management (Safety PM) is part of the overall Transportation Performance Management (TPM) program, which the Federal Highway Administration (FHWA) defines as a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals. The Safety PM Final Rule[1] is codified under Title 23 of the Code of Federal Regulations (CFR)[2], part 490, subpart B. The regulation establishes national safety performance requirements for the purposes of carrying out the Highway Safety Improvement Program (HSIP) and to assess fatalities and serious injuries on all public roads. Therefore, the purpose of this document is to provide the data sources and calculations for the safety performance measures that FHWA will use when determining whether a State DOT has met or made significant progress towards meeting their safety performance targets. This document is guidance only and does not create any requirements other than those stipulated in statute or regulations.

1.1 Safety Performance Measures

The Safety PM regulation (23 CFR 490.207(a)) established five safety performance measures for the purpose of carrying out the HSIP. The safety performance measures are:

(1) Number of fatalities;

(2) Rate of fatalities;

(3) Number of serious injuries;

(4) Rate of serious injuries; and

(5) Number of non-motorized fatalities and non-motorized serious injuries.

The main attributes of the safety performance measures are as follows:

- Safety targets are established annually for each of the safety performance measures (23 CFR 490.209(a)).
- Each safety performance measure is based on a 5-year rolling average (23 CFR 490.207(b)).
- All rate measures are expressed in 100 million vehicle miles traveled (VMT) (23 CFR 490.205).
- Safety targets are reported by each State Department of Transportation (DOT) to FHWA in the State HSIP Annual Report (23 CFR 490.213(a)).
- Safety targets must be identical for the common measures in the National Highway Traffic Safety Administration (NHTSA) Highway Safety Plan (HSP) (23 CFR 490.209(a)(1)).
- Safety performance measures are applicable to all public roads covered by the HSIP (23 CFR 490.203).
- The performance targets represent the anticipated performance outcome for all public roads regardless of ownership and functional class (23 CFR 490.209(a)(3)).

---

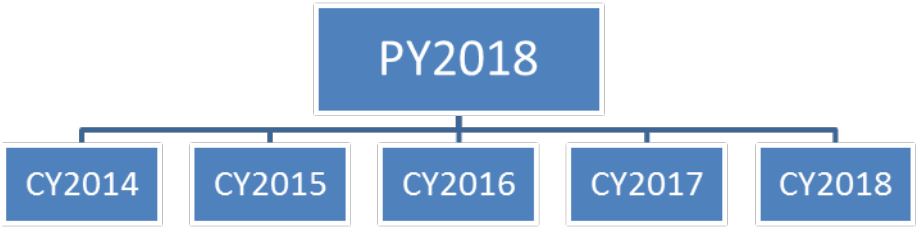
[1] Safety PM Final Rule: https://www.federalregister.gov/documents/2016/03/15/2016-05202/national-performance-management-measures-highway-safety-improvement-program

[2] Code of Federal Regulations: https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=7c955ec3c47ba5f35529b89f21c02213&mc=true&n=pt23.1.490&r=PART&ty=HTML

- The FHWA will evaluate whether a State DOT has met or made significant progress toward meeting performance targets (23 CFR 490.211(c)).
- The Metropolitan Planning Organizations (MPO) will establish performance targets for each of the measures (23 CFR 490.209(c)) no later than 180 days after the respective State DOT establishes and reports targets in the State HSIP annual report (23 CFR 490.209(c)(1)).
- The MPO's will annually report their established safety targets to their respective State DOT, in a manner that is documented and mutually agreed upon by both parties (23 CFR 490.213(b)).

The term Performance Year (PY) is being used for the purposes of this document, but is not a defined term under 23 CFR part 490. Since all safety performance measures are based on 5-year rolling averages, this document will refer to the last calendar year (CY) of the 5-year period as the Performance Year. For example, if the last calendar year of the 5-year period is CY2018, it would include years 2014 through 2018 and be denoted as PY2018, as shown in the example in Figure 1.

Figure 1 – Performance Year Example



To ensure consistent definitions, a distinction between *metric* and *measure* was made in 23 CFR 490.101.

- A *metric* is defined as a quantifiable indicator of performance or condition (e.g., annual number of fatalities).
- A *measure* is defined as an expression based on a metric that is used to establish targets and to assess progress toward meeting established targets (e.g., 5-year rolling average of number of fatalities).

1.2 Met or Made Significant Progress

The FHWA will determine annually whether a State DOT has "***met or made significant progress towards meeting its safety performance targets***." The FHWA will not make determinations for MPO targets established under 23 CFR 490.209(c) or State DOT additional targets under 23 CFR 490.209(b).

For the purpose of this document, the following terms will be used:

- "*Actual performance*" is the outcome for a performance measure for a performance year.
- "*Baseline performance*" is the outcome for a performance measure for the year prior to the establishment of the State's target.

A State DOT is determined to have "***met or made significant progress toward meeting its safety performance targets***" when at least four of the performance targets established are: (1) met; or (2) not met but made significant progress towards meeting the targets. A performance target is met when the

actual performance is less than or equal to the target. If the actual performance is greater than the target, then the target has not been met.

If FHWA determines that a target is not met, FHWA will assess whether the State DOT has made significant progress towards meeting that target by comparing the actual performance and the baseline performance. If the target has not been met, but the actual performance is less than the baseline performance (indicates that a State DOT has improved performance compared to the baseline performance), then FHWA will determine that the State DOT has made significant progress towards meeting that target. If the actual performance is greater than the baseline performance, then FHWA will determine that the State DOT has not made significant progress towards meeting that target.

The FHWA will make the described evaluations for each of the five performance measures. If FHWA determines that four out of the five performance targets reported by a State DOT have been met (the actual performance is less than or equal to the target) or made significant progress towards meeting the target (the actual performance is less than the baseline performance), then that State DOT will be determined to have "***met or made significant progress towards achieving its safety performance targets***."

1.3 Data Sources for Computing Safety Performance Measures

The FHWA will use public data sources to assess safety target achievement and to determine whether a State DOT has met or made significant progress towards meeting their performance targets. These data sources are defined below.

1.3.1 Fatality Analysis Reporting System

The safety performance metrics for the annual number of fatalities and the annual numbers of non-motorized fatalities come from the NHTSA Fatality Analysis Reporting System (FARS) database. The FARS data is published annually and becomes available approximately in December of each calendar year. For example, fatality data for CY2018 will be available by December 2019. The FARS Query Tool can be used to access fatality data. The FARS data contains both final data on fatalities for previous years and preliminary data on fatalities for the most recent year.

- The FARS Annual Report File (ARF) is published annually and contains preliminary data on fatalities for the most current year.
- The Final FARS data replace the FARS ARF and contains additional cases or updates to cases that became available after the FARS ARF was released, and is no longer subject to future changes.

When computing the performance measures for Number of Fatalities and Fatality Rate, the FARS ARF data are used if Final FARS data are not available, as stipulated in CFR 490.207(b). Please note that the year of the FARS data file refers to the calendar year when the fatalities occurred.

The FARS Query Tool is available at:

https://www-fars.nhtsa.dot.gov//QueryTool/QuerySection/SelectYear.aspx

1.3.2 Highway Safety Improvement Program Annual Report

The safety performance metrics for number of serious injuries and number of non-motorized serious injuries comes from the State DOT data submitted in the HSIP Annual Report. As specified in 23 CFR 490.209(a)(5), the State DOT must include, in the HSIP Annual Report, the most recent five years of serious injury data and non-motorized serious injury data by calendar year. The HSIP Annual Report also contains safety performance targets for the five performance measures. The year of the HSIP Annual Report refers to the year of reporting. For example, the 2017 HSIP Annual Report means the report was submitted in 2017 (by August 31, 2017) and includes the baseline performance for PY2016 and the performance targets for PY2018. However, FHWA will use the most recent HSIP Annual Report that is available at the time of assessment to collect the baseline data for serious injuries and non-motorized serious injuries. The HSIP Annual Report data becomes available by December of each calendar year. A download of the HSIP Annual Report data is available via a Microsoft Excel spreadsheet from the HSIP Program Manager.

The HSIP Reports are available at: https://safety.fhwa.dot.gov/hsip/reports/

1.3.3 Highway Statistics Series

The safety performance metric for VMT estimates are provided in FHWA's Highway Statistics Series Publication in Table VM-2 (Vehicle-miles of travel, by functional system). The Highway Statics Series is available at: https://www.fhwa.dot.gov/policyinformation/statistics.cfm

The VMT numbers are used as the denominator to calculate the rate of fatalities and the rate of serious injuries per 100 million VMT. The VMT data in HPMS becomes available approximately in December of each calendar year. For example, in December 2019, VMT estimates for CY2018 will be available. Please note that the year in the HPMS data and the Highway Statistics Series refers to the calendar year the VMT occurred.

Table 1 below provides a description of the five safety performance measures and the corresponding data sources. These data sources will be used to compute the safety performance measures and to assess whether a State DOT has met or made significant progress towards meeting their safety performance targets.

Table 1 – Safety Performance Measures and Data Sources

Safety Performance Measures	Safety Performance Measure Description	Data	Data Source
Number of Fatalities	The total number of persons suffering fatal injuries in a motor vehicle crash during a calendar year	Fatalities	Final FARS and FARS ARF
		Target	HSIP Annual Report
Rate of Fatalities	The ratio of the total number of fatalities to the number of VMT (expressed in 100 million VMT)	Fatalities	Final FARS and FARS ARF
		VMT	VM-2 Table in Highway Statistics Series
		Target	HSIP Annual Report
Number of Serious Injuries	The total number of persons suffering at least one serious injury in a motor vehicle crash during a calendar year	Serious injuries	HSIP Annual Report
		Target	HSIP Annual Report
Rate of Serious Injuries	The ratio of the total number of serious injuries to the number of VMT (expressed in 100 million VMT)	Serious injuries	HSIP Annual Report
		VMT	VM-2 Table in Highway Statistics Series
		Target	HSIP Annual Report
Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries	The total number of fatalities with the FARS person attribute codes: (5) Pedestrian, (6) Bicyclist, (7) Other Cyclist, (8) Person on Personal Conveyances and the total number of serious injuries where the injured person is, or equivalent to, a pedestrian (2.2.36) or a pedalcyclist (2.2.39) a s defined in the American National Standards Institute (ANSI) D16.1-2007.	Non-motorized fatalities	Final FARS and FARS ARF
		Non-motorized serious injuries	HSIP Annual Report
		Target	HSIP Annual Report

2 Safety Performance Measure Computation Equations

This section provides the computation equations for the five safety performance measures. Please note that annual fatality metrics are a whole number while the rate metrics and calculated measures are rounded to the nearest decimal place, as indicated in each of the equations.

2.1 Number of Fatalities

Number of Fatalities Measure $_{PY}$ =

$$\frac{\{\text{Fatalities }_{PY\text{-}4} + \text{Fatalities }_{PY\text{-}3} + \text{Fatalities }_{PY\text{-}2} + \text{Fatalities }_{PY\text{-}1} + \text{Fatalities }_{PY}\}}{5}$$

Where,

Number of Fatalities Measure $_{PY}$ = Calculated fatality measure for the PY *(rounded to the nearest tenth decimal place)*

Fatalities $_{PY}$ = Annual number of fatalities metric *(whole number)*

2.2 Rate of Fatalities

Rate of Fatalities Measure $_{PY}$ =

$$\frac{\left\{\left(\frac{\text{Fatalities }_{PY\text{-}4}}{\text{Total VMT}_{PY\text{-}4}}\right) + \left(\frac{\text{Fatalities }_{PY\text{-}3}}{\text{Total VMT}_{PY\text{-}3}}\right) + \left(\frac{\text{Fatalities }_{PY\text{-}2}}{\text{Total VMT}_{PY\text{-}2}}\right) + \left(\frac{\text{Fatalities }_{PY\text{-}1}}{\text{Total VMT}_{PY\text{-}1}}\right) + \left(\frac{\text{Fatalities }_{PY}}{\text{Total VMT}_{PY}}\right)\right\}}{5}$$

Where,

Rate of Fatalities Measure $_{PY}$ = Calculated fatality rate measure for the PY *(rounded to the nearest thousandth decimal place)*

Fatalities $_{PY}$ = Annual number of fatalities metric *(whole number)*

Total VMT $_{PY}$ = Annual VMT per 100 million metric *(calculated per 100 million and rounded to the nearest hundredth decimal place)*

$\frac{\text{Fatalities }_{PY}}{\text{Total VMT}_{PY}}$ = Annual fatality rate metric *(rounded to the nearest hundredth decimal place)*

2.3 Number of Serious Injuries

Number of Serious Injuries Measure $_{PY}$ =

$$\frac{\{\text{Serious Injuries }_{PY\text{-}4} + \text{Serious Injuries }_{PY\text{-}3} + \text{Serious Injuries }_{PY\text{-}2} + \text{Serious Injuries }_{PY\text{-}1} + \text{Serious Injuries }_{PY}\}}{5}$$

Where,

Number of Serious Injuries Measure $_{PY}$ = Calculated serious injury measure for the PY *(rounded to the nearest tenth decimal place)*

Serious Injuries $_{PY}$ = Annual number of serious injuries metric *(whole number)*

2.4 Rate of Serious Injuries

Rate of Serious Injuries Measure $_{PY}$ =

$$\frac{\left\{\left(\frac{\text{Serious Injuries}_{PY\text{-}4}}{\text{Total VMT}_{PY\text{-}4}}\right)+\left(\frac{\text{Serious Injuries}_{PY\text{-}3}}{\text{Total VMT}_{PY\text{-}3}}\right)+\left(\frac{\text{Serious Injuries}_{PY\text{-}2}}{\text{Total VMT}_{PY\text{-}2}}\right)+\left(\frac{\text{Serious Injuries}_{PY\text{-}1}}{\text{Total VMT}_{PY\text{-}1}}\right)+\left(\frac{\text{Serious Injuries}_{PY}}{\text{Total VMT}_{PY}}\right)\right\}}{5}$$

Where,

Rate of Serious Injuries Measure $_{PY}$ = Calculated serious injury rate measure for the PY *(rounded to the nearest thousandth decimal place)*

Serious Injuries $_{PY}$ = Annual number of serious injury metric *(whole number)*

Total VMT $_{PY}$ = Annual VMT (per 100 million) metric *(calculated per 100 million and rounded to the nearest hundredth decimal place)*

$\frac{\text{Serious Injuries}_{PY}}{\text{Total VMT}_{PY}}$ = Annual serious injury rate metric *(rounded to the nearest hundredth decimal place)*

2.5 Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries

Number of Non-Motorized Measure $_{PY}$ =

$$\frac{\{\text{Non-Motorized}_{PY\text{-}4}+\text{Non-Motorized}_{PY\text{-}3}+\text{Non-Motorized}_{PY\text{-}2}+\text{Non-Motorized}_{PY\text{-}1}+\text{Non-Motorized}_{PY}\}}{5}$$

Where,

Number of Non-Motorized Measure $_{PY}$ = Calculated number of non-motorized fatalities and number of serious injury measure for the PY *(rounded to the nearest tenth decimal place)*

Non-Motorized $_{PY}$ = Combined annual number of non-motorized fatalities and non-motorized serious injuries metric *(whole number)*

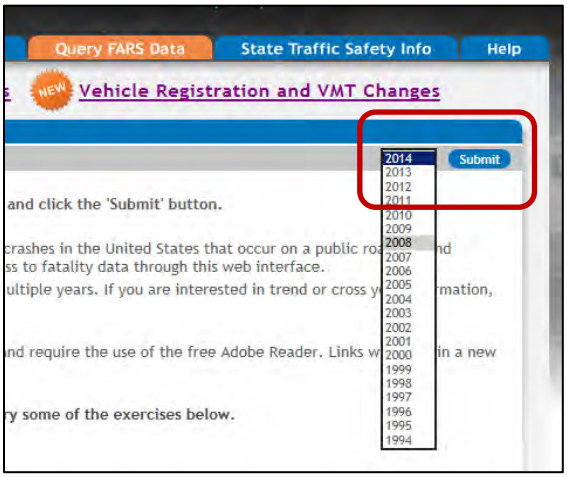
3 Obtaining Number of Fatality Metrics through NHTSA FARS

3.1 Obtaining the Metric for Number of Fatalities Measures

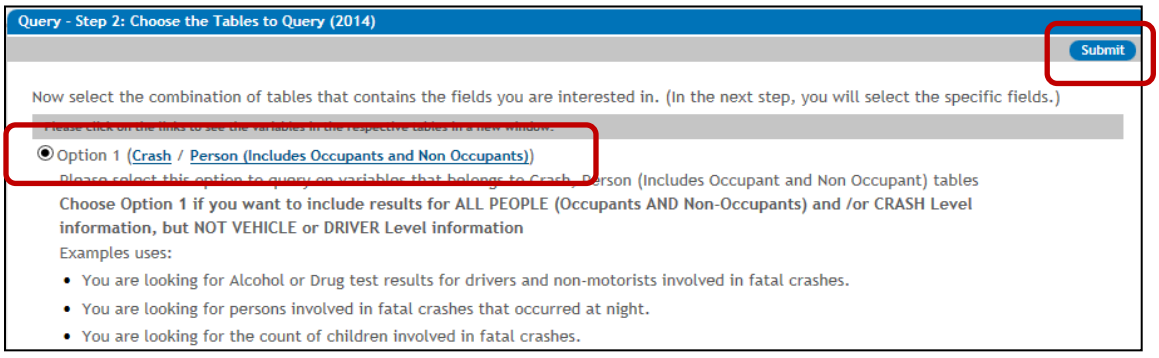
The following instructions detail how to obtain the annual number of fatalities metric by State using the FARS Query Tool.

Step 1: Go to 'Query FARS Data': http://www-fars.nhtsa.dot.gov/QueryTool/QuerySection/SelectYear.aspx.

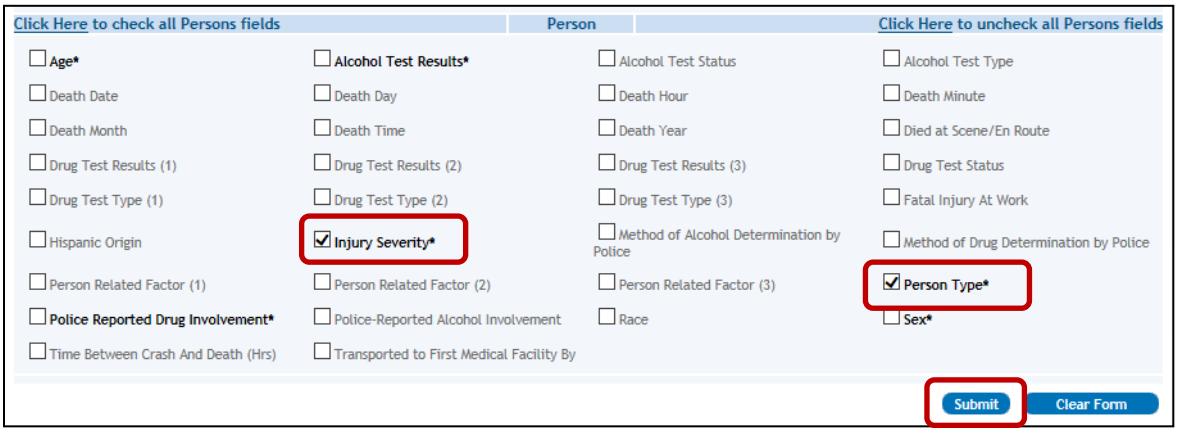
Step 2: Select a Year in the drop-down list and click 'Submit'



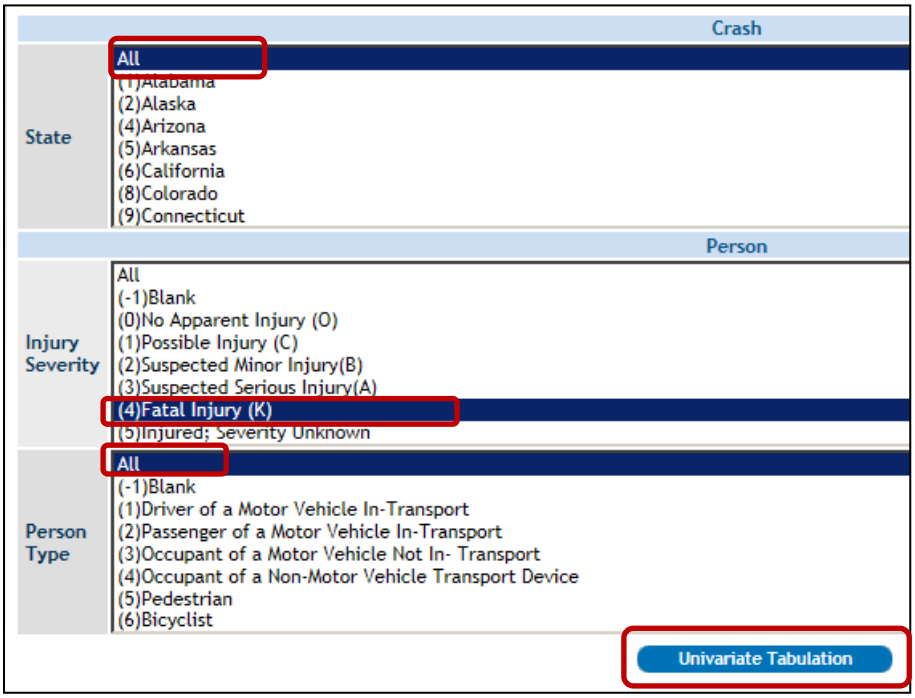
Step 3: Select 'Option 1' and click 'Submit'



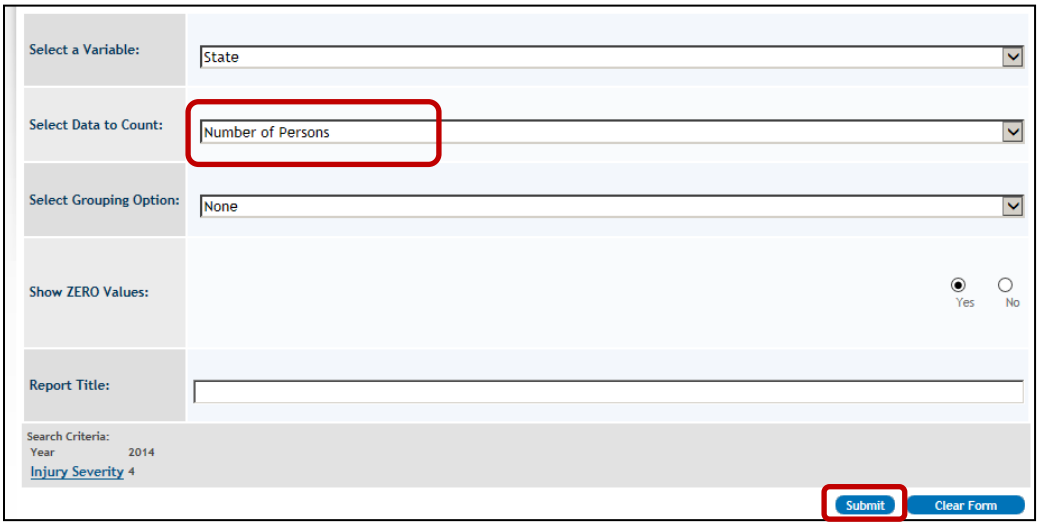
Step 4: Under the 'Person fields' section, check 'Injury Severity' and 'Person Type' and click 'Submit'



Step 5: Select 'All' for State, select '(4) Fatal Injury (K)' for Injury Severity, select 'All' for Person Type and click 'Univariate Tabulation'

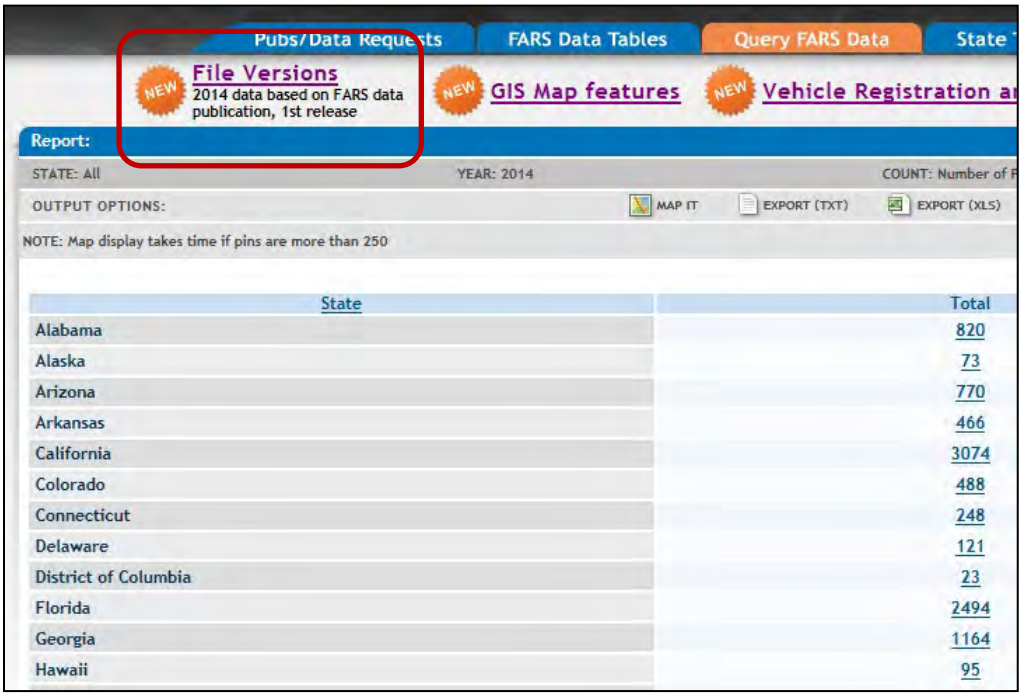


Step 6: From the drop-down list under 'Select Data to Count' select 'Number of Persons' and click 'Submit'.



Step 7: The Number of Fatalities metrics by State can be obtained as shown below by exporting a text (.txt) file or a Microsoft Excel (.xls) spreadsheet.

Step 8: To find out whether metric values are from FINAL FARS or FARS ARF, click 'File Versions' as highlighted below.



Step 9: The following pop-box will open detailing the data year, file version and release date.

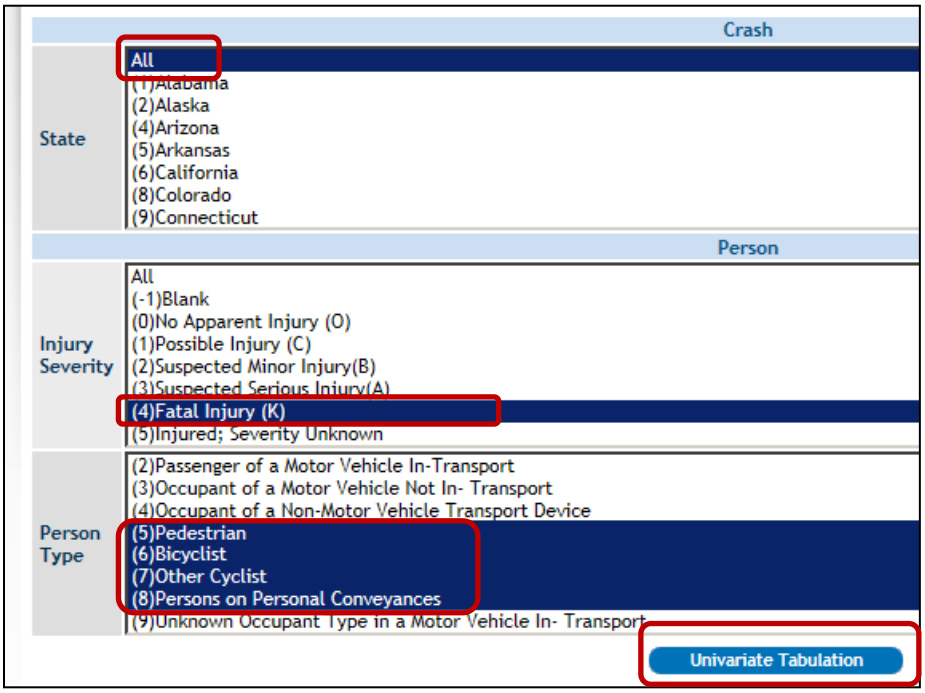
Data Year	File Version	Release Date
1999	Final	August 2001
2000	Final	August 2002
2001	Final	September 2003
2002	Final	August 2004
2003	Final	September 2005
2004	Final	August 2006
2005(*)	Final	September 21, 2007
2006	Final	September 5, 2008
2007	Final	July 6, 2009
2008	Final	September 13, 2010
2009	Final	December 8, 2011
2010	Final	December 11, 2012
2011	Final	November 13, 2013
2012	Final	December 19, 2014
2013	Final	December 14, 2015
2014	Final	August 29, 2016
2015	Final	October 03, 2018
2016	Final	October 03, 2018
2017	Annual(**)	October 03, 2018

3.2 Obtaining the Metric for Numbers of Non-Motorized Fatalities Measure

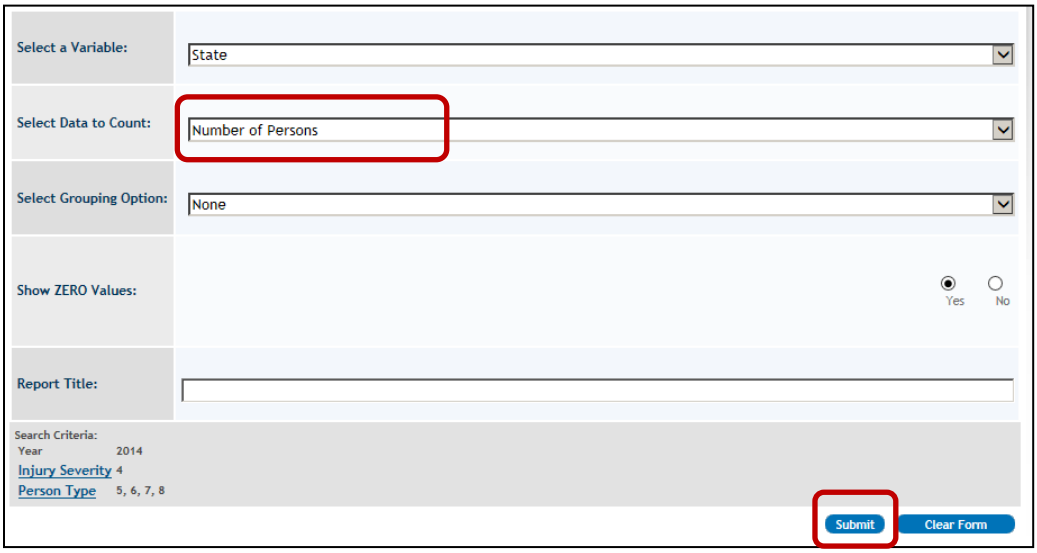
The following instructions detail how to obtain the annual number of non-motorized fatalities metric by State using the FARS Query Tool.

Steps 1 through 4: Follow Steps 1 through 4 above for obtaining a metric for the number of fatalities.

Step 5: Select 'All' for State, select '(4) Fatal Injury (K)' for Injury Severity, select '(5) Pedestrian, (6) Bicyclists, (7) Other Cyclists, and (8) Person and Personal Conveyances' for Person Type and click 'Univariate Tabulation'.



Step 6: From the drop-down list under 'Select Data to Count' select 'Number of Persons' and then click 'Submit'.



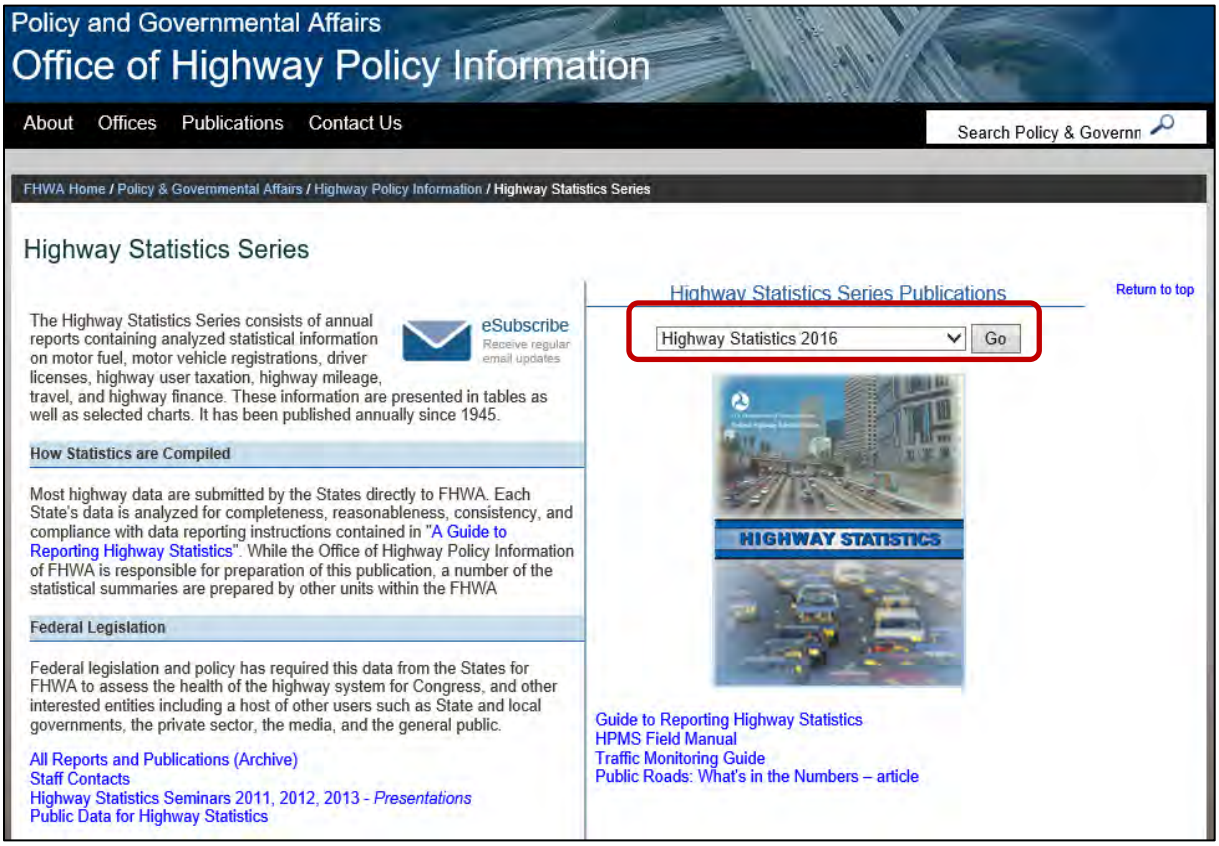
Steps 7 through 9: The Number of Non-Motorized Fatalities metrics by State can be obtained by exporting a text (.txt) file or a Microsoft Excel (.xls) spreadsheet (similar to the Steps 7 through 9 above for obtaining a metric for the number of fatalities).

4 Obtaining VMT Metrics through the HPMS Highway Statistics Series

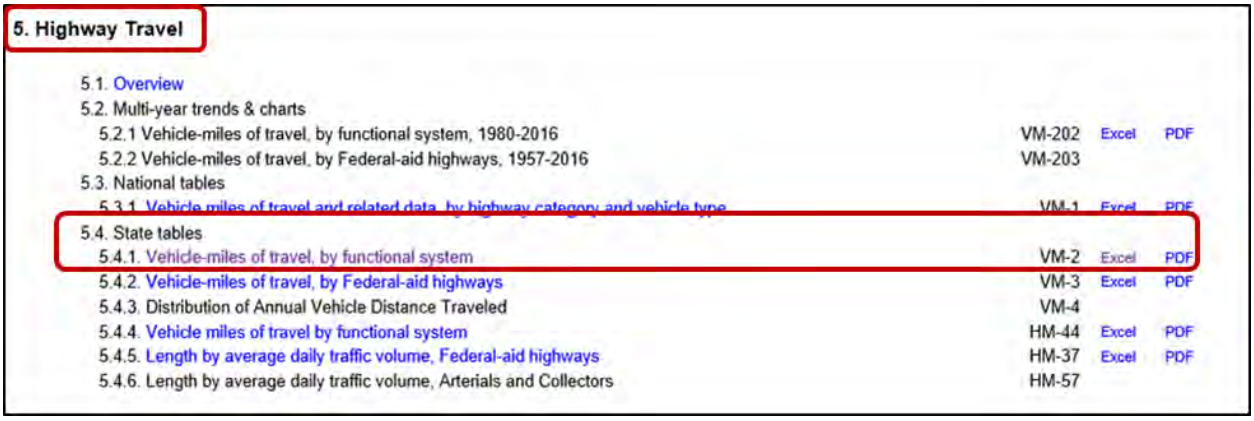
The following instructions detail how to obtain the annual VMT by State using the HPMS Highway Statistics Series.

Step 1: Go to the Highway Statistics Series website at: https://www.fhwa.dot.gov/policyinformation/statistics.cfm

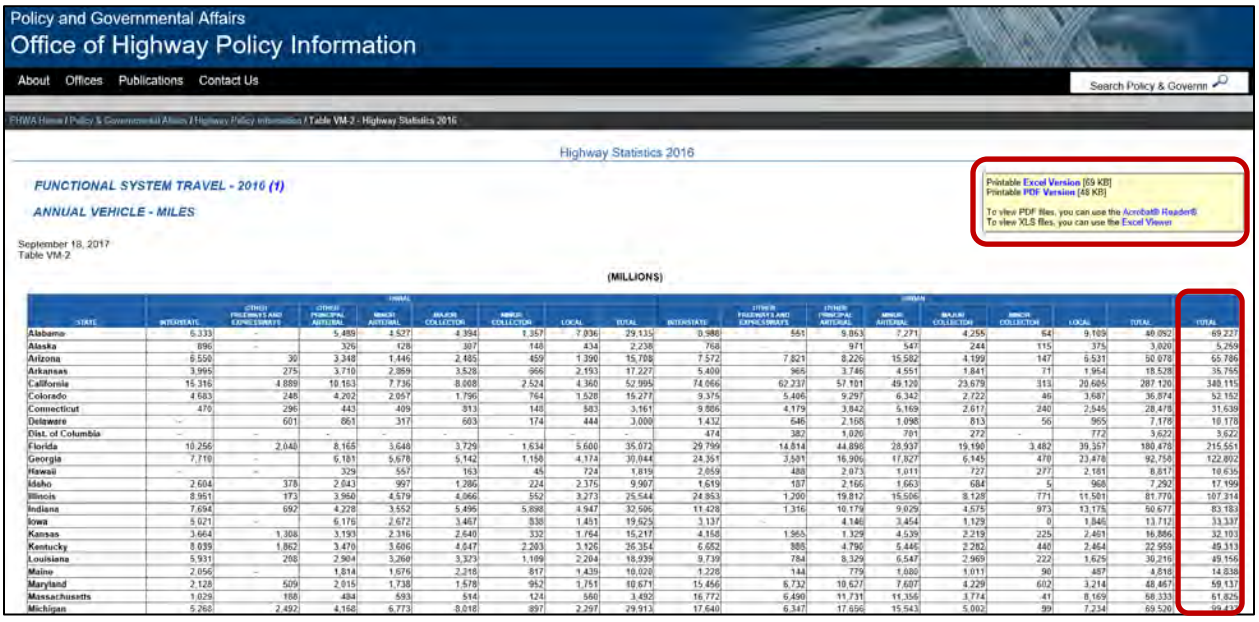
Step 2: Select the year of the Highway Statistics and click 'Go'



Step 3: Under '5. Highway Travel' select VM-2 Table '5.4.1 Vehicle-miles of travel, by functional system'



Step 4: The total VMT for each State is listed in the last column under 'Total' and can either be viewed (as shown below) or downloaded as a Microsoft Excel file



5 Example Safety Performance Measure Computation and Determining Significant Progress

This section provides an example of how to calculate the performance measures for PY2018.The approximate time of measure calculation would be December 2019, which is approximately when the FARS, VMT, and HSIP data all become available. As noted previously, FHWA will use the most recent HSIP Annual Report that is available for collecting baseline performance data for serious injuries and non-motorized serious injuries. This example illustrates the computation of the five safety performance measures and whether a State DOT met or made significant progress towards meeting their performance targets. Table 2 below provides a list of data sources and the corresponding years required for calculating PY2018 actual performance and PY2016 baseline performance for the five safety performance measures.

Table 2 – 2018 Safety Performance Measure Data Sources for Measure Calculation

Safety Performance Measures	Metrics for PY2018 Actual Performance		PY2018 Target	Metrics for PY2016 Baseline Performance	
	Safety Data	VMT Data		Safety Data	VMT Data
Number of Fatalities	2014-2017 Final FARS and 2018 FARS ARF from NHTSA FARS	N/A	2017 HSIP Annual Report	2012-2016 Final FARS from NHTSA FARS	N/A
Rate of Fatalities	2014-2017 Final FARS and 2018 FARS ARF from NHTSA FARS	2014-2018 VMT from VM-2 Table in Highway Statistics	2017 HSIP Annual Report	2012-2016 Final FARS from NHTSA FARS	2012-2016 VMT from VM-2 Tables in Highway Statistics
Number of Serious Injuries	2019 HSIP Annual Report	N/A	2017 HSIP Annual Report	2012-2016 serious injuries from 2019 HSIP Annual Report	N/A
Rate of Serious Injuries	2014-2018 Serious Injury Numbers from 2019 HSIP Annual Report	2014-2018 VMT from VM-2 Table in Highway Statistics	2017 HSIP Annual Report	2012-2016 serious injuries from 2019 HSIP Annual Report	2012-2016 VMT from VM-2 Tables in Highway Statistics
Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries	Fatality Numbers: 2014-2017 Final FARS and 2018 FARS ARF from NHTSA FARS Serious Injury Numbers: 2019 HSIP Annual Report	N/A	2017 HSIP Annual Report	Fatality Numbers: 2012-2016 Final FARS from NHTSA FARS Serious Injury Numbers: 2012-2016 serious injuries from 2019 HSIP Annual Report	N/A

Table 3 represents sample values of the metrics for each of the performance measures. The following example demonstrates the calculations of the 5-year rolling average for each of the performance measures actual performance and baseline performance. If the actual performance is less than or equal to the target, no further analysis would be required. If the actual performance is greater than the target, the baseline performance is calculated to determine if actual performance is better than the baseline performance. In this example, the performance year is 2018 (PY2018) and the baseline performance year is 2016 (PY2016).

Table 3 – Sample Safety Performance Metrics for Measure Calculations

Year	Fatalities (FARS)	Serious Injuries (HSIP)	Non-Motorized Fatalities (FARS)	Non-Motorized Serious Injuries (HSIP)	Total VMT (HPMS)
2012	486	1,746	29	71	30,215
2013	416	1,811	22	70	30,048
2014	384	1,709	25	79	29,727
2015	386	1,670	27	88	29,497
2016	431	1,717	16	95	29,900
2017	386	1,581	16	97	30,021
2018	405*	1,592	33*	104	30,572

* FARS ARF

Table 4 – Sample PY2018 Performance Targets

Performance Measure	Target
Number of Fatalities	390.0
Rate of Fatalities per 100 million VMT	1.320
Number of Serious Injuries	1,650.0
Rate of Serious Injuries per 100 million VMT	5.585
Number of Non-Motorized Fatalities and Serious Injuries	112.0

5.1 Number of Fatalities Measure Computation Example

Calculation for the number of fatalities measure using the metrics from Table 3 and the target from Table 4, as summarized below.

2012	2013	2014	2015	2016	2016	2018	PY18 Target
486	416	384	386	431	386	405*	390.0

**FARS ARF*

Step 1: Calculate the Number of Fatalities Measure for PY2018 actual performance using the annual metrics for fatalities for 2014 through 2018.

$$\text{PY2018 Number of Fatalities} = \frac{(384 + 386 + 431 + 386 + 405)}{5} = 398.4$$

Step 2: Determine if the PY2018 actual performance (398.4) is less than or equal to the PY2018 target (390.0).

$$\text{PY2018 Number of Fatalities} > \text{PY2018 Target}$$

$$398.4 > 390.0$$

$$\text{Target Met} = \text{No}$$

Step 3: Since the PY2018 actual performance for the number of fatalities measure is greater than the PY2018 Target, the target has not been met. Therefore, the next step is to calculate the PY2016 baseline performance using 2012 through 2016 metrics. (*Note: If the target is equal to or less than the actual performance, this step would not be required*)

$$\text{PY2016 Number of Fatalities Baseline} = \frac{(486 + 416 + 384 + 386 + 431)}{5} = 420.6$$

Step 4: Determine if the PY2018 actual performance (398.4) is less than the PY2016 baseline performance (420.6).

$$\text{PY2018 Number of Fatalities} < \text{PY2016 Number of Fatalities Baseline}$$

$$398.4 < 420.6$$

$$\text{Better than Baseline} = \text{Yes}$$

Step 5: Since the actual performance for the number of fatalities measure is less than the baseline performance, it is determined that significant progress has been made for this measure.

5.2 Rate of Fatalities Measure Computation Example

Calculation for the rate of fatalities measure using the metrics from Table 3 and the target from Table 4, as summarized below.

Metric	2012	2013	2014	2015	2016	2016	2018	PY18 Target
Fatalities	486	416	384	386	431	386	405*	
Total VMT	30,215	30,048	29,727	29,497	29,900	30,021	30,572	1.320
VMT/100M	302.15	300.48	297.27	294.97	299.00	300.21	305.72	

**FARS ARF*

Step 1: Calculate the Rate of Fatalities Measure for PY2018 actual performance using the annual metrics for fatalities and VMT per 100 million for 2014 through 2018.

$$\text{PY2018 Rate of Fatalities} = \frac{\left(\frac{384}{297.27} + \frac{386}{294.97} + \frac{431}{299.00} + \frac{386}{300.21} + \frac{405}{305.72}\right)}{5}$$

$$= \frac{(1.29 + 1.31 + 1.44 + 1.29 + 1.32)}{5} = 1.330$$

Step 2: Determine if the PY2018 actual performance (1.330) is less than or equal to the PY2018 target (1.320).

$$\text{PY2018 Rate of Fatalities} > \text{PY2018 Target}$$

$$1.330 > 1.320$$

$$\text{Target Met} = \text{No}$$

Step 3: Since the PY2018 actual performance for the rate of fatalities measure is greater than the PY2018 Target, the target has not been met. Therefore, the next step is to calculate the PY2016 baseline performance using 2012 through 2016 metrics. (*Note: If the actual performance is less than or equal to the target, this step would not be required*)

$$\text{PY2016 Rate of Fatalities Baseline} = \frac{\left(\frac{486}{302.15} + \frac{416}{300.48} + \frac{384}{297.27} + \frac{386}{294.97} + \frac{431}{299.00}\right)}{5}$$

$$= \frac{(1.61 + 1.38 + 1.29 + 1.31 + 1.44)}{5} = 1.406$$

Step 4: Determine if the PY2018 actual performance (1.330) is less than the PY2016 baseline performance (1.406).

$$\text{PY2018 Rate of Fatalities} < \text{PY2016 Rate of Fatalities Baseline}$$

$$1.330 < 1.394$$

$$\text{Better than Baseline} = \text{Yes}$$

Step 5: Since the actual performance for the rate fatalities measure is less than the baseline performance, it is determined that significant progress has been made for this measure.

5.3 Number of Serious Injuries Measure Computation Example

Calculation for the number of fatalities measure using the metrics from Table 3 and the target from Table 4, as summarized below.

2012	2013	2014	2015	2016	2016	2018	PY18 Target
1,746	1,811	1,709	1,670	1,717	1,581	1,592	1,650.0

Step 1: Calculate the Number of Serious Injuries Measure for PY2018 actual performance using the annual metrics for series injuries for 2014 through 2018.

$$\text{PY2018 Number of Serious Injuries} = \frac{(1{,}709 + 1{,}670 + 1{,}717 + 1{,}581 + 1{,}592)}{5} = 1{,}653.8$$

Step 2: Determine if the PY2018 actual performance (1,653.8) is less than or equal to the PY2018 target (1,650.0).

$$\text{PY2018 Number of Serious Injuries} > \text{PY2018 Target}$$

$$1{,}653.8 > 1{,}650.0$$

$$\text{Target Met} = \text{No}$$

Step 3: Since the PY2018 actual performance for the number of serious injuries measure is greater than the PY2018 Target, the target has not been met. Therefore, the next step is to calculate the PY2016 baseline performance using 2012 through 2016 metrics. (*Note: If the actual performance is less than or equal to the target, this step would not be required*)

$$\text{PY2016 Number of Serious Injuries Baseline} = \frac{(1{,}746 + 1{,}811 + 1{,}709 + 1{,}670 + 1{,}717)}{5} = 1{,}730.6$$

Step 4: Determine if the PY2018 actual performance (1,653.8) is less than the PY2016 baseline performance (1,730.6).

$$\text{PY2018 Number of Serious Injuries} < \text{PY2016 Number of Serious Injuries Baseline}$$

$$1{,}653.8 < 1{,}730.6$$

$$\text{Better than Baseline} = \text{Yes}$$

Step 5: Since the actual performance for the number of series injuries measure is less than the baseline performance, it is determined that significant progress has been made for this measure.

5.4 Rate of Serious Injuries Measure Computation Example

Calculation for the rate of serious injuries measure using the metrics from Table 3 and the target from Table 4, as summarized below.

Metric	2012	2013	2014	2015	2016	2016	2018	PY18 Target
Serious Injuries	1,746	1,811	1,709	1,670	1,717	1,581	1,592	5.585
Total VMT	30,215	30,048	29,727	29,497	29,900	30,021	30,572	
VMT/100M	302.15	300.48	297.27	294.97	299.00	300.21	305.72	

Step 1: Calculate the Rate of Serious Injuries Measure for PY2018 actual performance using the annual metrics for serious injuries and VMT per 100 million for 2014 through 2018.

$$\text{PY2018 Rate of Serious Injuries} = \frac{\left(\frac{1{,}709}{297.27} + \frac{1{,}670}{294.97} + \frac{1{,}717}{299.00} + \frac{1{,}581}{300.21} + \frac{1{,}592}{305.72}\right)}{5}$$

$$= \frac{(5.75 + 5.66 + 5.74 + 5.27 + 5.21)}{5} = 5.526$$

Step 2: Determine if the PY2018 actual performance (5.526) is less than or equal to the PY2018 target (5.585).

$$\text{PY2018 Rate of Serious Injuries} > \text{PY2018 Target}$$

$$5.526 < 5.585$$

$$\text{Target Met} = \text{Yes}$$

Step 3: Since the PY2018 actual performance for the rate of fatalities measure is less than the PY2018 Target, the target has been met. Since the target it met, there is no need to assess whether the actual performance is less than or equal to the baseline performance.

5.5 Number of Non-Motorized Fatalities and Serious Injuries Measure Computation Example

Calculation for the rate of fatalities measure using the metrics from Table 3 and the target from Table 4, as summarized below.

Metric	2012	2013	2014	2015	2016	2016	2018	PY18 Target
Non-motorized Fatalities	29	22	25	27	16	16	33*	112.0
Non-motorized Serious Injuries	71	70	79	88	95	97	104	

**FARS ARF*

Step 1: Calculate the Number of Non-Motorized Measure for PY2018 actual performance using the annual metrics for non-motorized fatalities and non-motorized serious injuries for 2014 through 2018.

$$\text{PY2018 Number of Non-Motorized} = \frac{((25+79)+(27+88)+(16+95)+(16+97)+(33+104))}{5}$$

$$= \frac{(104 + 115 + 111 + 113 + 137)}{5} = 116.0$$

Step 2: Determine if the PY2018 actual performance (116.0) is less than or equal to the PY2018 target (112.0).

$$\text{PY2018 Number of Non-Motorized} > \text{PY2018 Target}$$

$$116.0 > 112.0$$

$$\text{Target Met} = \text{No}$$

Step 3: Since the PY2018 actual performance for the non-motorized measure is greater than the PY2018 Target, the target has not been met. Therefore, the next step is to calculate the PY2016 baseline performance using 2012 through 2016 metrics. (*Note: If the actual performance is less than or equal to the target, this step would not be required*)

$$PY16 \text{ Non-Motorized Baseline} = \frac{((29+71)+(22+70)+(25+79)+(27+88)+(16+95))}{5} = 104.4$$

Step 4: Determine if the PY2018 actual performance (116.0) is less than the PY2016 baseline performance (94.2).

$$\text{PY2018 Number of Non-Motorized} < \text{PY2016 Number of Non-Motorized Baseline}$$

$$116.0 < 104.4$$

$$\text{Better than Baseline} = \text{No}$$

Step 5: Since the actual performance for the number of non-motorized fatalities and serious injuries measure is greater than the baseline performance, it is determined that significant progress has not been made for this measure.

5.6 Example Determination of Met or Made Significant Progress

To determine whether a State DOT has met or made significant progress toward achieving their performance targets, the computations from the above examples (5.1 through 5.5) will be used and are summarized in Table 5 below.

Table 5 – Example Determination of Met or Made Significant Progress

Safety Performance Measures	2018 Target	PY2018 Actual Performance	PY2016 Baseline Performance	Met Target?	Better than the Baseline?	Met or Made Significant Progress?
Number of Fatalities	390.0	398.4	420.6	No	Yes	**YES** **(4 of the 5 targets were either met or significant progress was made towards meeting the targets)**
Rate of Fatalities	1.320	1.330	1.406	No	Yes	
Number of Serious Injuries	1,650.0	1,653.8	1,730.6	No	Yes	
Rate of Serious Injuries	5.585	5.526	5.792	Yes	N/A	
Number of Non-Motorized Fatalities and Serious Injuries	112.0	116.0	104.4	No	No	

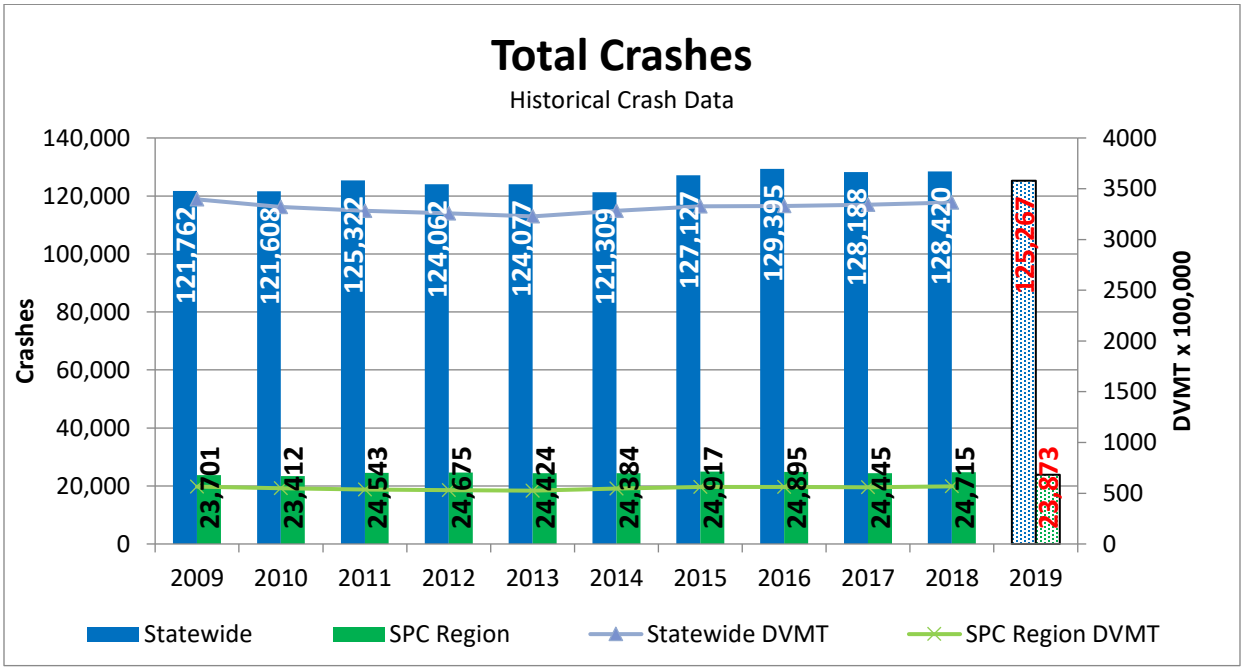
In this example, the only target met for PY2018 is the Rate of Serious Injuries Measure. Since this target is met, no further assessment is required for this measure. The performance targets for the Number of Fatalities Measure, Rate of Fatalities Measure, and Number of Serious Injury Measure were not met. Therefore, those measures were compared against the PY2016 baseline performance to determine if

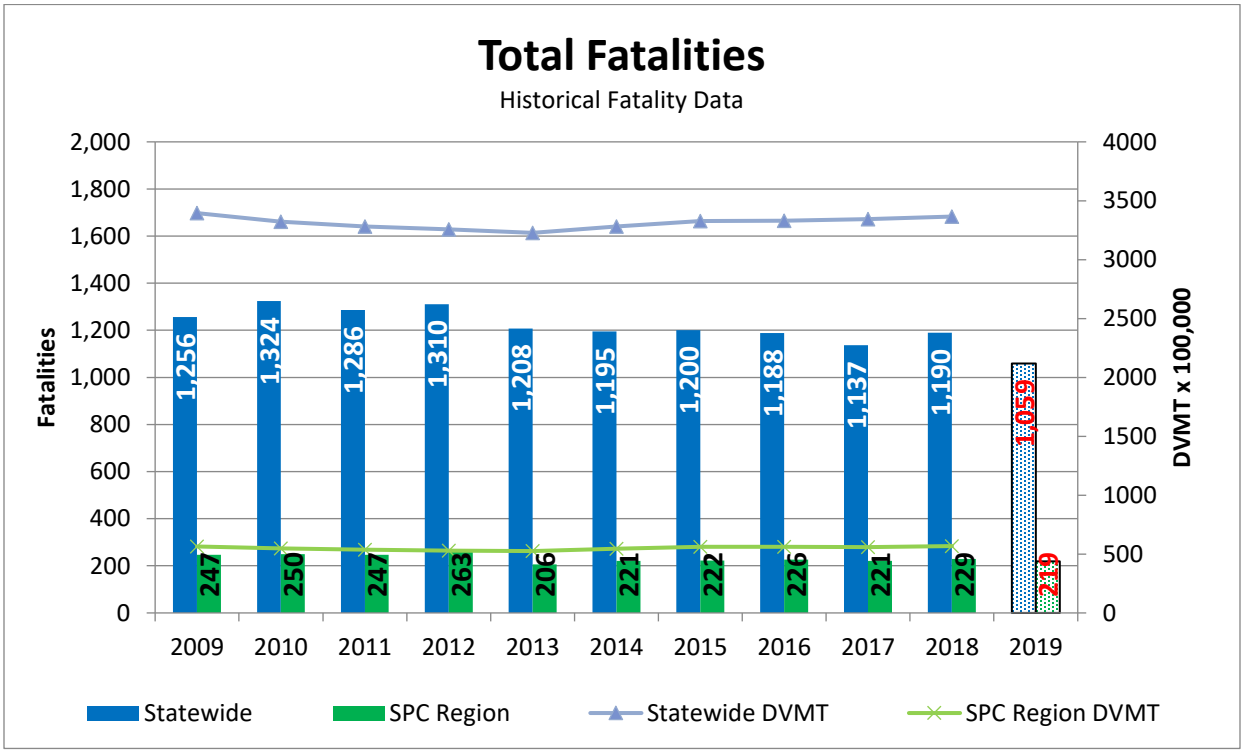
the actual performance was less than the baseline performance. For these measures, it was determined that the actual performance was better than the baseline performance. Lastly, the Number of Non-Motorized Measure was not met and the actual performance was not better than the baseline performance. Therefore, for this example, FHWA would determine that the State DOT has met or made significant progress towards meeting the PY2018 performance targets since four of the five targets were either met or better than the baseline performance.

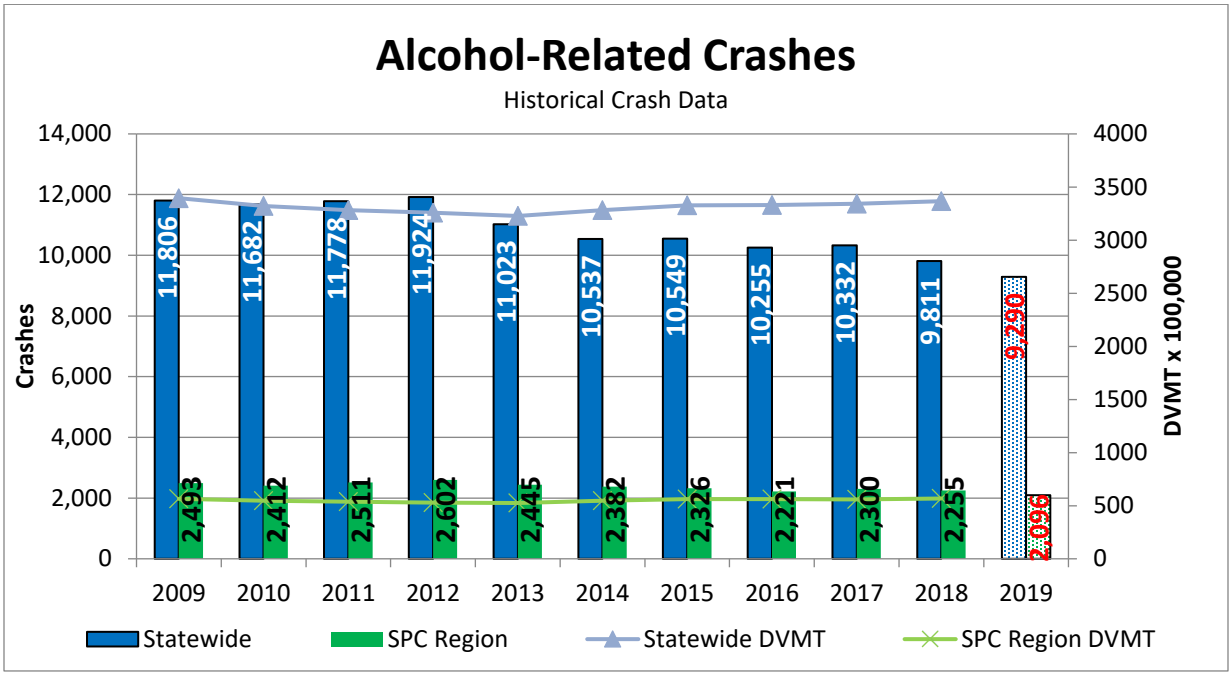
6 Acronyms Table

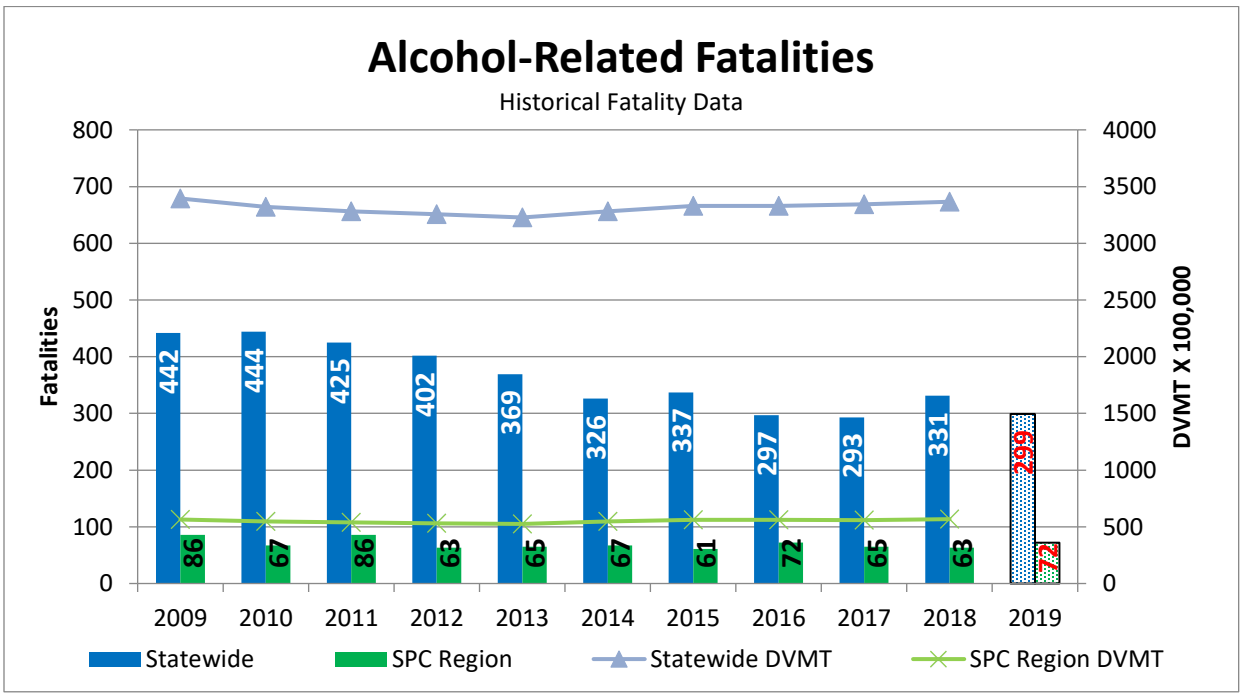
Acronym	Full Form
ANSI	American National Standards Institute
FARS ARF	Fatality Analysis Reporting System Annual Report File
CFR	Code of Federal Regulation
CY	Calendar Year
FARS	Fatality Analysis Reporting System
FHWA	Federal Highway Administration
HPMS	Highway Performance Monitoring System
HSIP	Highway Safety Improvement Program
HSP	Highway Safety Plan
NHTSA	National Highway Traffic Safety Administration
PM	Performance Management
PY	Performance Year
State DOT	State Department of Transportation
TPM	Transportation Performance Management
USC	United States Code
VMT	Vehicle miles traveled

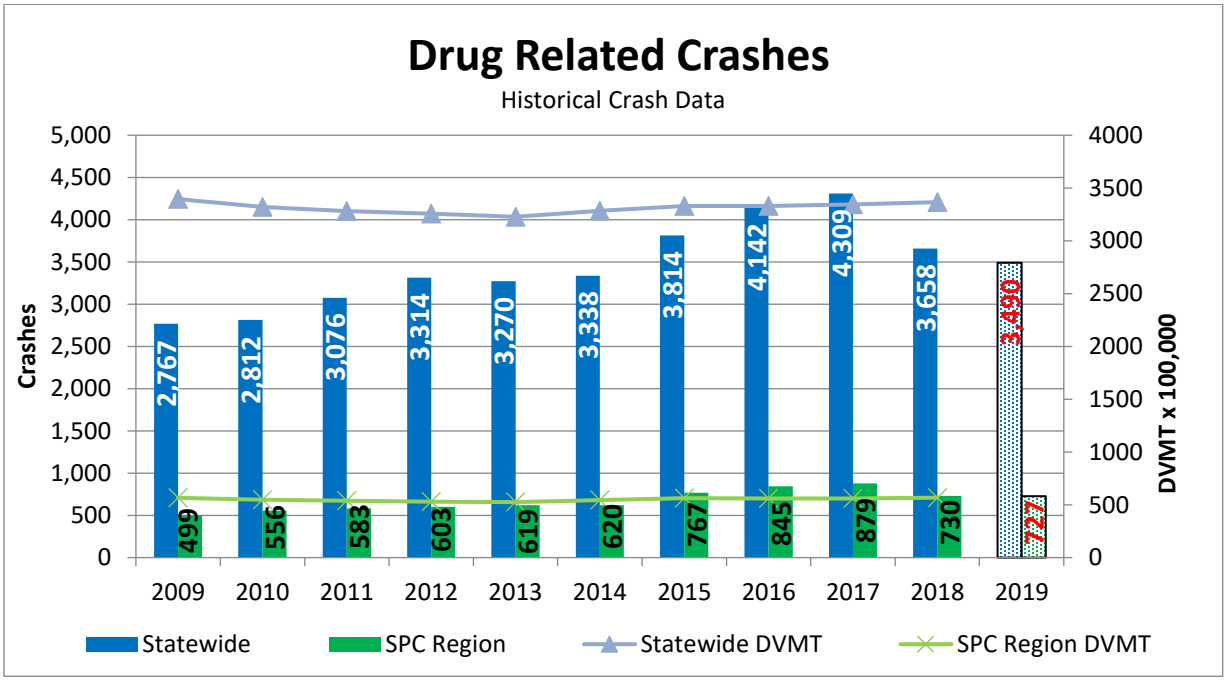
Appendix B – Regional Safety Data (Annual Crashes and Fatalities)

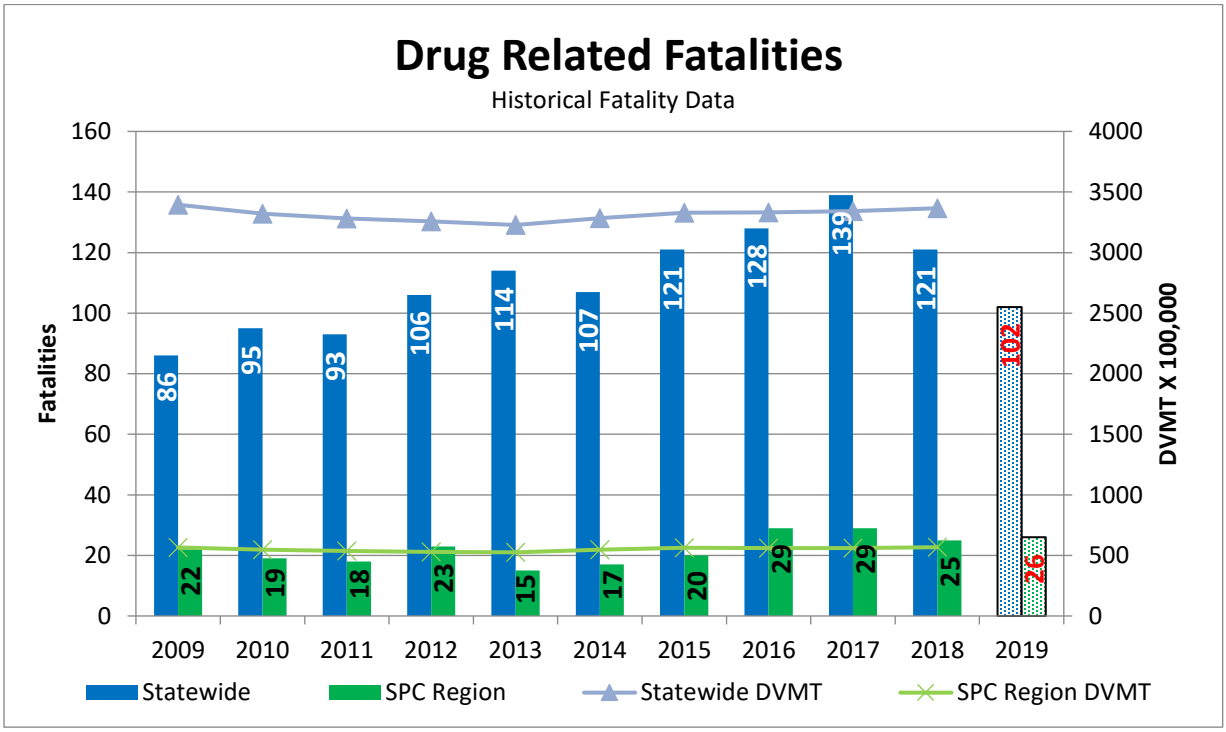

Total Crashes
Historical Crash Data
Crashes
DVMT x 100,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
121,762
121,608
125,322
124,062
124,077
121,309
127,127
129,395
128,188
128,420
125,267
23,701
23,412
24,543
24,675
24,424
24,384
24,917
24,895
24,445
24,715
23,873
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

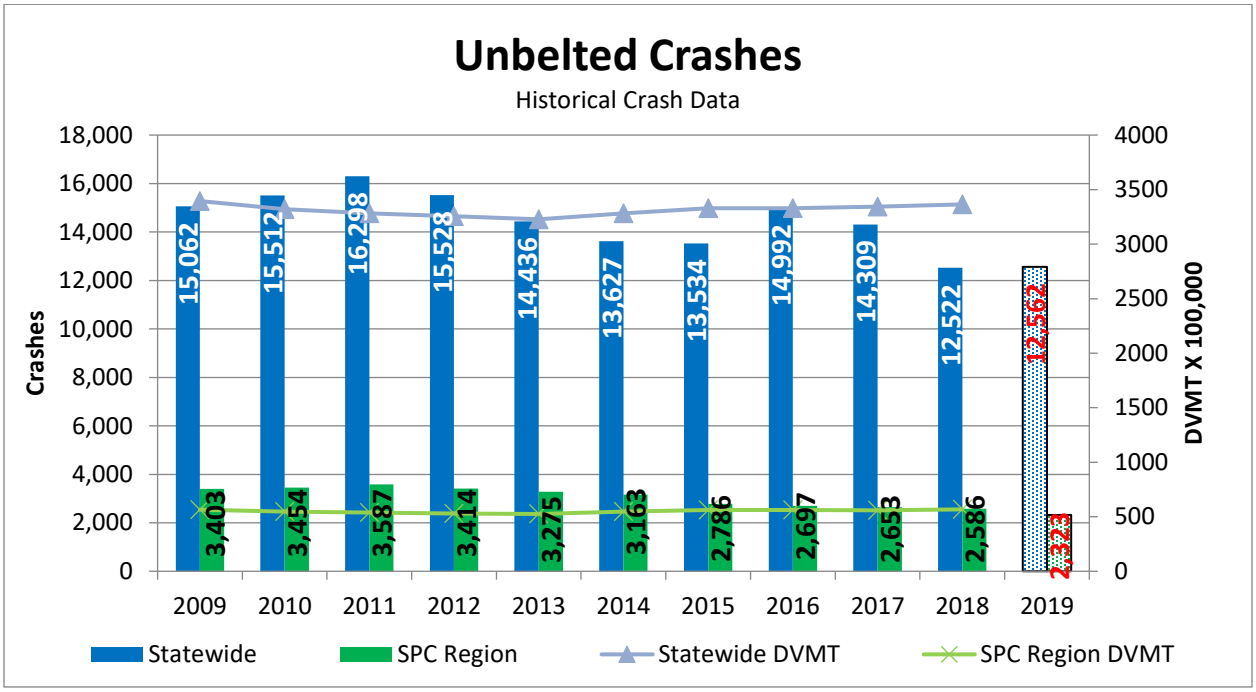

Total Fatalities
Historical Fatality Data
Fatalities
DVMT x 100,000
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
4000
3500
3000
2500
2000
1500
1000
500
0
1,256
1,324
1,286
1,310
1,208
1,195
1,200
1,188
1,137
1,190
1,059
247
250
247
263
206
221
222
226
221
229
219
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

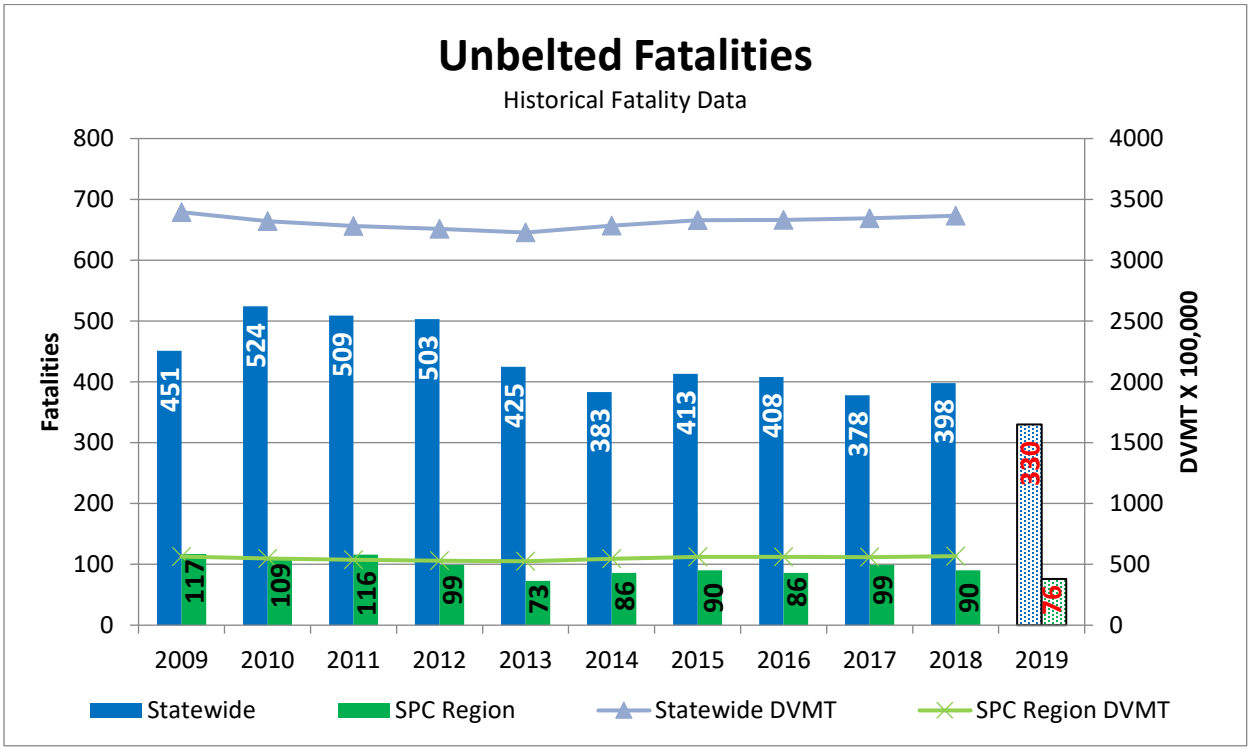

Alcohol-Related Crashes
Historical Crash Data
Crashes
DVMT x 100,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
11,806
11,682
11,778
11,924
11,023
10,537
10,549
10,255
10,332
9,811
9,290
2,493
2,412
2,511
2,602
2,445
2,382
2,326
2,221
2,300
2,255
2,096
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

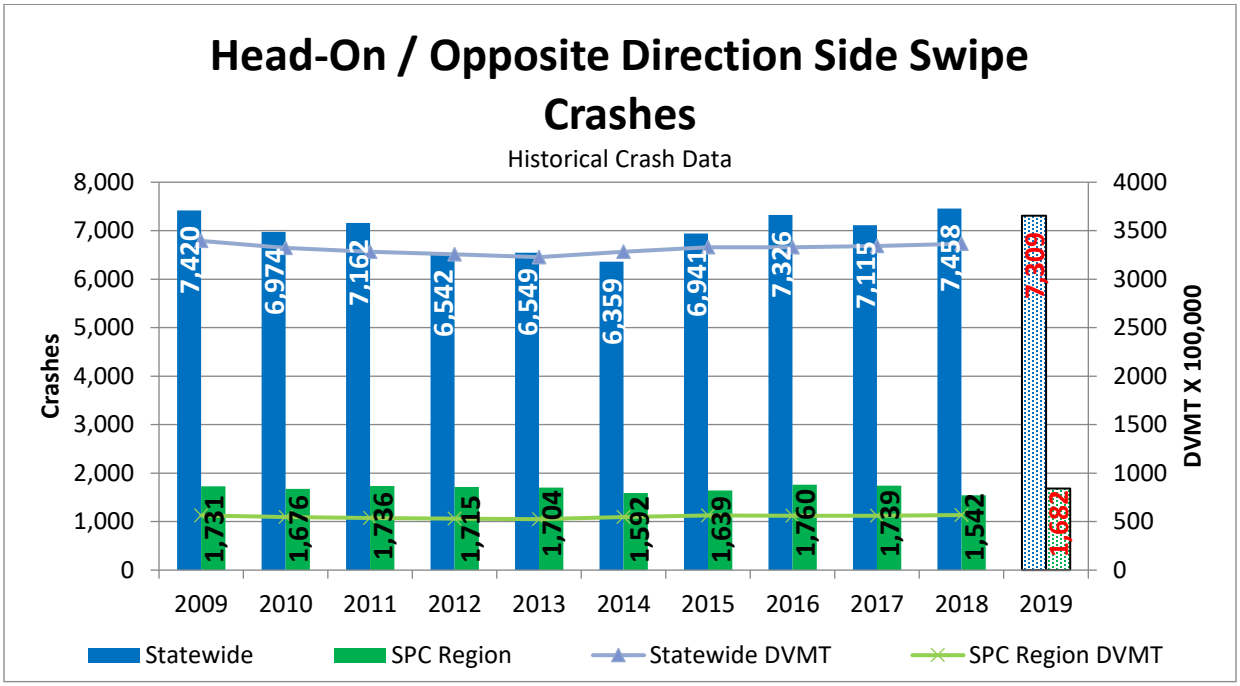

Alcohol-Related Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
800
700
600
500
400
300
200
100
0
4000
3500
3000
2500
2000
1500
1000
500
0
442
444
425
402
369
326
337
297
293
331
299
86
67
86
63
65
67
61
72
65
63
72
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

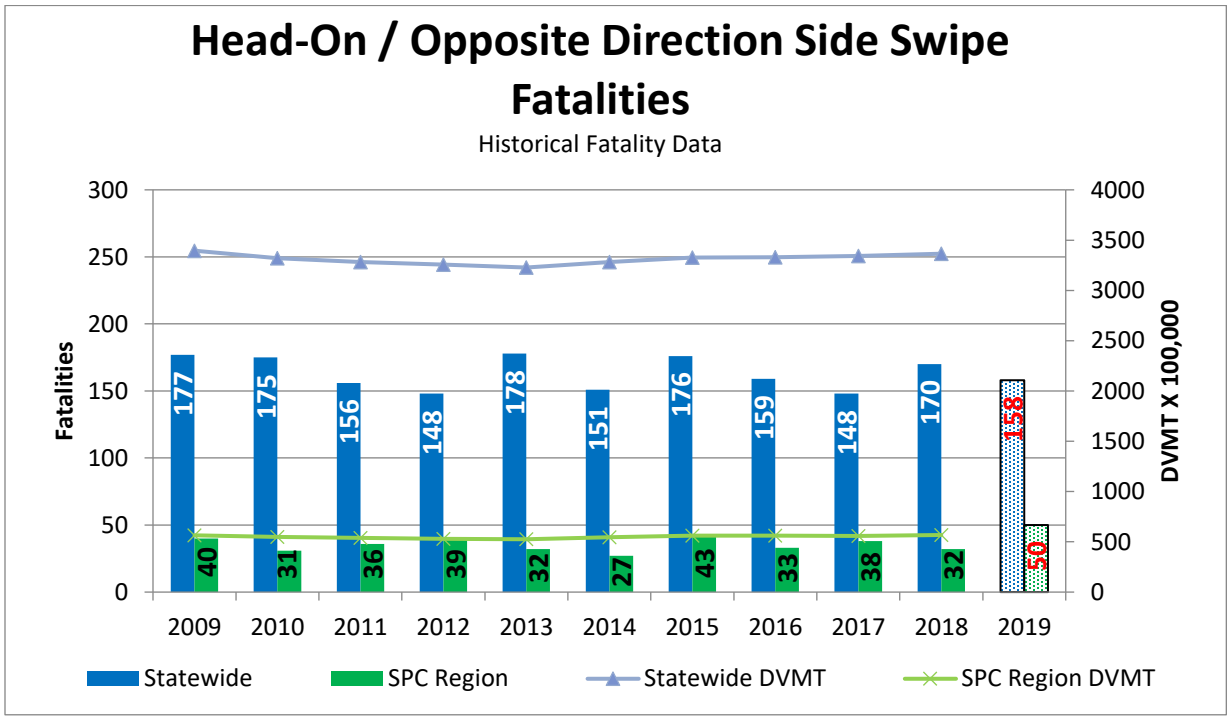

Drug Related Crashes
Historical Crash Data
Crashes
DVMT x 100,000
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
4000
3500
3000
2500
2000
1500
1000
500
0
2,767
2,812
3,076
3,314
3,270
3,338
3,814
4,142
4,309
3,658
3,490
499
556
583
603
619
620
767
845
879
730
727
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

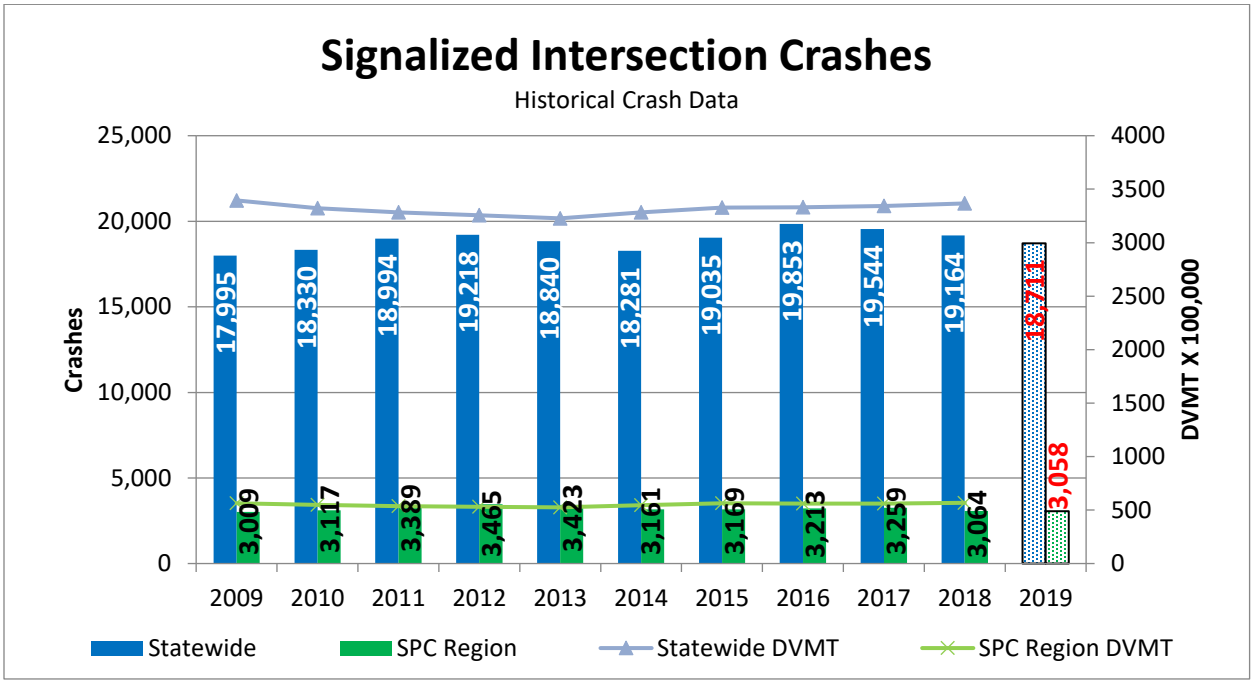

Drug Related Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
160
140
120
100
80
60
40
20
0
4000
3500
3000
2500
2000
1500
1000
500
0
86
95
93
106
114
107
121
128
139
121
102
22
19
18
23
15
17
20
29
29
25
26
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

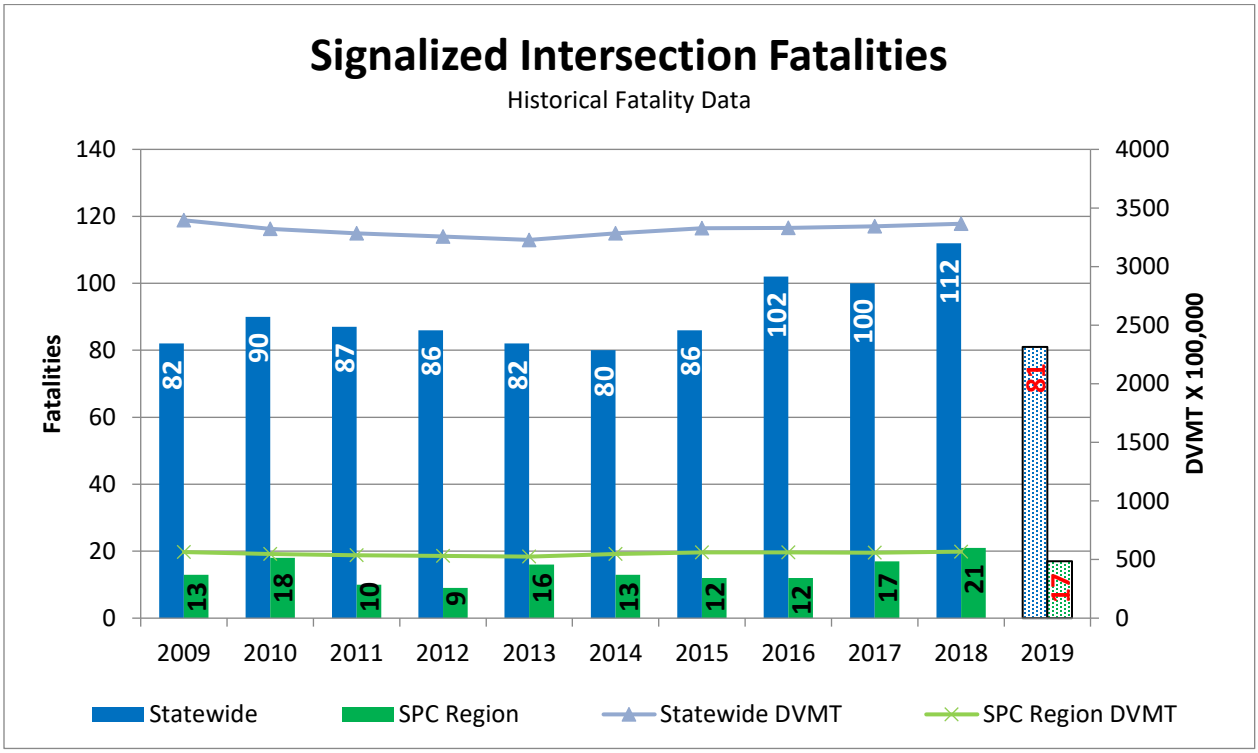

Unbelted Crashes
Historical Crash Data
Crashes
DVMT X 100,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
15,062
15,512
16,298
15,528
14,436
13,627
13,534
14,992
14,309
12,522
12,562
3,403
3,454
3,587
3,414
3,275
3,163
2,786
2,697
2,653
2,586
2,333
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

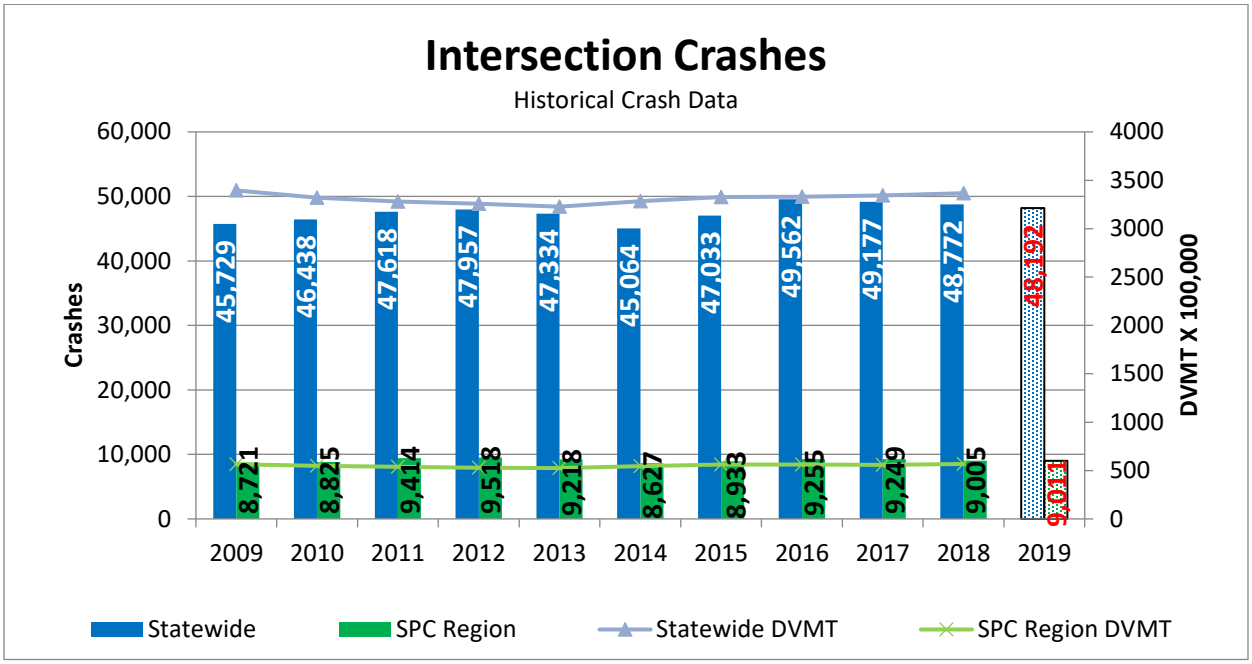

Unbelted Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
800
700
600
500
400
300
200
100
0
4000
3500
3000
2500
2000
1500
1000
500
0
451
524
509
503
425
383
413
408
378
398
330
117
109
116
99
73
86
90
86
99
90
76
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

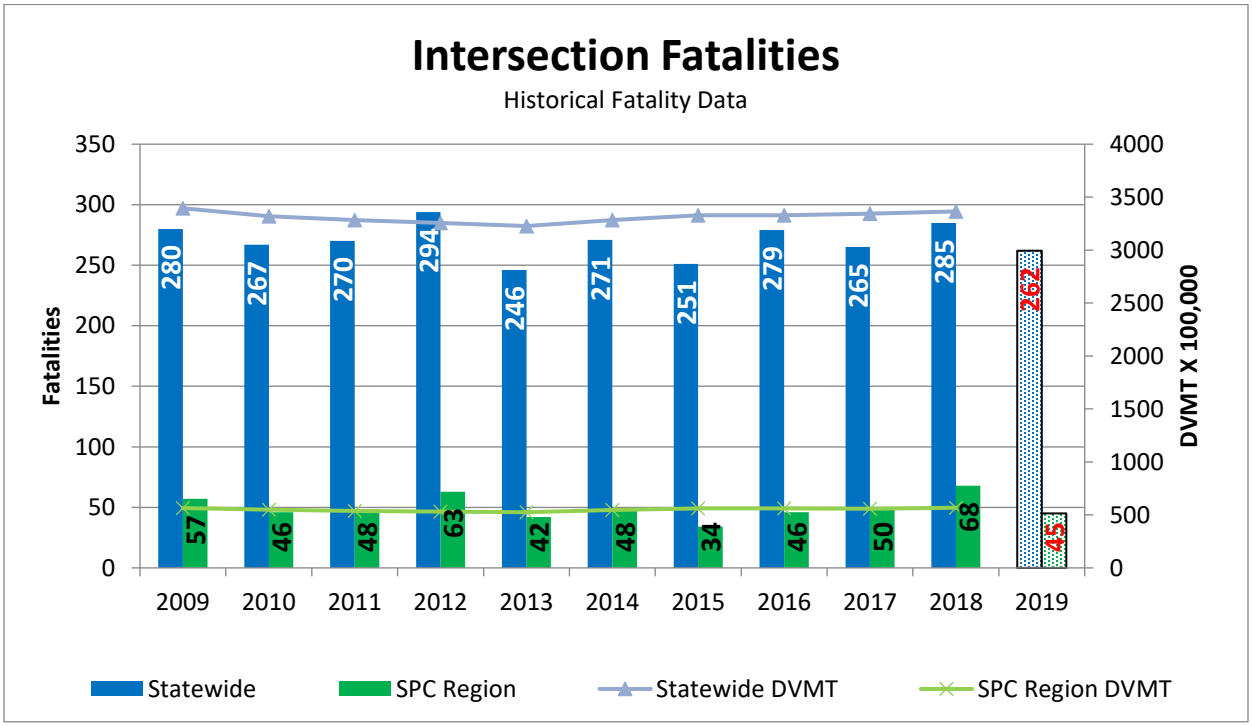

Head-On / Opposite Direction Side Swipe Crashes
Historical Crash Data
Crashes
DVMT X 100,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
7,420
6,974
7,162
6,542
6,549
6,359
6,941
7,326
7,115
7,458
7,309
1,731
1,676
1,736
1,715
1,704
1,592
1,639
1,760
1,739
1,542
1,682
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

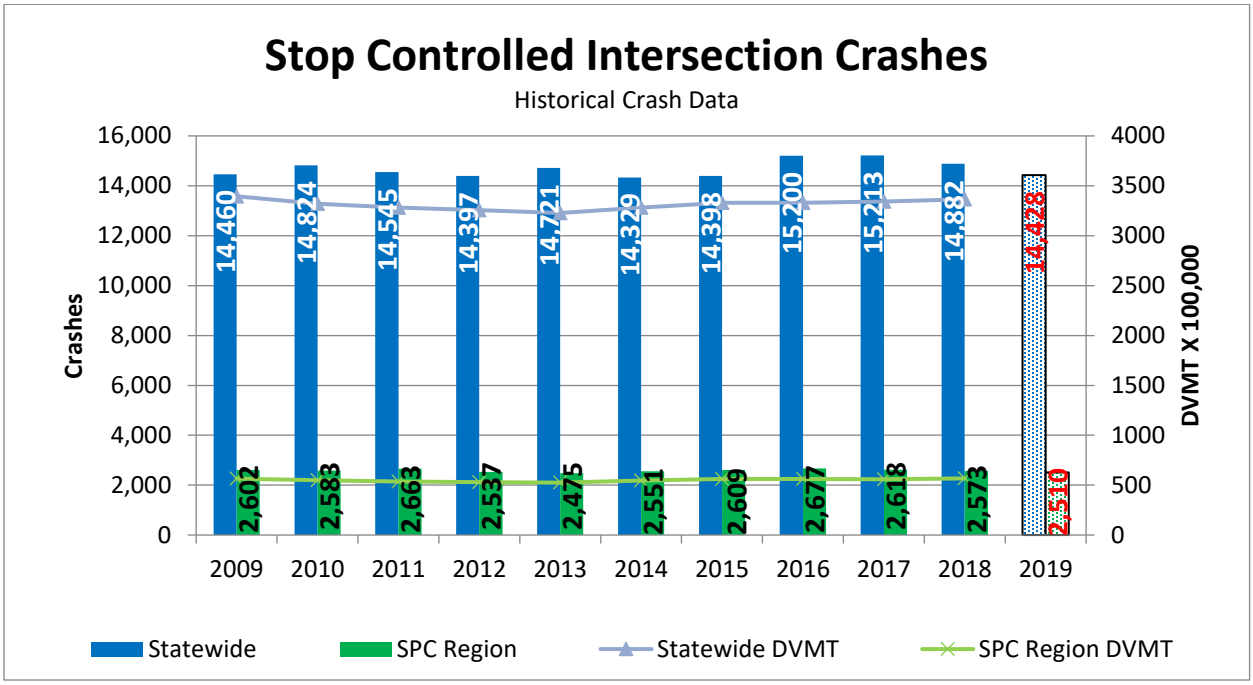

Head-On / Opposite Direction Side Swipe Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
300
250
200
150
100
50
0
4000
3500
3000
2500
2000
1500
1000
500
0
177
175
156
148
178
151
176
159
148
170
153
40
31
36
39
32
27
43
33
38
32
50
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

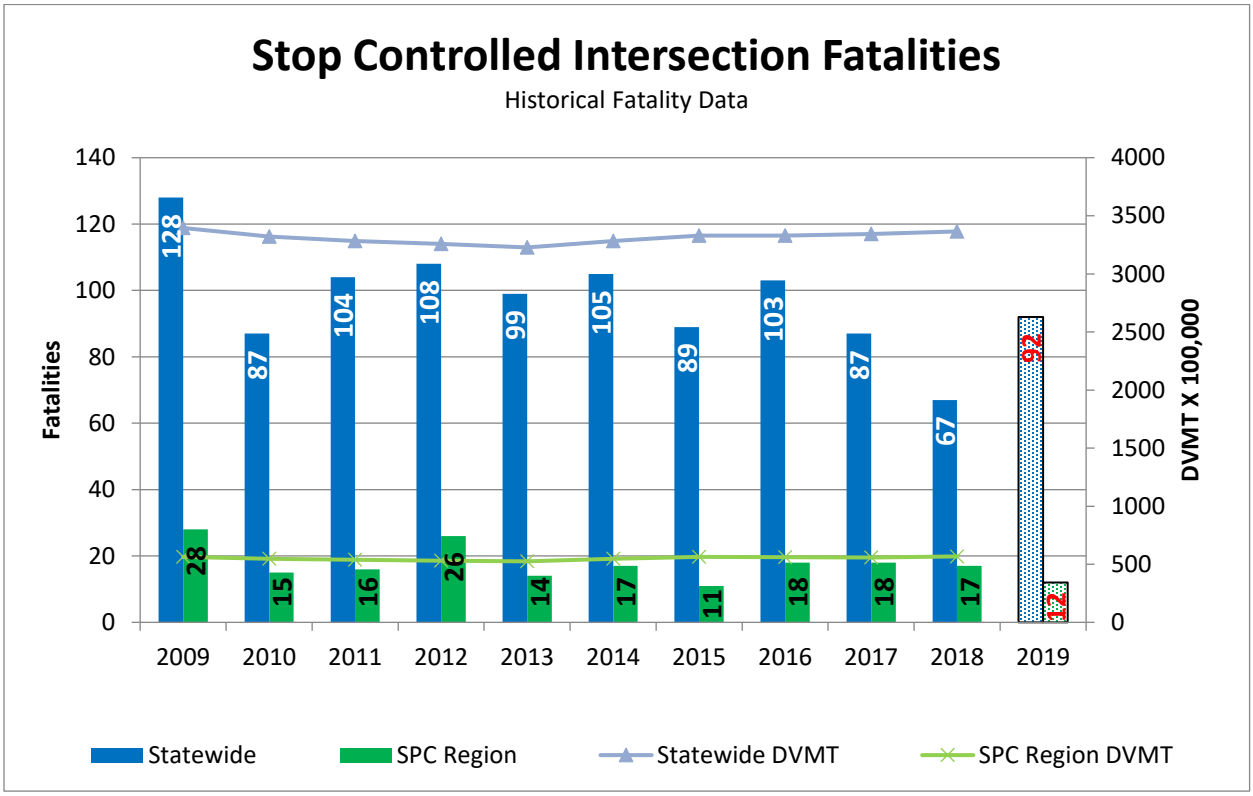

Signalized Intersection Crashes
Historical Crash Data
Crashes
DVMT X 100,000
25,000
20,000
15,000
10,000
5,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
17,995
18,330
18,994
19,218
18,840
18,281
19,035
19,853
19,544
19,164
18,711
3,009
3,117
3,389
3,465
3,423
3,161
3,169
3,213
3,259
3,064
3,058
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

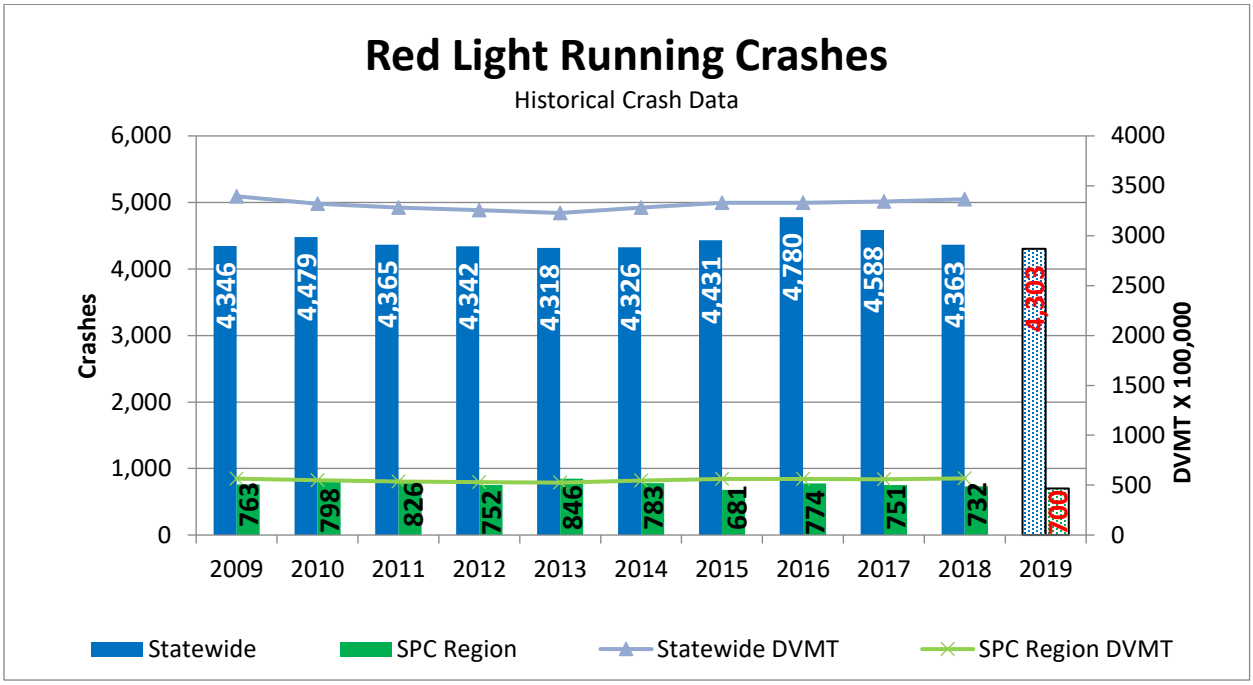

Signalized Intersection Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
140
120
100
80
60
40
20
0
4000
3500
3000
2500
2000
1500
1000
500
0
82
90
87
86
82
80
86
102
100
112
81
13
18
10
9
16
13
12
12
17
21
17
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

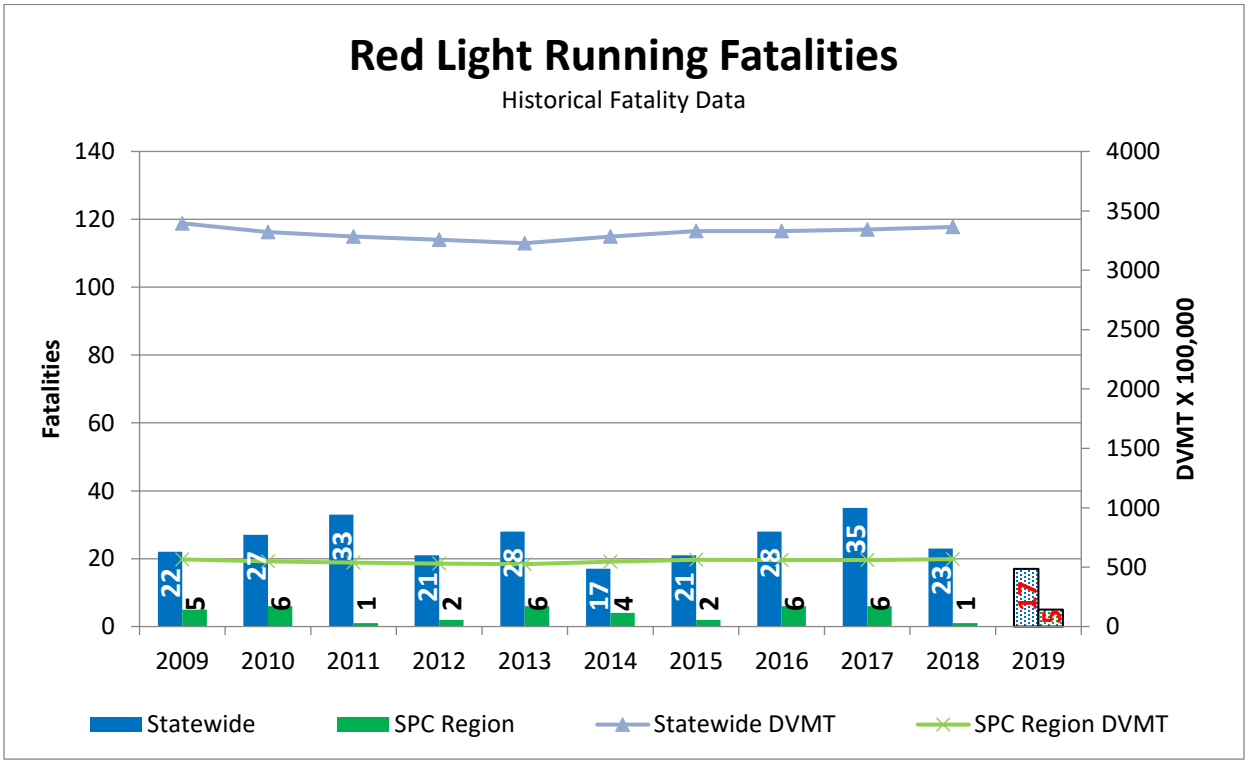

Intersection Crashes
Historical Crash Data
Crashes
DVMT X 100,000
60,000
50,000
40,000
30,000
20,000
10,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
45,729
46,438
47,618
47,957
47,334
45,064
47,033
49,562
49,177
48,772
48,192
8,721
8,825
9,414
9,518
9,218
8,627
8,933
9,255
9,249
9,005
9,011
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

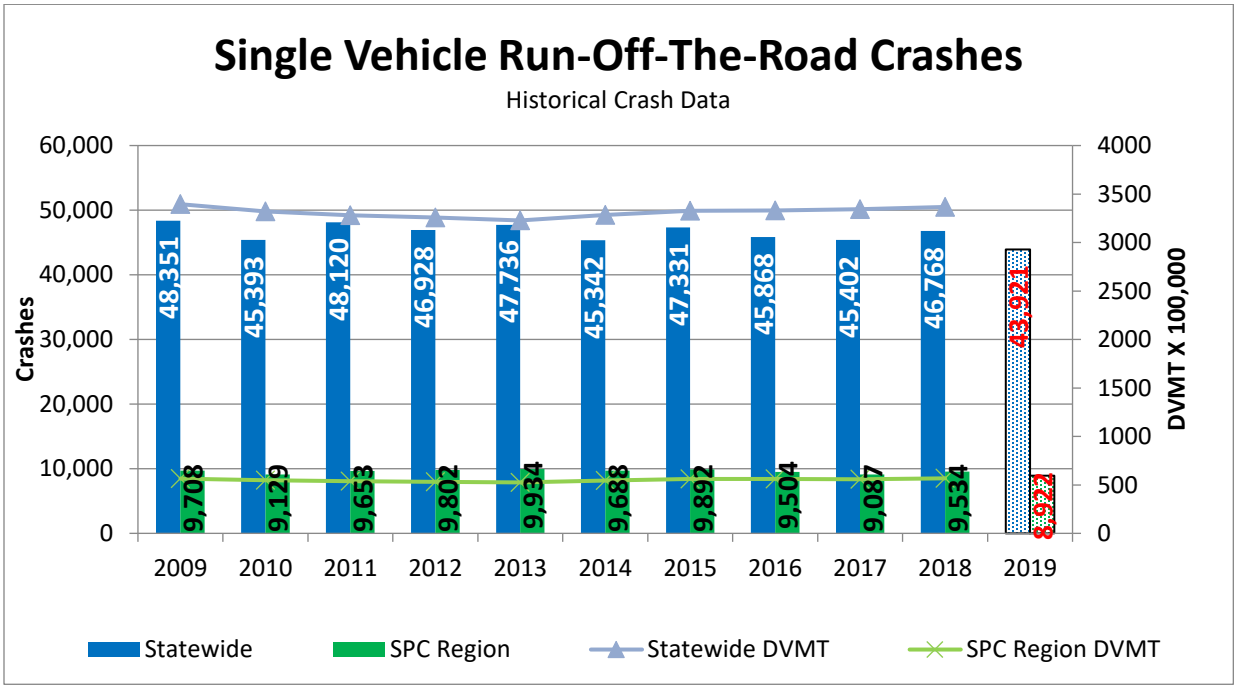

Intersection Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
350
300
250
200
150
100
50
0
4000
3500
3000
2500
2000
1500
1000
500
0
280
267
270
294
246
271
251
279
265
285
262
57
46
48
63
42
48
34
46
50
68
45
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

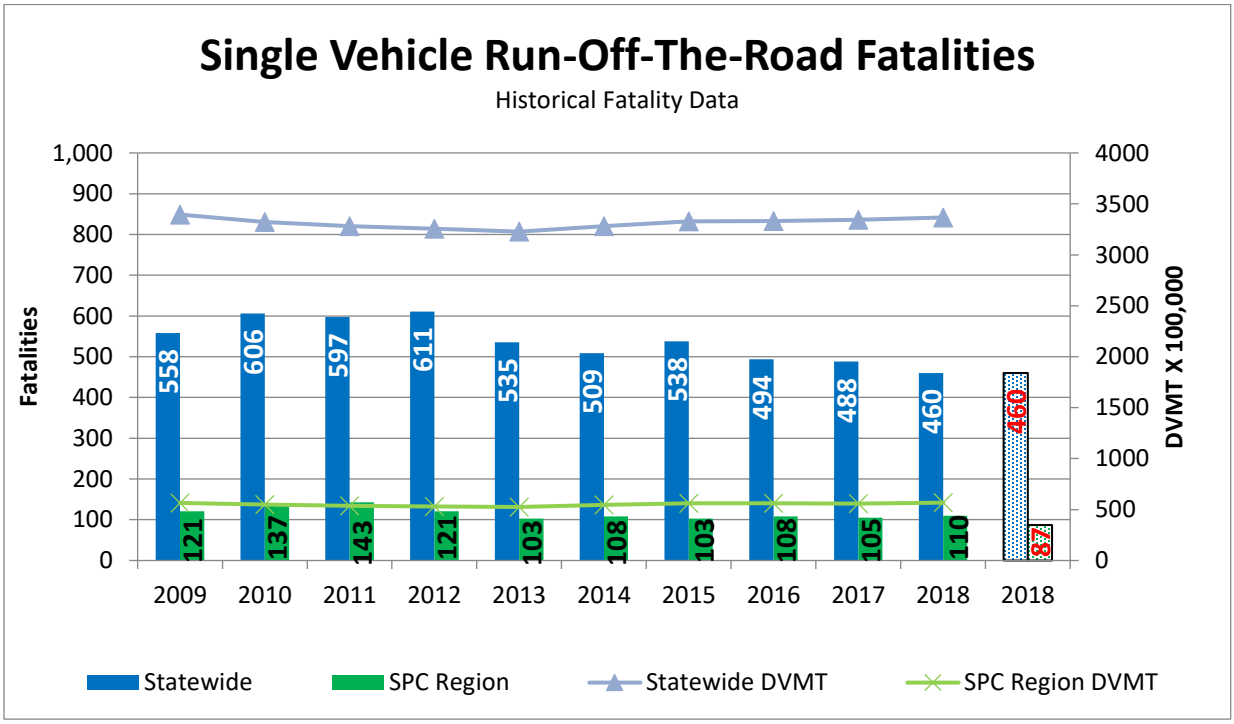

Stop Controlled Intersection Crashes
Historical Crash Data
Crashes
DVMT X 100,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
14,460
14,824
14,545
14,397
14,721
14,329
14,398
15,200
15,213
14,882
14,428
2,602
2,583
2,663
2,537
2,475
2,551
2,609
2,677
2,618
2,573
2,510
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

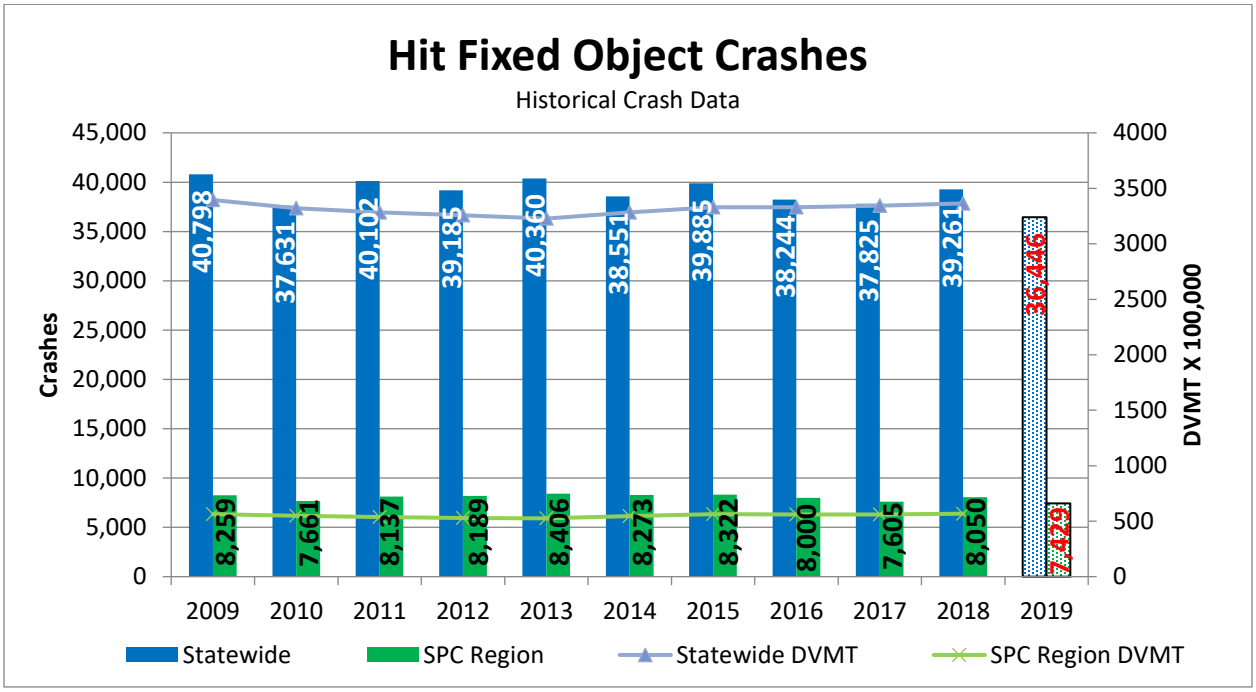

Stop Controlled Intersection Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
140
120
100
80
60
40
20
0
4000
3500
3000
2500
2000
1500
1000
500
0
128
87
104
108
99
105
89
103
87
67
92
28
15
16
26
14
17
11
18
18
17
12
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

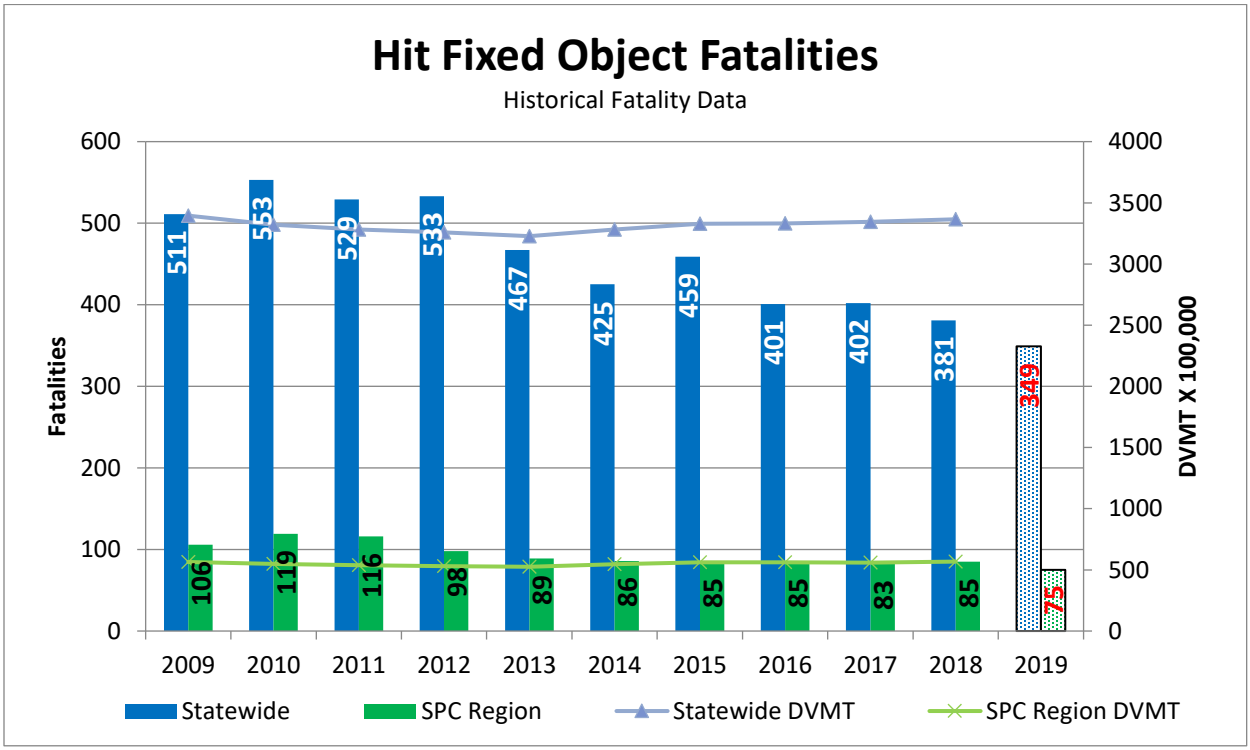

Red Light Running Crashes
Historical Crash Data
Crashes
DVMT X 100,000
6,000
5,000
4,000
3,000
2,000
1,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
4,346 4,479 4,365 4,342 4,318 4,326 4,431 4,780 4,588 4,363 4,303
763 798 826 752 846 783 681 774 751 732 700
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

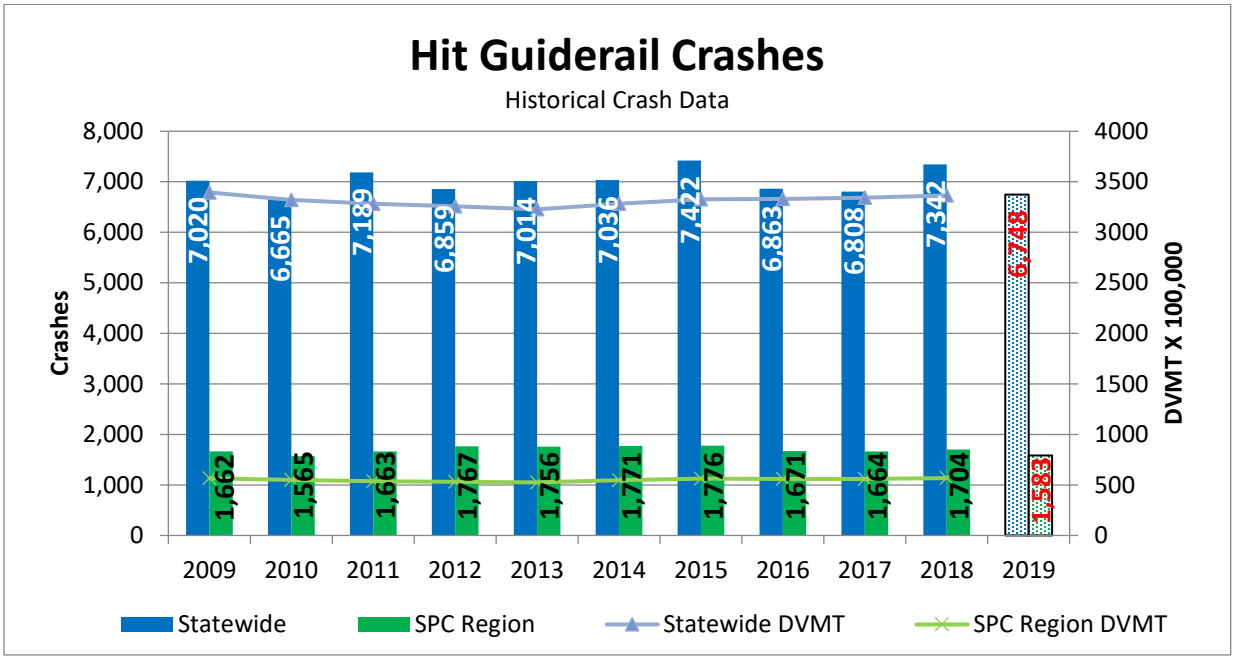

Red Light Running Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
140
120
100
80
60
40
20
0
4000
3500
3000
2500
2000
1500
1000
500
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
22 27 33 21 28 17 21 28 35 23 17
5 6 1 2 6 4 2 6 6 1 5
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

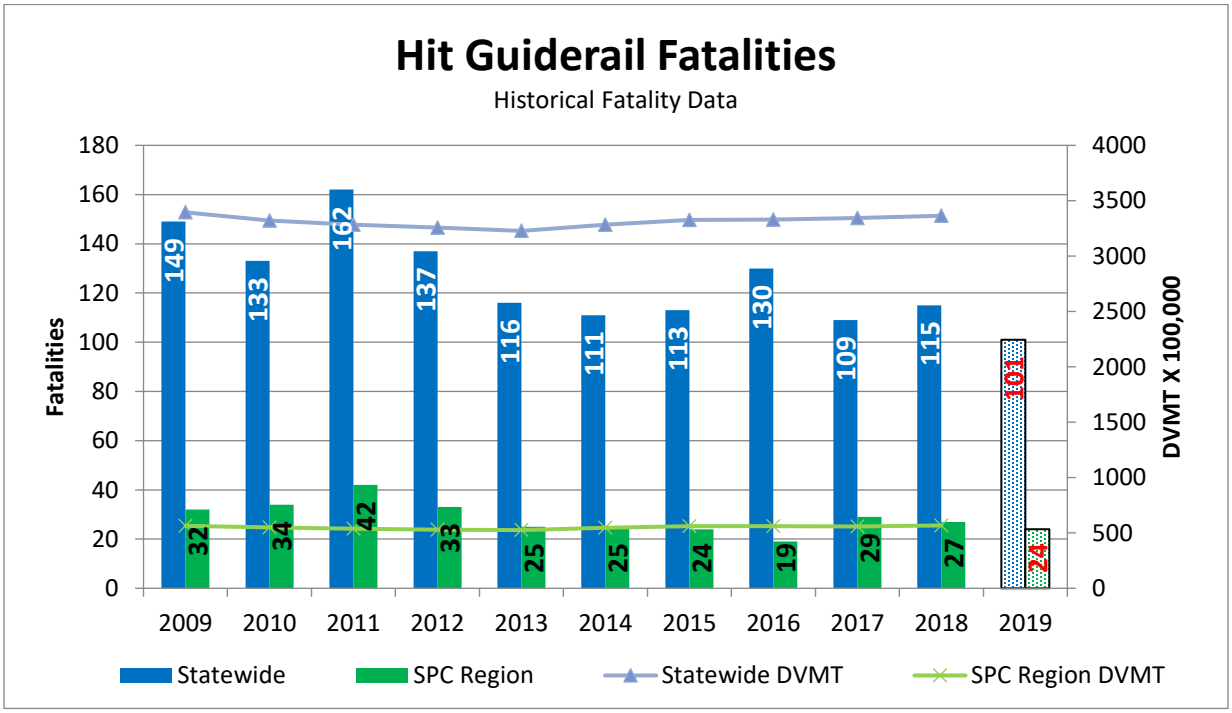

Single Vehicle Run-Off-The-Road Crashes
Historical Crash Data
Crashes
DVMT X 100,000
60,000
50,000
40,000
30,000
20,000
10,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
48,351
45,393
48,120
46,928
47,736
45,342
47,331
45,868
45,402
46,768
43,921
9,708
9,129
9,653
9,802
9,934
9,688
9,892
9,504
9,087
9,534
8,922
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

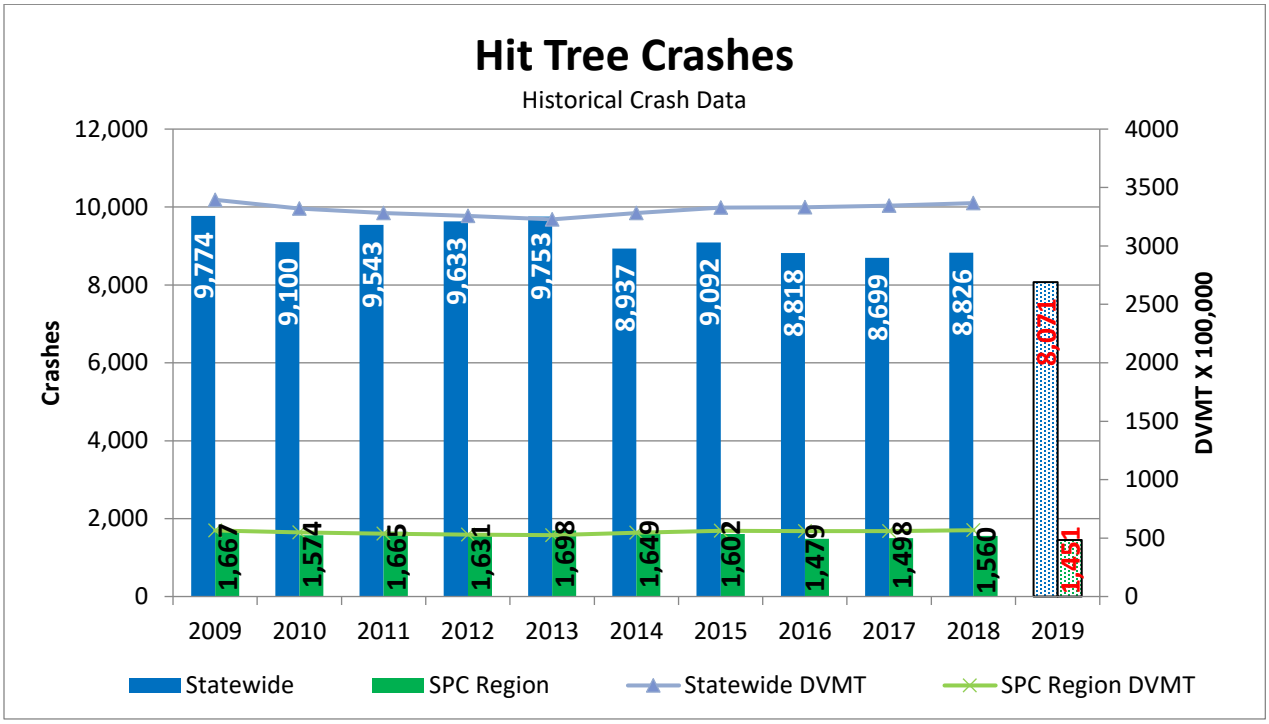

Single Vehicle Run-Off-The-Road Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
1,000
900
800
700
600
500
400
300
200
100
0
4000
3500
3000
2500
2000
1500
1000
500
0
558
606
597
611
535
509
538
494
488
460
460
121
137
143
121
103
108
103
108
105
110
87
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2018
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

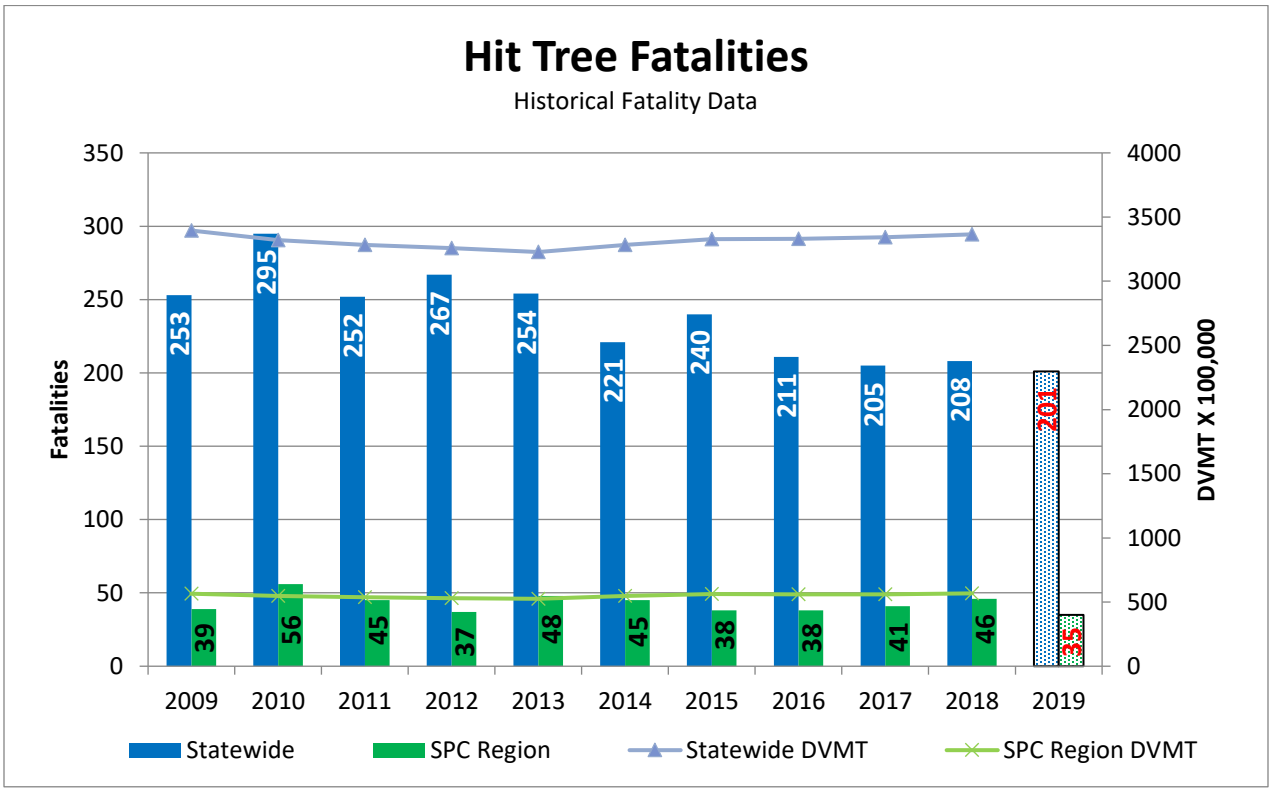

Hit Fixed Object Crashes
Historical Crash Data
Crashes
DVMT X 100,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
40,798
37,631
40,102
39,185
40,360
38,551
39,885
38,244
37,825
39,261
36,446
8,259
7,661
8,137
8,189
8,406
8,273
8,322
8,000
7,605
8,050
7,429
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

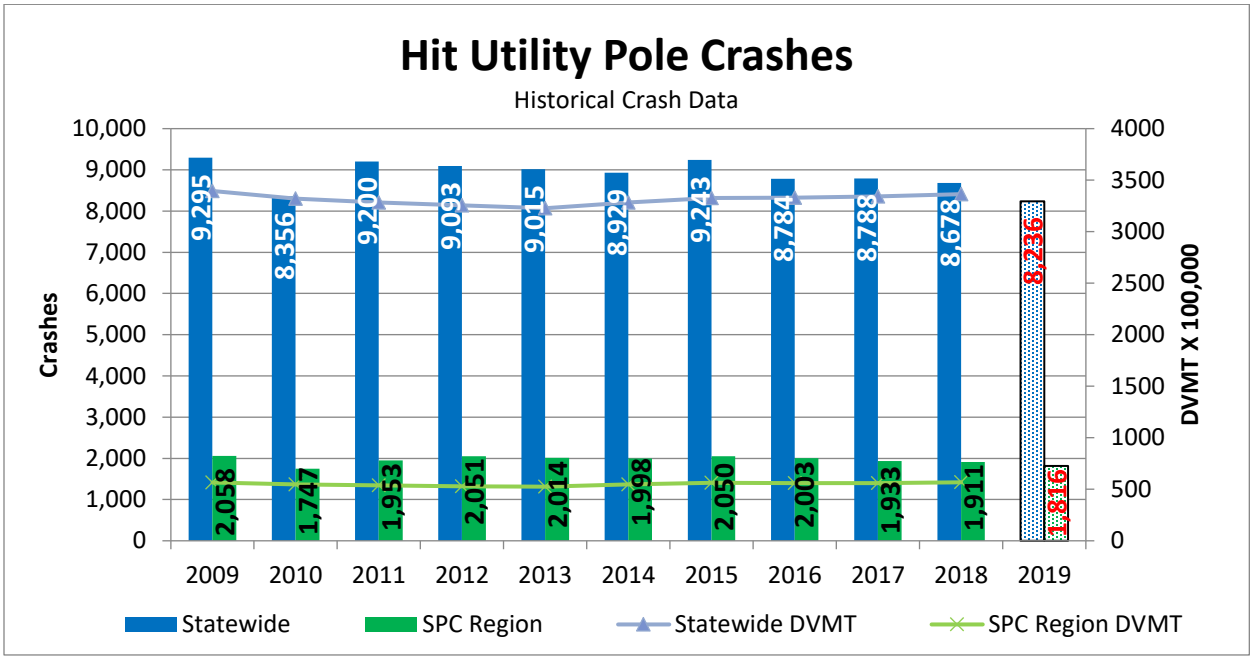

Hit Fixed Object Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
600
500
400
300
200
100
0
4000
3500
3000
2500
2000
1500
1000
500
0
511
553
529
533
467
425
459
401
402
381
349
106
119
116
98
89
86
85
85
83
85
75
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

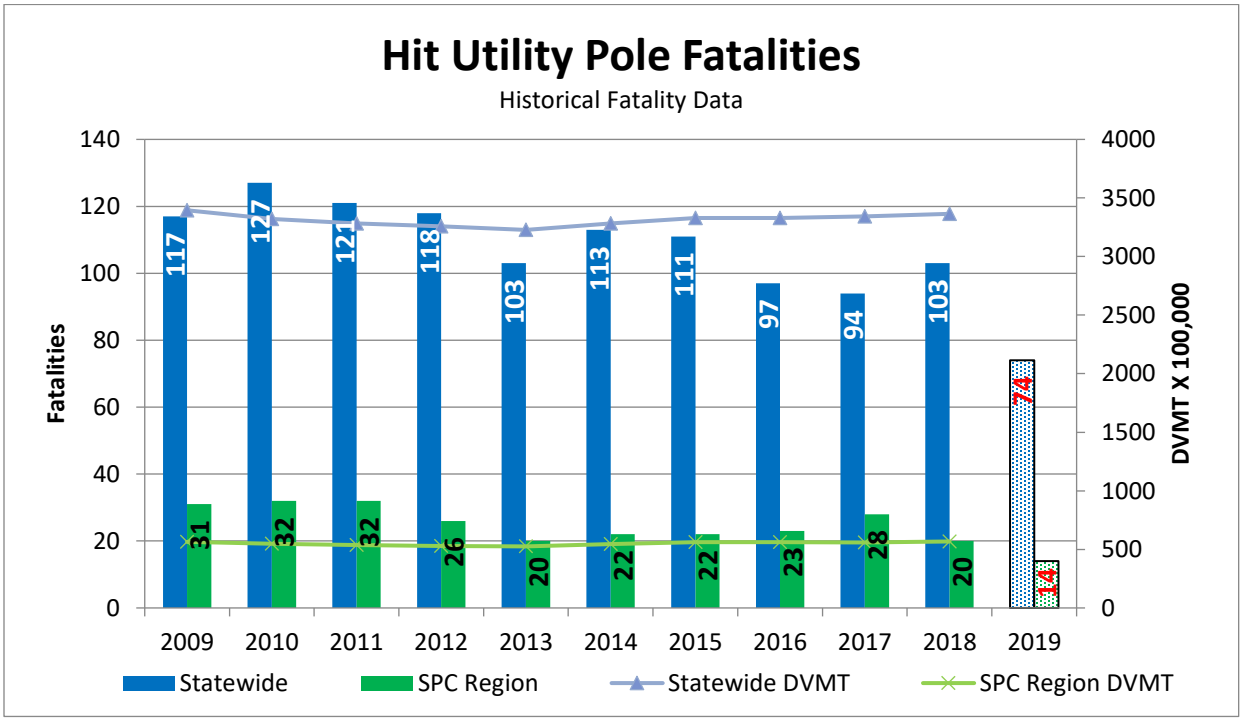

Hit Guiderail Crashes
Historical Crash Data
Crashes
DVMT X 100,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
7,020
6,665
7,189
6,859
7,014
7,036
7,422
6,863
6,808
7,342
6,748
1,662
1,565
1,663
1,767
1,756
1,771
1,776
1,671
1,664
1,704
1,583
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

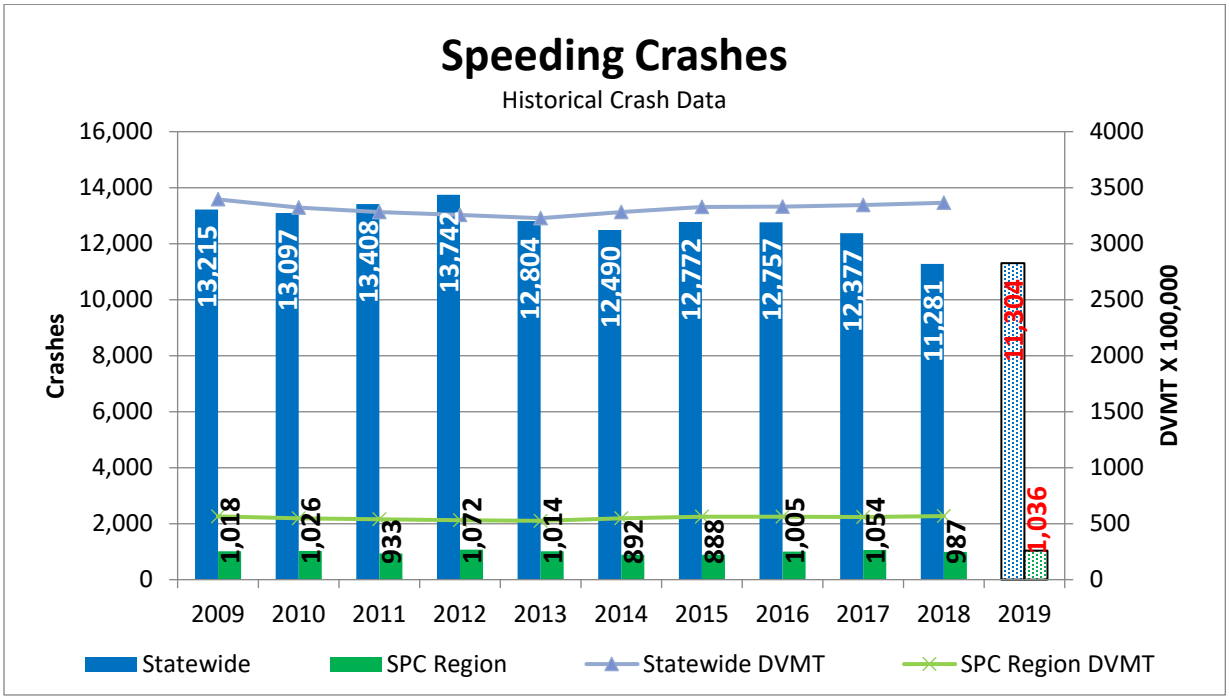

Hit Guiderail Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
180
160
140
120
100
80
60
40
20
0
4000
3500
3000
2500
2000
1500
1000
500
0
149
133
162
137
116
111
113
130
109
115
101
32
34
42
33
25
25
24
19
29
27
24
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

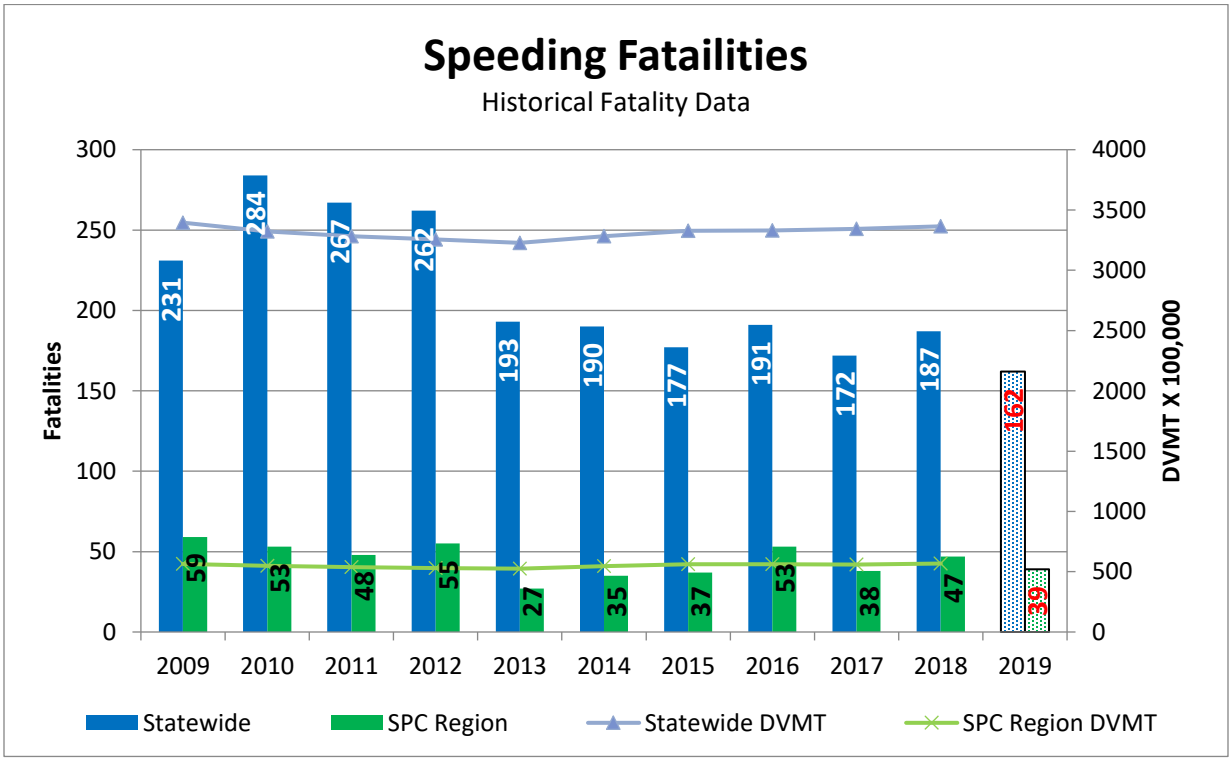

Hit Tree Crashes
Historical Crash Data
Crashes
DVMT X 100,000
12,000
10,000
8,000
6,000
4,000
2,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
9,774
9,100
9,543
9,633
9,753
8,937
9,092
8,818
8,699
8,826
8,071
1,667
1,574
1,665
1,631
1,698
1,649
1,602
1,479
1,498
1,560
1,451
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

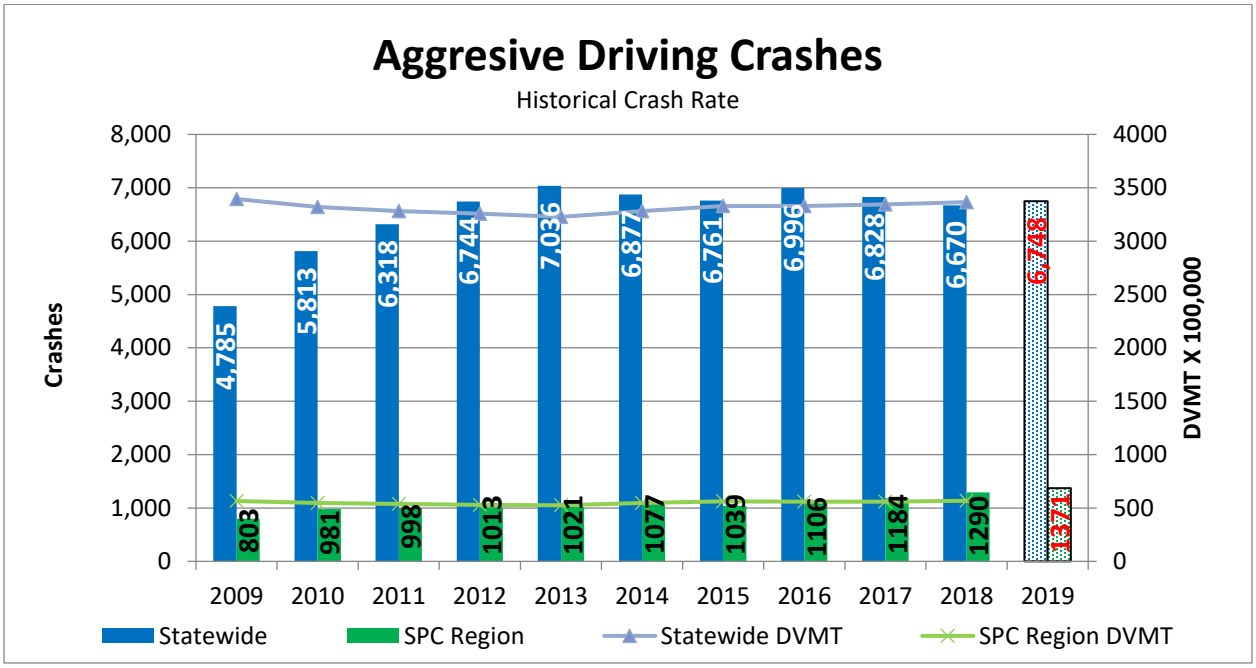

Hit Tree Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
350
300
250
200
150
100
50
0
4000
3500
3000
2500
2000
1500
1000
500
0
253
295
252
267
254
221
240
211
205
208
201
39
56
45
37
48
45
38
38
41
46
35
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

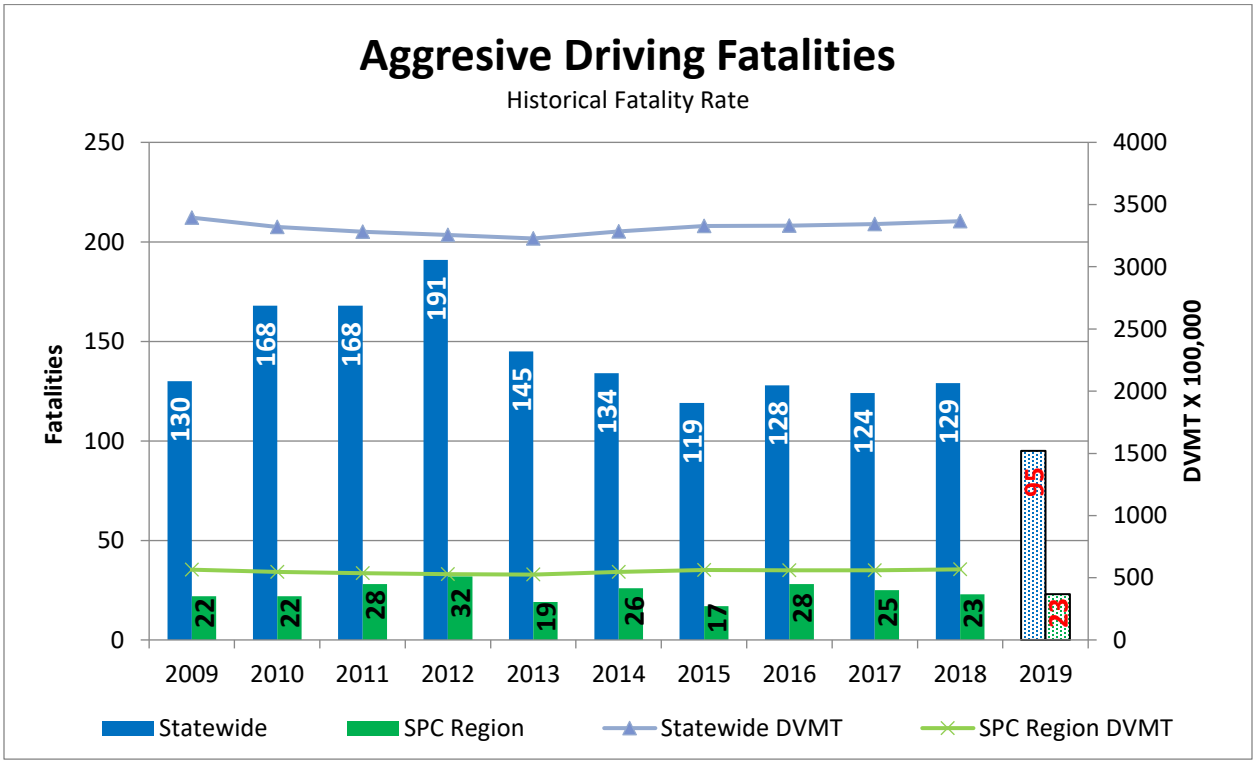

Hit Utility Pole Crashes
Historical Crash Data
Crashes
DVMT X 100,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
9,295
8,356
9,200
9,093
9,015
8,929
9,243
8,784
8,788
8,678
8,236
2,058
1,747
1,953
2,051
2,014
1,998
2,050
2,003
1,933
1,911
1,816
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

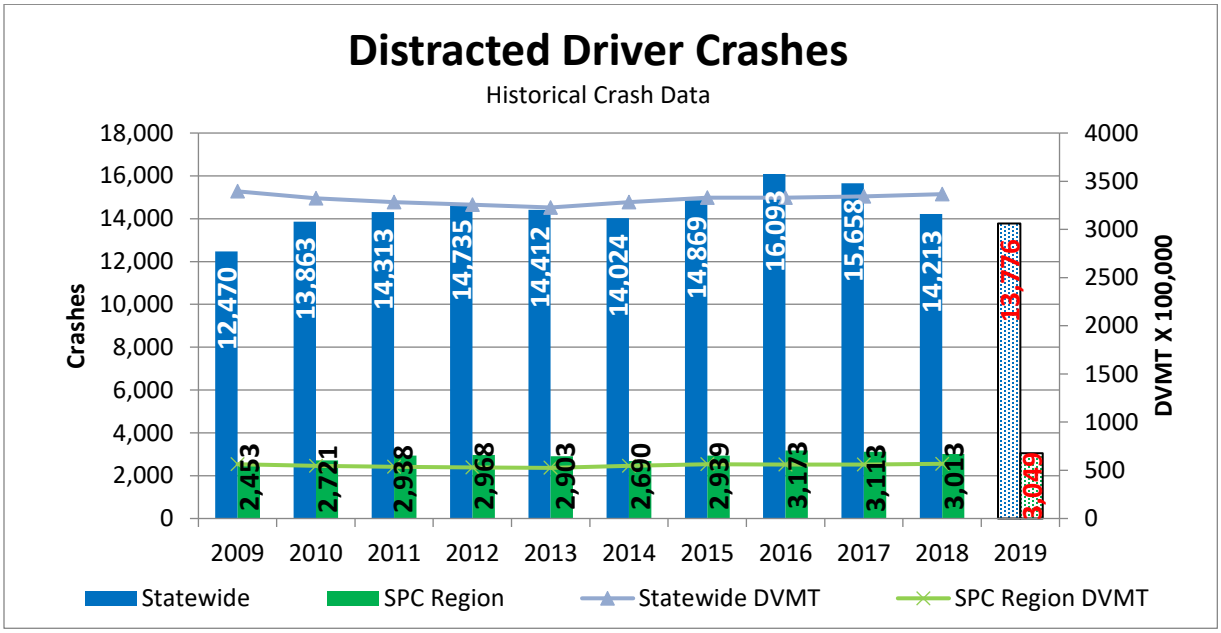

Hit Utility Pole Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
140
120
100
80
60
40
20
0
4000
3500
3000
2500
2000
1500
1000
500
0
117
127
121
118
103
113
111
97
94
103
74
31
32
32
26
20
22
22
23
28
20
14
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

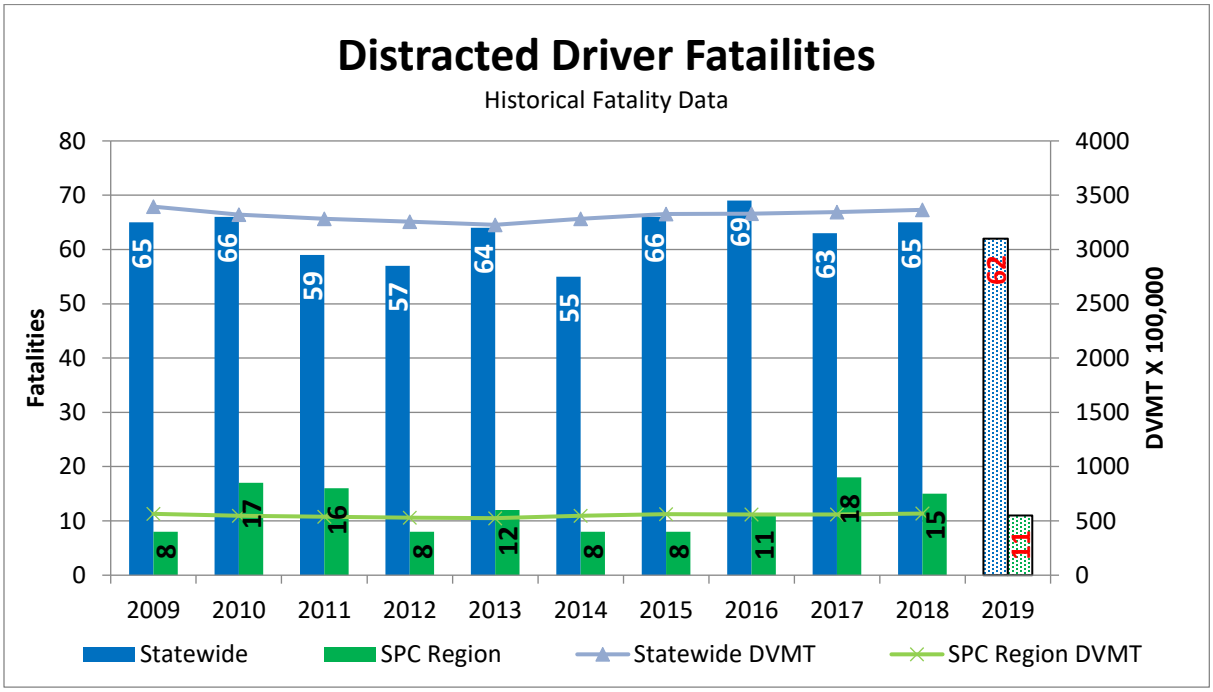

Speeding Crashes
Historical Crash Data
Crashes
DVMT X 100,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
13,215
13,097
13,408
13,742
12,804
12,490
12,772
12,757
12,377
11,281
11,304
1,018
1,026
933
1,072
1,014
892
888
1,005
1,054
987
1,036
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

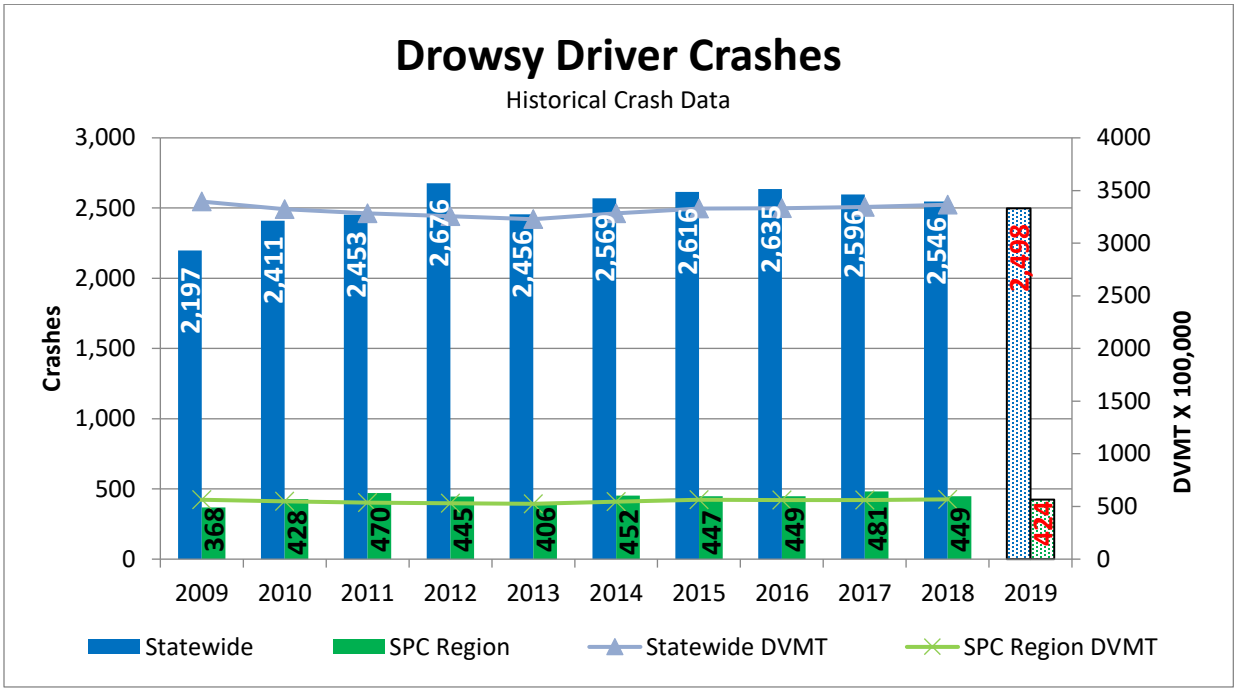

Speeding Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
300
250
200
150
100
50
0
4000
3500
3000
2500
2000
1500
1000
500
0
231
284
267
262
193
190
177
191
172
187
162
59
53
48
55
27
35
37
53
38
47
39
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

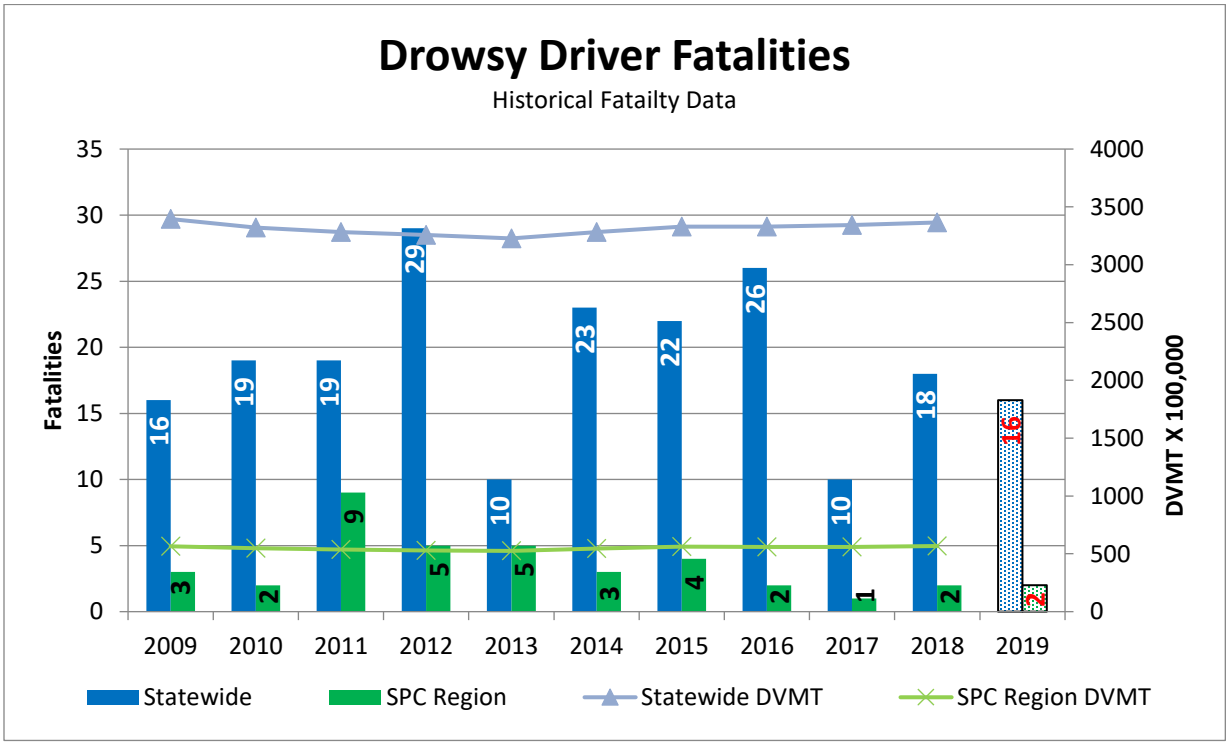

Aggresive Driving Crashes
Historical Crash Rate
Crashes
DVMT X 100,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
4,785
5,813
6,318
6,744
7,036
6,877
6,761
6,996
6,828
6,670
6,748
803
981
998
1013
1021
1077
1039
1106
1184
1290
1371
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

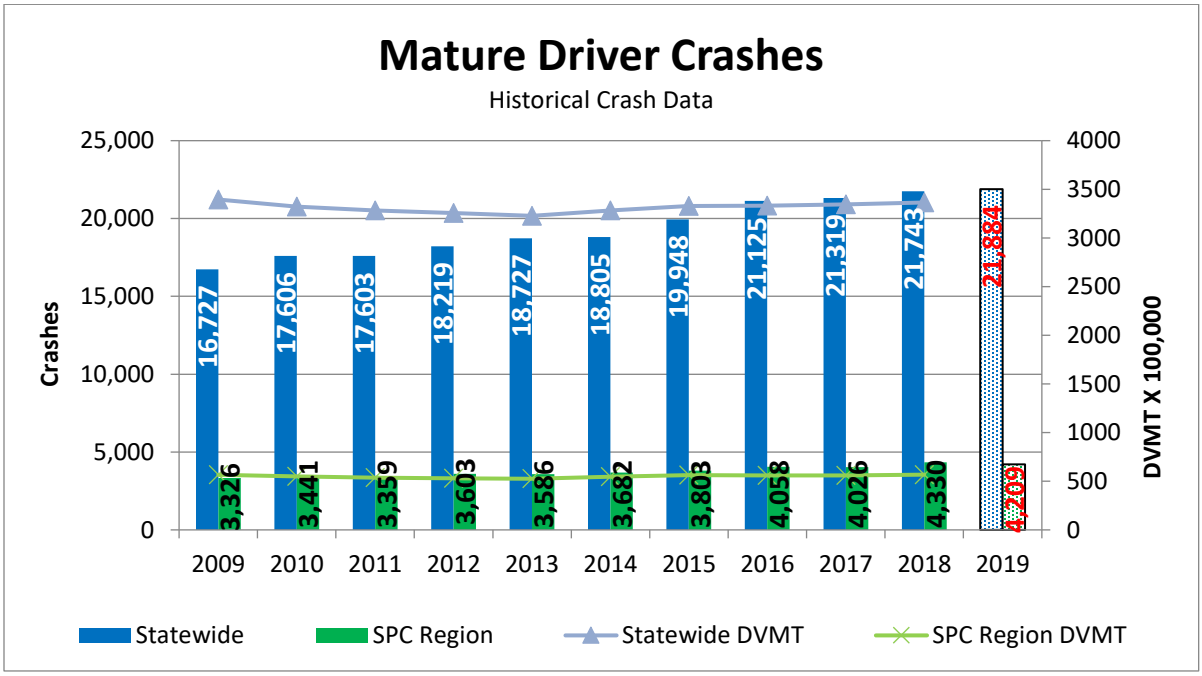

Aggresive Driving Fatalities
Historical Fatality Rate
Fatalities
DVMT X 100,000
250
200
150
100
50
0
4000
3500
3000
2500
2000
1500
1000
500
0
130
168
168
191
145
134
119
128
124
129
95
22
22
28
32
19
26
17
28
25
23
23
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

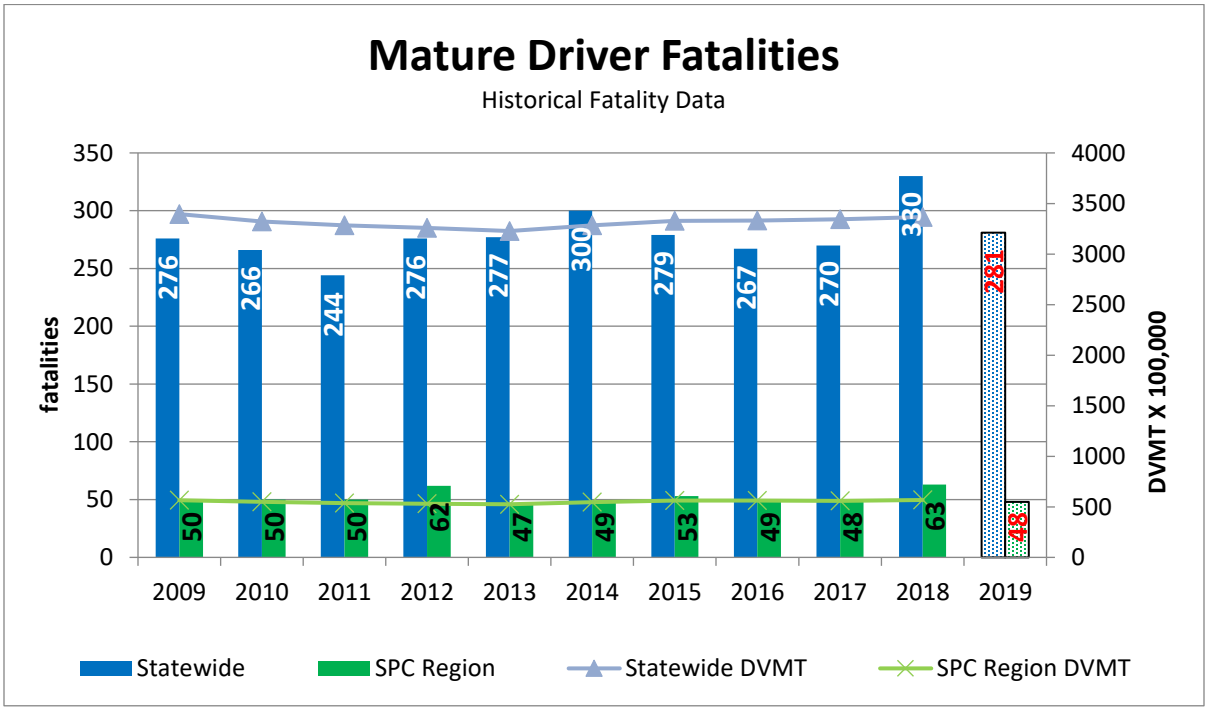

Distracted Driver Crashes
Historical Crash Data
Crashes
DVMT X 100,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
12,470
13,863
14,313
14,735
14,412
14,024
14,869
16,093
15,658
14,213
13,776
2,453
2,721
2,938
2,968
2,903
2,690
2,939
3,173
3,113
3,013
3,049
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

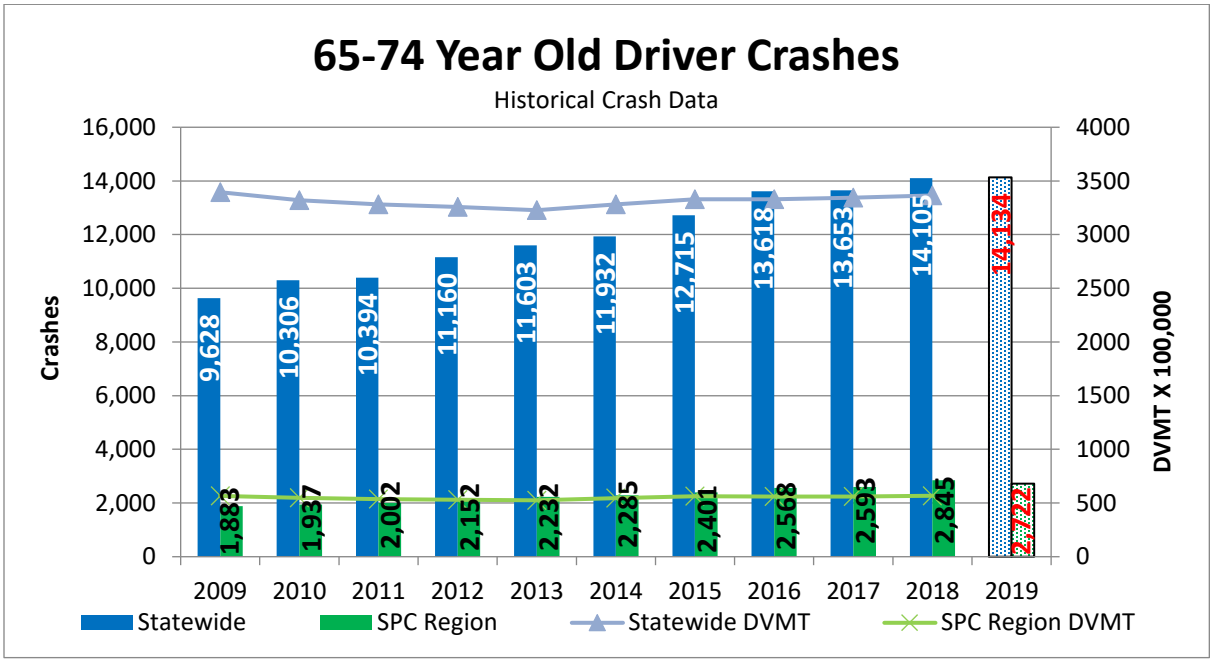

Distracted Driver Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
80
70
60
50
40
30
20
10
0
4000
3500
3000
2500
2000
1500
1000
500
0
65
66
59
57
64
55
66
69
63
65
62
8
17
16
8
12
8
8
11
18
15
11
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

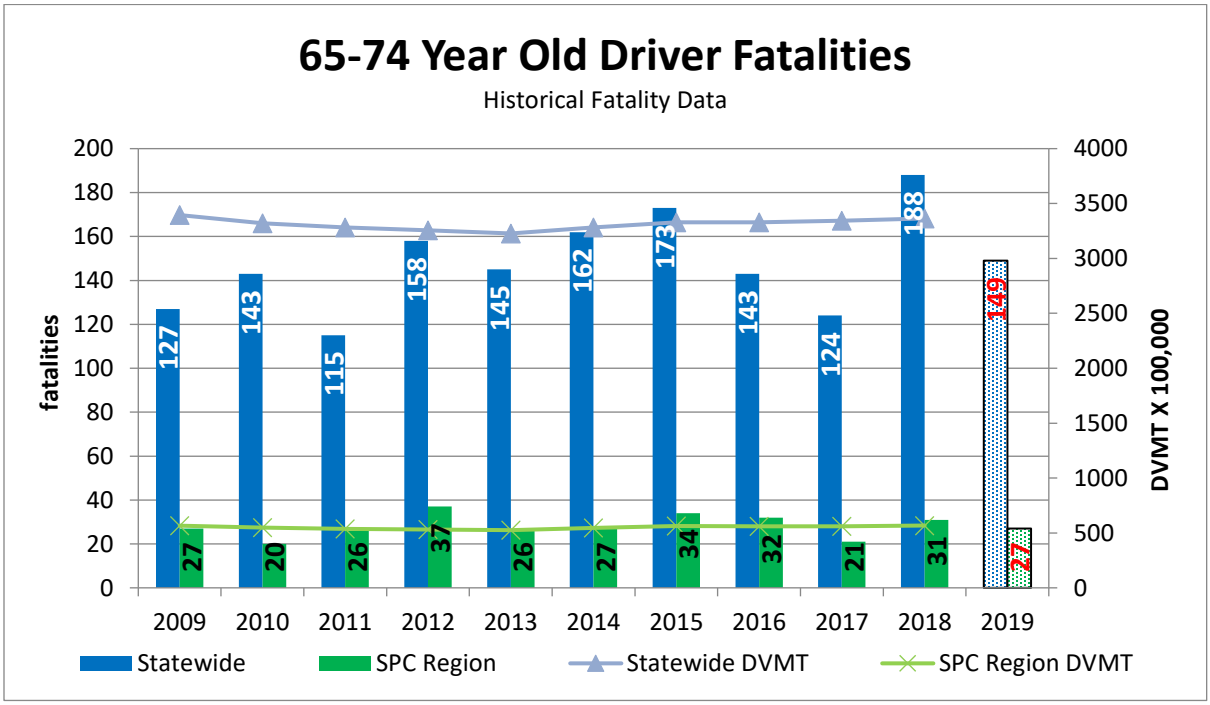

Drowsy Driver Crashes
Historical Crash Data
Crashes
DVMT X 100,000
3,000
2,500
2,000
1,500
1,000
500
0
4000
3500
3000
2500
2000
1500
1000
500
0
2,197
2,411
2,453
2,676
2,456
2,569
2,616
2,635
2,596
2,546
2,498
368
428
470
445
406
452
447
449
481
449
424
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

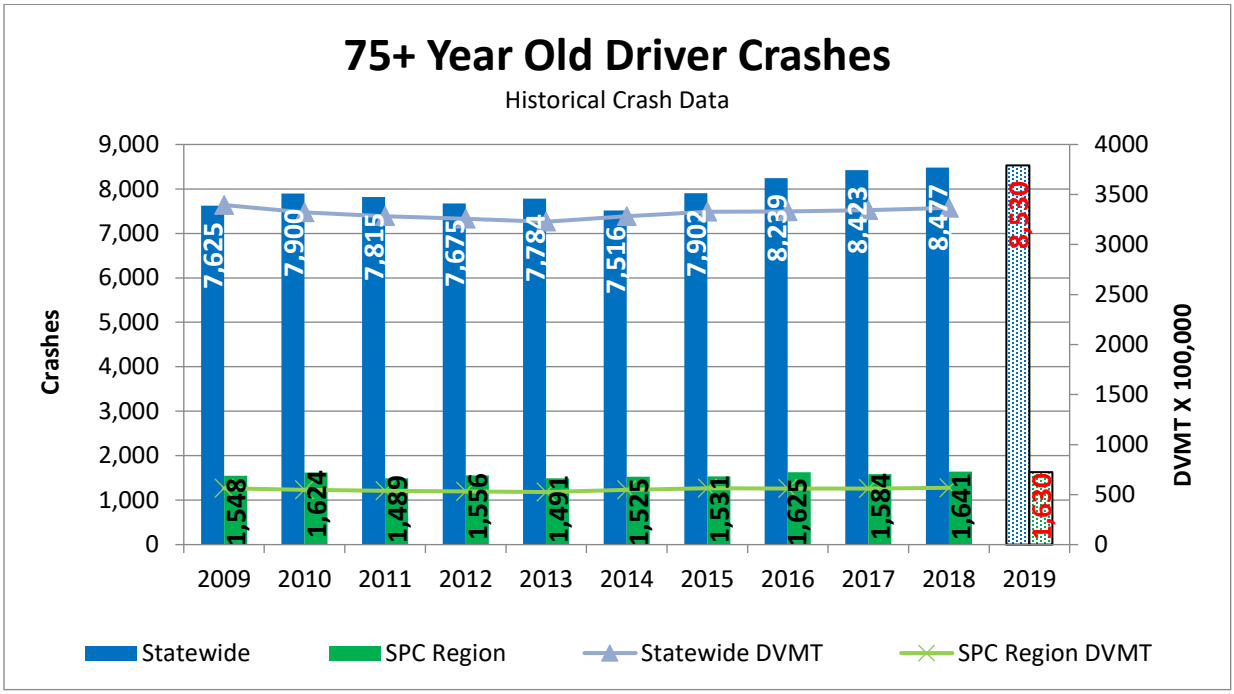

Drowsy Driver Fatalities
Historical Fatailty Data
Fatalities
DVMT X 100,000
35
30
25
20
15
10
5
0
4000
3500
3000
2500
2000
1500
1000
500
0
16
19
19
29
10
23
22
26
10
18
16
3
2
9
5
5
3
4
2
1
2
2
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

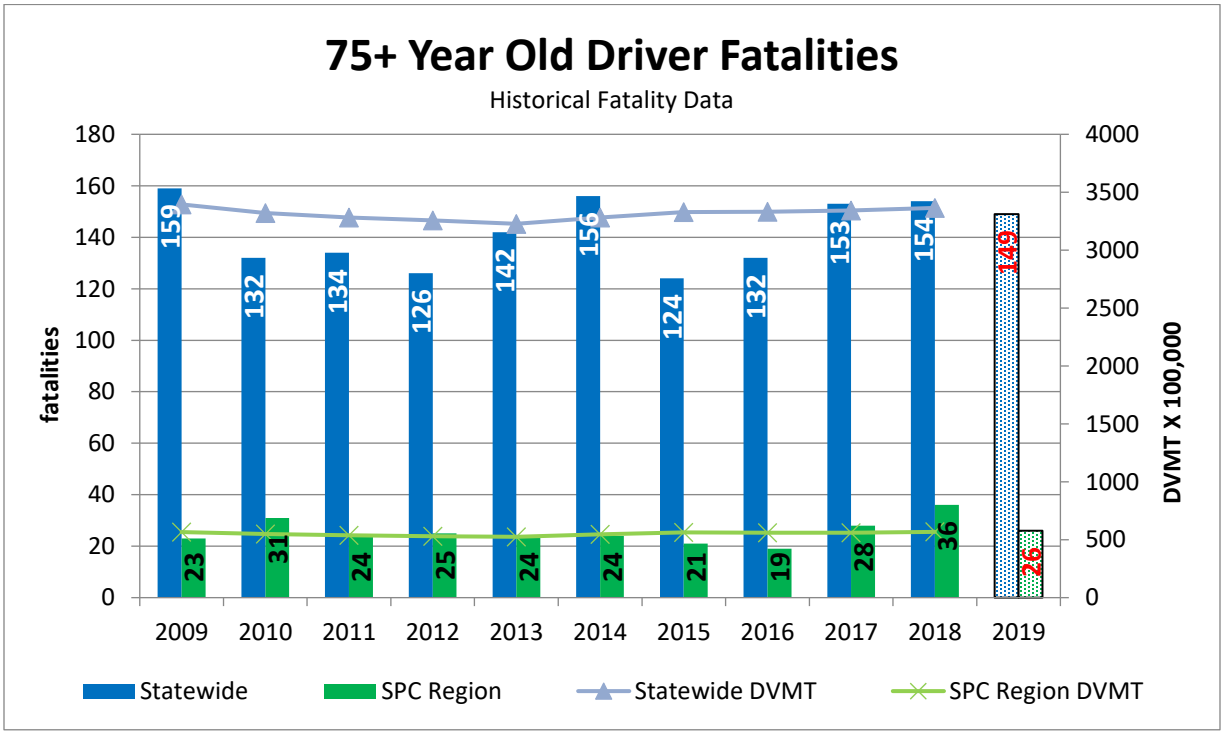

Mature Driver Crashes
Historical Crash Data
Crashes
DVMT X 100,000
25,000
20,000
15,000
10,000
5,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
16,727
17,606
17,603
18,219
18,727
18,805
19,948
21,125
21,319
21,743
21,884
3,326
3,441
3,359
3,603
3,586
3,682
3,803
4,058
4,026
4,330
4,209
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

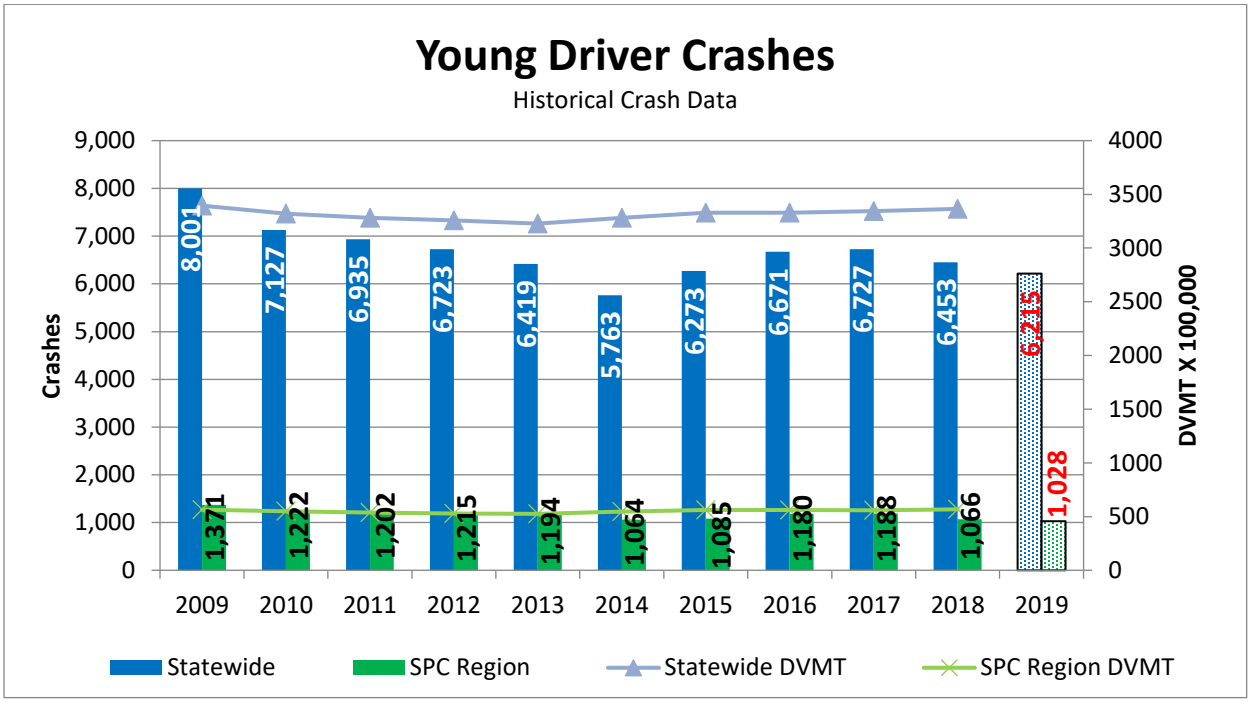

Mature Driver Fatalities
Historical Fatality Data
fatalities
DVMT X 100,000
350
300
250
200
150
100
50
0
4000
3500
3000
2500
2000
1500
1000
500
0
276
266
244
276
277
300
279
267
270
330
281
50
50
50
62
47
49
53
49
48
63
48
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

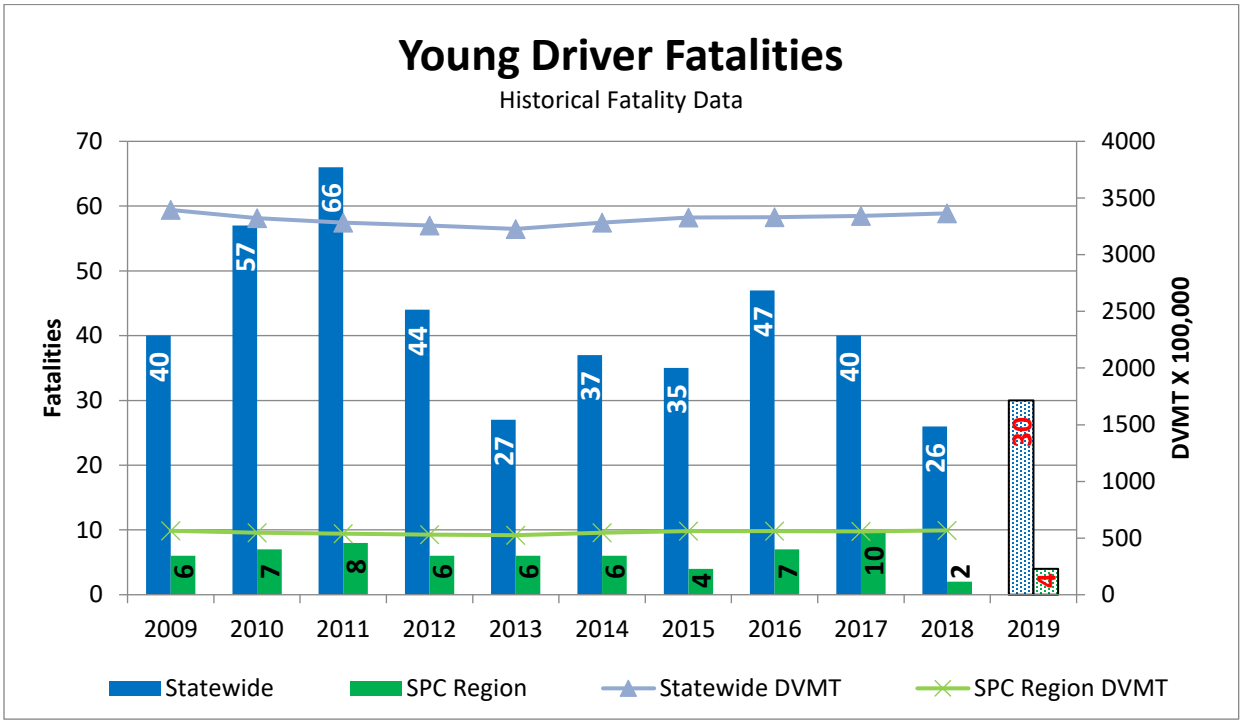

65-74 Year Old Driver Crashes
Historical Crash Data
Crashes
DVMT X 100,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
9,628
10,306
10,394
11,160
11,603
11,932
12,715
13,618
13,653
14,105
14,134
1,883
1,937
2,002
2,152
2,232
2,285
2,401
2,568
2,593
2,845
2,722
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

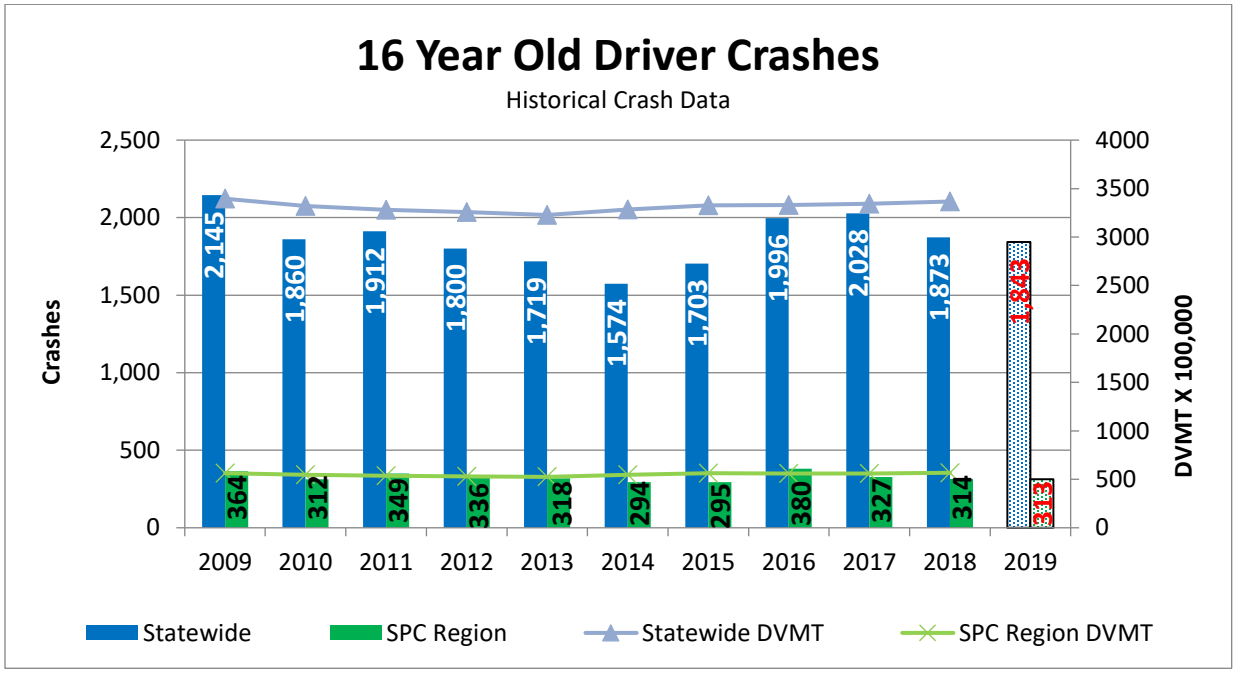

65-74 Year Old Driver Fatalities
Historical Fatality Data
fatalities
DVMT X 100,000
200
180
160
140
120
100
80
60
40
20
0
4000
3500
3000
2500
2000
1500
1000
500
0
127
143
115
158
145
162
173
143
124
188
149
27
20
26
37
26
27
34
32
21
31
27
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

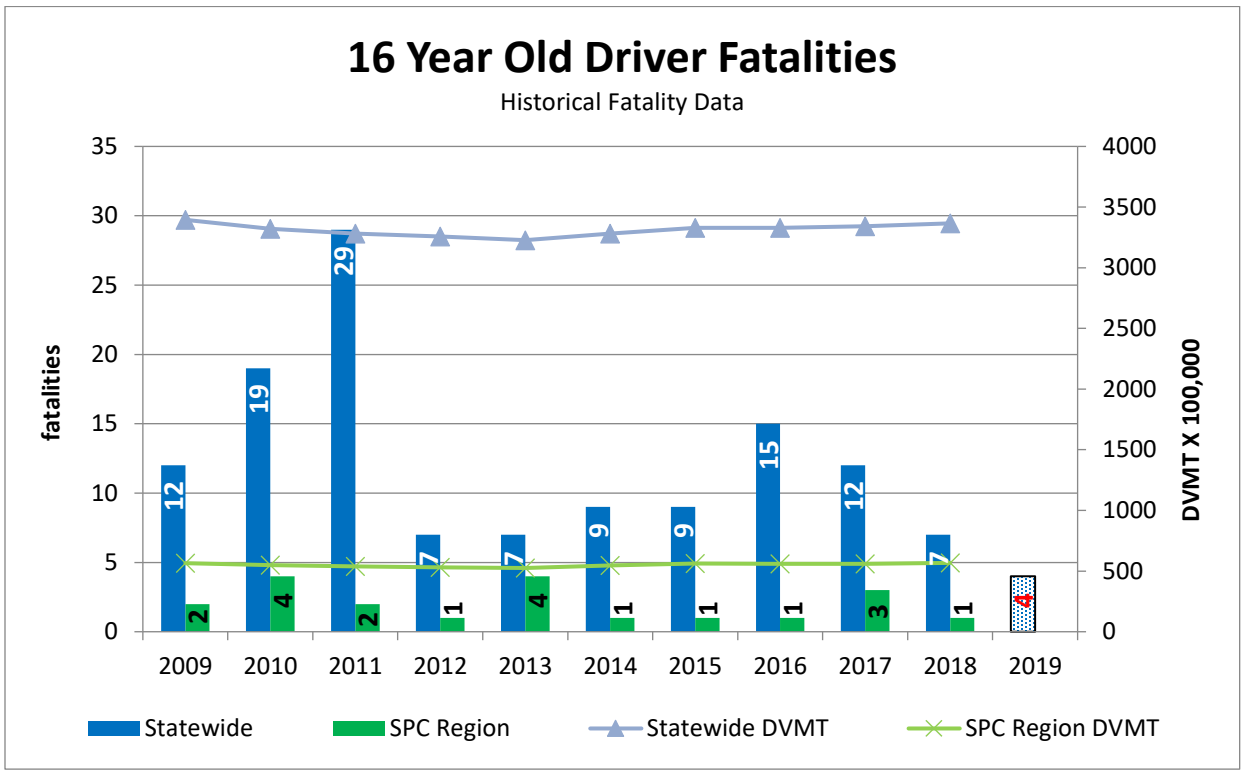

75+ Year Old Driver Crashes
Historical Crash Data
Crashes
DVMT X 100,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
7,625
7,900
7,815
7,675
7,784
7,516
7,902
8,239
8,423
8,477
8,530
1,548
1,624
1,489
1,556
1,491
1,525
1,531
1,625
1,584
1,641
1,630
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

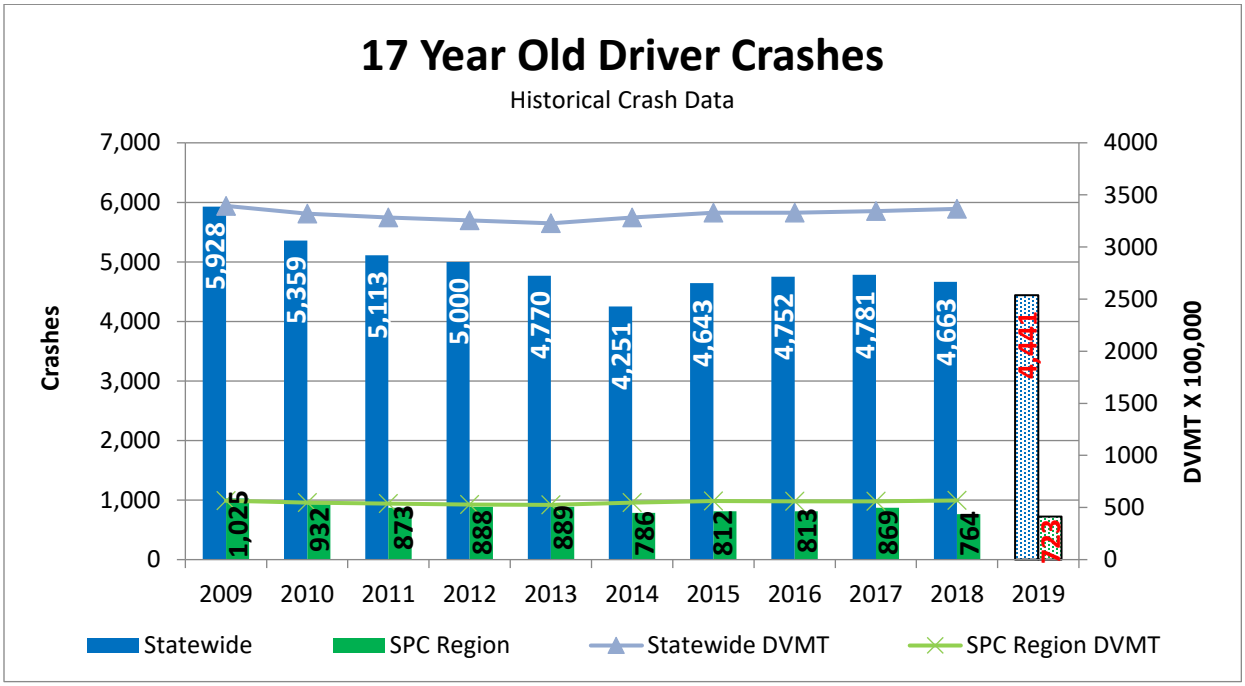

75+ Year Old Driver Fatalities
Historical Fatality Data
fatalities
DVMT X 100,000
180
160
140
120
100
80
60
40
20
0
4000
3500
3000
2500
2000
1500
1000
500
0
159
132
134
126
142
156
124
132
153
154
149
23
31
24
25
24
24
21
19
28
36
26
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

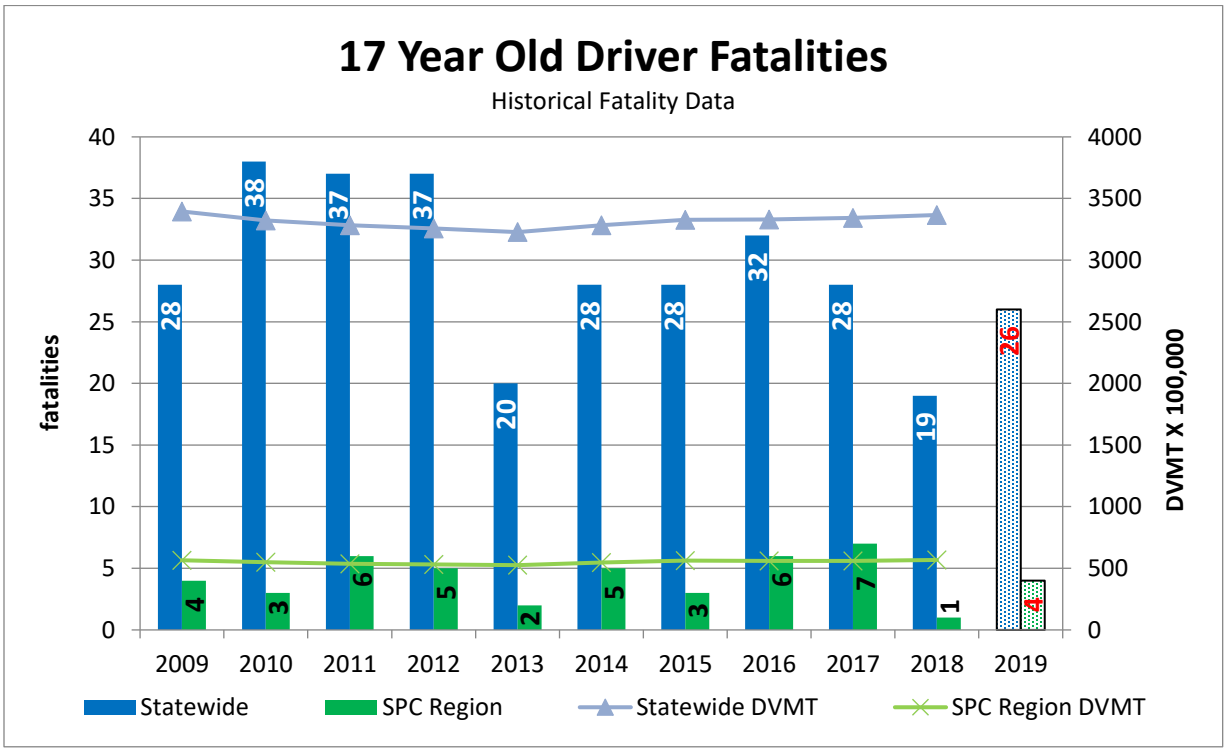

Young Driver Crashes
Historical Crash Data
Crashes
DVMT X 100,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
8,001
7,127
6,935
6,723
6,419
5,763
6,273
6,671
6,727
6,453
6,215
1,371
1,222
1,202
1,215
1,194
1,064
1,085
1,180
1,188
1,066
1,028
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

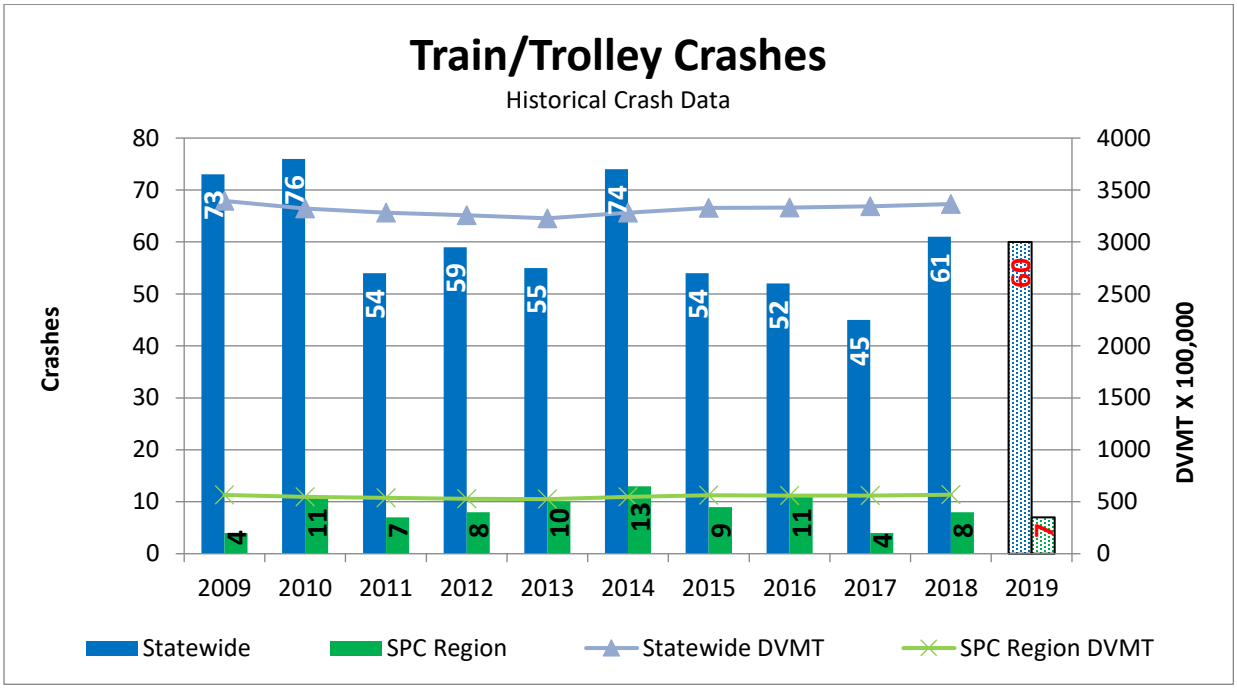

Young Driver Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
70
60
50
40
30
20
10
0
4000
3500
3000
2500
2000
1500
1000
500
0
40
57
66
44
27
37
35
47
40
26
30
6
7
8
6
6
6
4
7
10
2
4
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

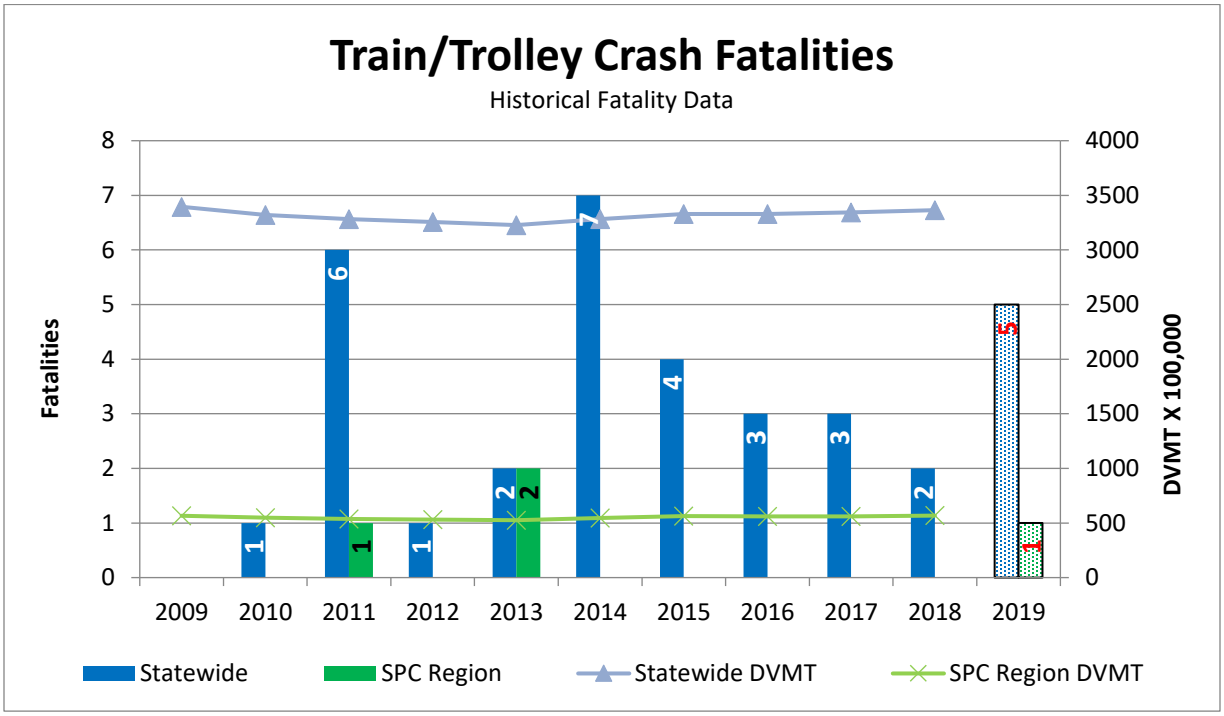

16 Year Old Driver Crashes
Historical Crash Data
Crashes
DVMT X 100,000
2,500
2,000
1,500
1,000
500
0
4000
3500
3000
2500
2000
1500
1000
500
0
2,145
1,860
1,912
1,800
1,719
1,574
1,703
1,996
2,028
1,873
1,343
364
312
349
336
318
294
295
380
327
314
313
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

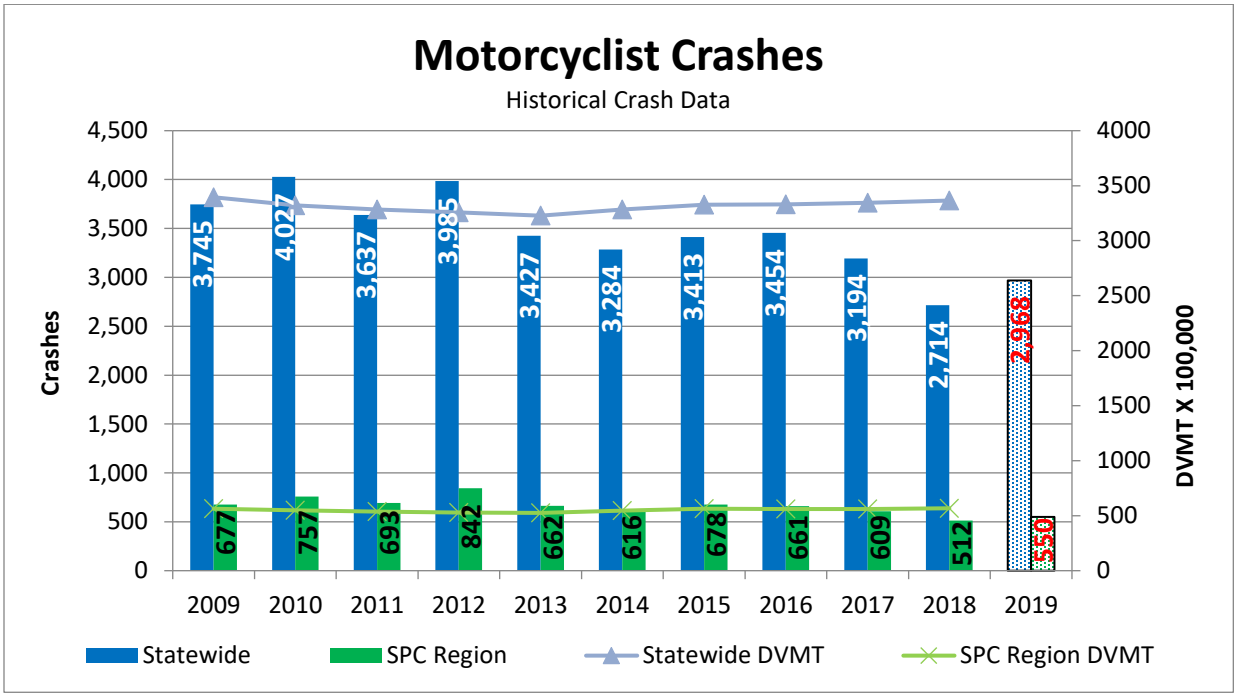

16 Year Old Driver Fatalities
Historical Fatality Data
fatalities
DVMT X 100,000
35
30
25
20
15
10
5
0
4000
3500
3000
2500
2000
1500
1000
500
0
12
19
29
7
7
9
9
15
12
7
4
2
4
2
1
4
1
1
1
3
1
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

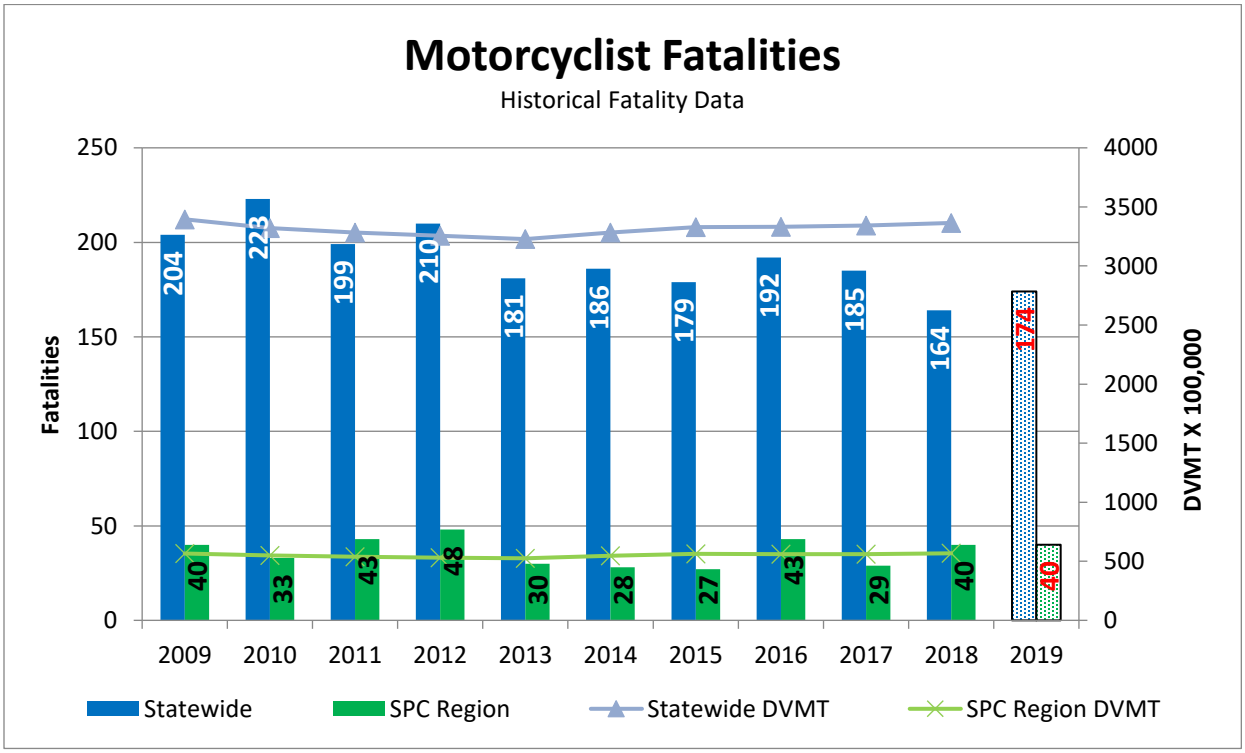

17 Year Old Driver Crashes
Historical Crash Data
Crashes
DVMT X 100,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
5,928
5,359
5,113
5,000
4,770
4,251
4,643
4,752
4,781
4,663
4,441
1,025
932
873
888
889
786
812
813
869
764
723
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

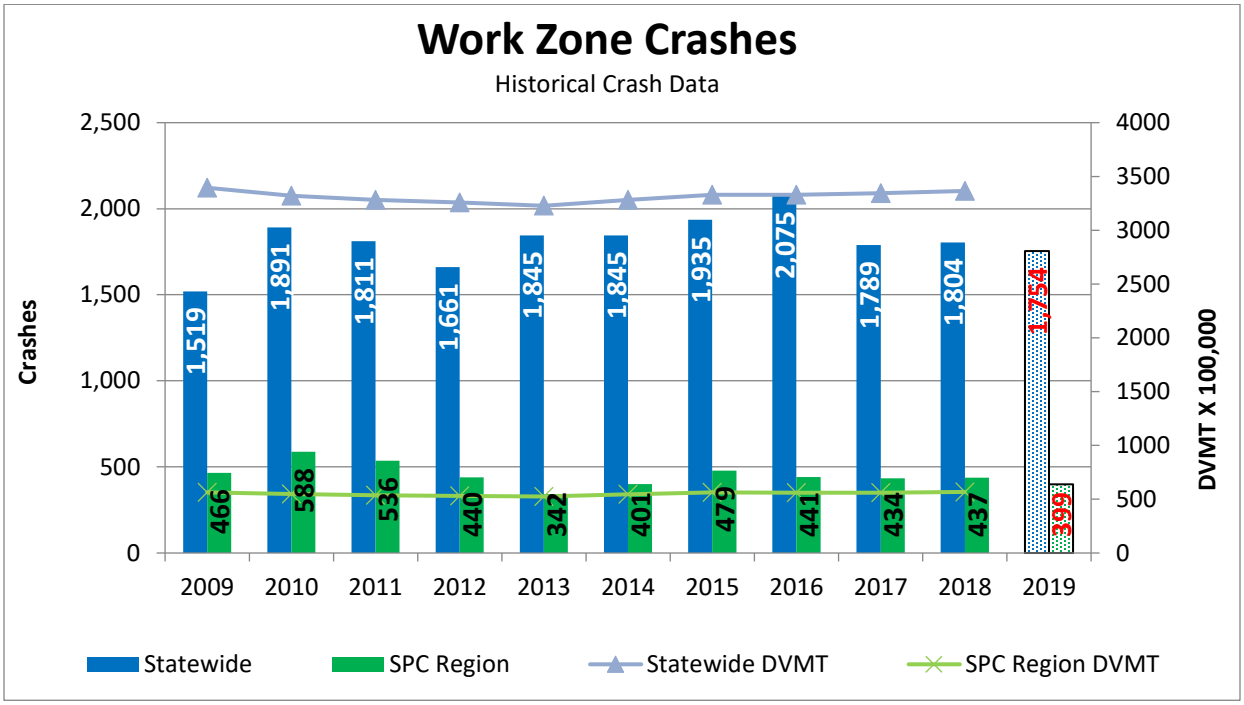

17 Year Old Driver Fatalities
Historical Fatality Data
fatalities
DVMT X 100,000
40
35
30
25
20
15
10
5
0
4000
3500
3000
2500
2000
1500
1000
500
0
28
38
37
37
20
28
28
32
28
19
26
4
3
6
5
2
5
3
6
7
1
4
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

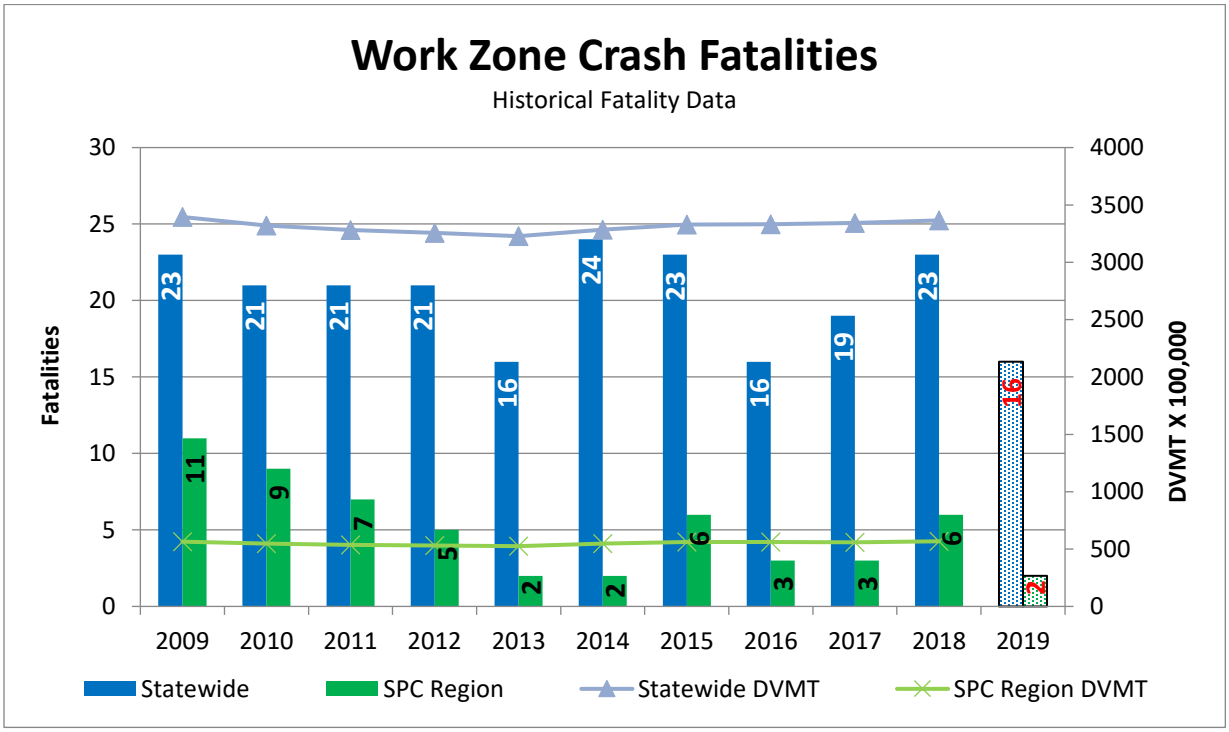

Train/Trolley Crashes
Historical Crash Data
Crashes
DVMT X 100,000
80
70
60
50
40
30
20
10
0
4000
3500
3000
2500
2000
1500
1000
500
0
73
76
54
59
55
74
54
52
45
61
60
4
11
7
8
10
13
9
11
4
8
7
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

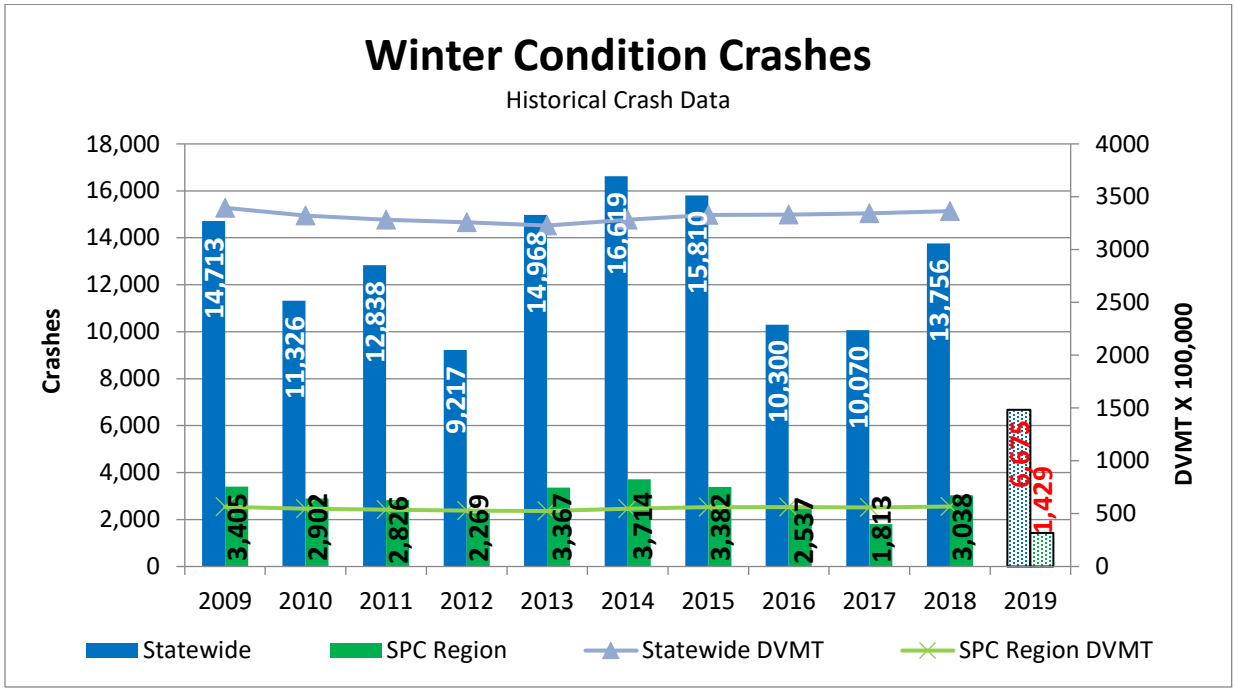

Train/Trolley Crash Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
8
7
6
5
4
3
2
1
0
4000
3500
3000
2500
2000
1500
1000
500
0
1
6
1
1
2
2
7
4
3
3
2
5
1
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

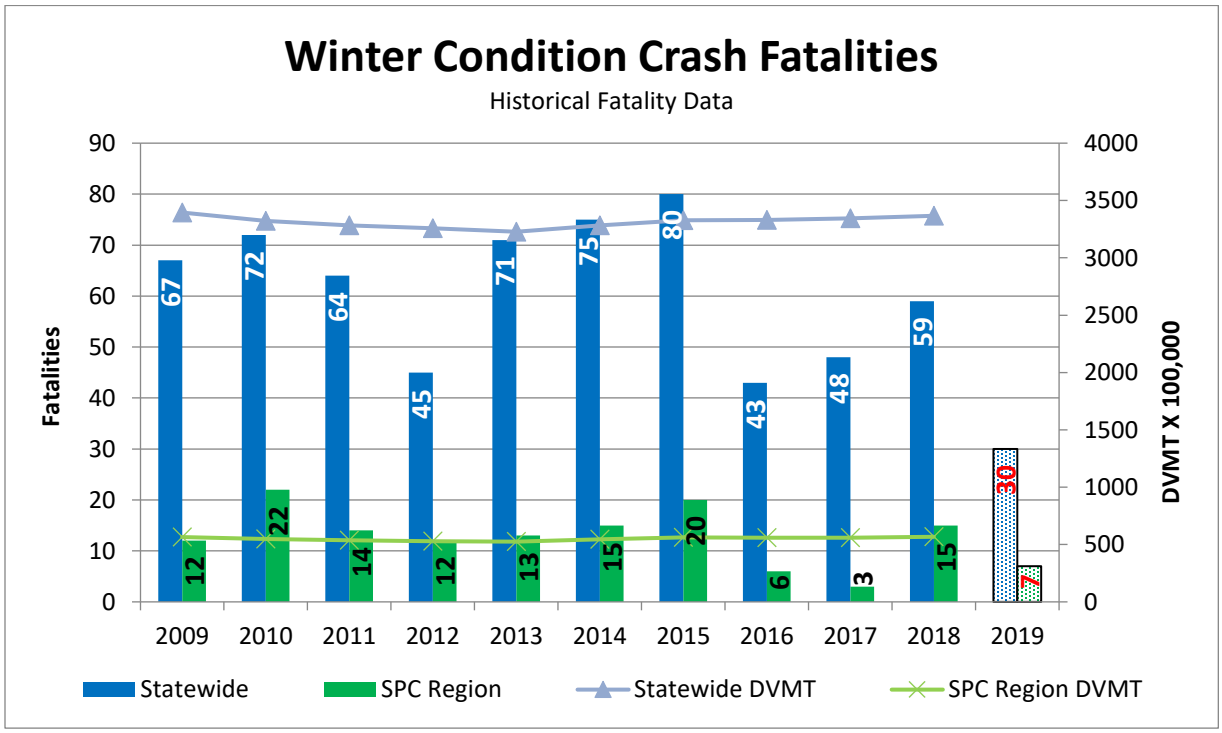

Motorcyclist Crashes
Historical Crash Data
Crashes
DVMT X 100,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
4000
3500
3000
2500
2000
1500
1000
500
0
3,745
4,027
3,637
3,985
3,427
3,284
3,413
3,454
3,194
2,714
2,968
677
757
693
842
662
616
678
661
609
512
550
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

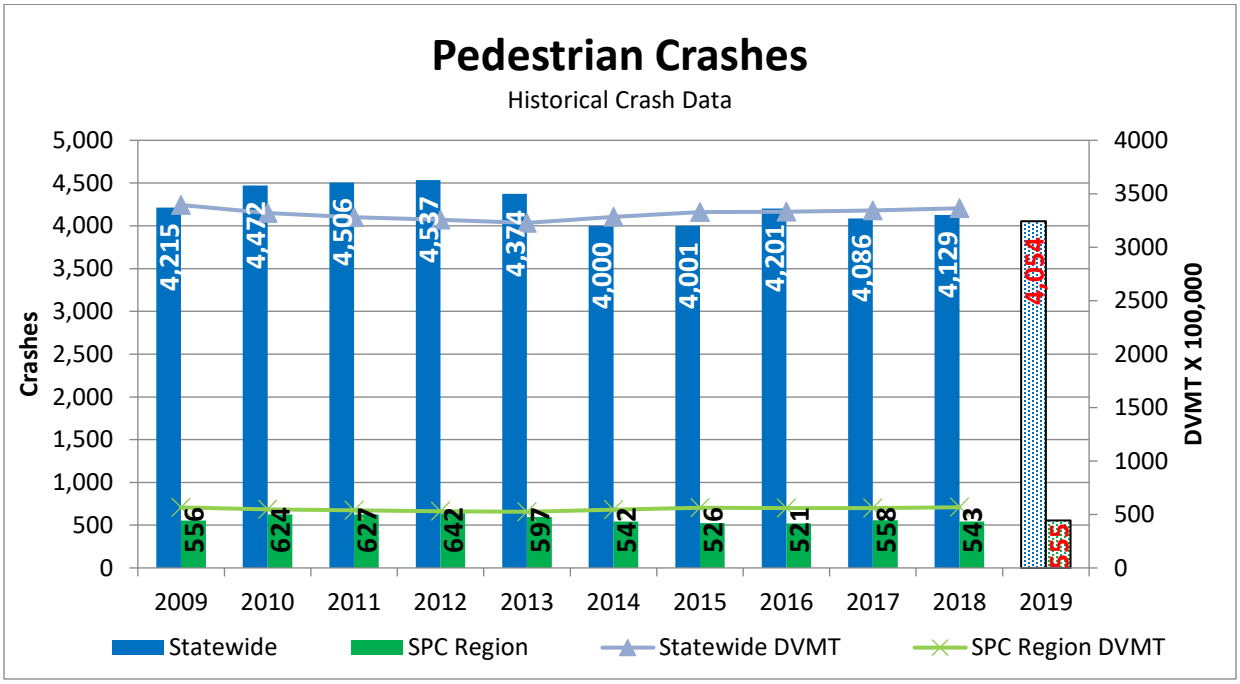

Motorcyclist Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
250
200
150
100
50
0
4000
3500
3000
2500
2000
1500
1000
500
0
204
228
199
210
181
186
179
192
185
164
174
40
33
43
48
30
28
27
43
29
40
40
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

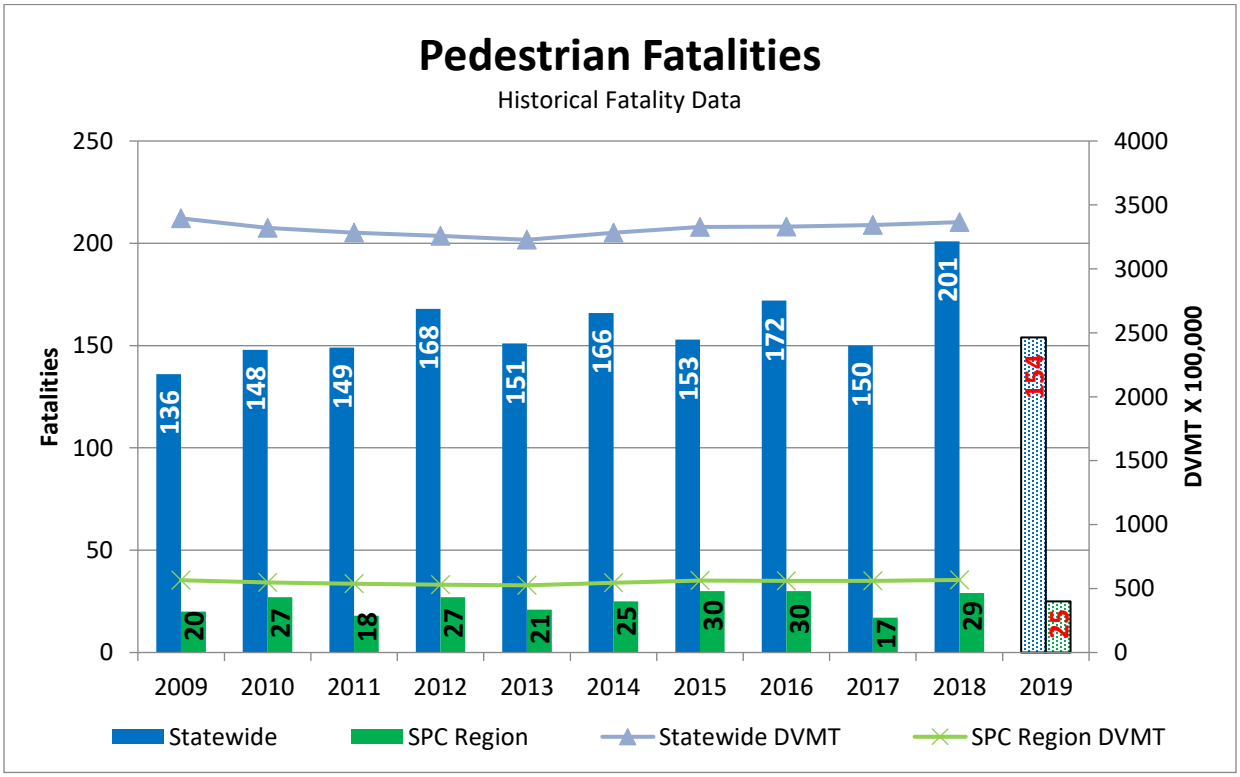

Work Zone Crashes
Historical Crash Data
Crashes
DVMT X 100,000
2,500
2,000
1,500
1,000
500
0
4000
3500
3000
2500
2000
1500
1000
500
0
1,519
1,891
1,811
1,661
1,845
1,845
1,935
2,075
1,789
1,804
1,754
466
588
536
440
342
401
479
441
434
437
399
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

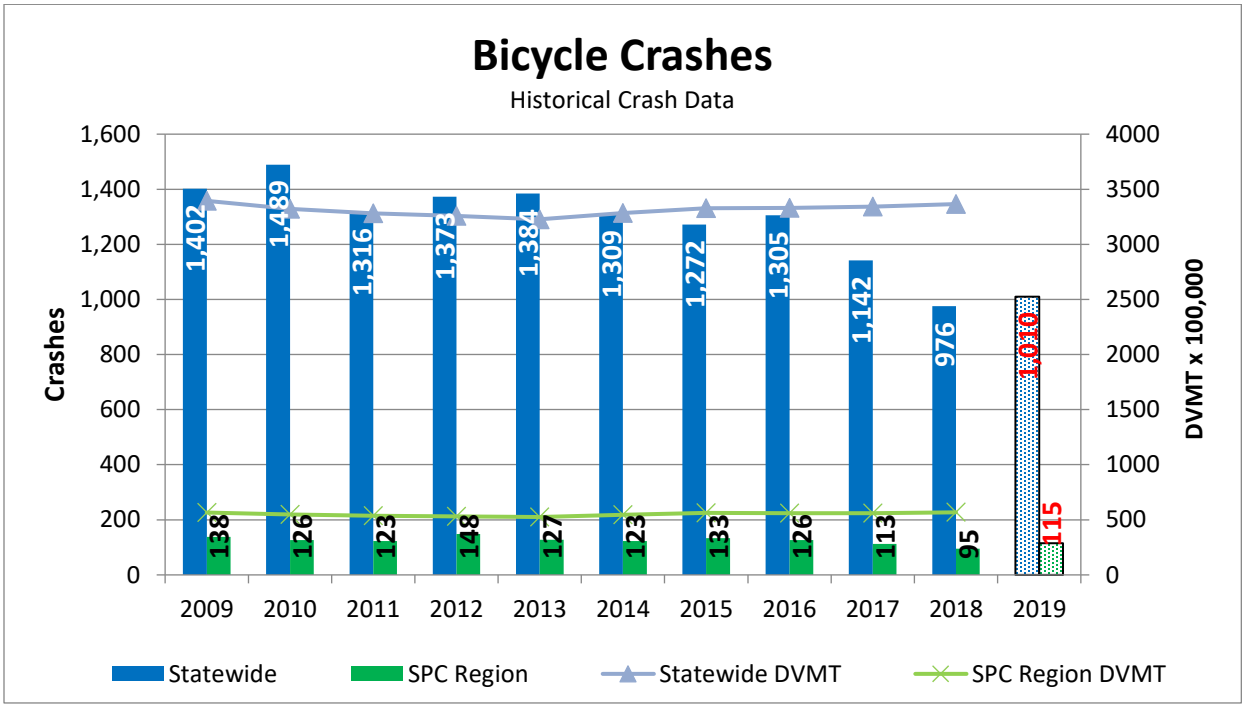

Work Zone Crash Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
30
25
20
15
10
5
0
4000
3500
3000
2500
2000
1500
1000
500
0
23
21
21
21
16
24
23
16
19
23
16
11
9
7
5
2
2
6
3
3
6
2
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

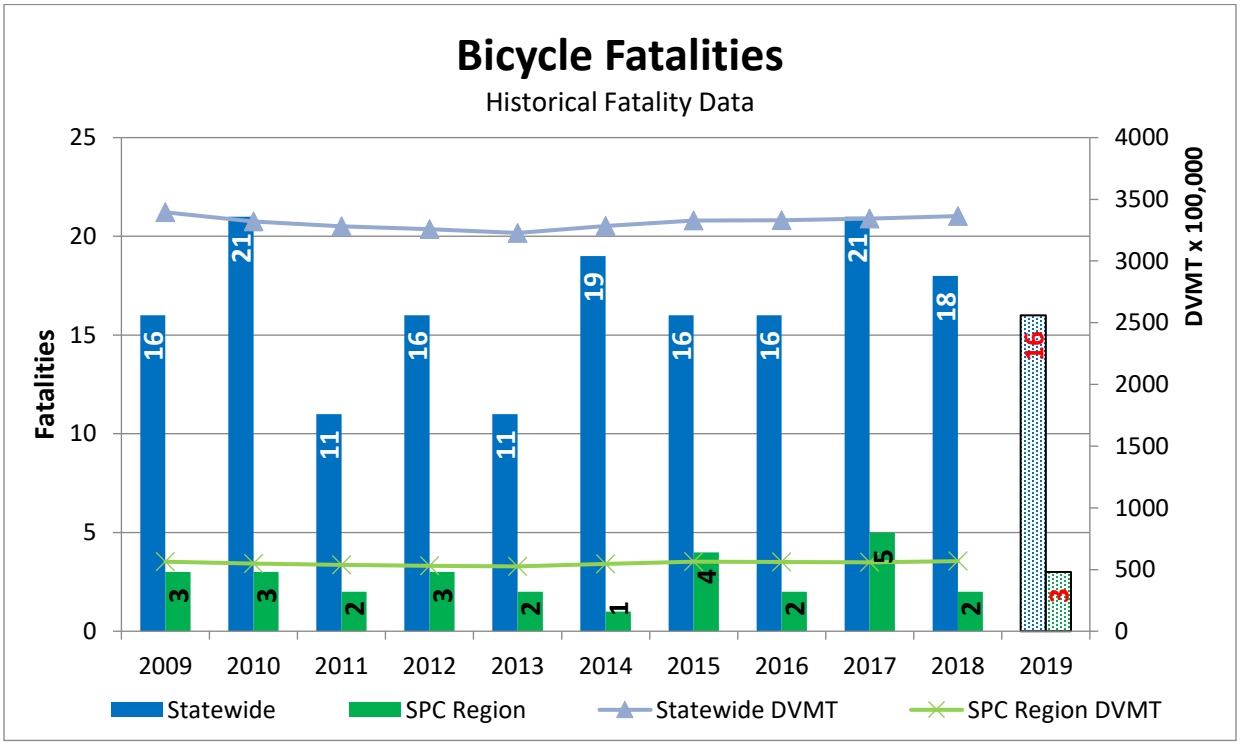

Winter Condition Crashes
Historical Crash Data
Crashes
DVMT X 100,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
14,713
11,326
12,838
9,217
14,968
16,619
15,810
10,300
10,070
13,756
6,675
3,405
2,902
2,826
2,269
3,367
3,714
3,382
2,537
1,813
3,038
1,429
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

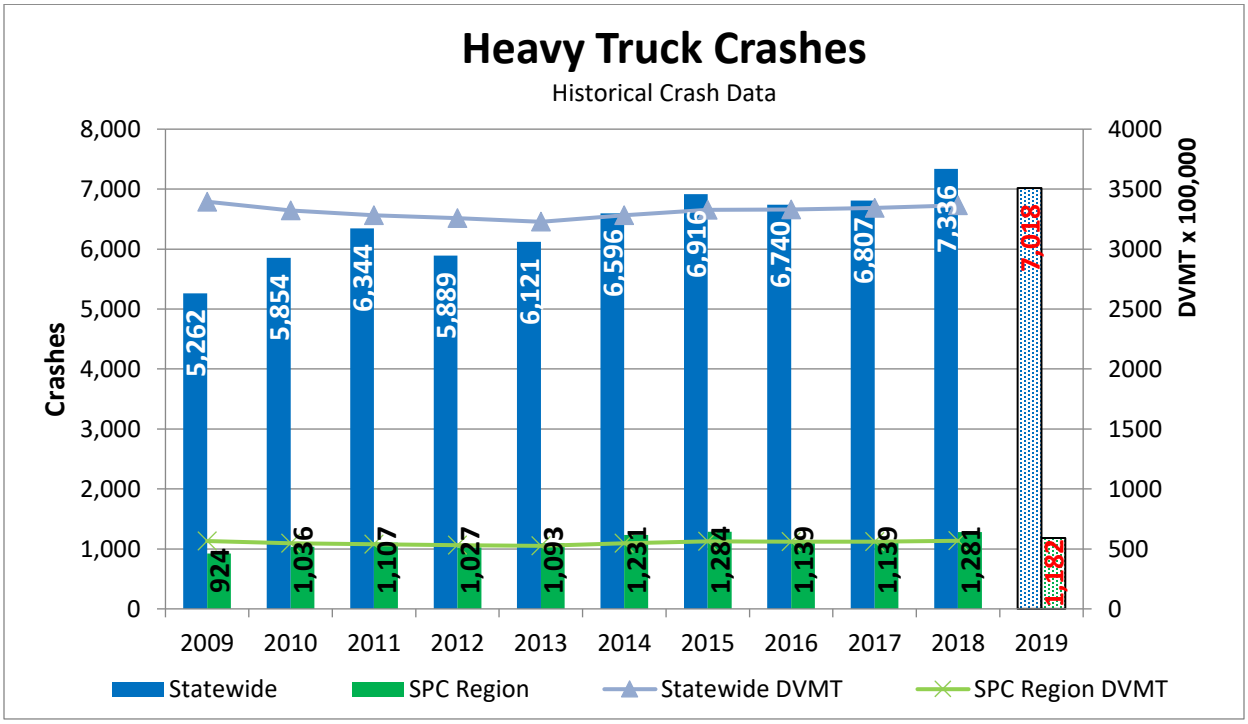

Winter Condition Crash Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
90
80
70
60
50
40
30
20
10
0
4000
3500
3000
2500
2000
1500
1000
500
0
67
72
64
45
71
75
80
43
48
59
30
12
22
14
12
13
15
20
6
3
15
7
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

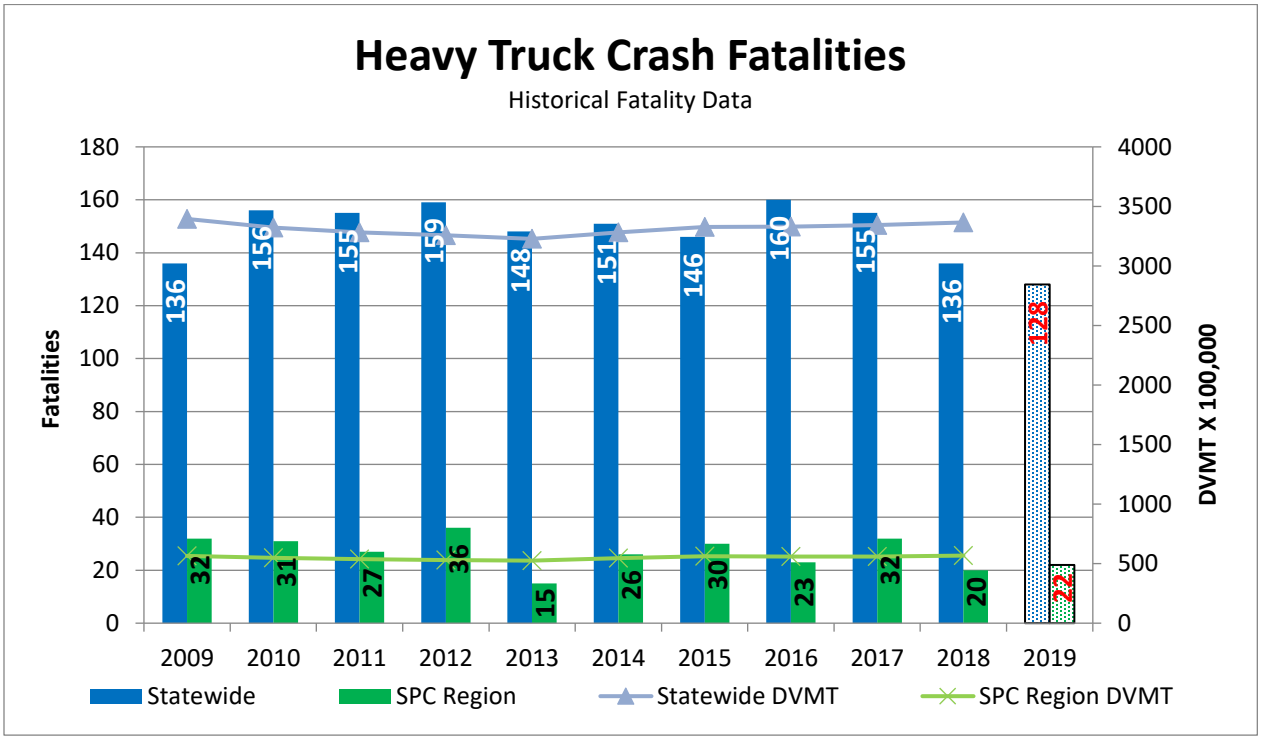

Pedestrian Crashes
Historical Crash Data
Crashes
DVMT X 100,000
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
4000
3500
3000
2500
2000
1500
1000
500
0
4,215
4,472
4,506
4,537
4,374
4,000
4,001
4,201
4,086
4,129
4,054
556
624
627
642
597
542
526
521
558
543
555
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

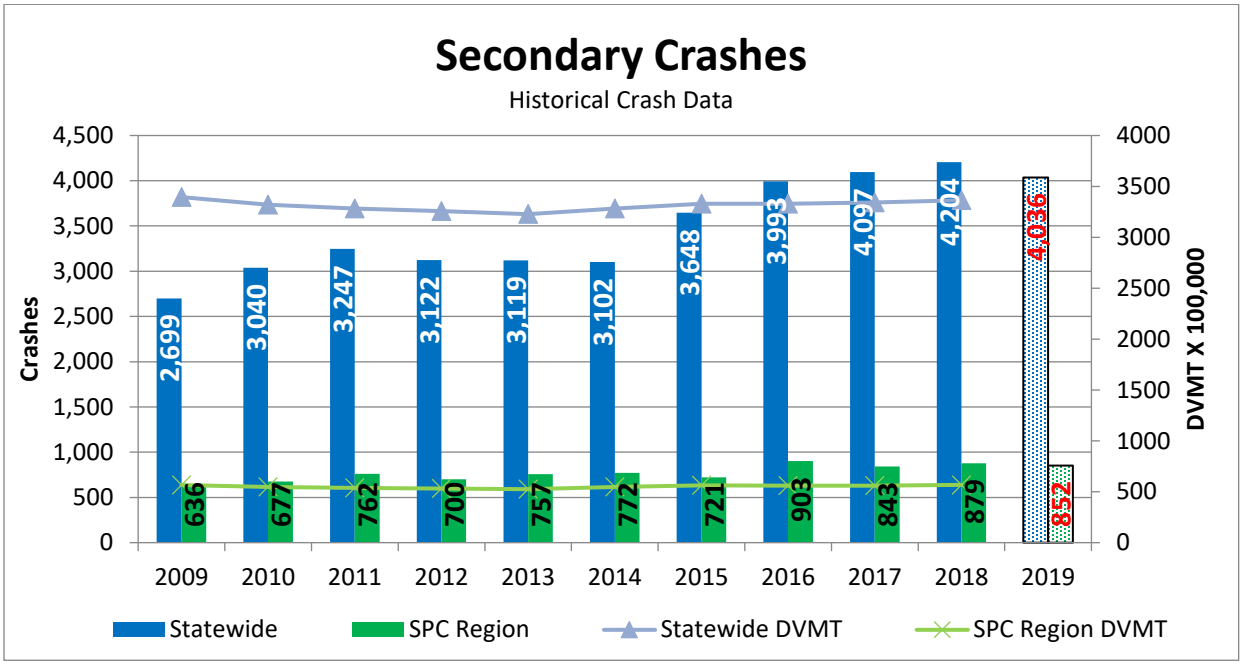

Pedestrian Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
250
200
150
100
50
0
4000
3500
3000
2500
2000
1500
1000
500
0
136
148
149
168
151
166
153
172
150
201
154
20
27
18
27
21
25
30
30
17
29
25
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

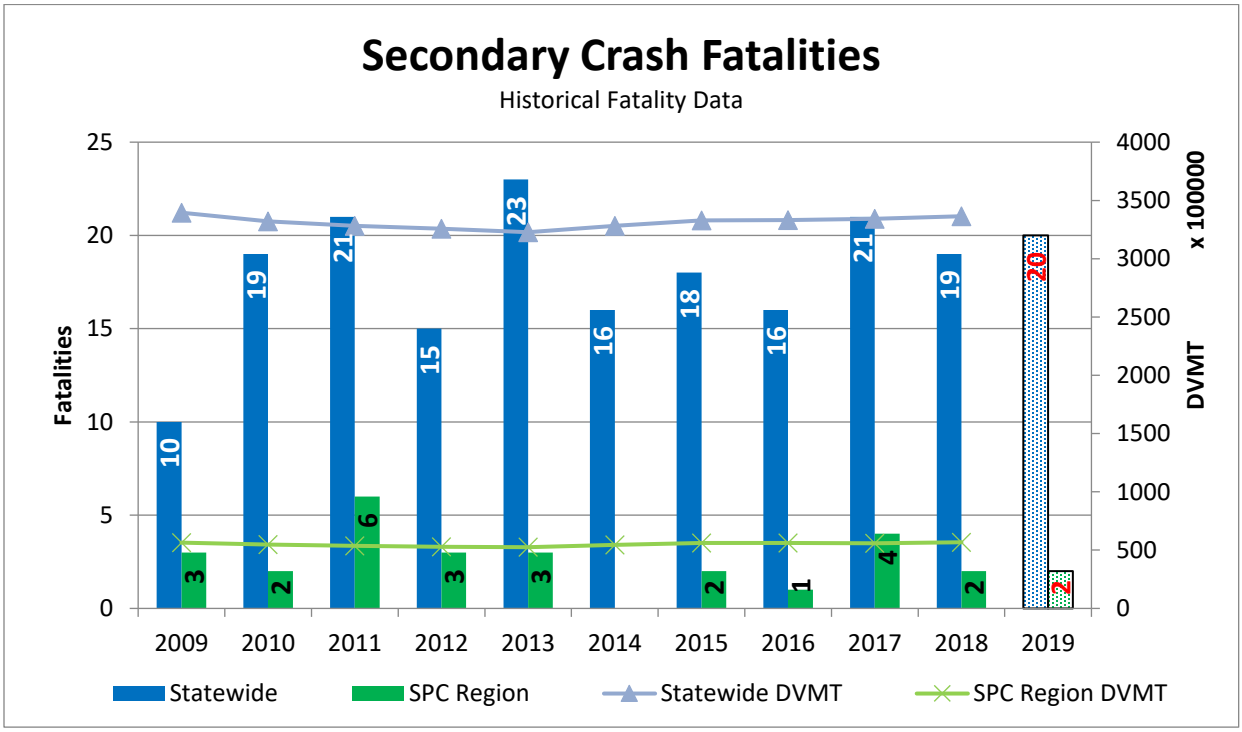

Bicycle Crashes
Historical Crash Data
Crashes
DVMT x 100,000
1,600
1,400
1,200
1,000
800
600
400
200
0
4000
3500
3000
2500
2000
1500
1000
500
0
1,402
1,489
1,316
1,373
1,384
1,309
1,272
1,305
1,142
976
1,010
138
126
123
148
127
123
133
126
113
95
115
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

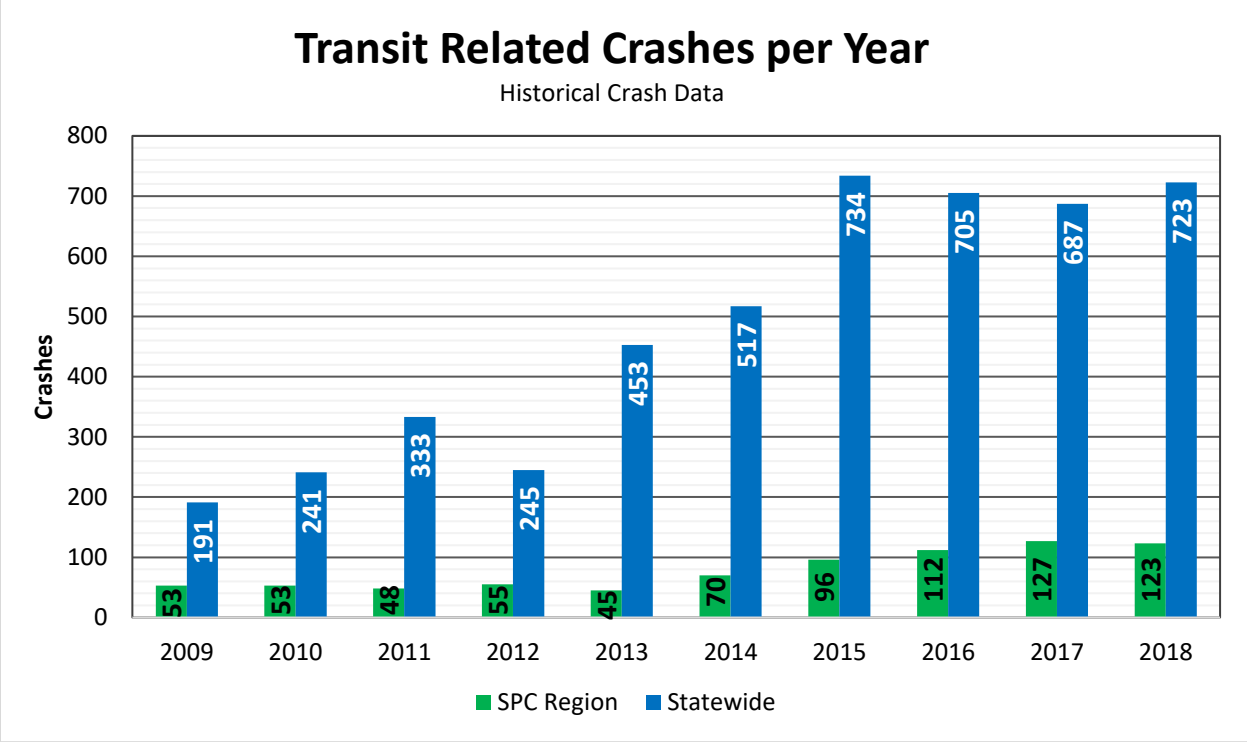

Bicycle Fatalities
Historical Fatality Data
Fatalities
DVMT x 100,000
25
20
15
10
5
0
4000
3500
3000
2500
2000
1500
1000
500
0
16
21
11
16
11
19
16
16
21
18
16
3
3
2
3
2
1
4
2
5
2
3
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

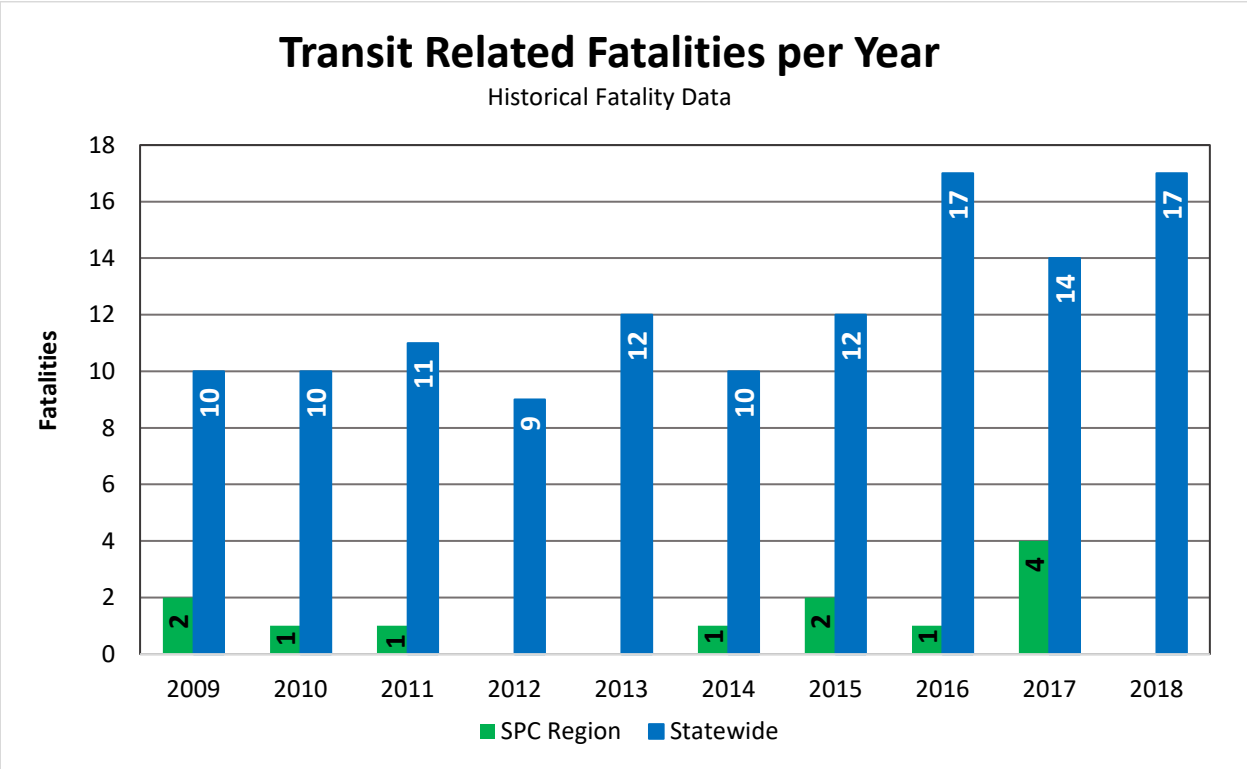

Heavy Truck Crashes
Historical Crash Data
Crashes
DVMT x 100,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
5,262
5,854
6,344
5,889
6,121
6,596
6,916
6,740
6,807
7,336
7,018
924
1,036
1,107
1,027
1,093
1,231
1,284
1,139
1,139
1,281
1,182
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

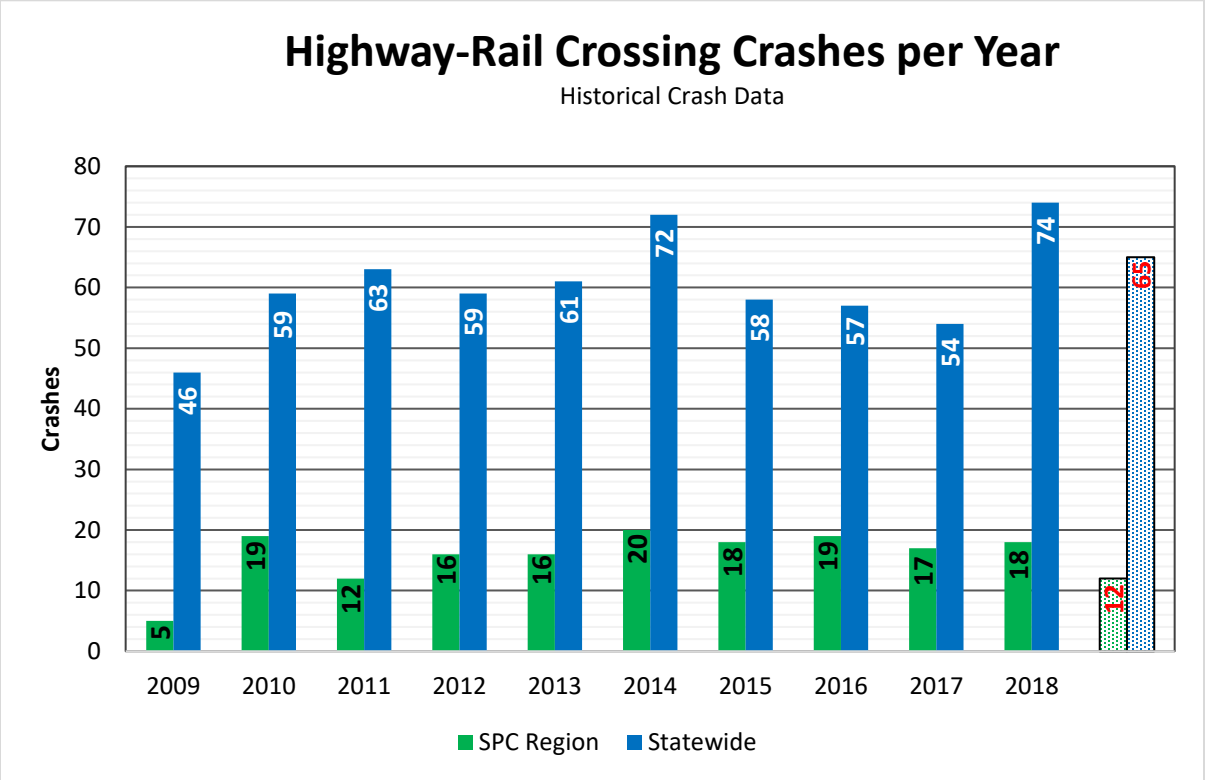

Heavy Truck Crash Fatalities
Historical Fatality Data
Fatalities
DVMT X 100,000
180
160
140
120
100
80
60
40
20
0
4000
3500
3000
2500
2000
1500
1000
500
0
136
156
155
159
148
151
146
160
155
136
128
32
31
27
36
15
26
30
23
32
20
22
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

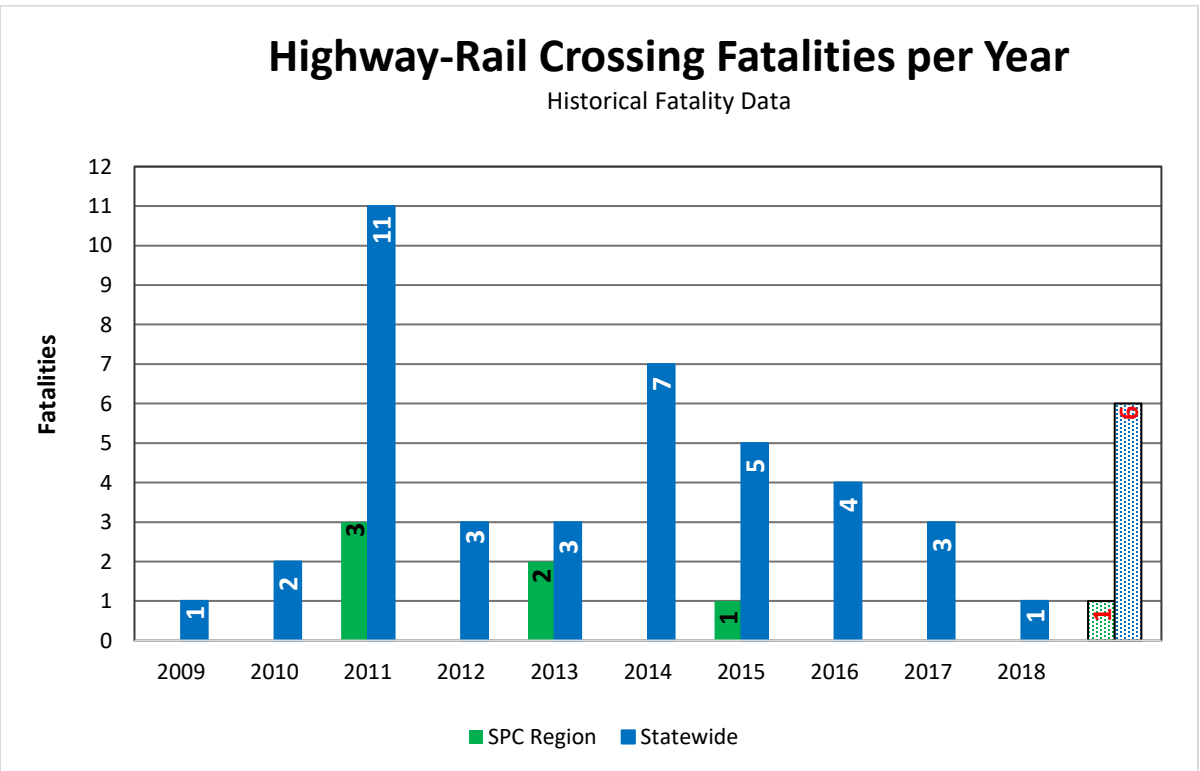

Secondary Crashes
Historical Crash Data
Crashes
DVMT X 100,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
4000
3500
3000
2500
2000
1500
1000
500
0
2,699
3,040
3,247
3,122
3,119
3,102
3,648
3,993
4,097
4,204
4,036
636
677
762
700
757
772
721
903
843
879
852
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT


Secondary Crash Fatalities
Historical Fatality Data
Fatalities
DVMT
x 100000
25
20
15
10
5
0
4000
3500
3000
2500
2000
1500
1000
500
0
10
19
21
15
23
16
18
16
21
19
20
3
2
6
3
3
2
1
4
2
2
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Statewide
SPC Region
Statewide DVMT
SPC Region DVMT

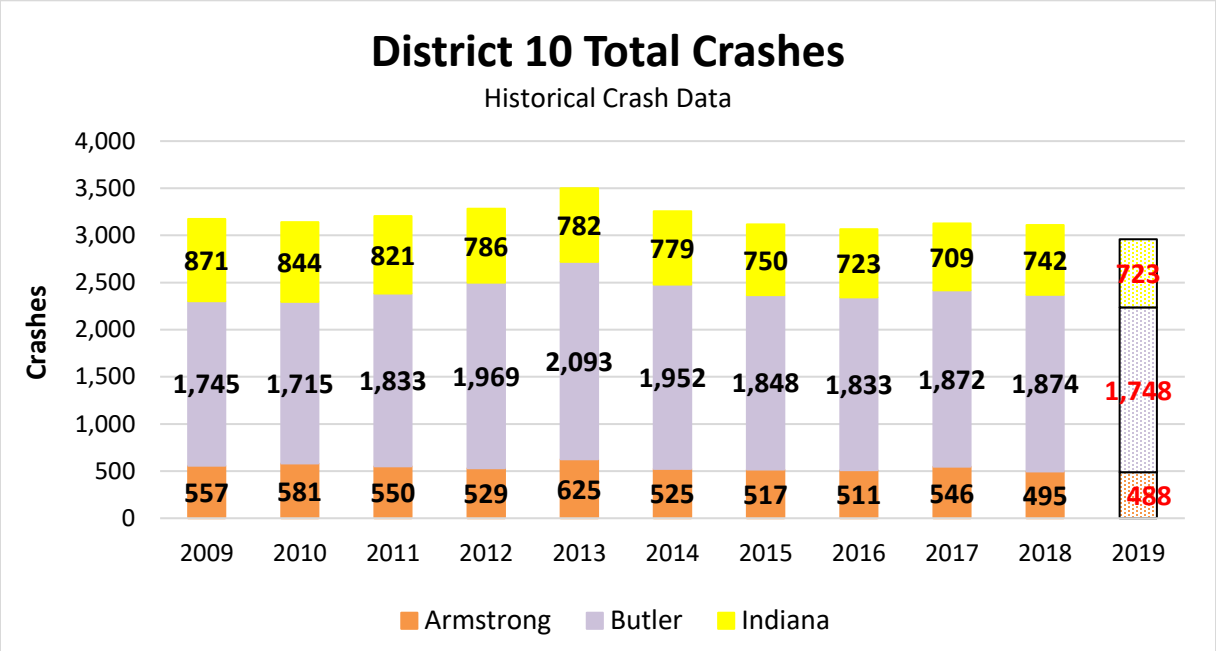

Transit Related Crashes per Year
Historical Crash Data
Crashes
800
700
600
500
400
300
200
100
0
53
191
53
241
48
333
55
245
45
453
70
517
96
734
112
705
127
687
123
723
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
SPC Region
Statewide

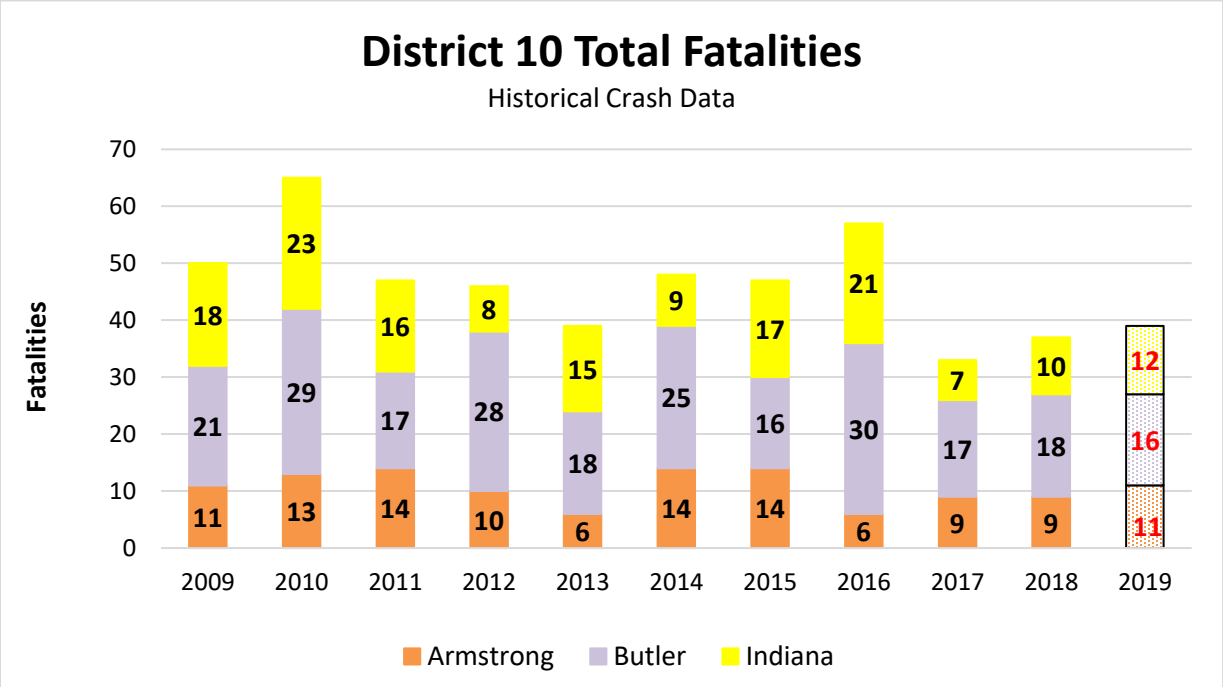

Transit Related Fatalities per Year
Historical Fatality Data
Fatalities
18
16
14
12
10
8
6
4
2
0
2
10
1
10
1
11
9
12
1
10
2
12
1
17
4
14
17
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
SPC Region
Statewide

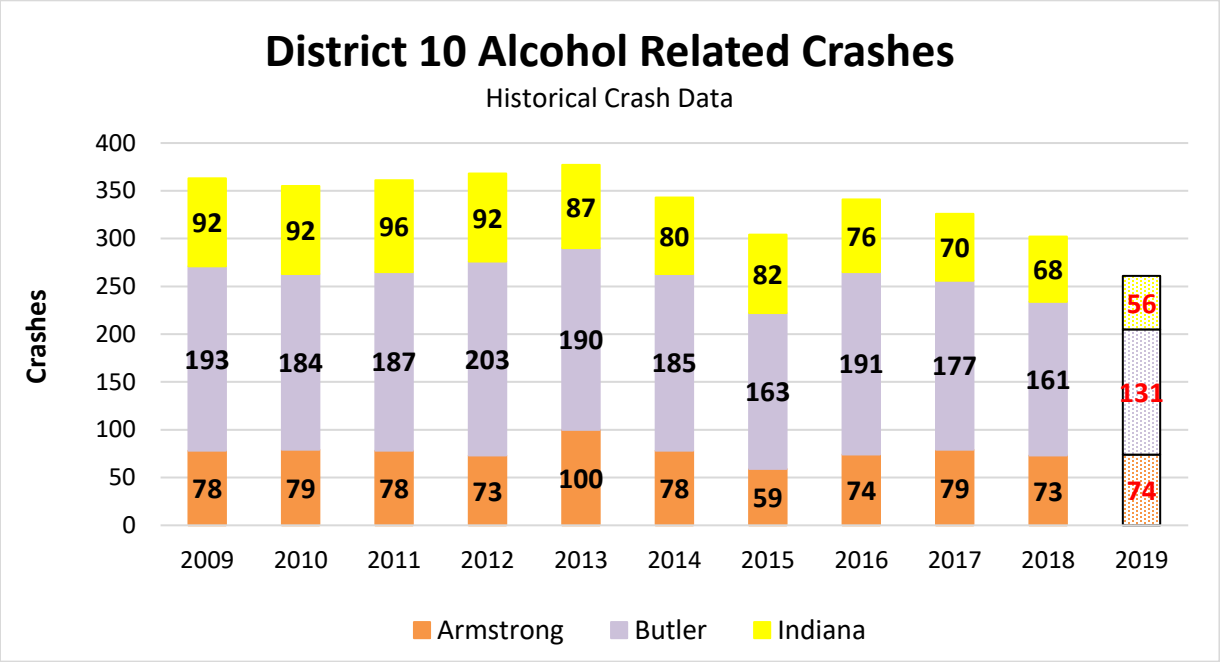

Highway-Rail Crossing Crashes per Year
Historical Crash Data
Crashes
80
70
60
50
40
30
20
10
0
5
46
19
59
12
63
16
59
16
61
20
72
18
58
19
57
17
54
18
74
12
65
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
SPC Region
Statewide

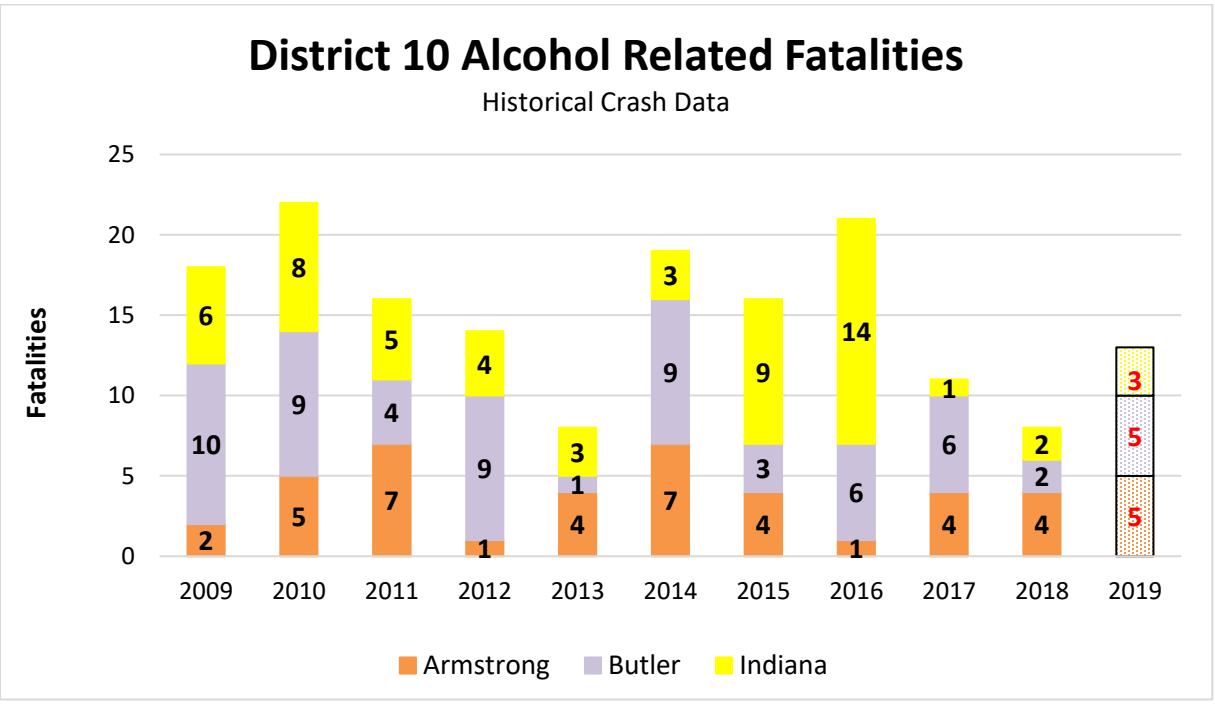

Highway-Rail Crossing Fatalities per Year
Historical Fatality Data
Fatalities
12
11
10
9
8
7
6
5
4
3
2
1
0
1
2
3
11
3
2
3
7
1
5
4
3
1
1
6
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
SPC Region
Statewide

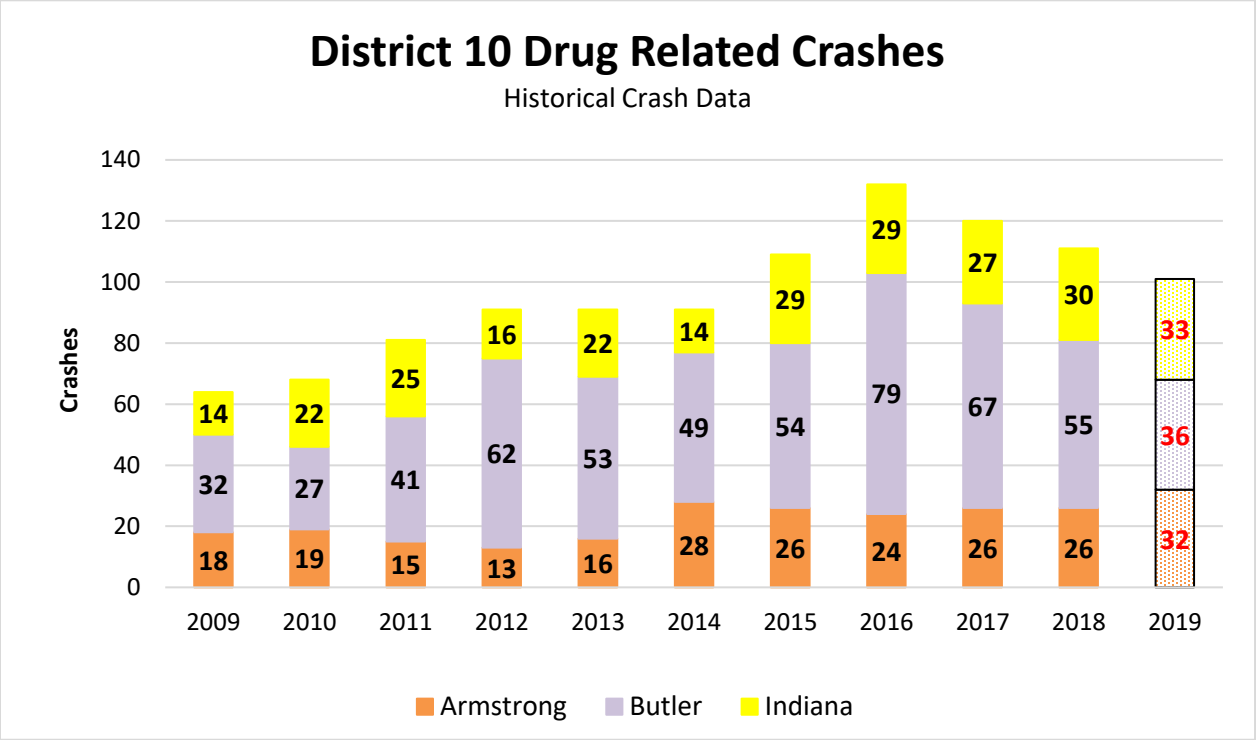
Appendix C – District and County Safety Data (Annual Crashes and Fatalities)

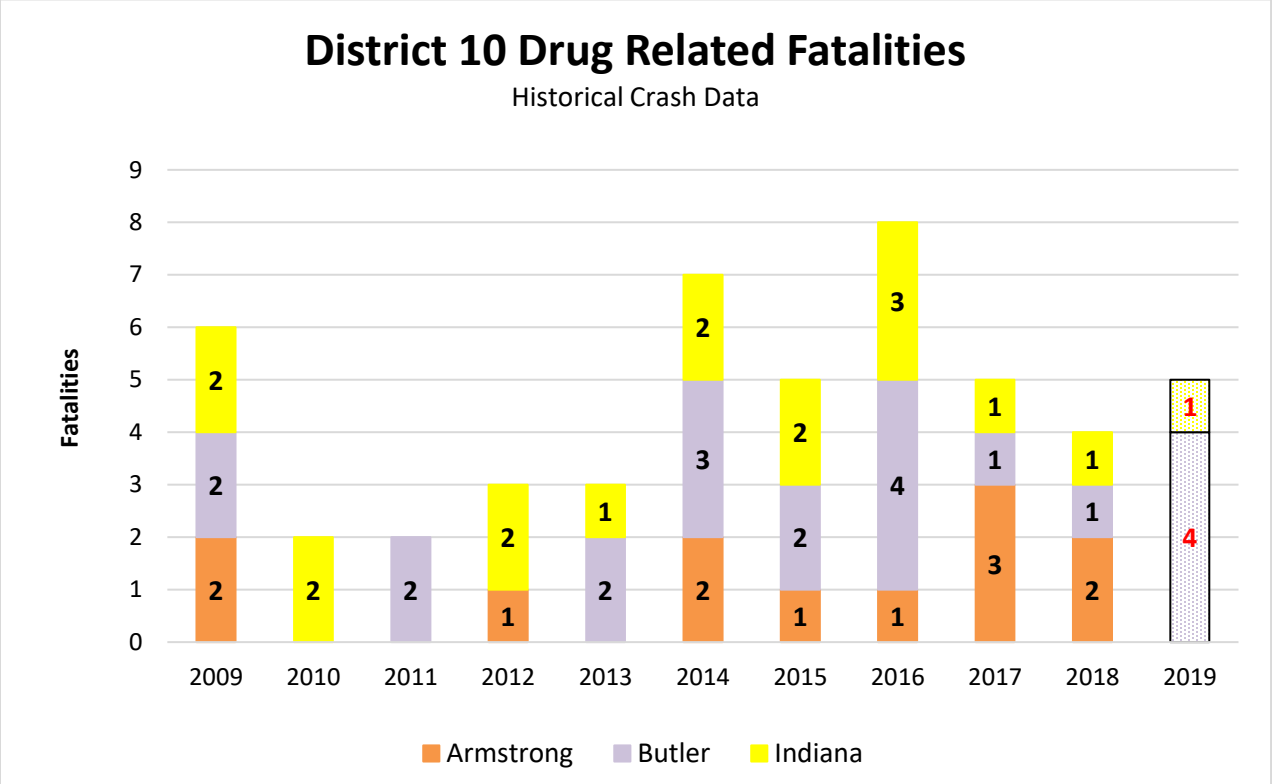

District 10 Total Crashes
Historical Crash Data
Crashes
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
871 844 821 786 782 779 750 723 709 742 723
1,745 1,715 1,833 1,969 2,093 1,952 1,848 1,833 1,872 1,874 1,748
557 581 550 529 625 525 517 511 546 495 488
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
Armstrong
Butler
Indiana

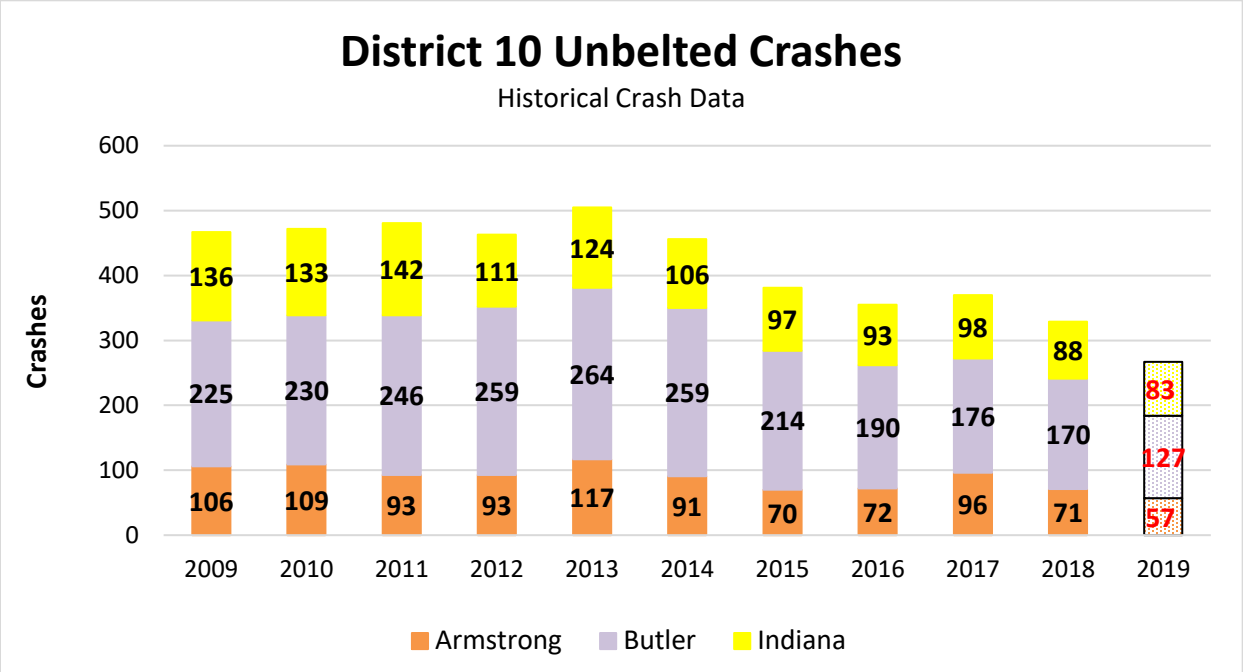

District 10 Total Fatalities
Historical Crash Data
Fatalities
70
60
50
40
30
20
10
0
18 23 16 8 15 9 17 21 7 10 12
21 29 17 28 18 25 16 30 17 18 16
11 13 14 10 6 14 14 6 9 9 11
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
Armstrong
Butler
Indiana

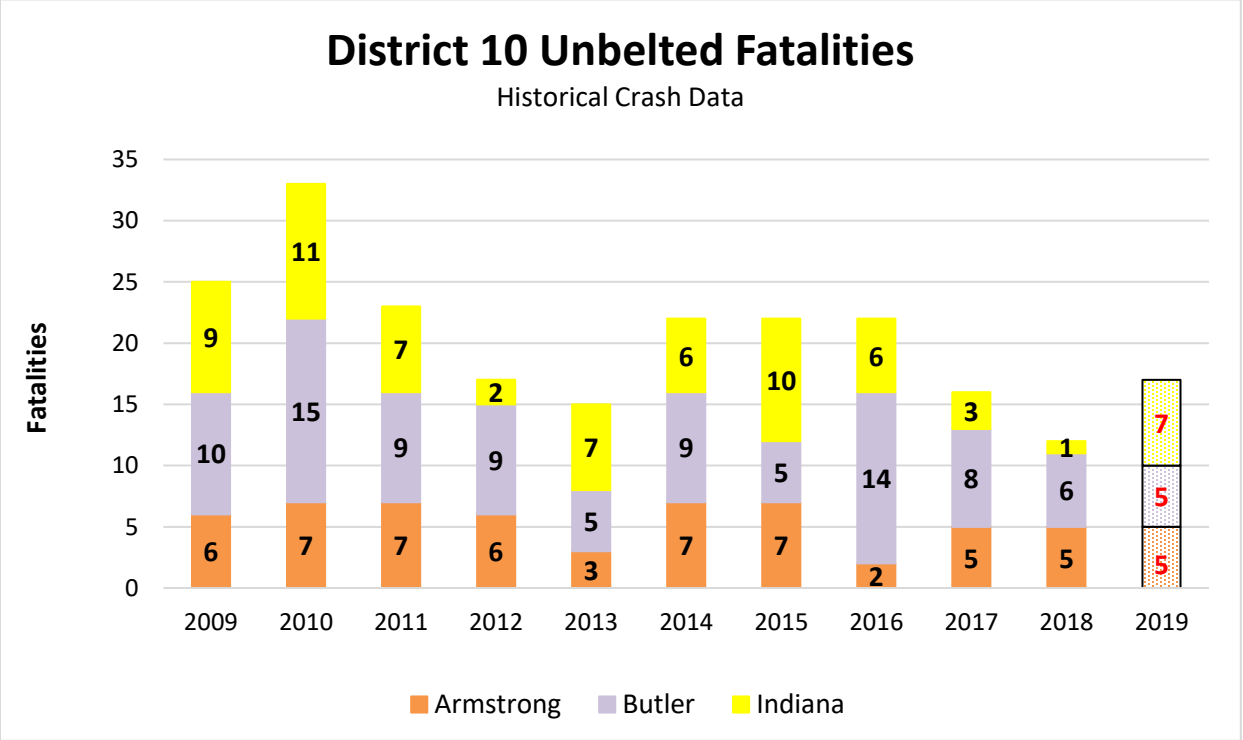

District 10 Alcohol Related Crashes
Historical Crash Data
Crashes
400
350
300
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
92 92 96 92 87 80 82 76 70 68 56
193 184 187 203 190 185 163 191 177 161 131
78 79 78 73 100 78 59 74 79 73 74
Armstrong
Butler
Indiana

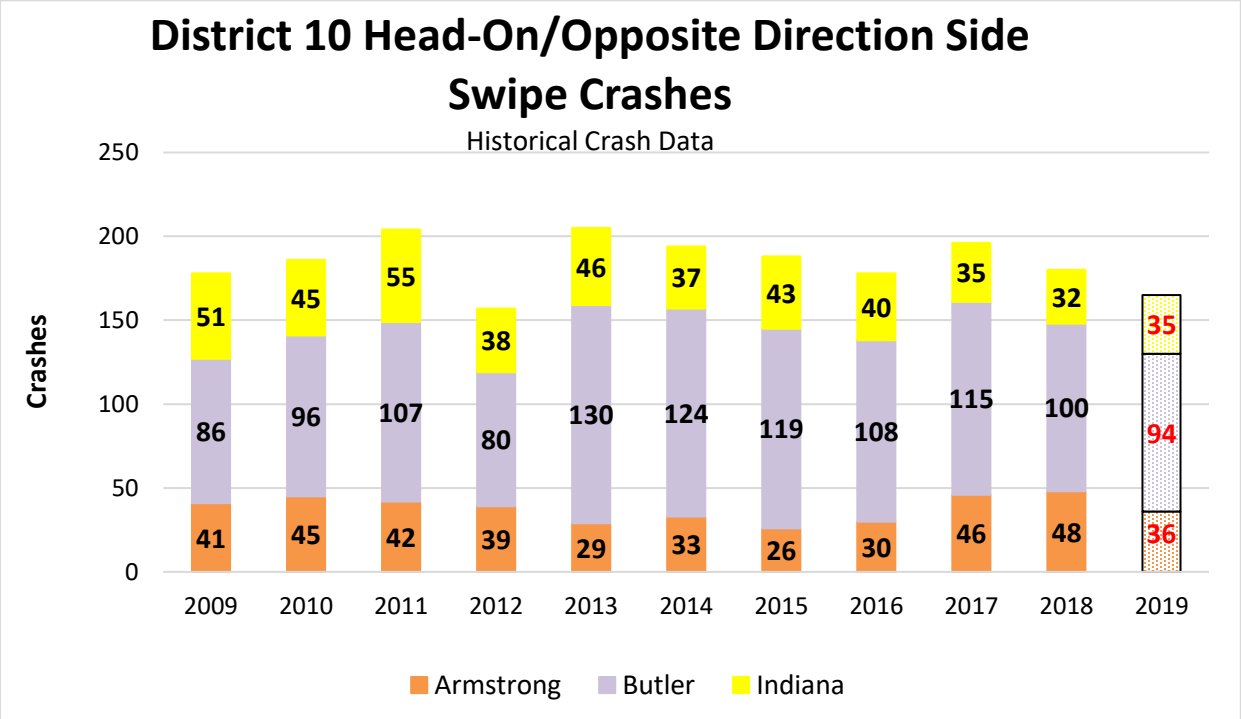

District 10 Alcohol Related Fatalities
Historical Crash Data
Fatalities
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
6 8 5 4 3 3 9 14 1 2 3
10 9 4 9 1 9 3 6 6 2 5
2 5 7 1 4 7 4 1 4 4 5
Armstrong
Butler
Indiana

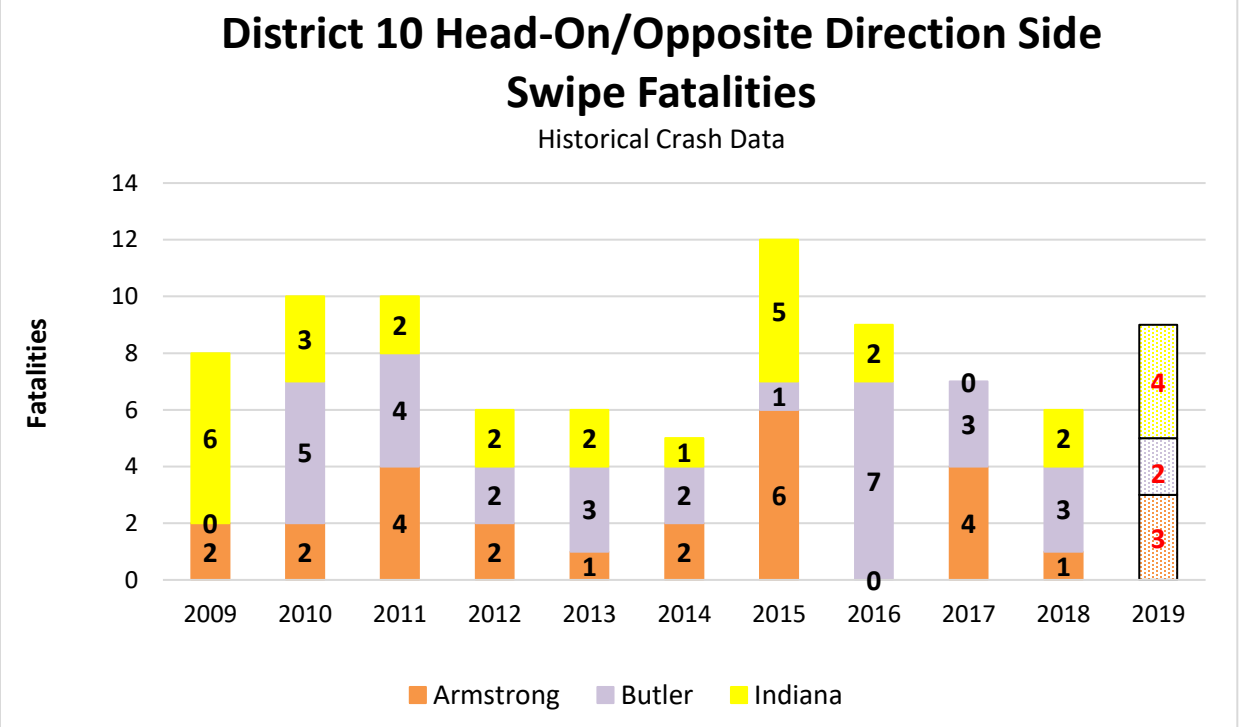

District 10 Drug Related Crashes
Historical Crash Data
Crashes
140
120
100
80
60
40
20
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
14 22 25 16 22 14 29 29 27 30 33
32 27 41 62 53 49 54 79 67 55 36
18 19 15 13 16 28 26 24 26 26 32
Armstrong
Butler
Indiana

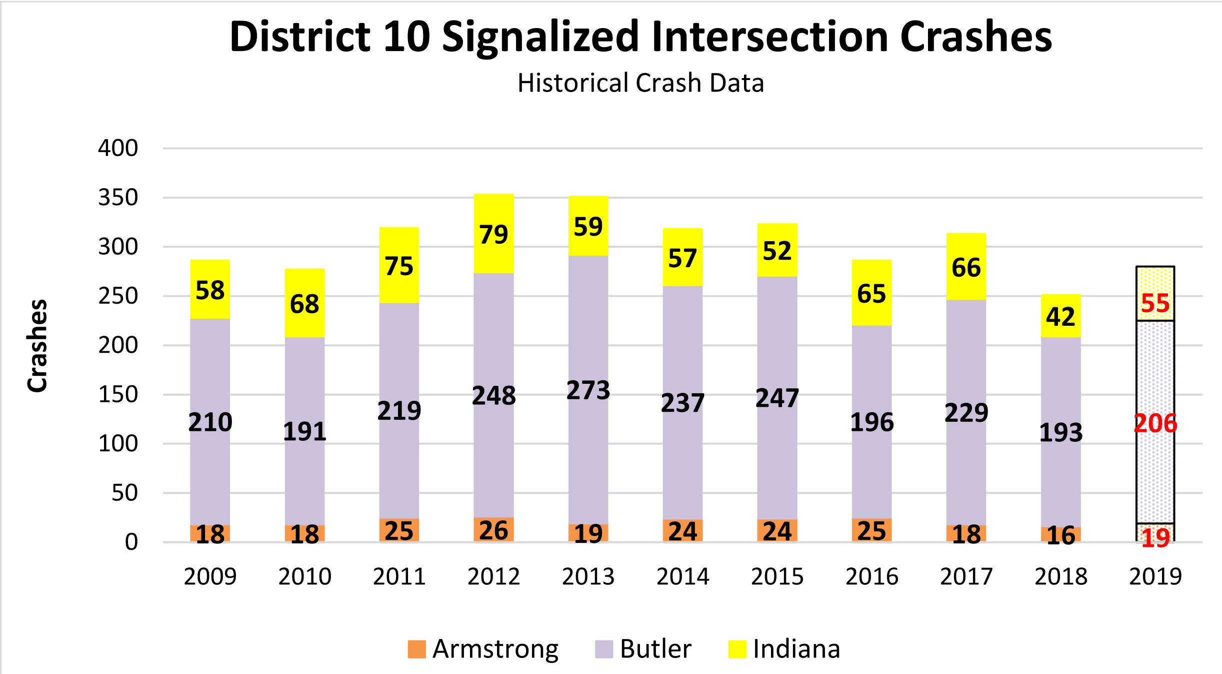

District 10 Drug Related Fatalities
Historical Crash Data
Fatalities
9
8
7
6
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
2 2 2 2 1 2 2 3 1 1 1
2 2 2 2 1 3 2 4 1 1 4
2 2 1 2 2 2 1 1 3 2
Armstrong
Butler
Indiana

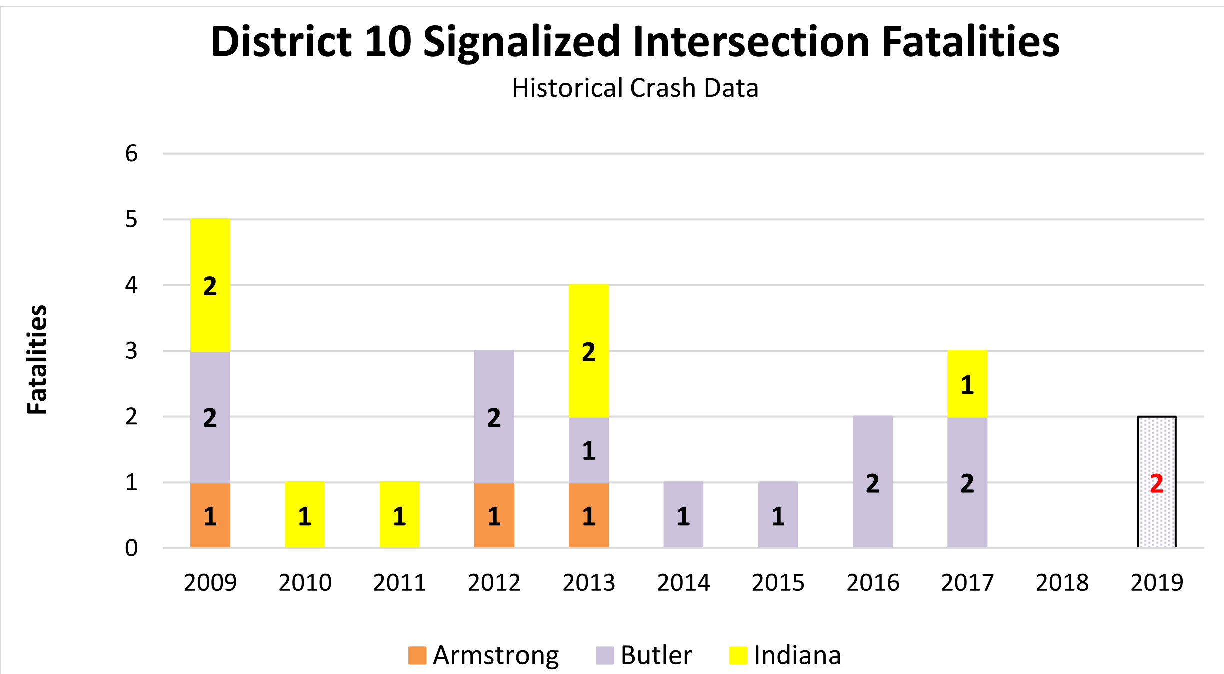

District 10 Unbelted Crashes
Historical Crash Data
Crashes
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
136 133 142 111 124 106 97 93 98 88 83
225 230 246 259 264 259 214 190 176 170 127
106 109 93 93 117 91 70 72 96 71 57
Armstrong
Butler
Indiana

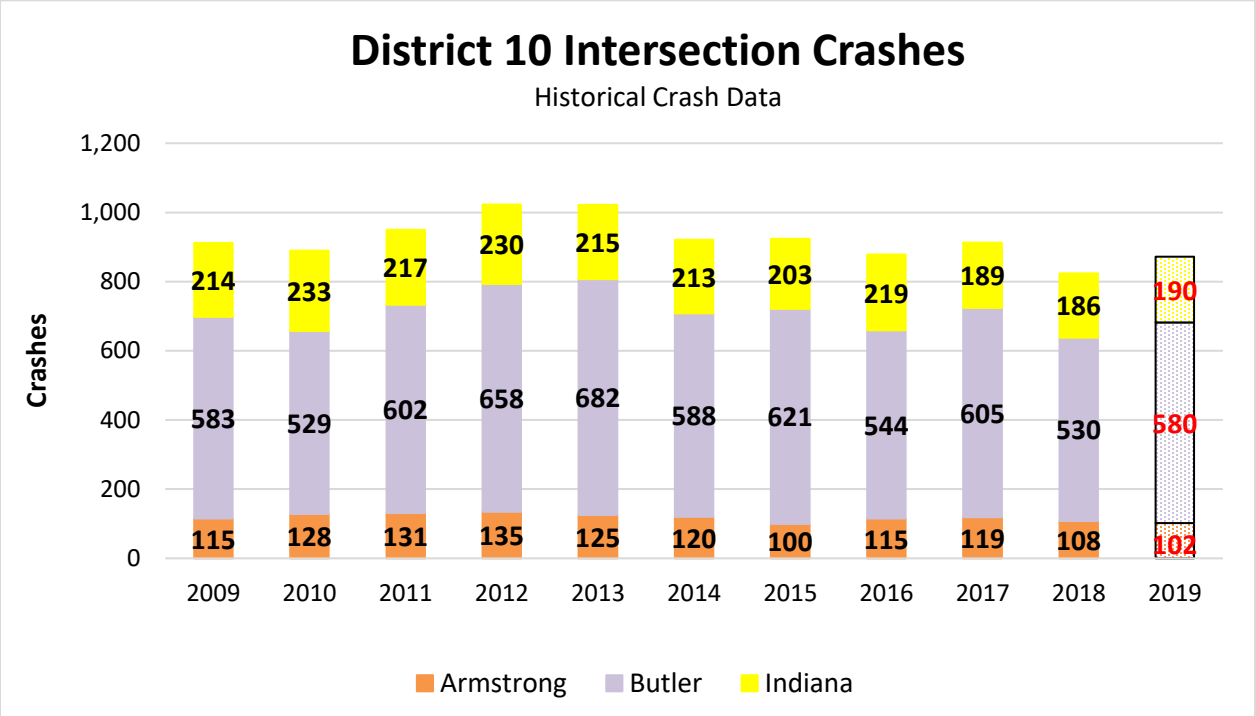

District 10 Unbelted Fatalities
Historical Crash Data
Fatalities
35
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
9 11 7 2 7 6 10 6 3 1 7
10 15 9 9 5 9 5 14 8 6 5
6 7 7 6 3 7 7 2 5 5 5
Armstrong
Butler
Indiana

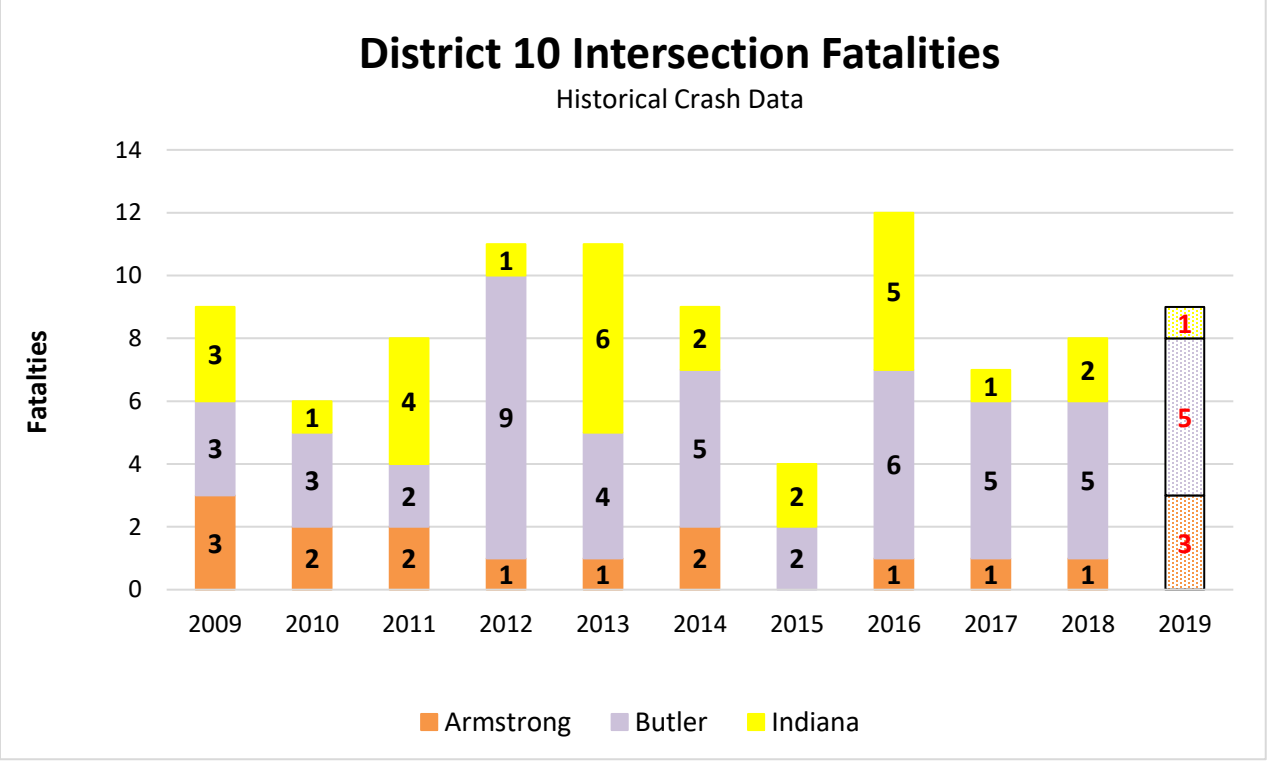

District 10 Head-On/Opposite Direction Side Swipe Crashes
Historical Crash Data
Crashes
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
51 45 55 38 46 37 43 40 35 32 35
86 96 107 80 130 124 119 108 115 100 94
41 45 42 39 29 33 26 30 46 48 36
Armstrong
Butler
Indiana

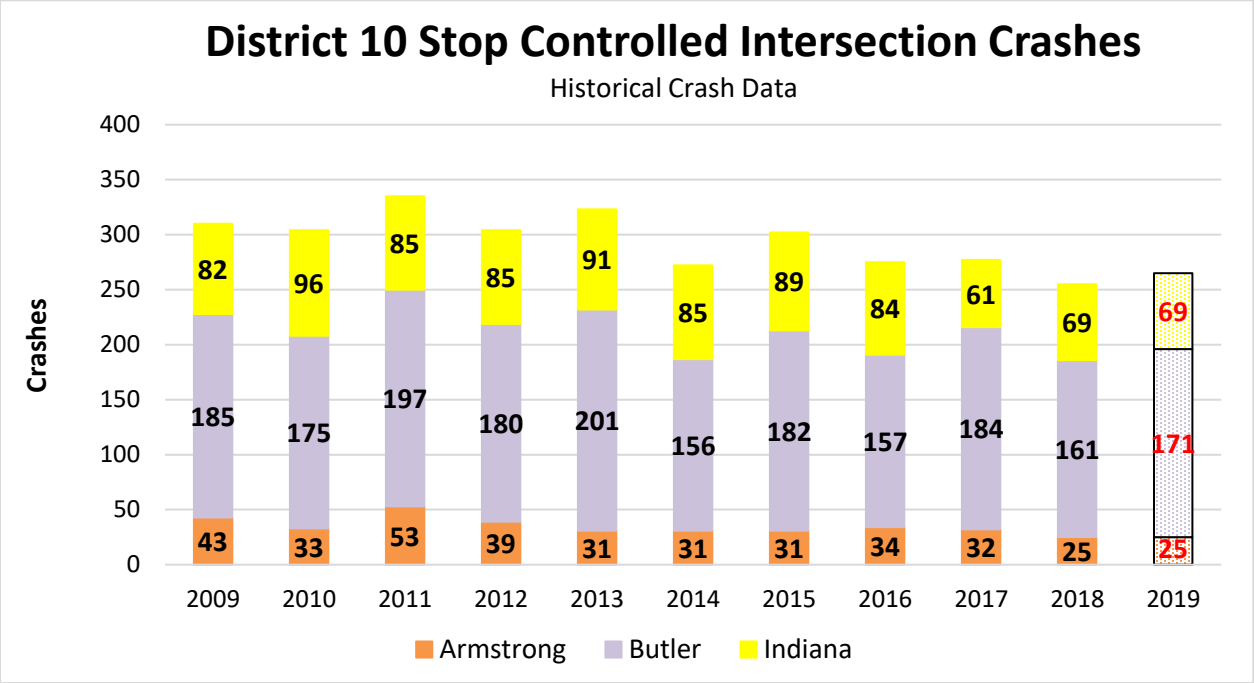

District 10 Head-On/Opposite Direction Side Swipe Fatalities
Historical Crash Data
Fatalities
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
6 3 2 2 2 1 5 2 0 0 4
0 5 4 2 3 2 1 7 3 3 2
2 2 4 2 1 2 6 0 4 1 3
Armstrong
Butler
Indiana

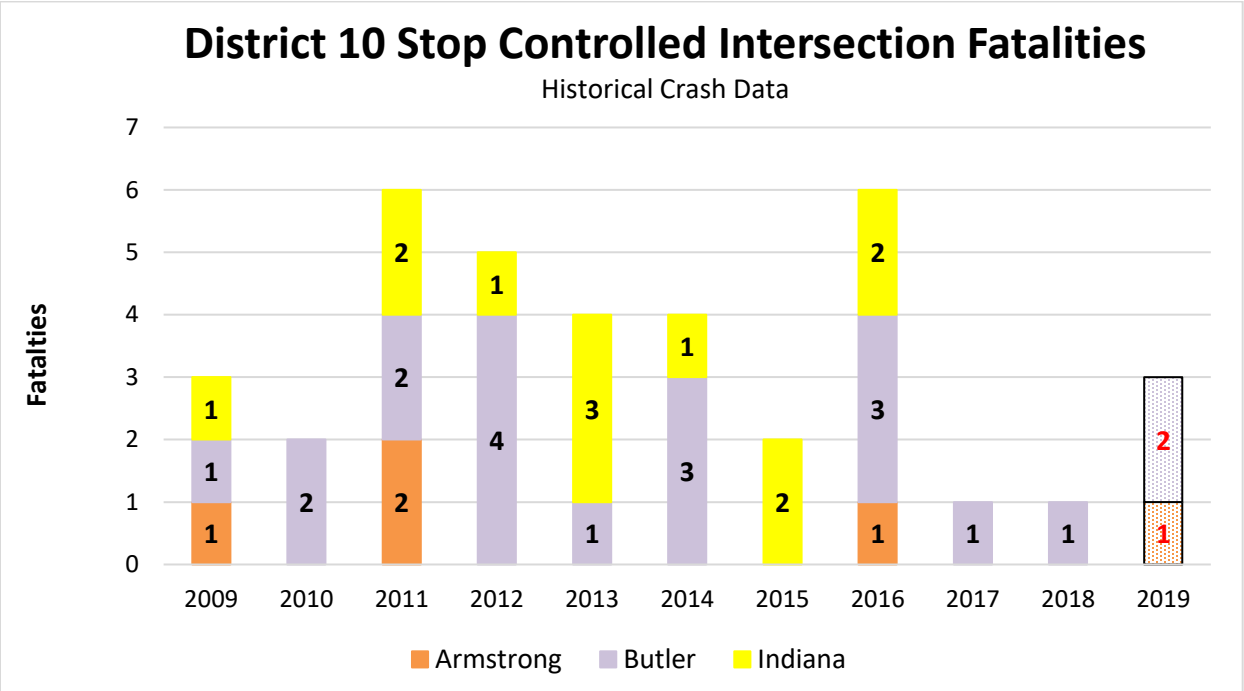

District 10 Signalized Intersection Crashes
Historical Crash Data
Crashes
400
350
300
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
58 68 75 79 59 57 52 65 66 42 55
210 191 219 248 273 237 247 196 229 193 206
18 18 25 26 19 24 24 25 18 16 19
Armstrong
Butler
Indiana

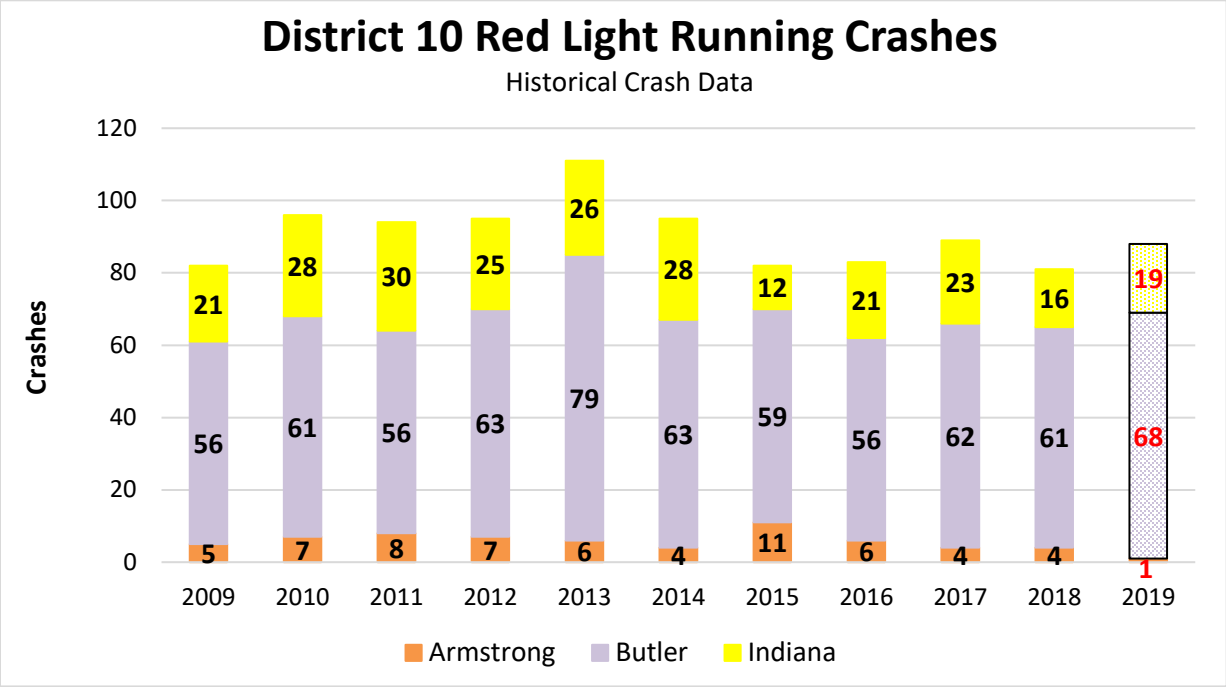

District 10 Signalized Intersection Fatalities
Historical Crash Data
Fatalities
6
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
2 2 1 1 1 2 1 2 1 1 1 1 2 2 1 2 2
Armstrong
Butler
Indiana

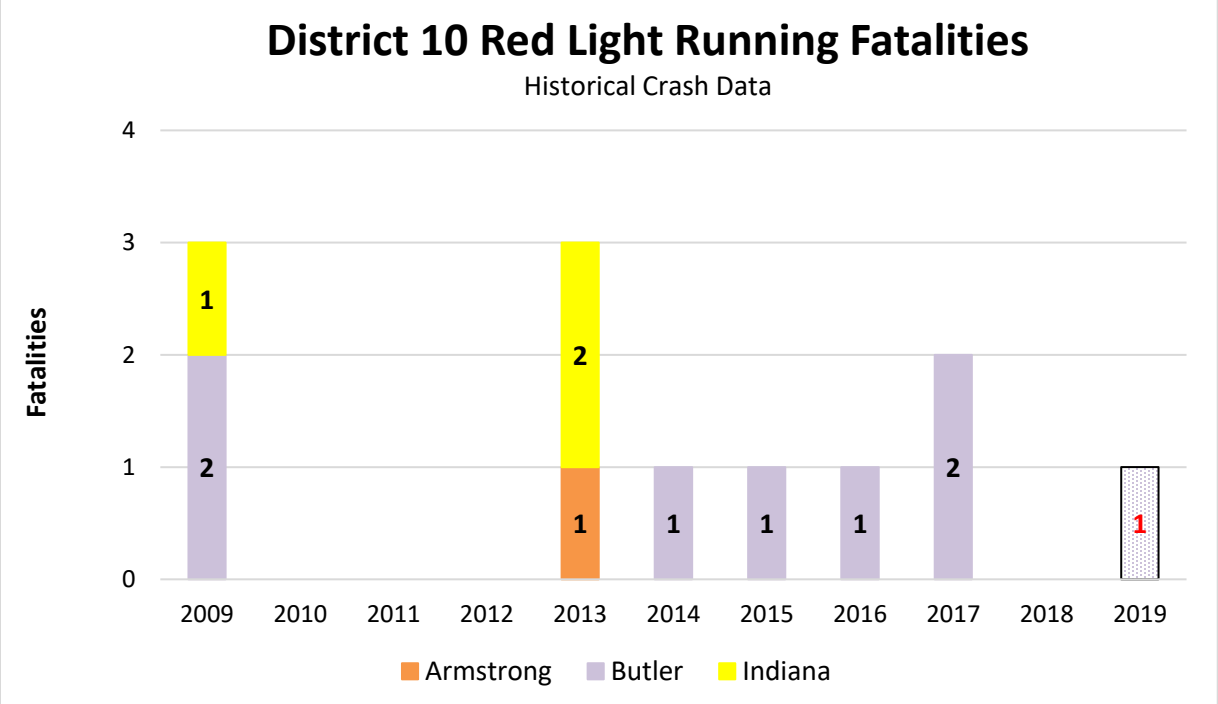

District 10 Intersection Crashes
Historical Crash Data
Crashes
1,200
1,000
800
600
400
200
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
214 233 217 230 215 213 203 219 189 186 190
583 529 602 658 682 588 621 544 605 530 580
115 128 131 135 125 120 100 115 119 108 102
Armstrong
Butler
Indiana

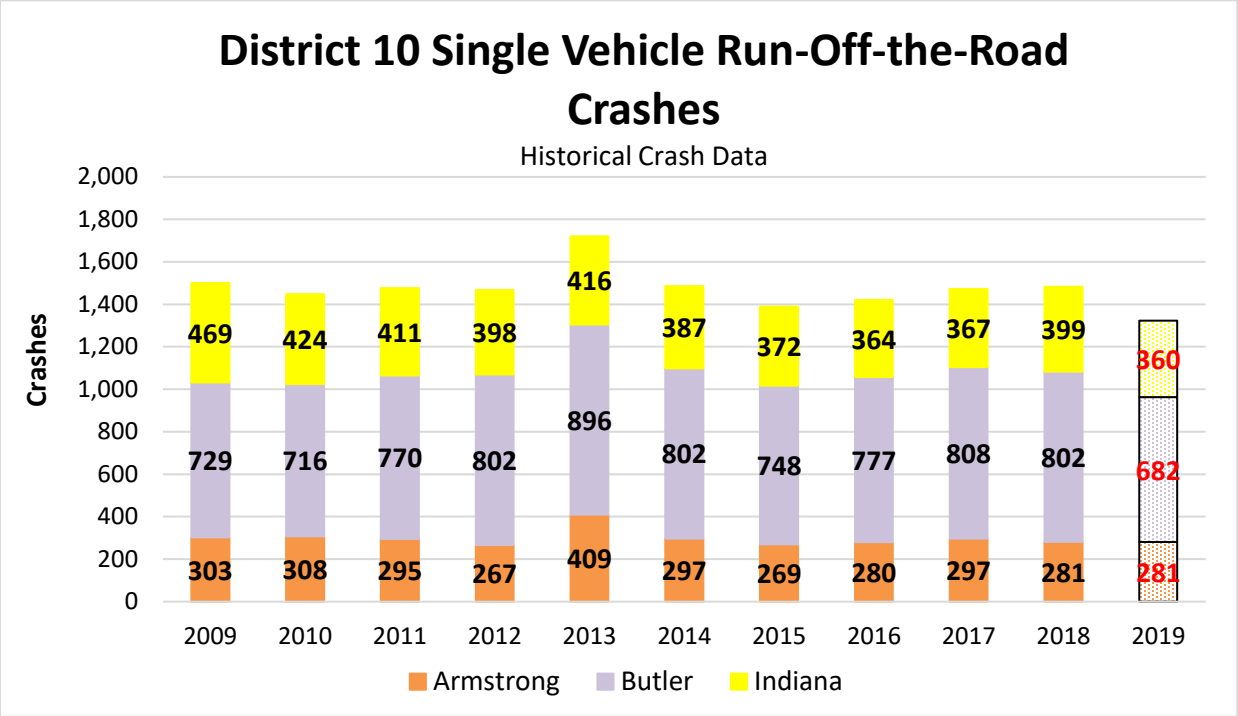

District 10 Intersection Fatalities
Historical Crash Data
Fatalties
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
3 1 4 1 6 2 5 1 2 1
3 3 2 9 4 5 2 6 5 5 5
3 2 2 1 1 2 2 1 1 1 3
Armstrong
Butler
Indiana

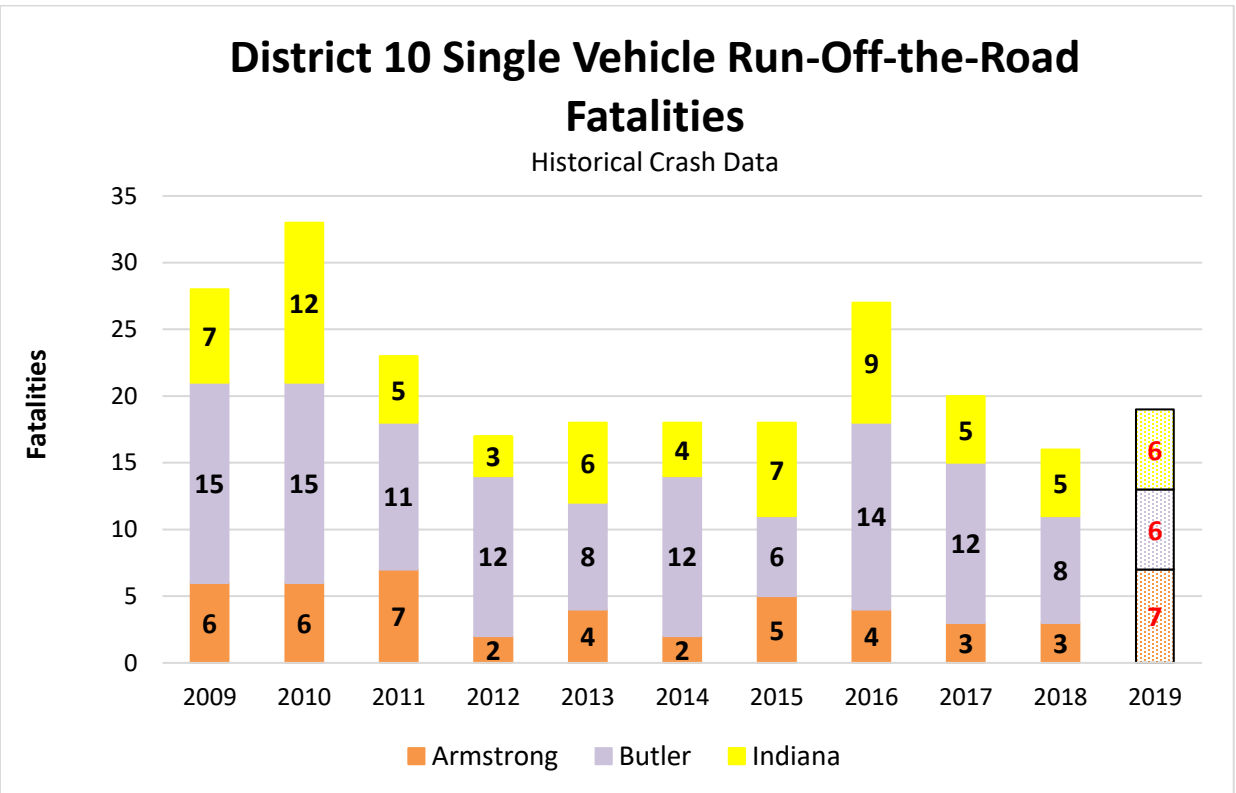

District 10 Stop Controlled Intersection Crashes
Historical Crash Data
Crashes
400
350
300
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
82 96 85 85 91 85 89 84 61 69 69
185 175 197 180 201 156 182 157 184 161 171
43 33 53 39 31 31 31 34 32 25 25
Armstrong
Butler
Indiana

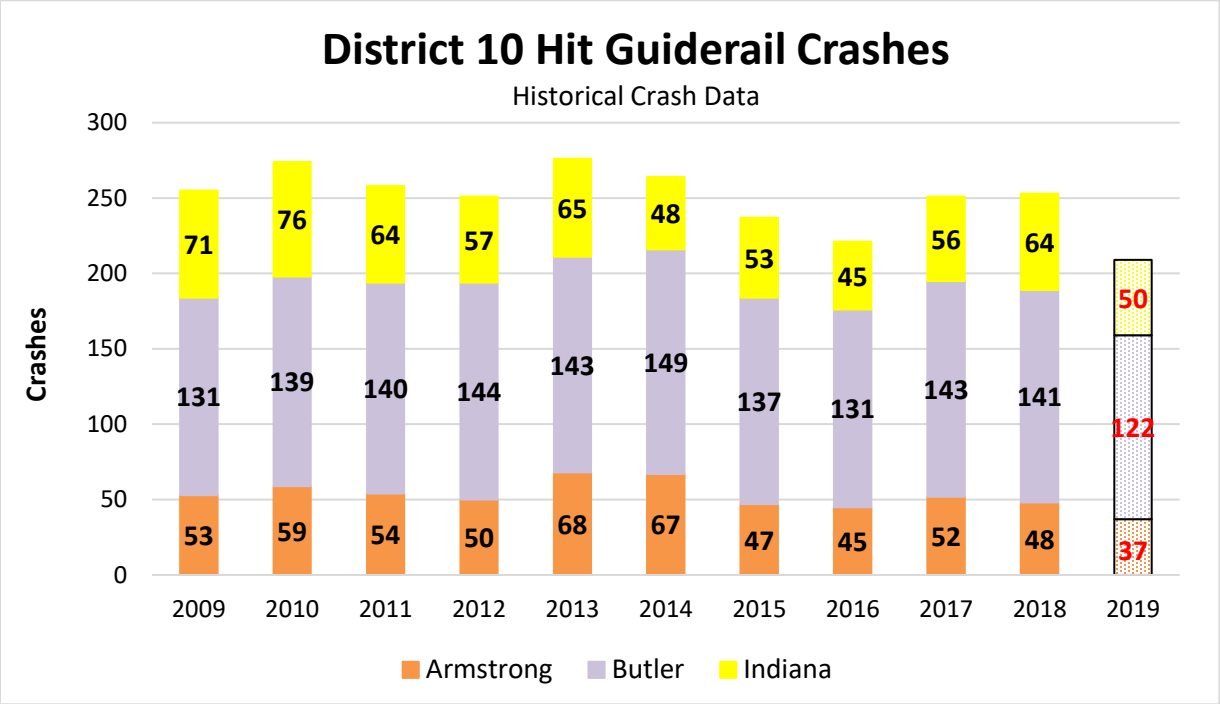

District 10 Stop Controlled Intersection Fatalities
Historical Crash Data
Fatalties
7
6
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 2 2 1 3 1 2 2 1 1 2
1 2 2 4 1 3 2 3 1 1 1
1 2 2 1 3 1 2 1 1 1 1
Armstrong
Butler
Indiana

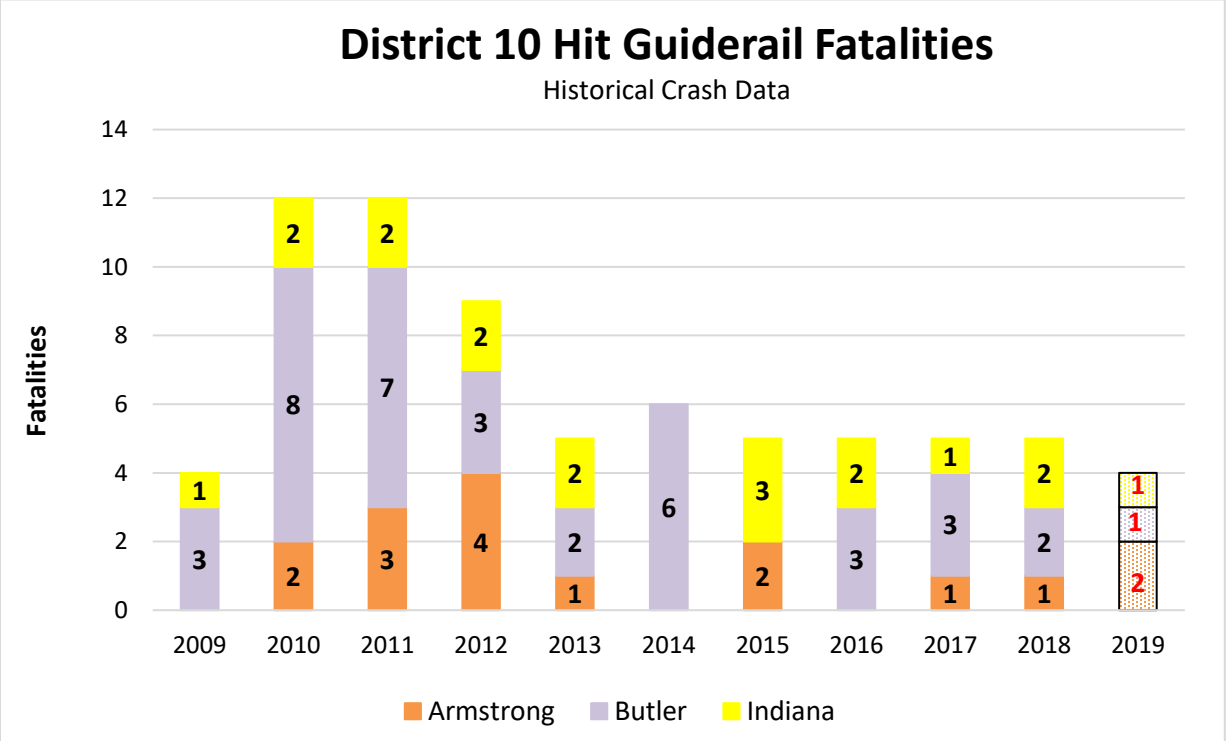

District 10 Red Light Running Crashes
Historical Crash Data
Crashes
120
100
80
60
40
20
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
21 28 30 25 26 28 12 21 23 16 19
56 61 56 63 79 63 59 56 62 61 68
5 7 8 7 6 4 11 6 4 4 1
Armstrong
Butler
Indiana

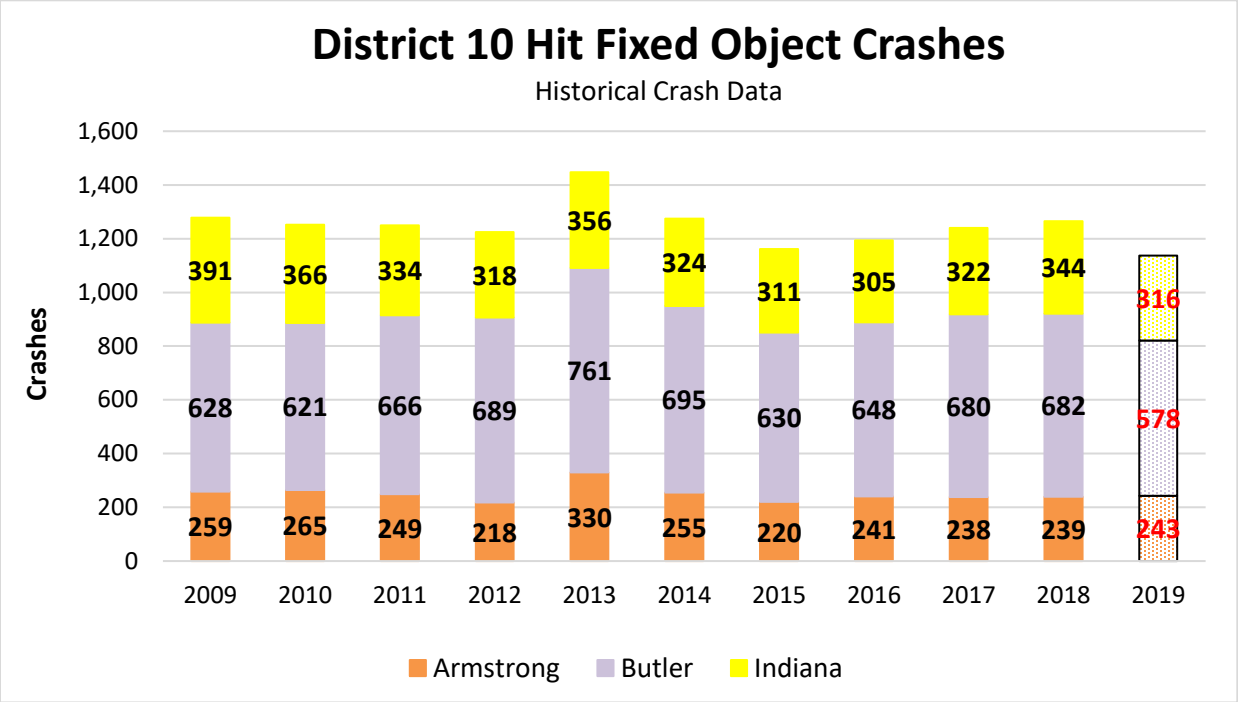

District 10 Red Light Running Fatalities
Historical Crash Data
Fatalities
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 2 1
2 2 1 1 1 2 1
Armstrong
Butler
Indiana

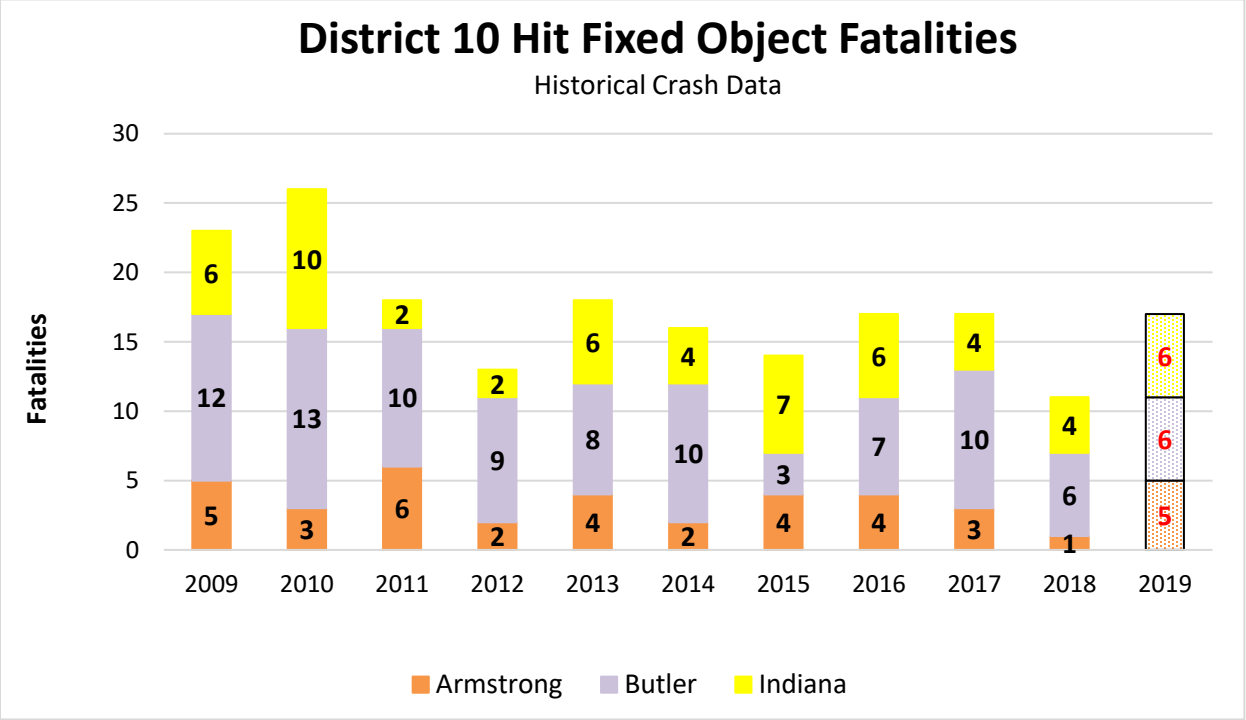

District 10 Single Vehicle Run-Off-the-Road Crashes
Historical Crash Data
Crashes
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
469 424 411 398 416 387 372 364 367 399 360
729 716 770 802 896 802 748 777 808 802 682
303 308 295 267 409 297 269 280 297 281 281
Armstrong
Butler
Indiana

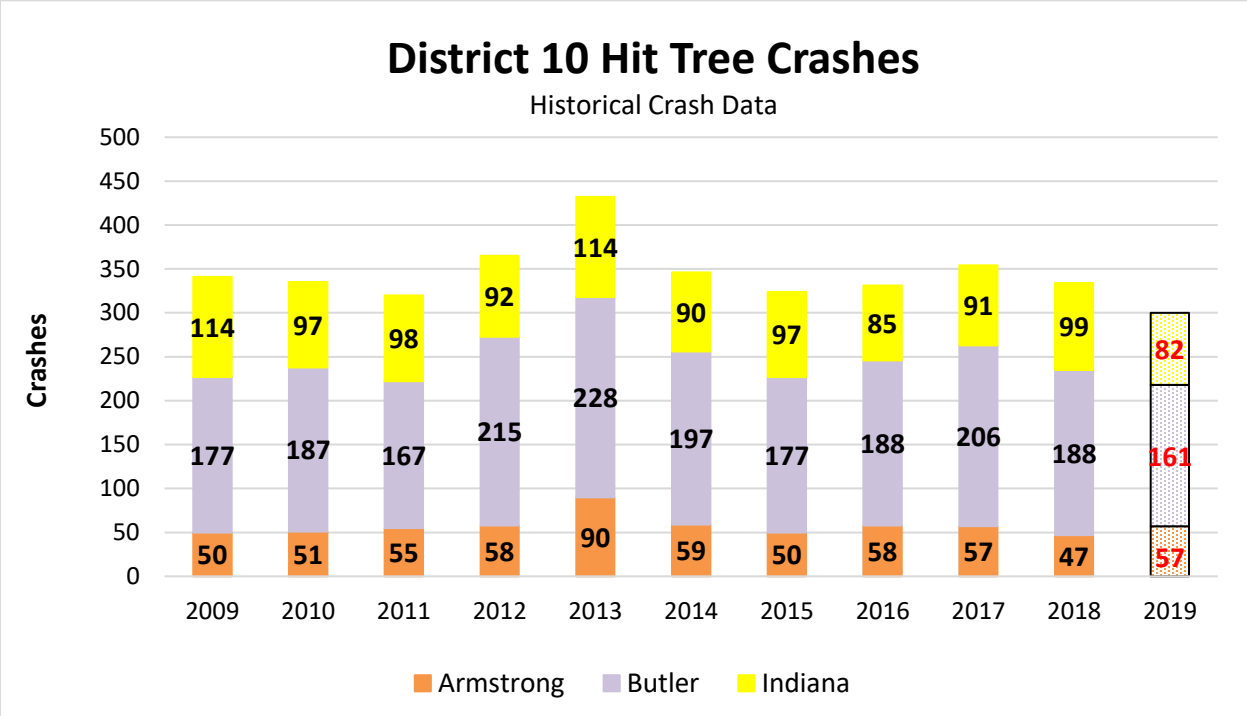

District 10 Single Vehicle Run-Off-the-Road Fatalities
Historical Crash Data
Fatalities
35
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
7 12 5 3 6 4 7 9 5 5 6
15 15 11 12 8 12 6 14 12 8 6
6 6 7 2 4 2 5 4 3 3 7
Armstrong
Butler
Indiana

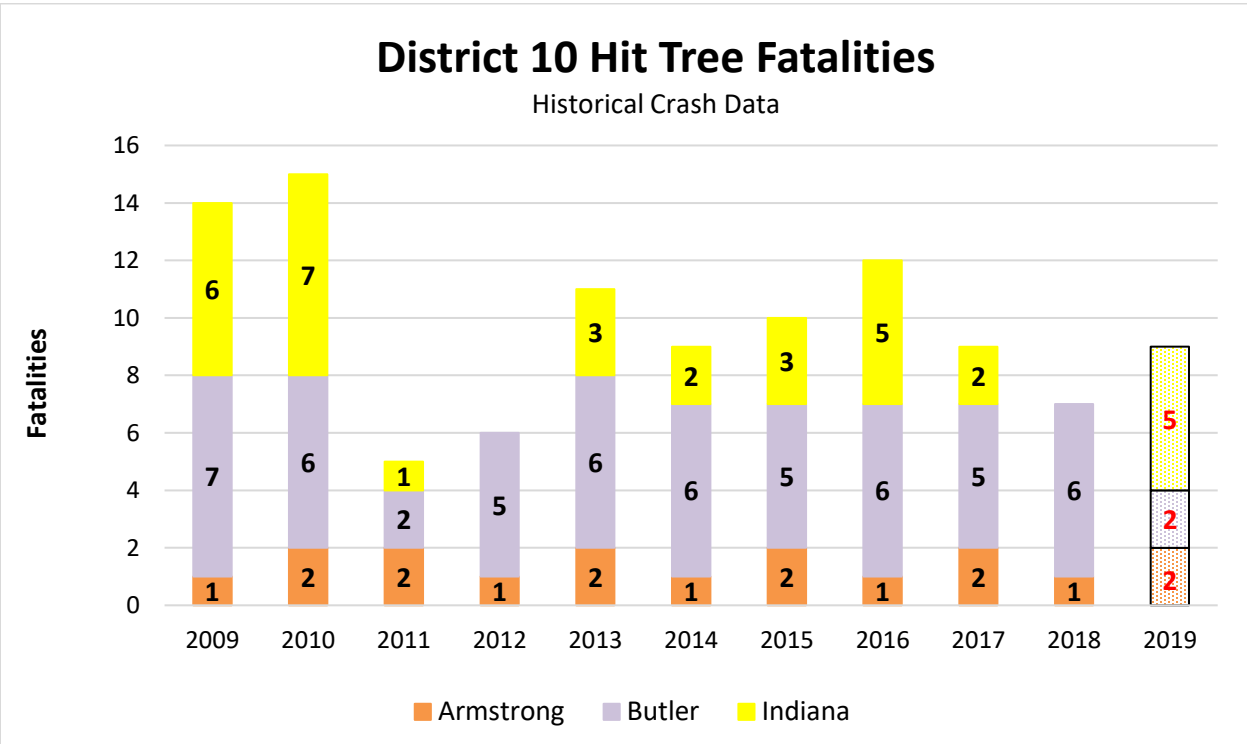

District 10 Hit Guiderail Crashes
Historical Crash Data
Crashes
300
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
71 131 53
76 139 59
64 140 54
57 144 50
65 143 68
48 149 67
53 137 47
45 131 45
56 143 52
64 141 48
50 122 37
Armstrong
Butler
Indiana

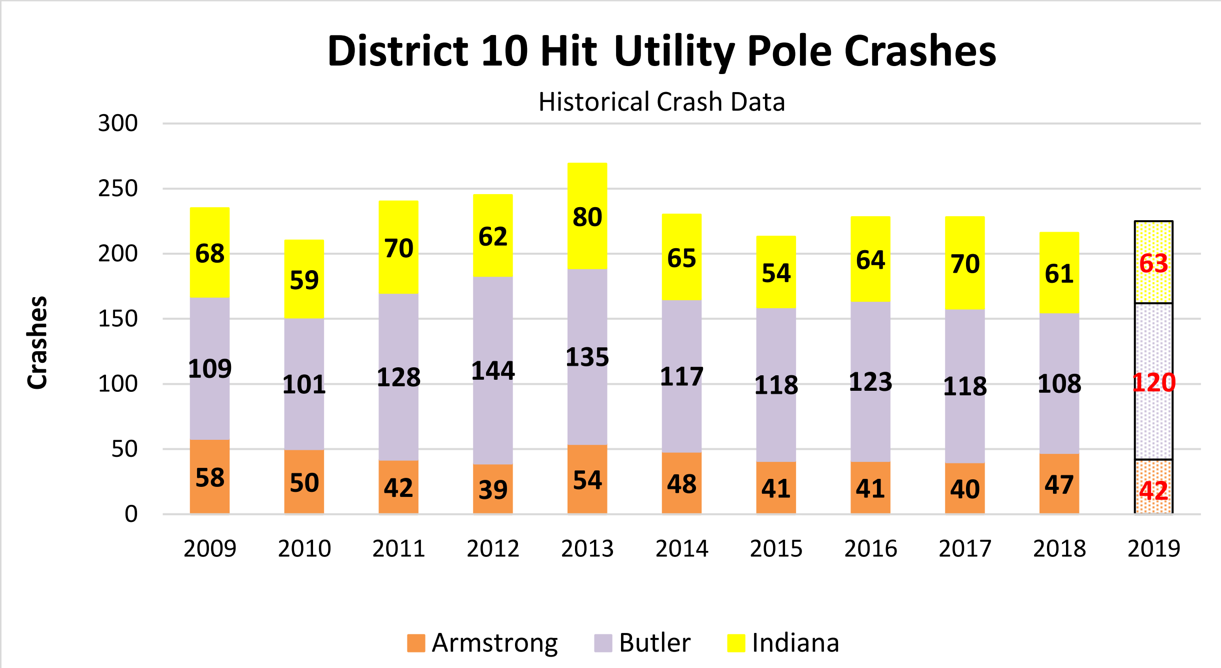

District 10 Hit Guiderail Fatalities
Historical Crash Data
Fatalities
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 3
2 8 2
2 7 3
2 3 4
2 2 1
6
3 2
2 3
1 3 1
2 2 1
1 1 2
Armstrong
Butler
Indiana

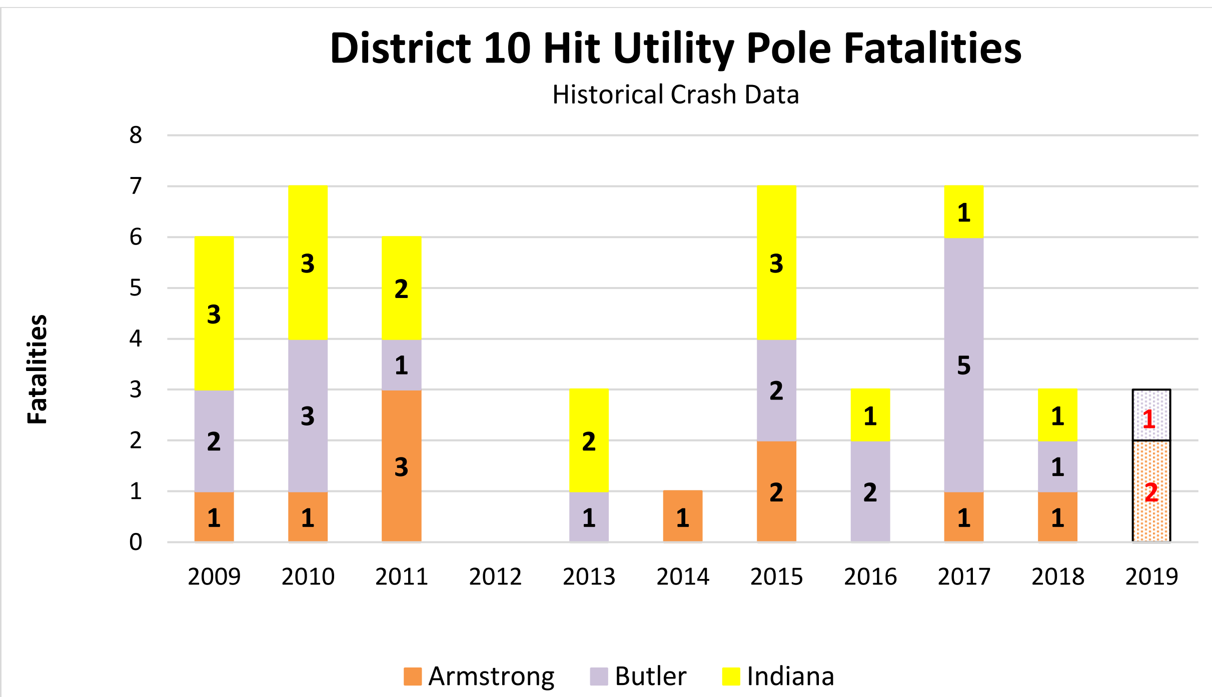

District 10 Hit Fixed Object Crashes
Historical Crash Data
Crashes
1,600
1,400
1,200
1,000
800
600
400
200
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
259 265 249 218 330 255 220 241 238 239 243
628 621 666 689 761 695 630 648 680 682 578
391 366 334 318 356 324 311 305 322 344 316
Armstrong
Butler
Indiana

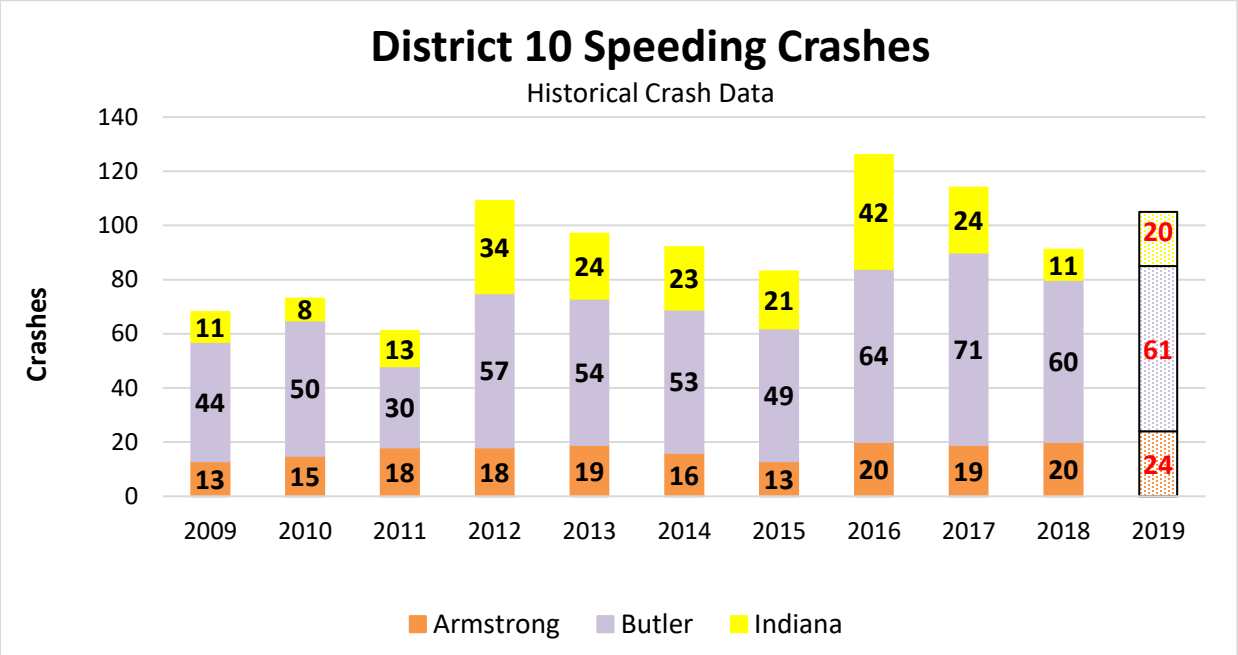

District 10 Hit Fixed Object Fatalities
Historical Crash Data
Fatalities
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
5 3 6 2 4 2 4 4 3 1 5
12 13 10 9 8 10 3 7 10 6 6
6 10 2 2 6 4 7 6 4 4 6
Armstrong
Butler
Indiana

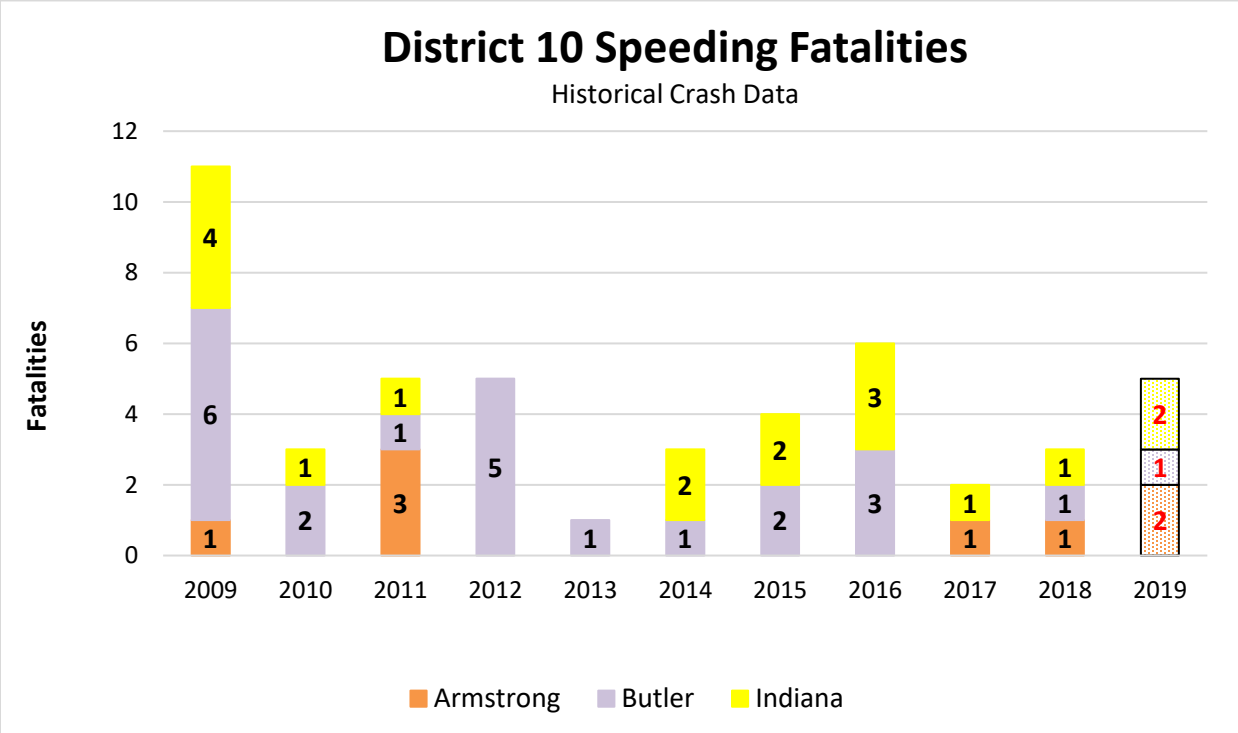

District 10 Hit Tree Crashes
Historical Crash Data
Crashes
500
450
400
350
300
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
114 177 50
97 187 51
98 167 55
92 215 58
114 228 90
90 197 59
97 177 50
85 188 58
91 206 57
99 188 47
82 161 57
Armstrong
Butler
Indiana

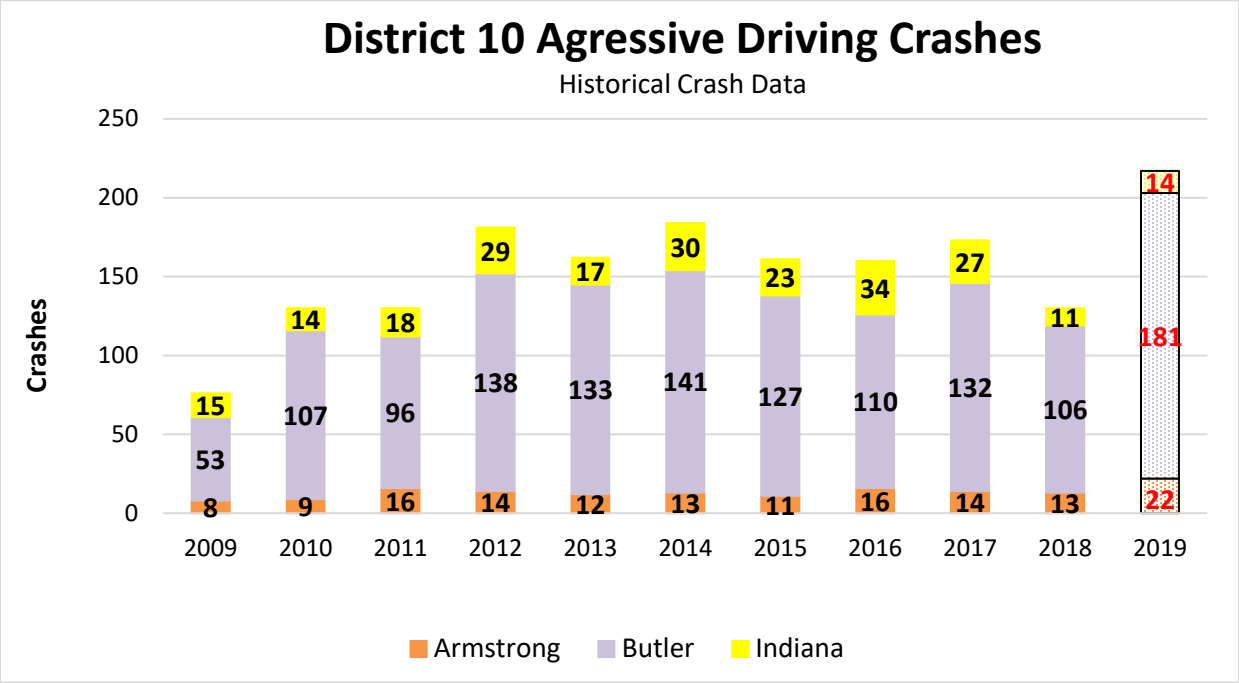

District 10 Hit Tree Fatalities
Historical Crash Data
Fatalities
16
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
6 7 1
7 6 2
1 2 2
5 1
3 6 2
2 6 1
3 5 2
5 6 1
2 5 2
6 1
5 2 2
Armstrong
Butler
Indiana

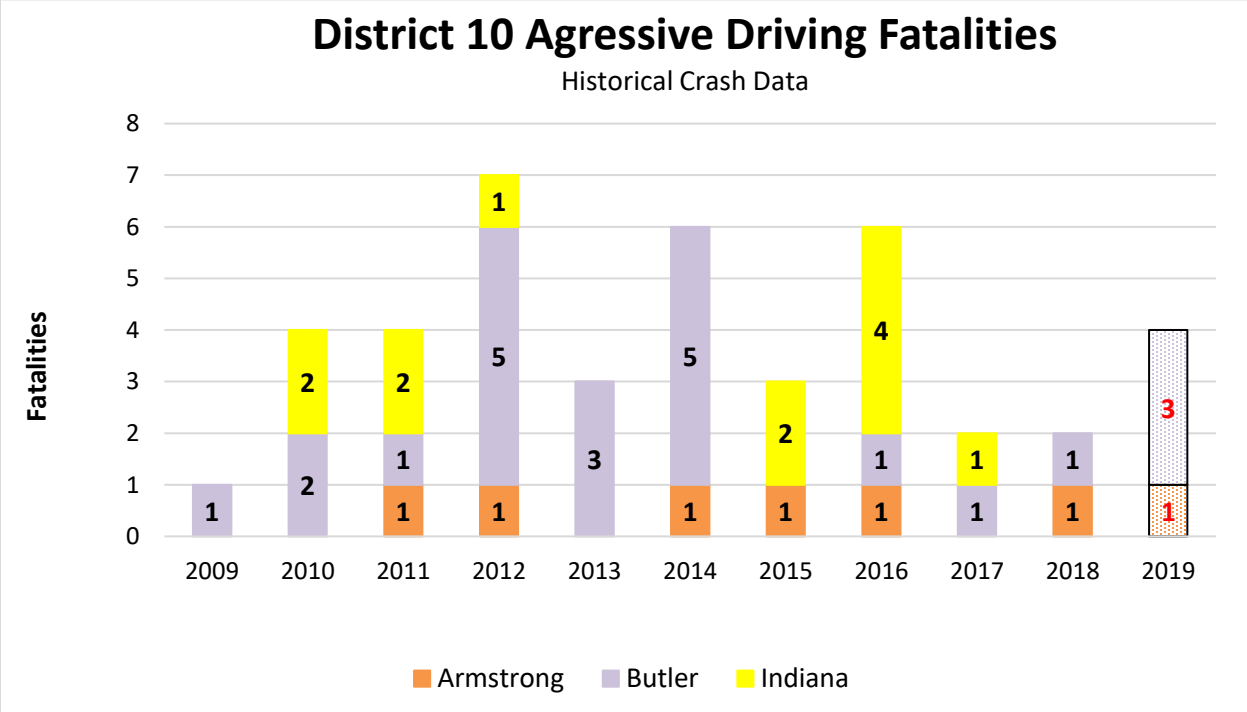

District 10 Hit Utility Pole Crashes
Historical Crash Data
Crashes
300
250
200
150
100
50
0
68
59
70
62
80
65
54
64
70
61
63
109
101
128
144
135
117
118
123
118
108
120
58
50
42
39
54
48
41
41
40
47
42
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Armstrong
Butler
Indiana

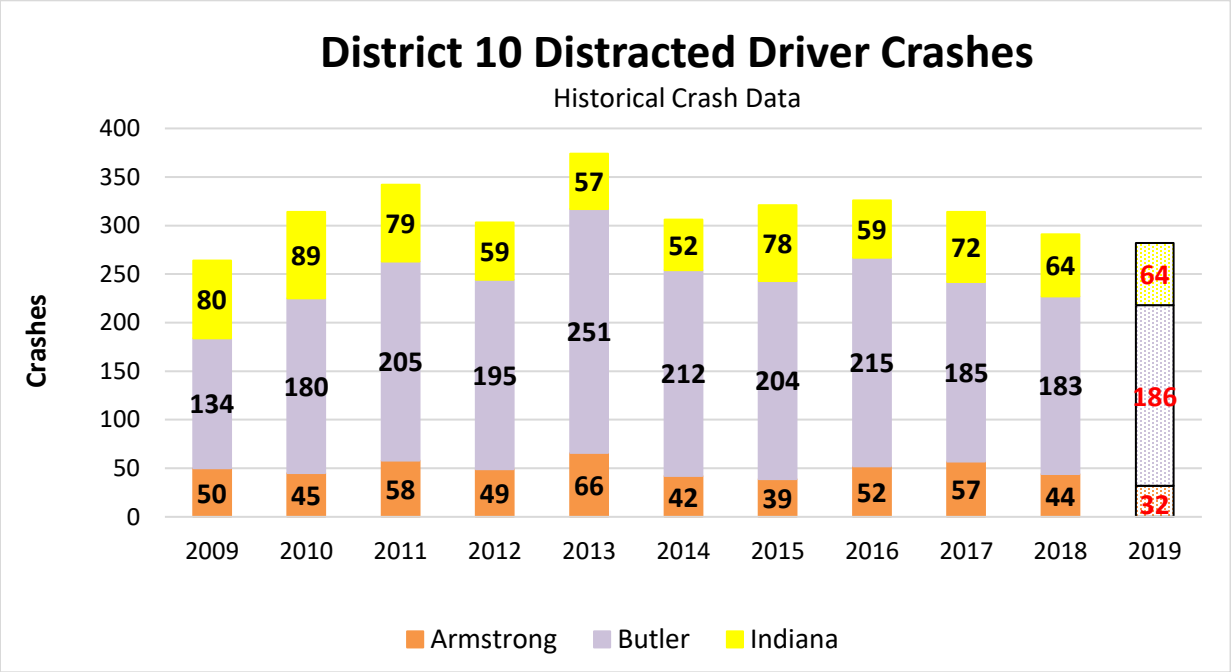

District 10 Hit Utility Pole Fatalities
Historical Crash Data
Fatalities
8
7
6
5
4
3
2
1
0
3
3
2
2
3
1
1
3
1
2
1
1
1
2
3
2
1
1
3
1
5
2
1
1
1
1
1
2
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Armstrong
Butler
Indiana

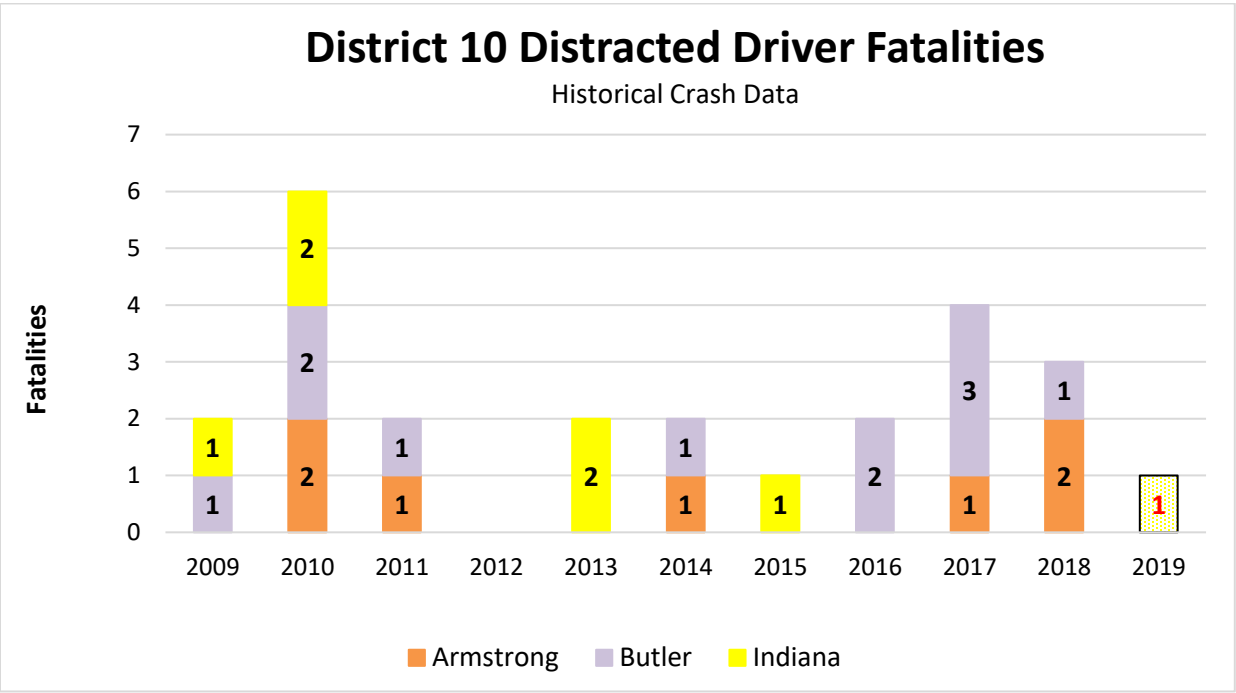

District 10 Speeding Crashes
Historical Crash Data
Crashes
140
120
100
80
60
40
20
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
11 44 13
8 50 15
13 30 18
34 57 18
24 54 19
23 53 16
21 49 13
42 64 20
24 71 19
11 60 20
20 61 24
Armstrong
Butler
Indiana

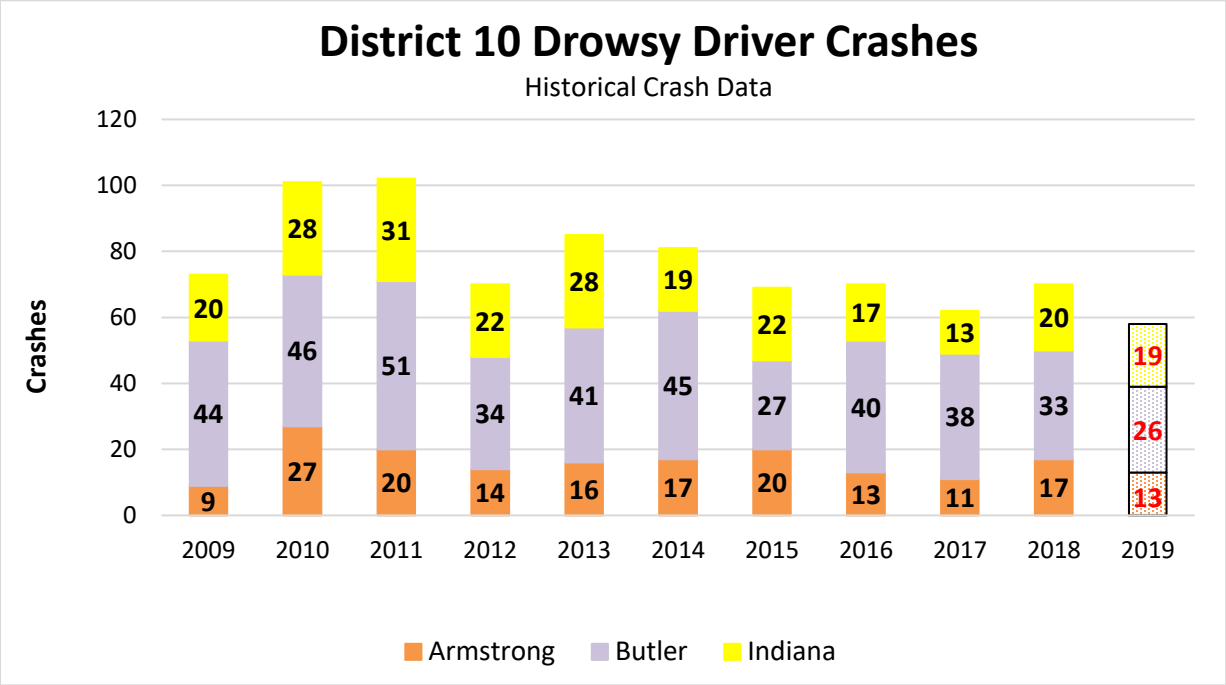

District 10 Speeding Fatalities
Historical Crash Data
Fatalities
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
4 6 1
1 2
1 1 3
5
1
2 1
2 2
3 3
1 1
1 1 1
2 1 2
Armstrong
Butler
Indiana

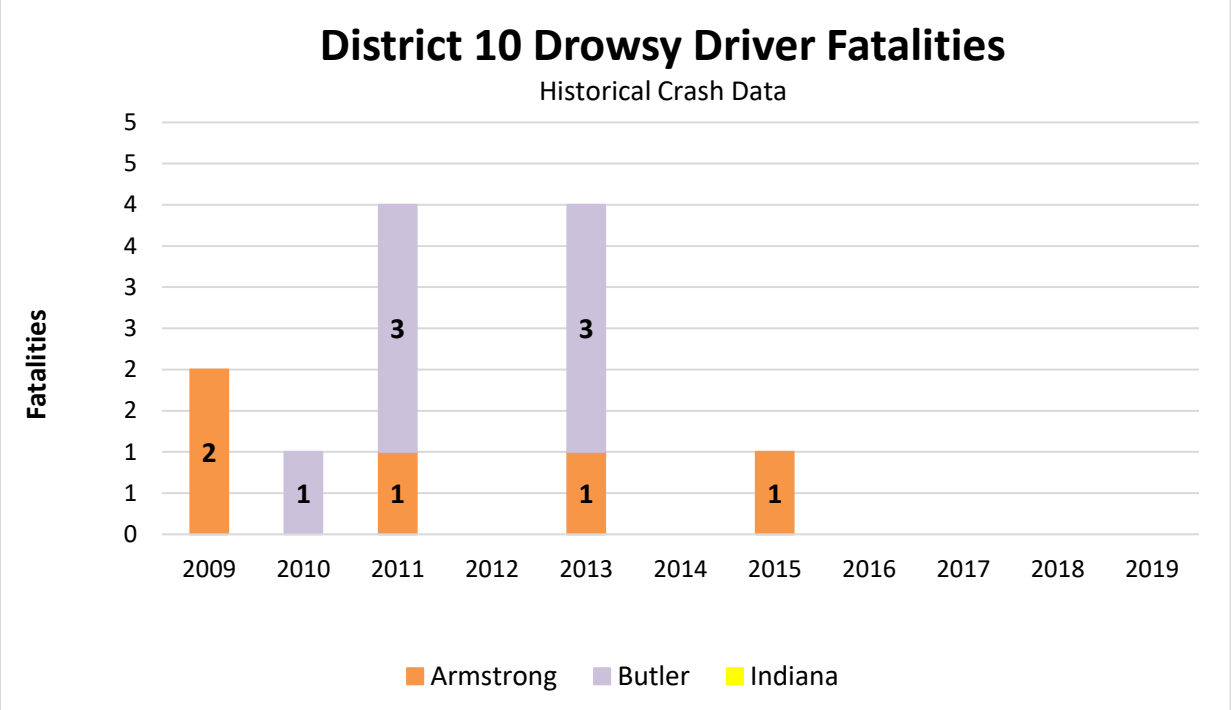

District 10 Agressive Driving Crashes
Historical Crash Data
Crashes
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
15 53 8
14 107 9
18 96 16
29 138 14
17 133 12
30 141 13
23 127 11
34 110 16
27 132 14
11 106 13
14 181 22
Armstrong
Butler
Indiana

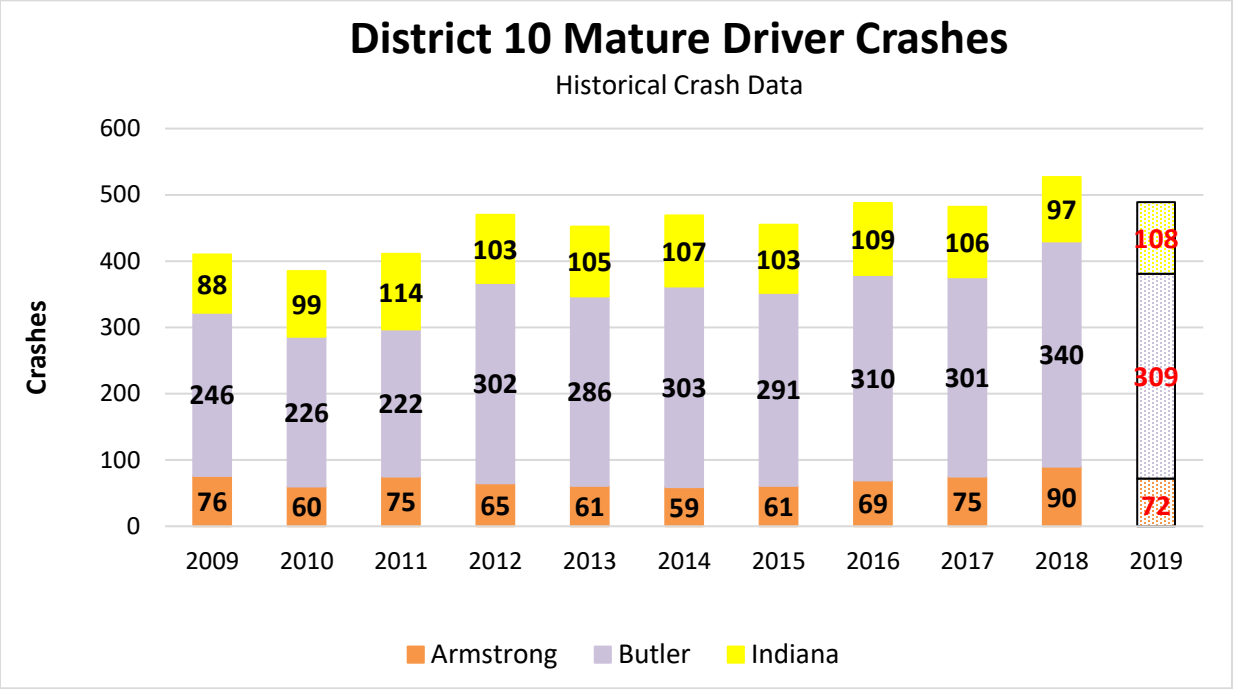

District 10 Agressive Driving Fatalities
Historical Crash Data
Fatalities
8
7
6
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1
2 2
1 2
5 1
3
5
2
1 4
1
1
1
3 1
Armstrong
Butler
Indiana

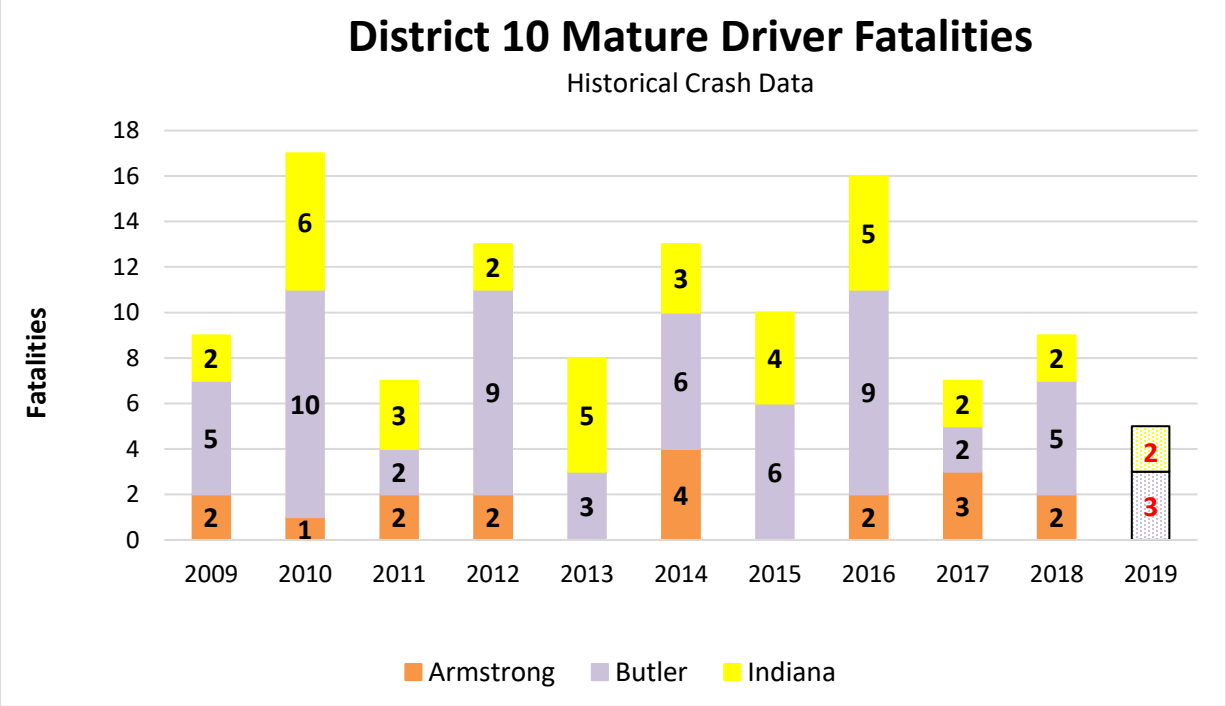

District 10 Distracted Driver Crashes
Historical Crash Data
Crashes
400
350
300
250
200
150
100
50
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
80
134
50
89
180
45
79
205
58
59
195
49
57
251
66
52
212
42
78
204
39
59
215
52
72
185
57
64
183
44
64
186
32
Armstrong
Butler
Indiana

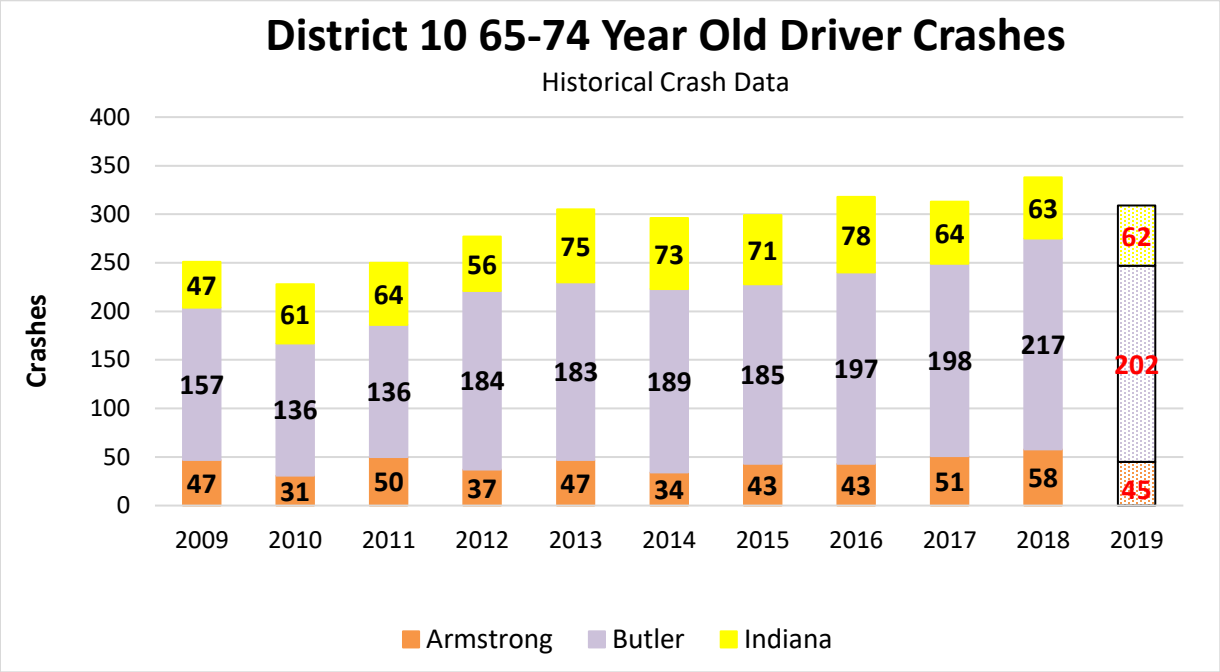

District 10 Distracted Driver Fatalities
Historical Crash Data
Fatalities
7
6
5
4
3
2
1
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
1
1
2
2
2
1
1
1
2
1
1
2
1
2
1
3
1
2
1
Armstrong
Butler
Indiana

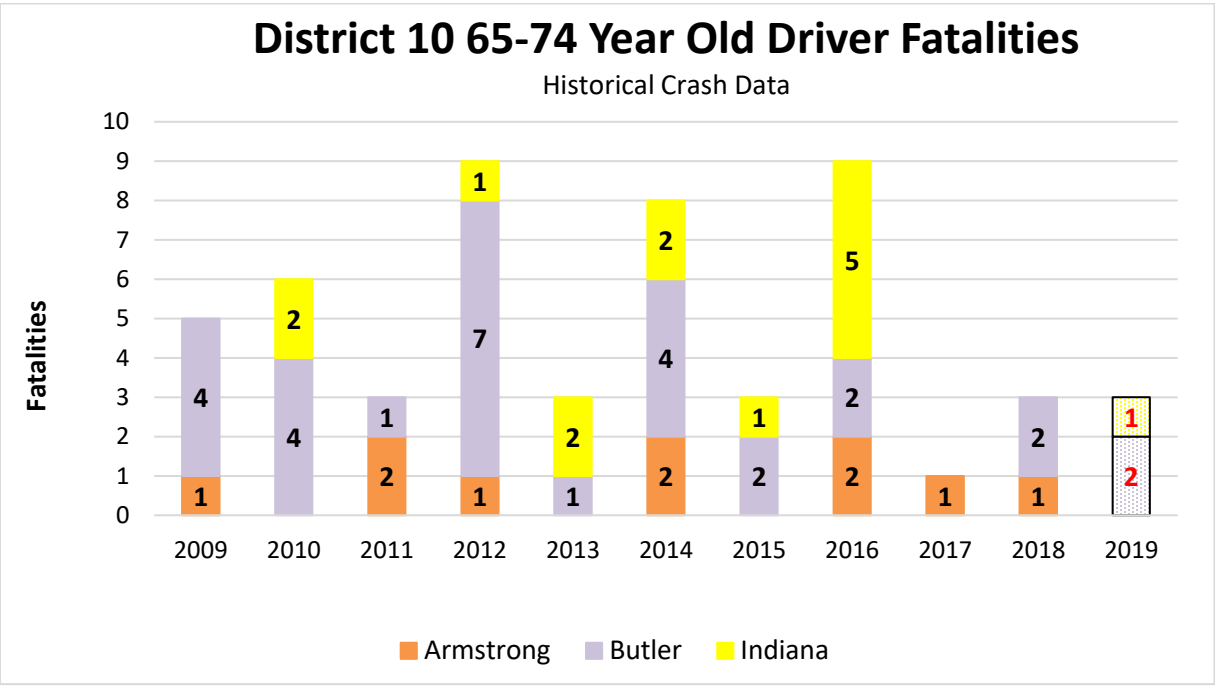

District 10 Drowsy Driver Crashes
Historical Crash Data
Crashes
120
100
80
60
40
20
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
9 44 20
27 46 28
20 51 31
14 34 22
16 41 28
17 45 19
20 27 22
13 40 17
11 38 13
17 33 20
13 26 19
Armstrong
Butler
Indiana

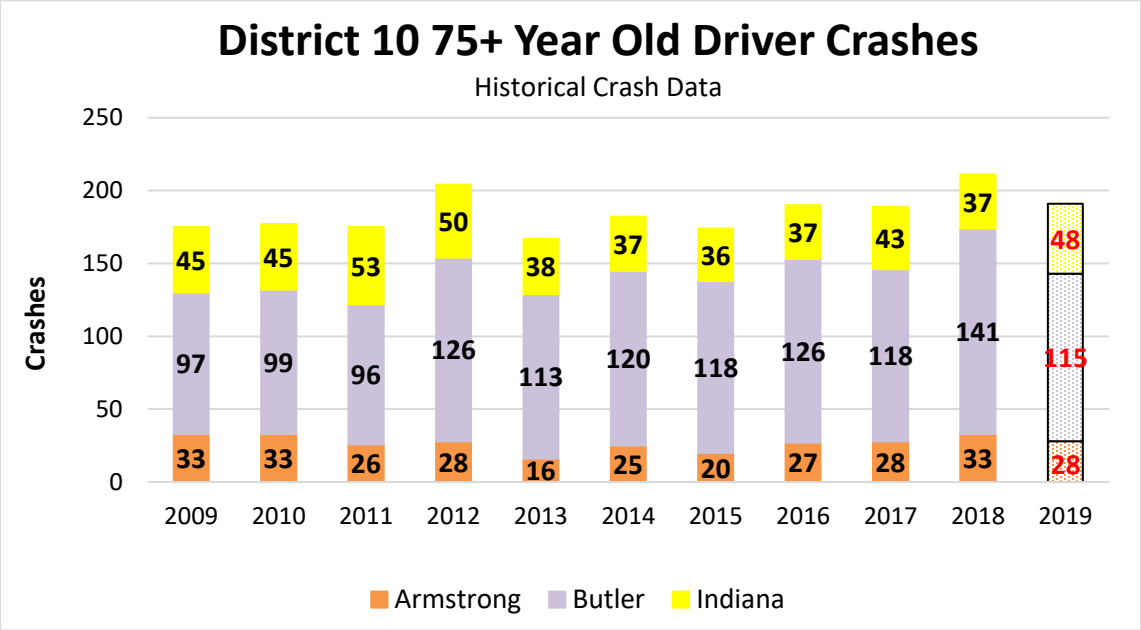

District 10 Drowsy Driver Fatalities
Historical Crash Data
Fatalities
5
5
4
4
3
3
2
2
1
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
2
1
1 3
1 3
1
Armstrong
Butler
Indiana

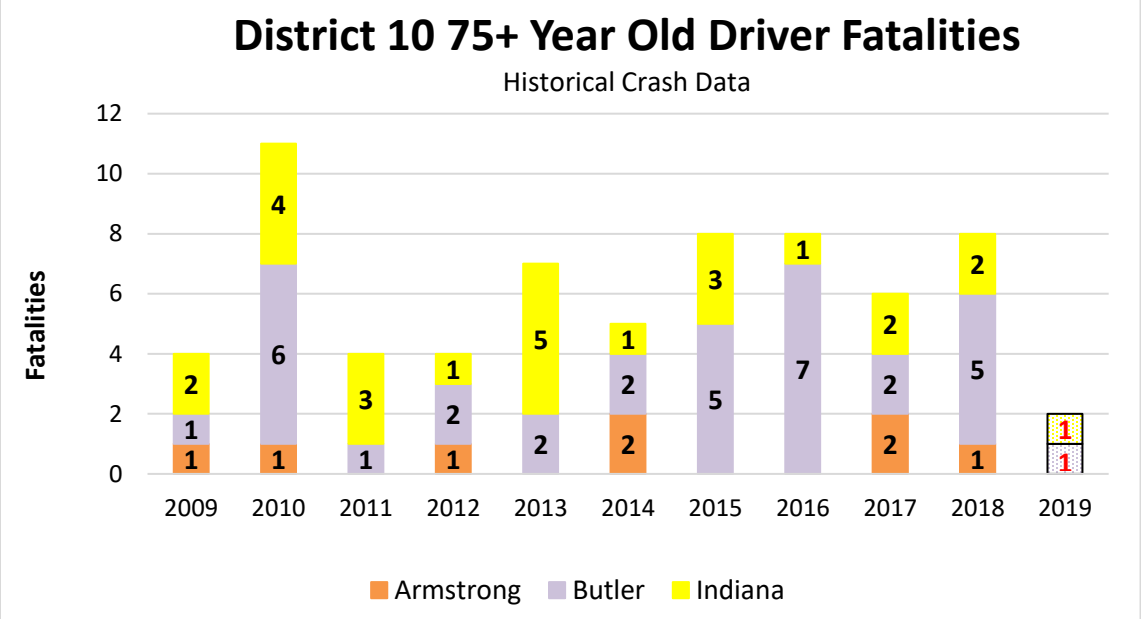

District 10 Mature Driver Crashes
Historical Crash Data
Crashes
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
88 99 114 103 105 107 103 109 106 97 108
246 226 222 302 286 303 291 310 301 340 309
76 60 75 65 61 59 61 69 75 90 72
Armstrong
Butler
Indiana

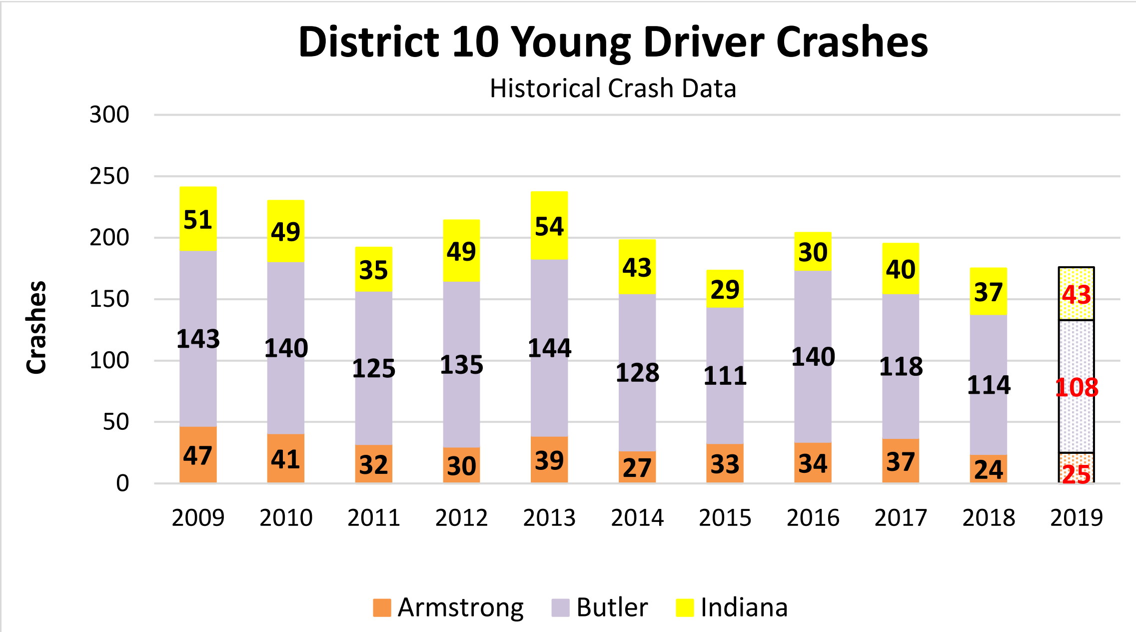

District 10 Mature Driver Fatalities
Historical Crash Data
Fatalities
18
16
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
2 6 3 2 5 3 3 4 5 2 2
5 10 2 9 5 6 6 9 2 5 2
2 1 2 2 3 4 6 2 3 2 3
Armstrong
Butler
Indiana

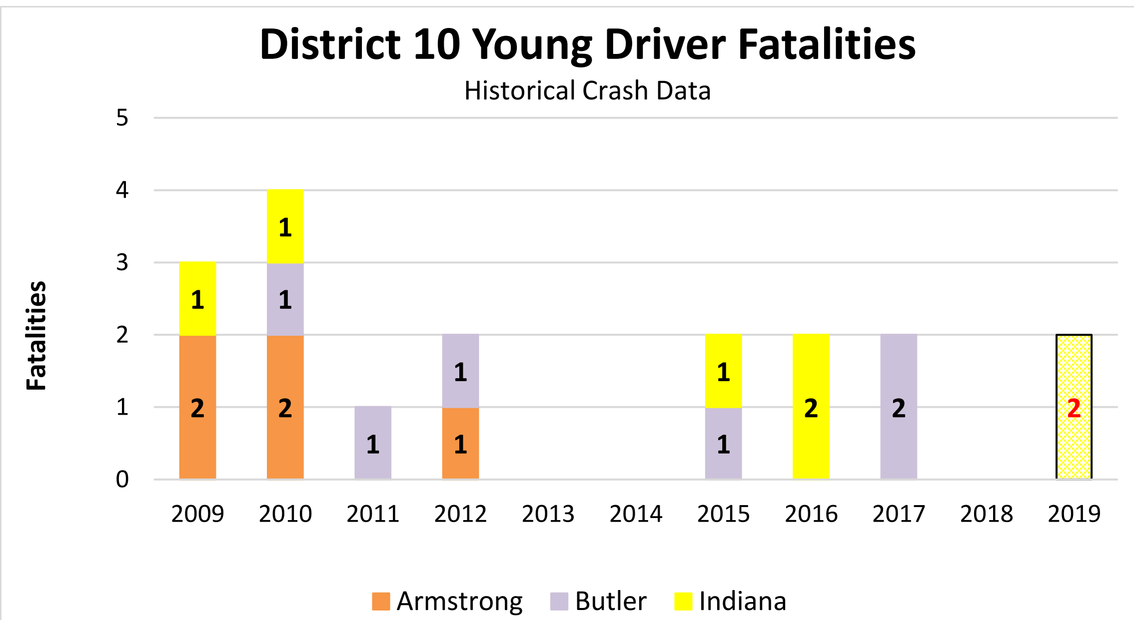

District 10 65-74 Year Old Driver Crashes
Historical Crash Data
Crashes
400
350
300
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
47 157 47
61 136 31
64 136 50
56 184 37
75 183 47
73 189 34
71 185 43
78 197 43
64 198 51
63 217 58
62 202 45
Armstrong
Butler
Indiana

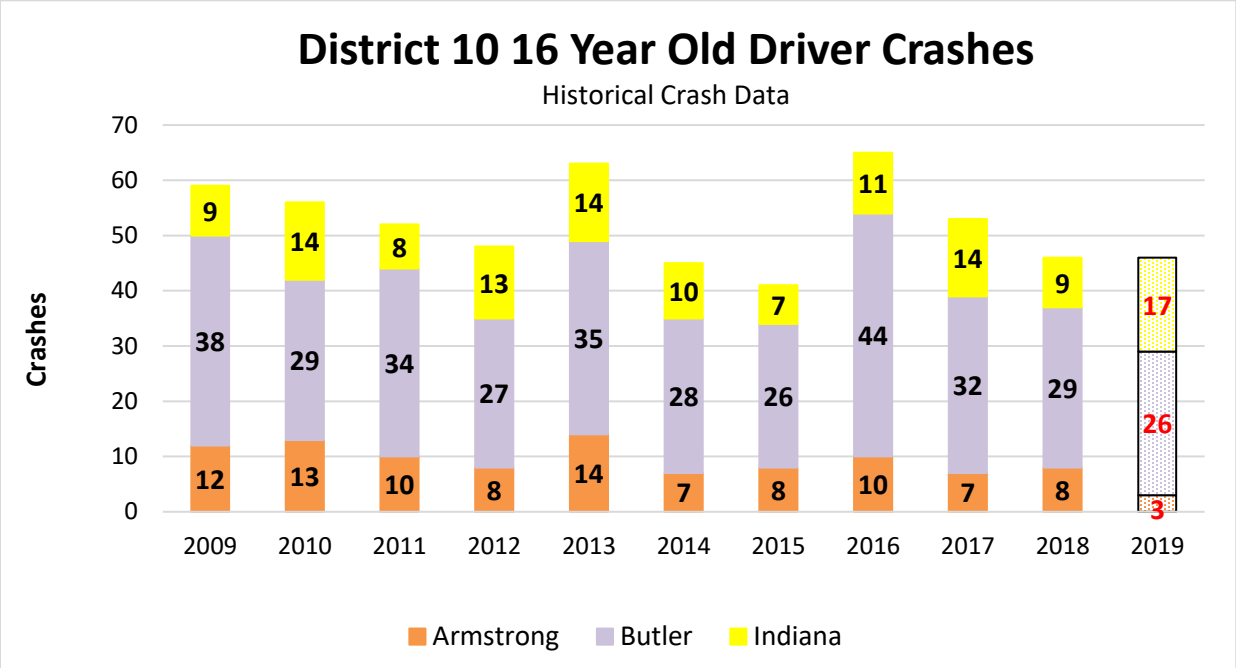

District 10 65-74 Year Old Driver Fatalities
Historical Crash Data
Fatalities
10
9
8
7
6
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
4 1
2 4
1 2
1 7 1
2 1
2 4 2
1 2
5 2 2
1
2 1
1 2
Armstrong
Butler
Indiana

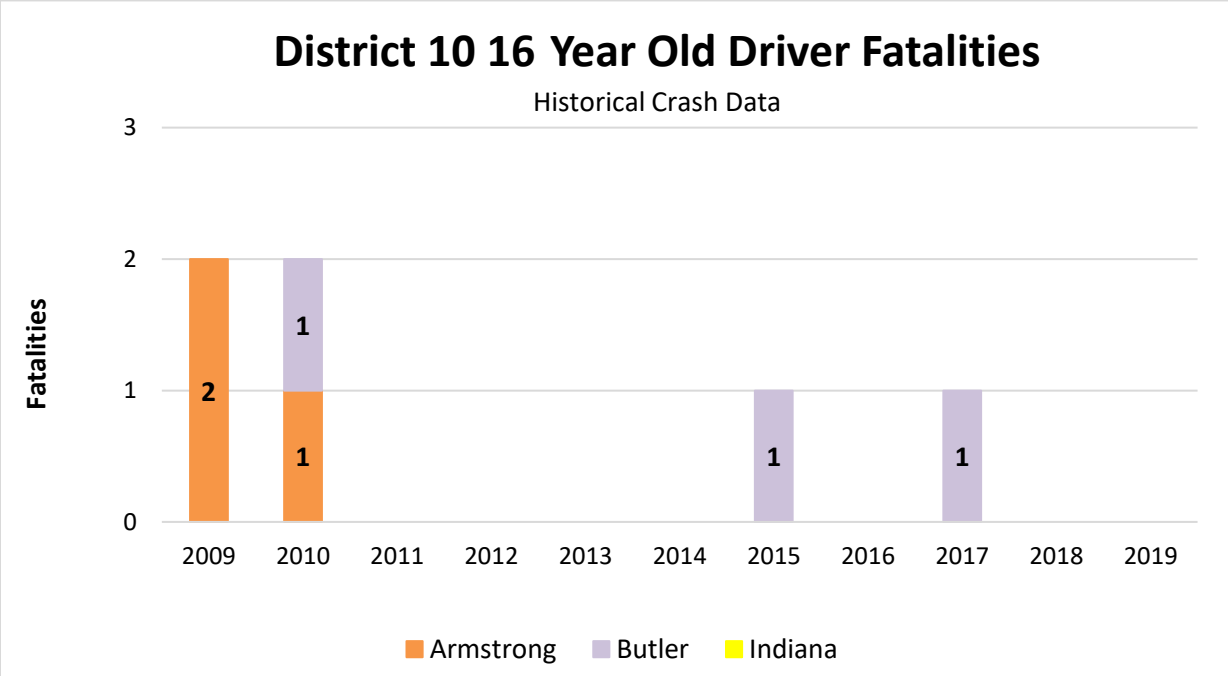

District 10 75+ Year Old Driver Crashes
Historical Crash Data
Crashes
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
45 45 53 50 38 37 36 37 43 37 48
97 99 96 126 113 120 118 126 118 141 115
33 33 26 28 16 25 20 27 28 33 28
Armstrong
Butler
Indiana

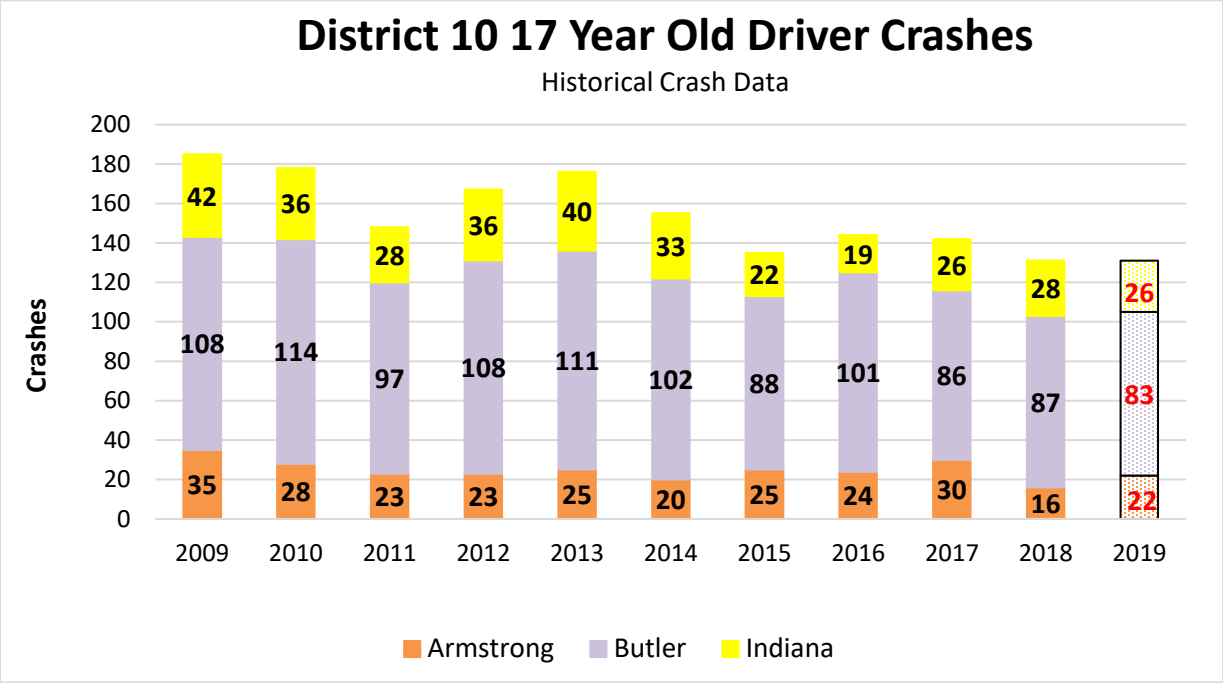

District 10 75+ Year Old Driver Fatalities
Historical Crash Data
Fatalities
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
2 4 3 1 5 1 3 1 2 2 1
1 6 1 2 2 2 5 7 2 5
1 1 1 1 2 2 1 2 1 1 1
Armstrong
Butler
Indiana

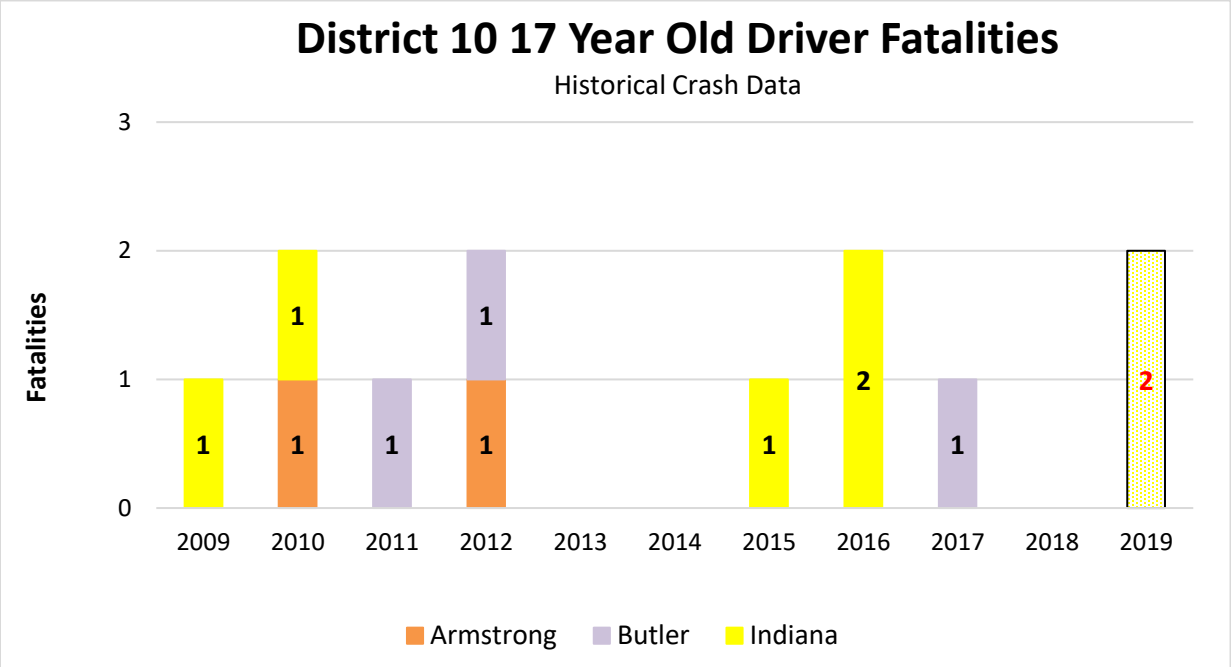

District 10 Young Driver Crashes
Historical Crash Data
Crashes
300
250
200
150
100
50
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
47
143
51
41
140
49
32
125
35
30
135
49
39
144
54
27
128
43
33
111
29
34
140
30
37
118
40
24
114
37
25
108
43
Armstrong
Butler
Indiana

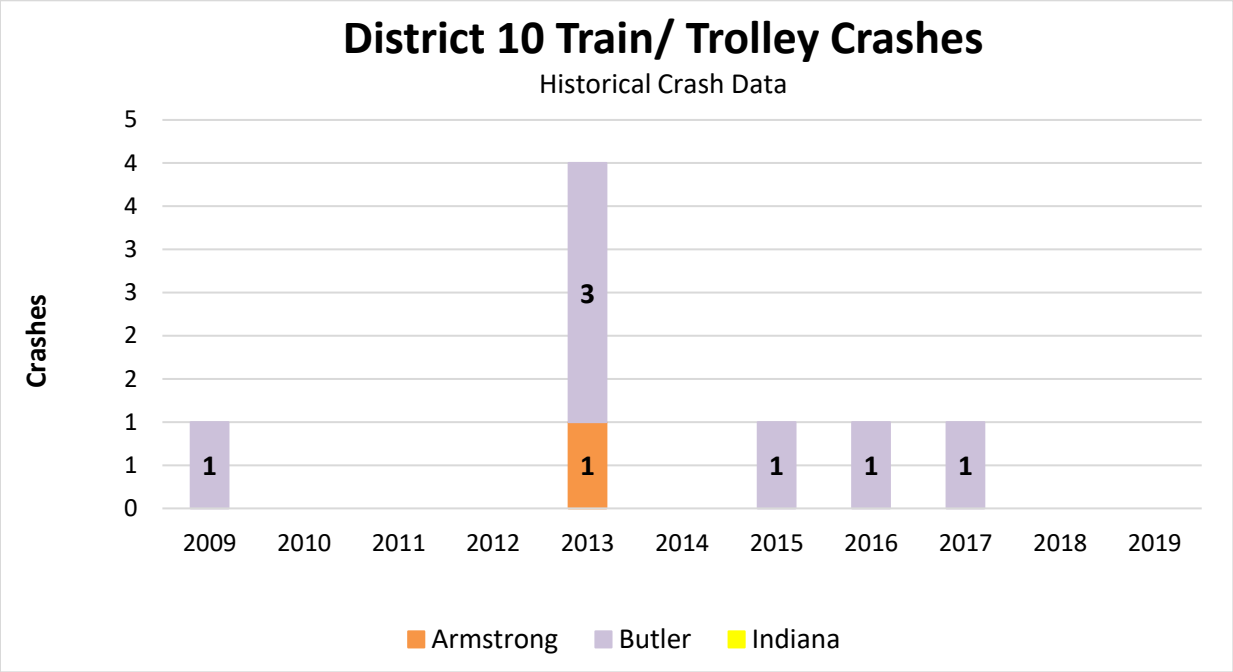

District 10 Young Driver Fatalities
Historical Crash Data
Fatalities
5
4
3
2
1
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2
1
2
1
1
1
1
1
1
1
2
2
2
Armstrong
Butler
Indiana

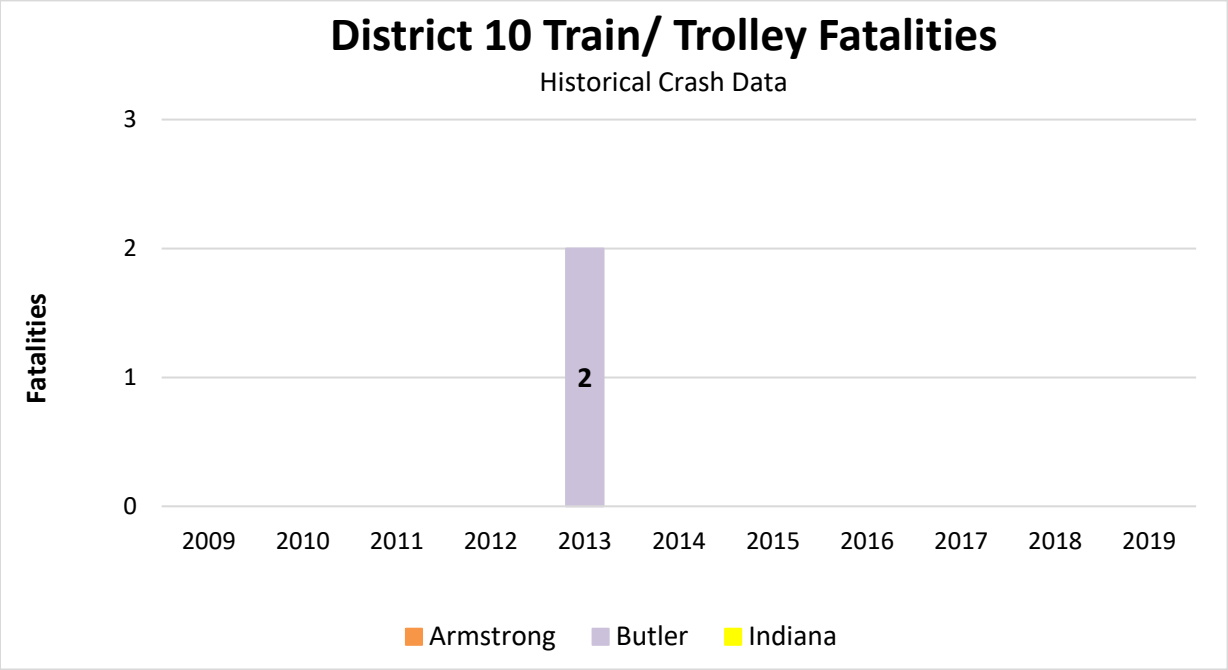

District 10 16 Year Old Driver Crashes
Historical Crash Data
Crashes
70
60
50
40
30
20
10
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
9 14 8 13 14 10 7 11 14 9 17
38 29 34 27 35 28 26 44 32 29 26
12 13 10 8 14 7 8 10 7 8 3
Armstrong
Butler
Indiana

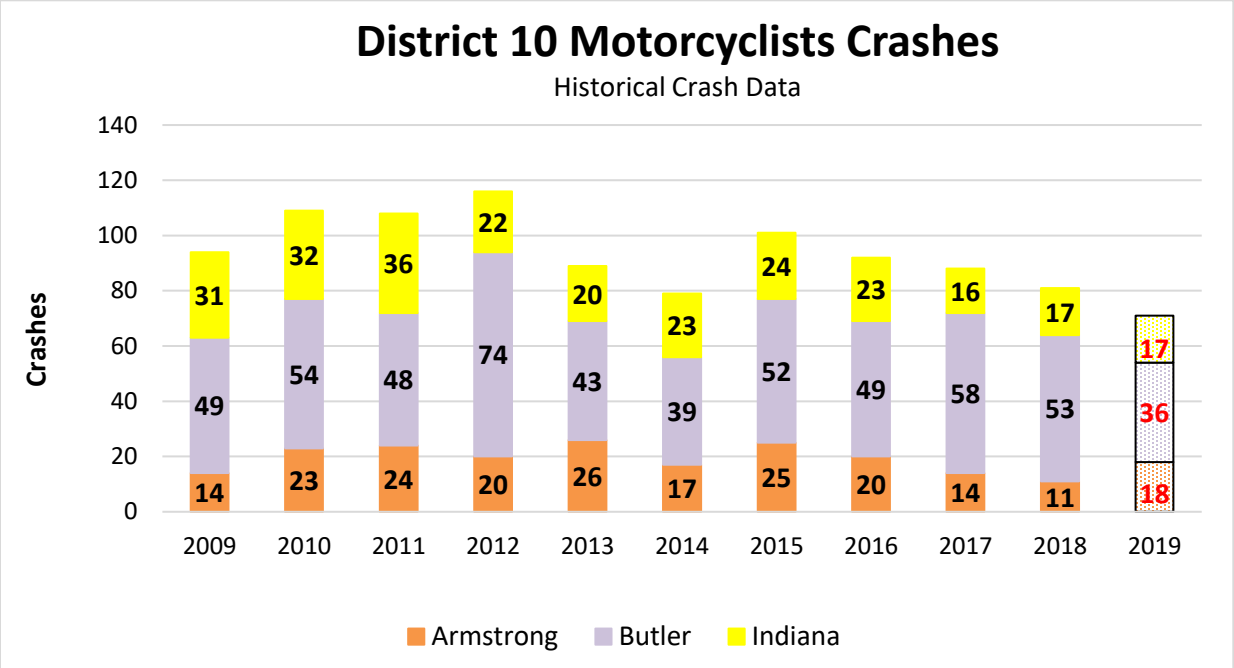

District 10 16 Year Old Driver Fatalities
Historical Crash Data
Fatalities
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1 1
2 1
Armstrong
Butler
Indiana

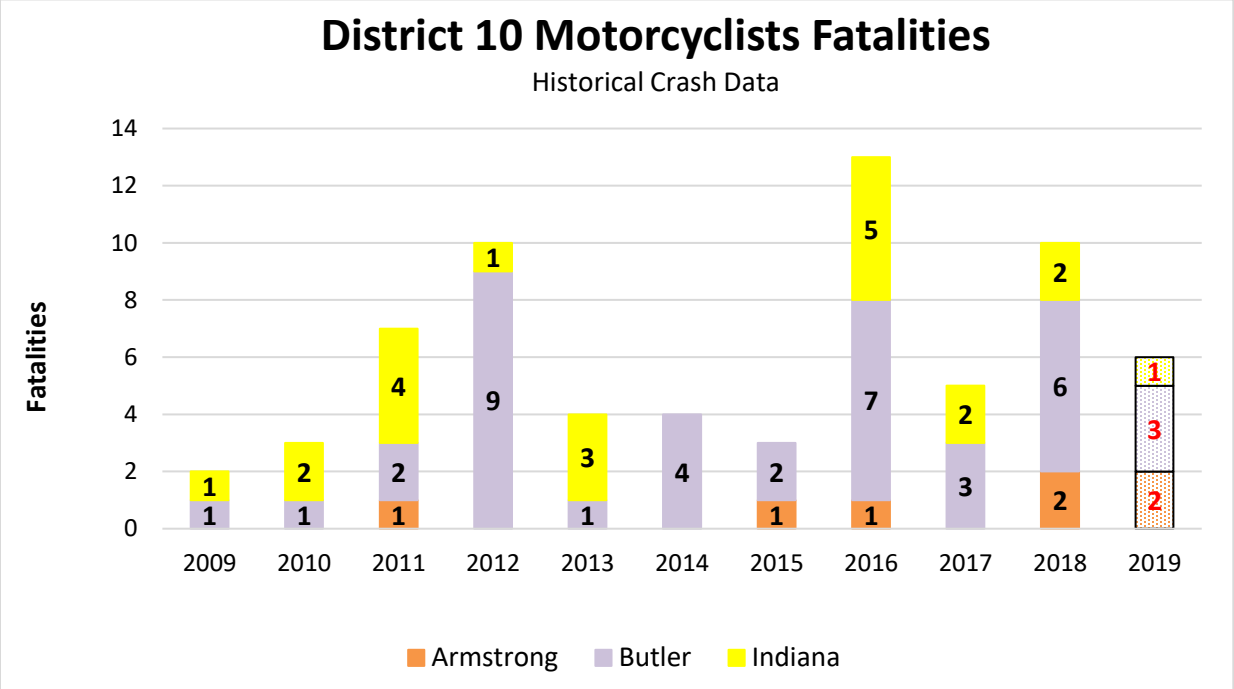

District 10 17 Year Old Driver Crashes
Historical Crash Data
Crashes
200
180
160
140
120
100
80
60
40
20
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
42 36 28 36 40 33 22 19 26 28 26
108 114 97 108 111 102 88 101 86 87 83
35 28 23 23 25 20 25 24 30 16 22
Armstrong
Butler
Indiana

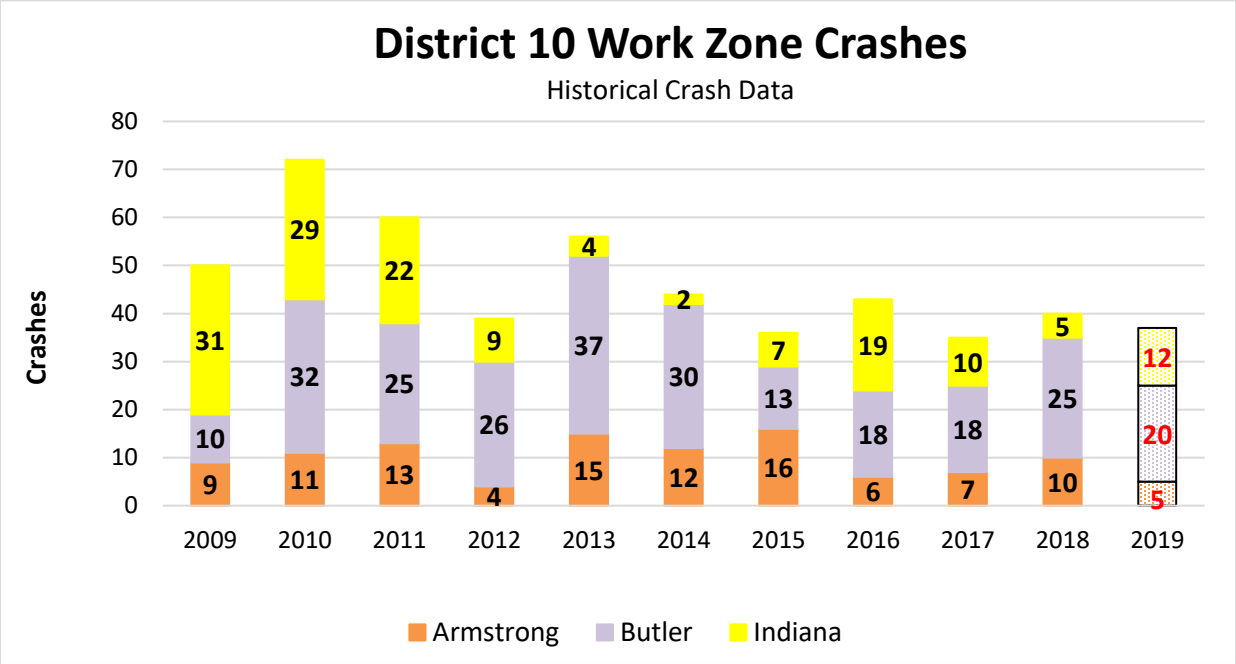

District 10 17 Year Old Driver Fatalities
Historical Crash Data
Fatalities
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1 1 1 1 2 1 2
1 1 1 1
Armstrong
Butler
Indiana

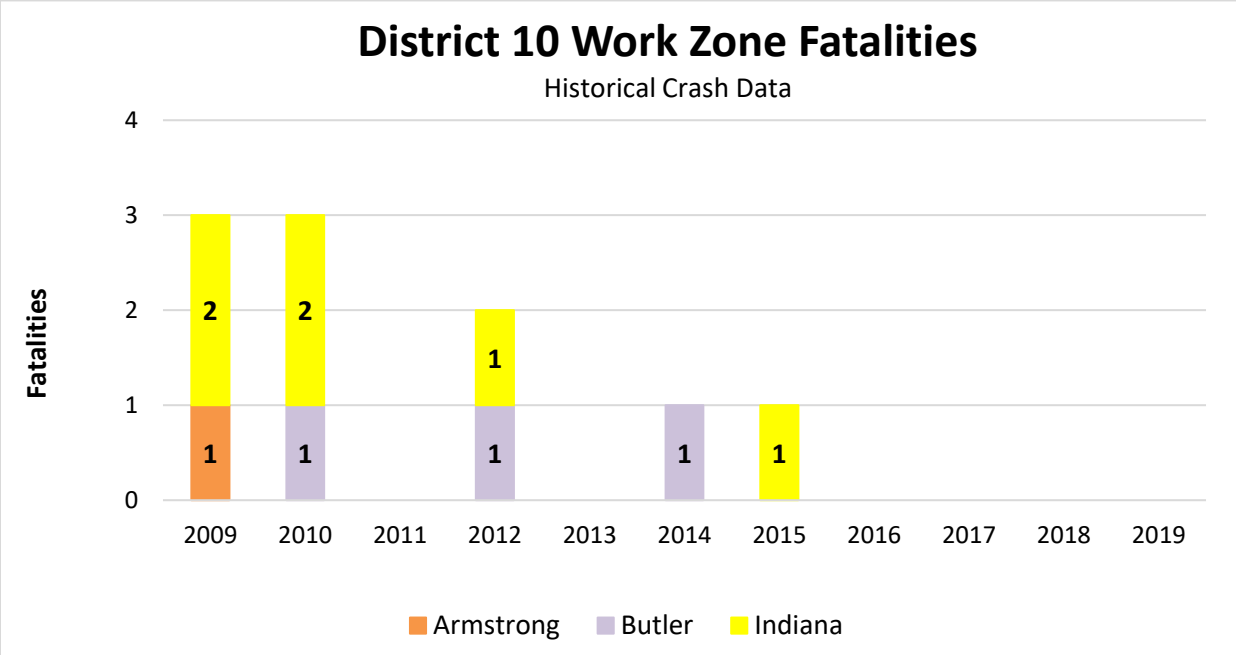

District 10 Train/ Trolley Crashes
Historical Crash Data
Crashes
5
4
4
3
3
2
2
1
1
0
1
1
3
1
1
1
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Armstrong
Butler
Indiana

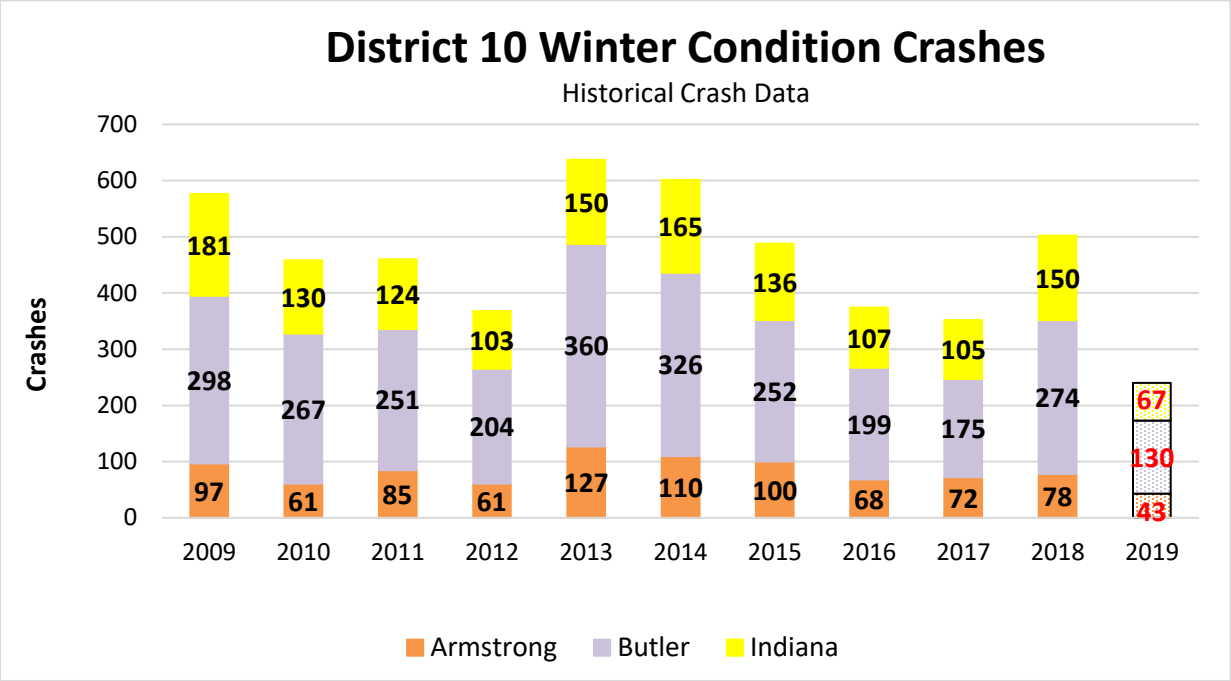

District 10 Train/ Trolley Fatalities
Historical Crash Data
Fatalities
3
2
1
0
2
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Armstrong
Butler
Indiana

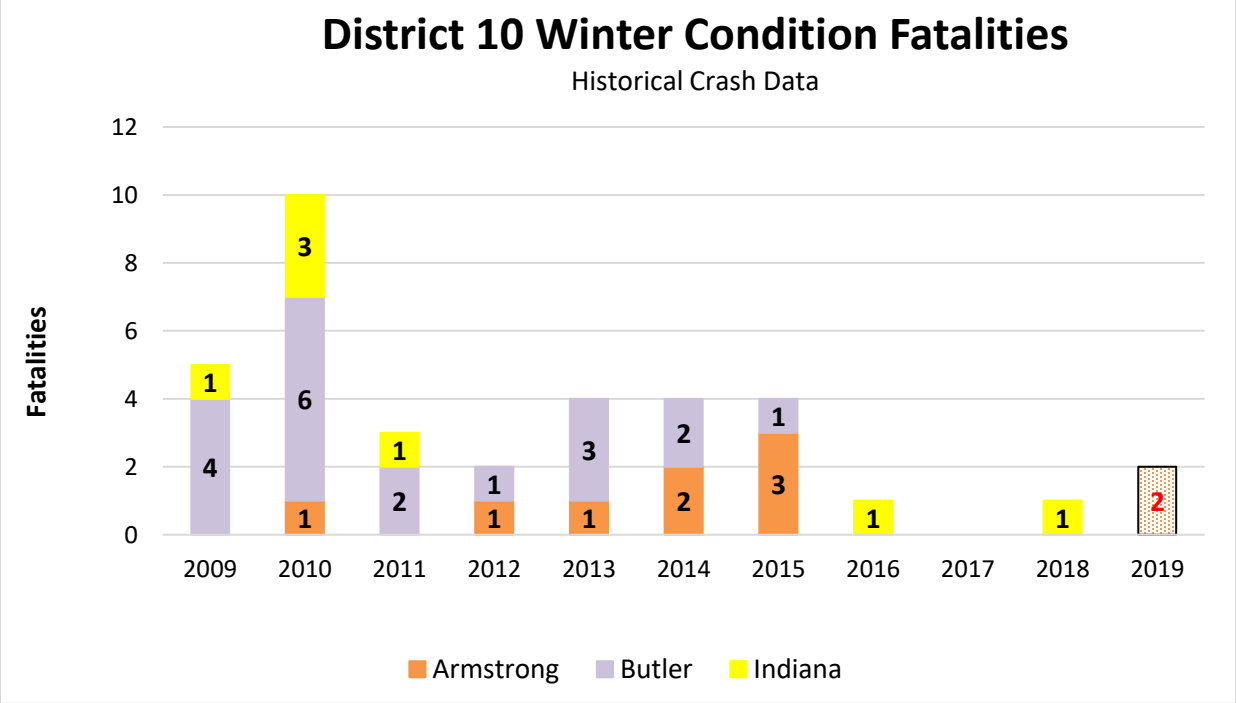

District 10 Motorcyclists Crashes
Historical Crash Data
Crashes
140
120
100
80
60
40
20
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
31 49 14
32 54 23
36 48 24
22 74 20
20 43 26
23 39 17
24 52 25
23 49 20
16 58 14
17 53 11
17 36 18
Armstrong
Butler
Indiana

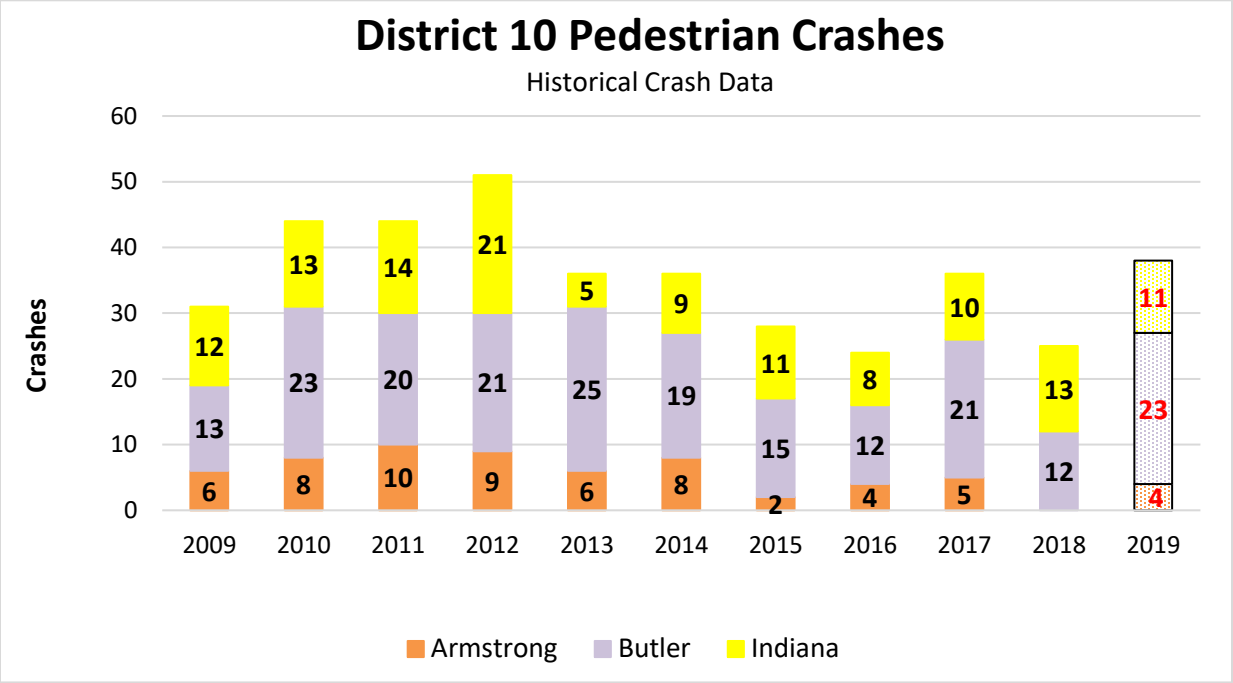

District 10 Motorcyclists Fatalities
Historical Crash Data
Fatalities
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1
2 1
4 2 1
1 9
3 1
4
2 1
5 7 1
2 3
2 6 2
1 3 2
Armstrong
Butler
Indiana

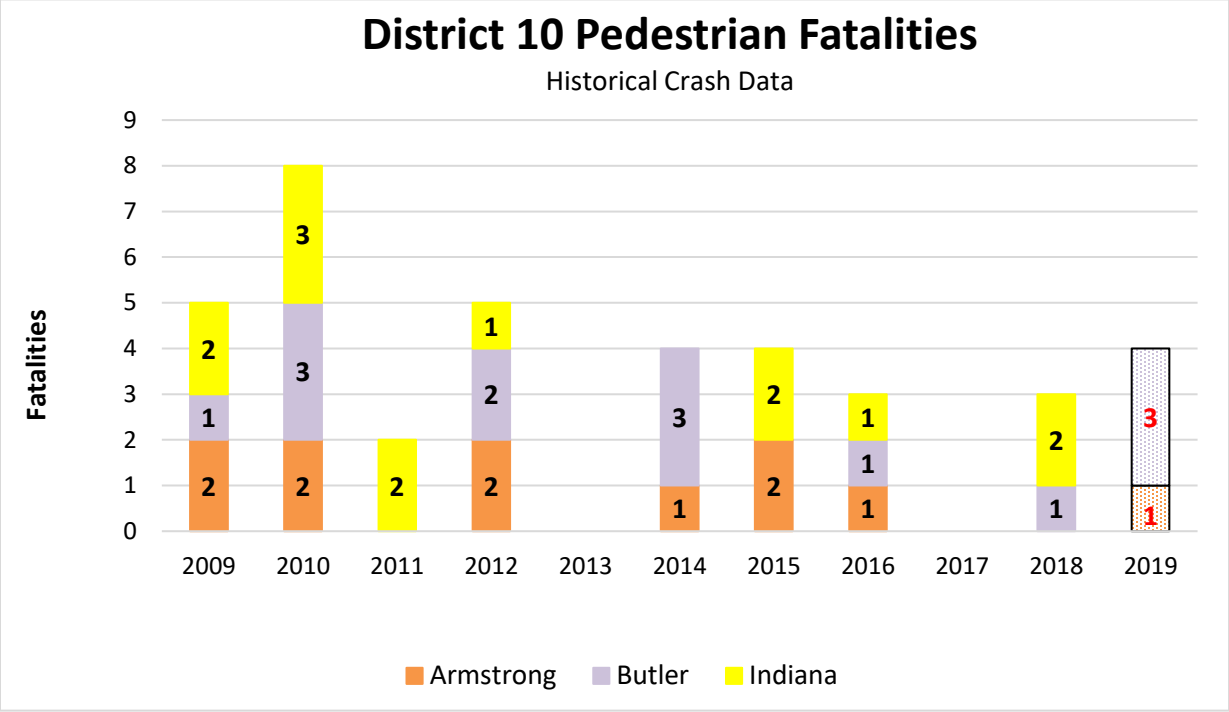

District 10 Work Zone Crashes
Historical Crash Data
Crashes
80
70
60
50
40
30
20
10
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
9 10 31
11 32 29
13 25 22
4 26 9
15 37 4
12 30 2
16 13 7
6 18 19
7 18 10
10 25 5
5 20 12
Armstrong
Butler
Indiana

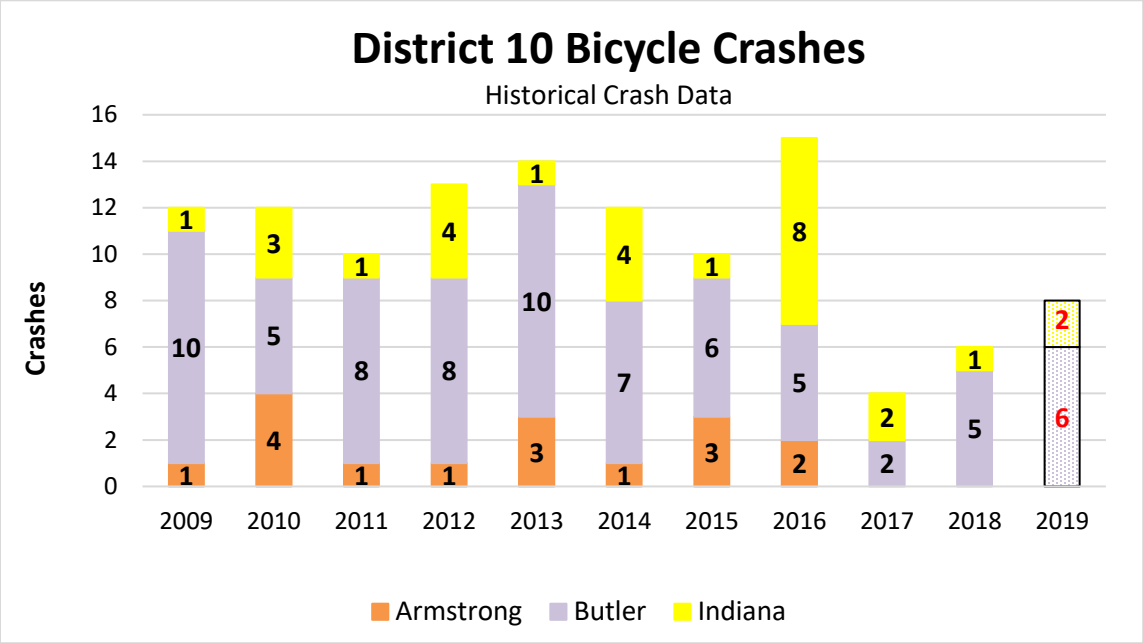

District 10 Work Zone Fatalities
Historical Crash Data
Fatalities
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 2
1 2
1
1 1
1
1
Armstrong
Butler
Indiana

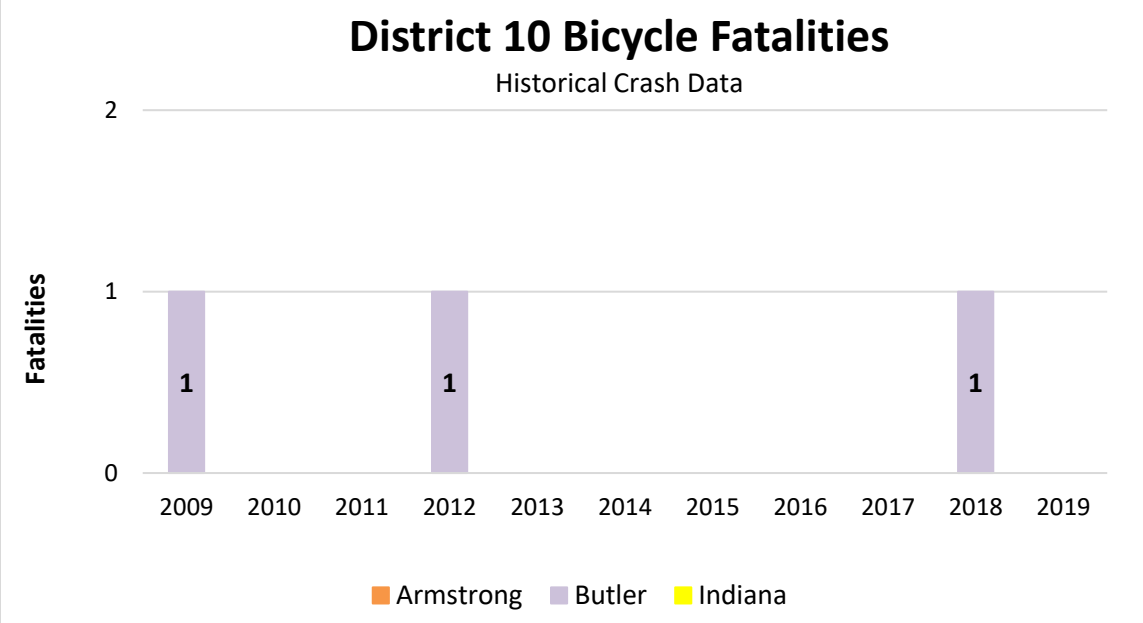

District 10 Winter Condition Crashes
Historical Crash Data
Crashes
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
181 298 97
130 267 61
124 251 85
103 204 61
150 360 127
165 326 110
136 252 100
107 199 68
105 175 72
150 274 78
67 130 43
Armstrong
Butler
Indiana

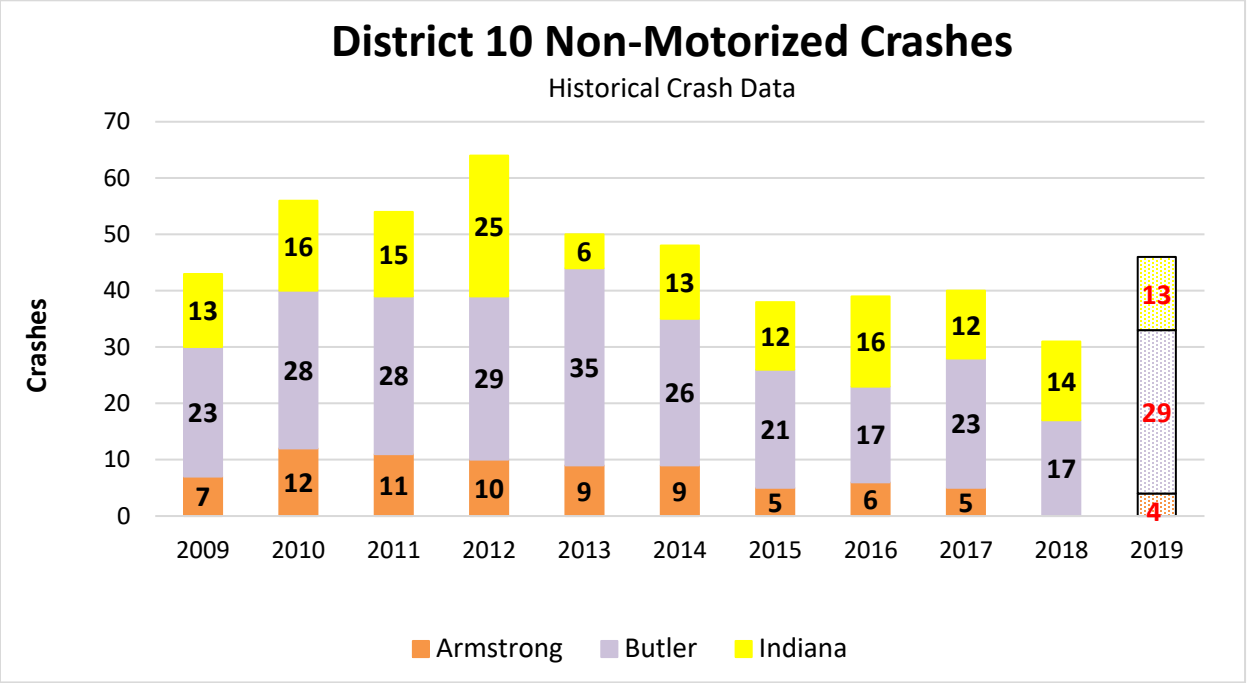

District 10 Winter Condition Fatalities
Historical Crash Data
Fatalities
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 4
3 6 1
1 2
1 1
3 1
2 2
1 3 1
1
1
2
Armstrong
Butler
Indiana

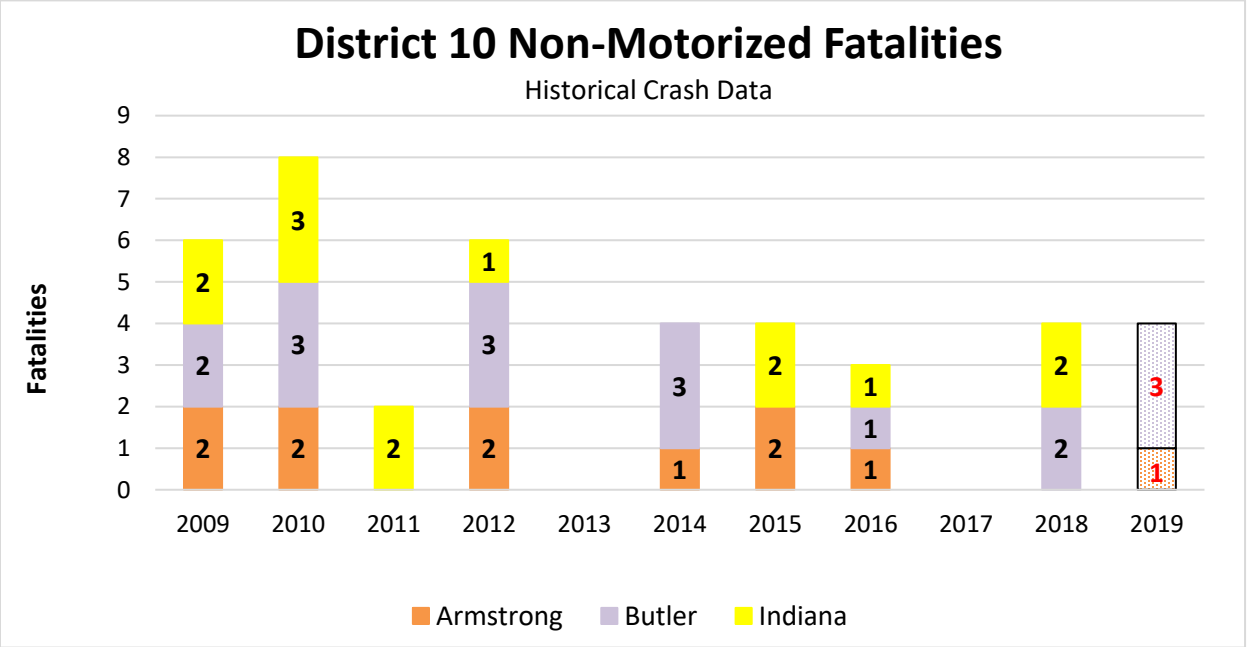

District 10 Pedestrian Crashes
Historical Crash Data
Crashes
60
50
40
30
20
10
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
12
13
6
13
23
8
14
20
10
21
21
9
5
25
6
9
19
8
11
15
2
8
12
4
10
21
5
13
12
11
23
4
Armstrong
Butler
Indiana

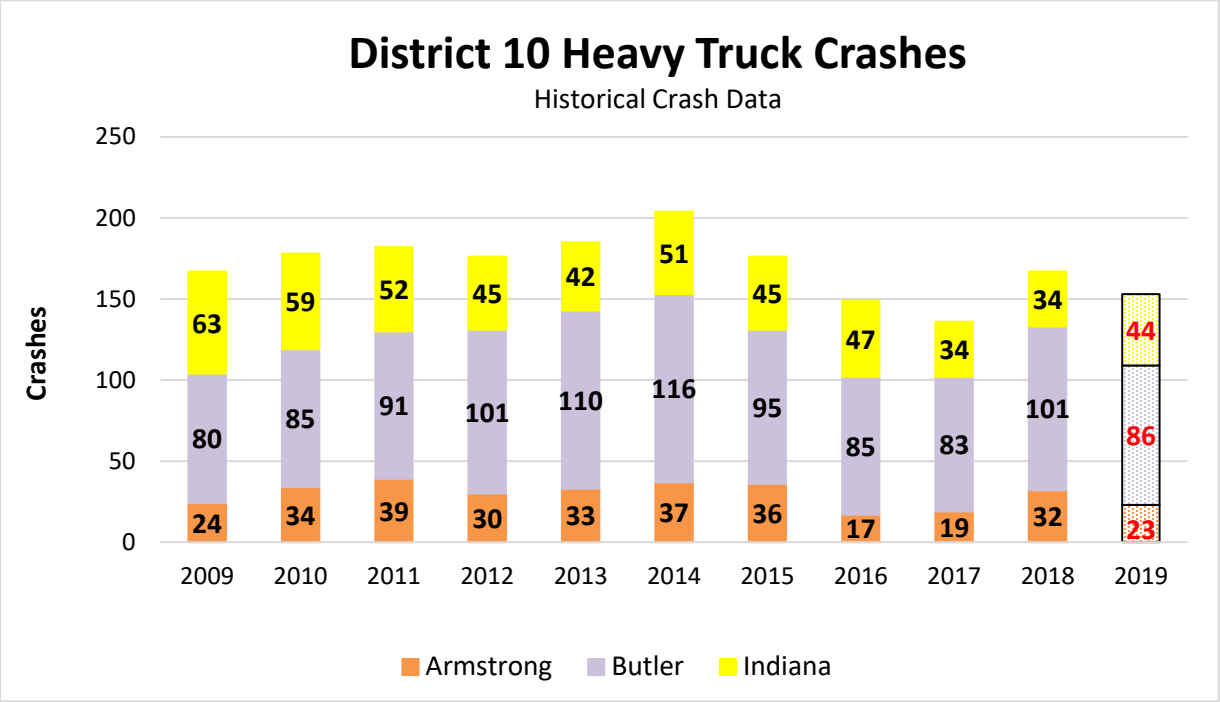

District 10 Pedestrian Fatalities
Historical Crash Data
Fatalities
9
8
7
6
5
4
3
2
1
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2
1
2
3
3
2
2
1
2
3
1
2
3
2
1
1
1
2
1
3
1
Armstrong
Butler
Indiana

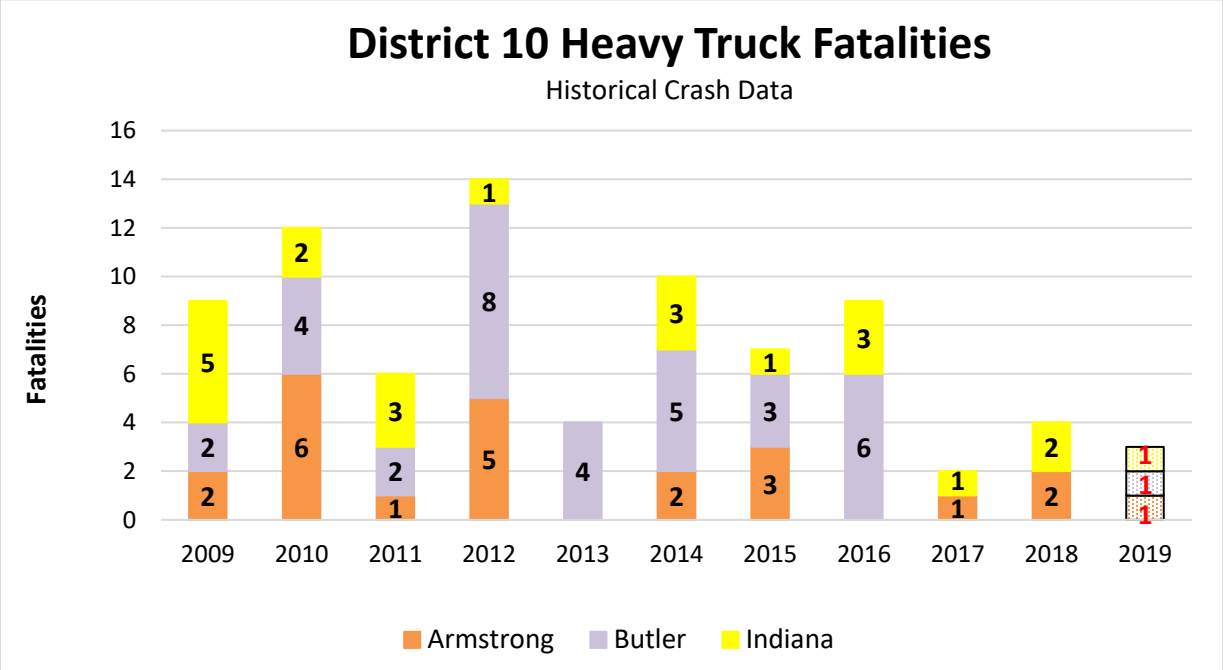

District 10 Bicycle Crashes
Historical Crash Data
Crashes
16
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 10 1
3 5 4
1 8 1
4 8 1
1 10 3
4 7 1
1 6 3
8 5 2
2 2
1 5
2 6
Armstrong
Butler
Indiana

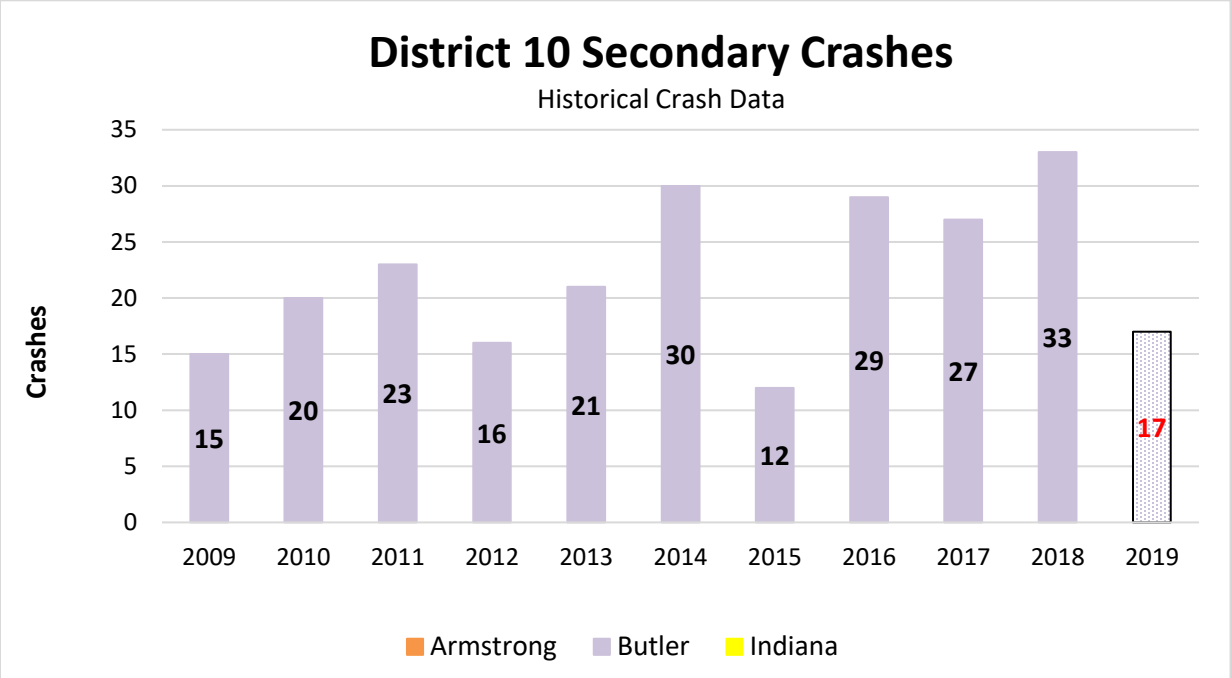

District 10 Bicycle Fatalities
Historical Crash Data
Fatalities
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1
1
1
Armstrong
Butler
Indiana

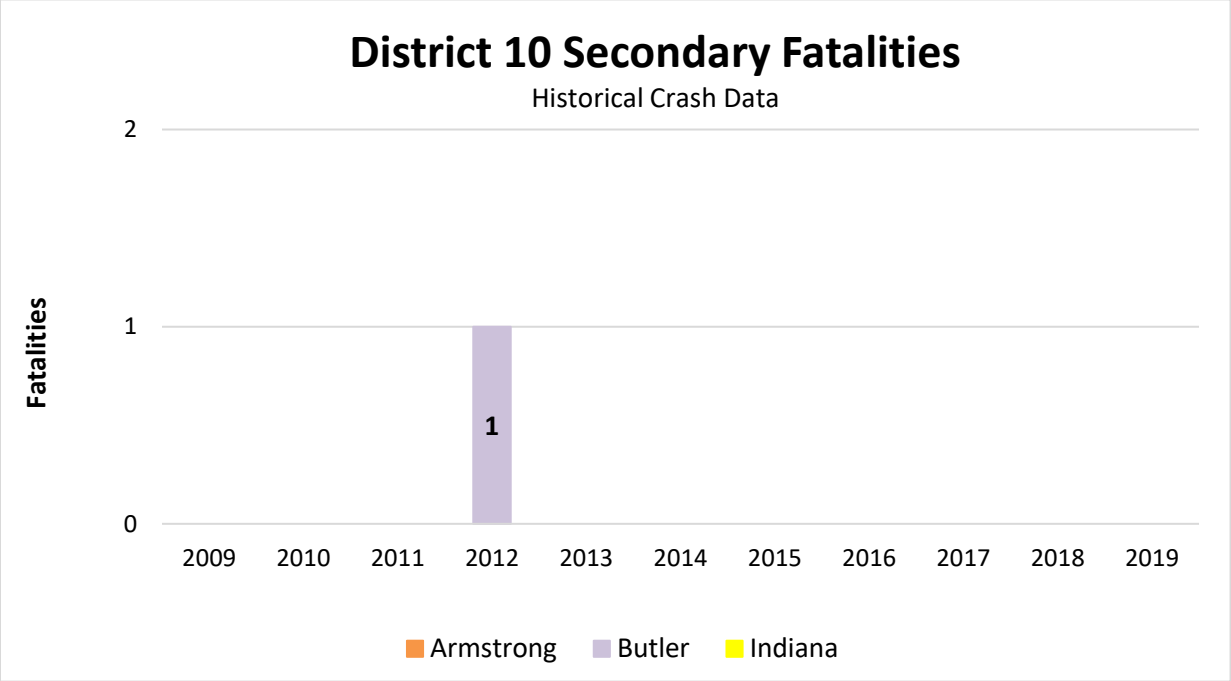

District 10 Non-Motorized Crashes
Historical Crash Data
Crashes
70
60
50
40
30
20
10
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
13 23 7
16 28 12
15 28 11
25 29 10
6 35 9
13 26 9
12 21 5
16 17 6
12 23 5
14 17
13 29 4
Armstrong
Butler
Indiana

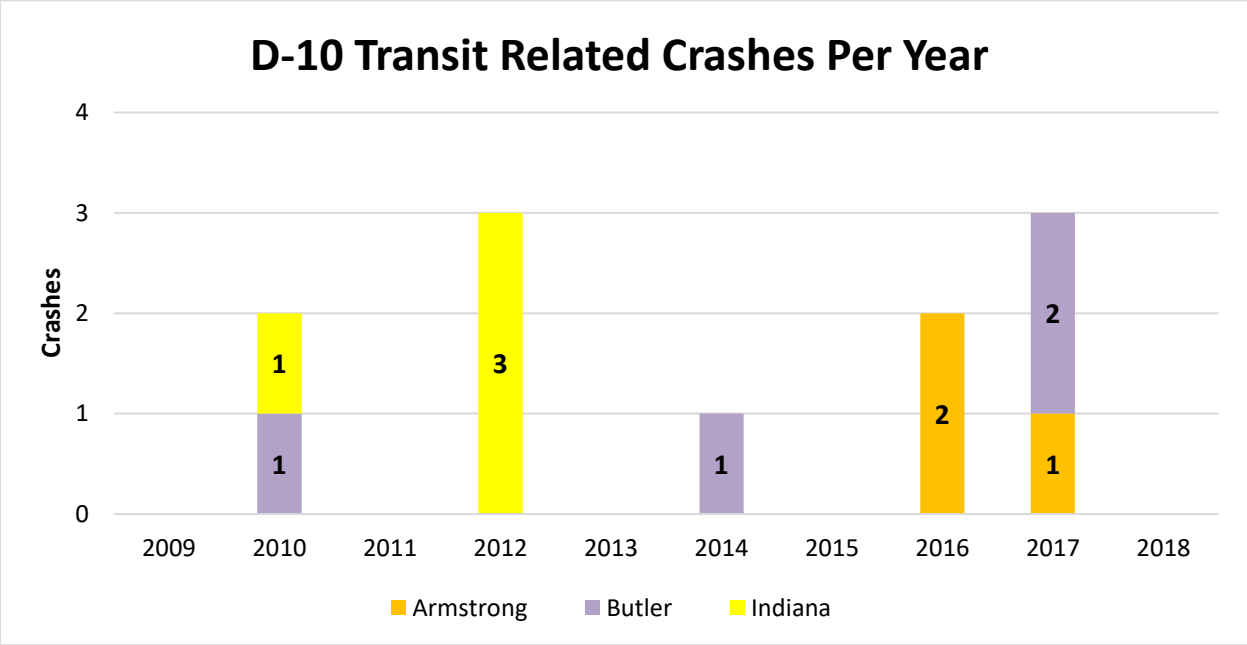

District 10 Non-Motorized Fatalities
Historical Crash Data
Fatalities
9
8
7
6
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
2 2 2
3 3 2
2 2
1 3 2
3 1
2 3 1
2 1 2
1 1 1
2 2
3 1
Armstrong
Butler
Indiana

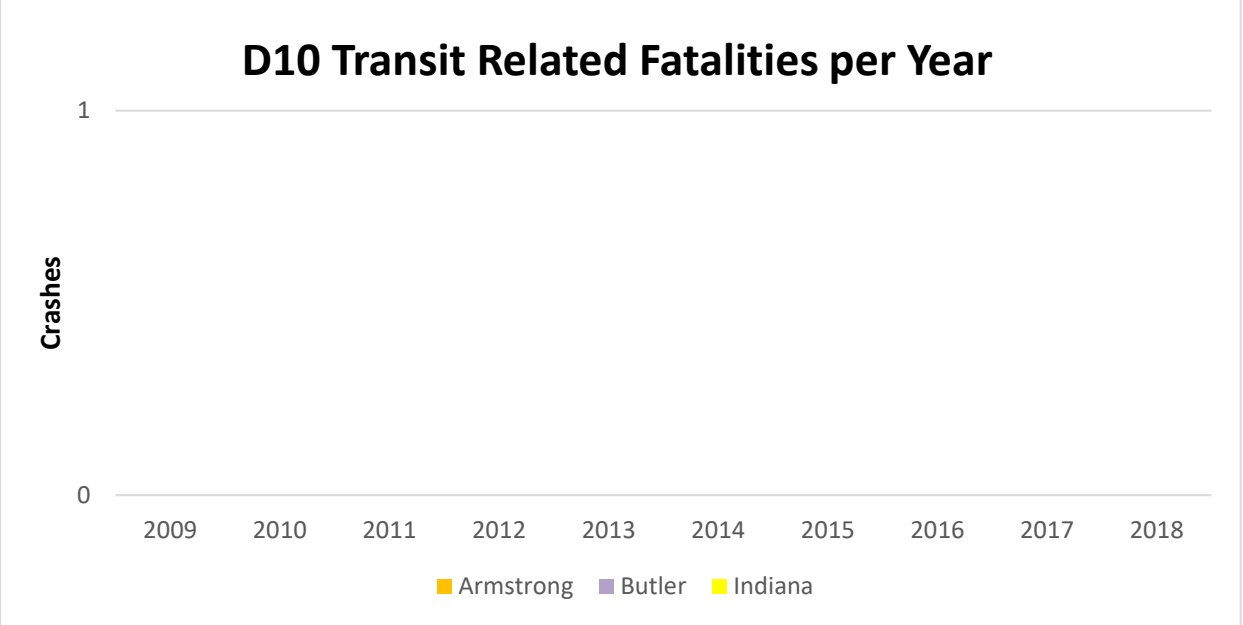

District 10 Heavy Truck Crashes
Historical Crash Data
Crashes
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
63 59 52 45 42 51 45 47 34 34 44
80 85 91 101 110 116 95 85 83 101 86
24 34 39 30 33 37 36 17 19 32 23
Armstrong
Butler
Indiana

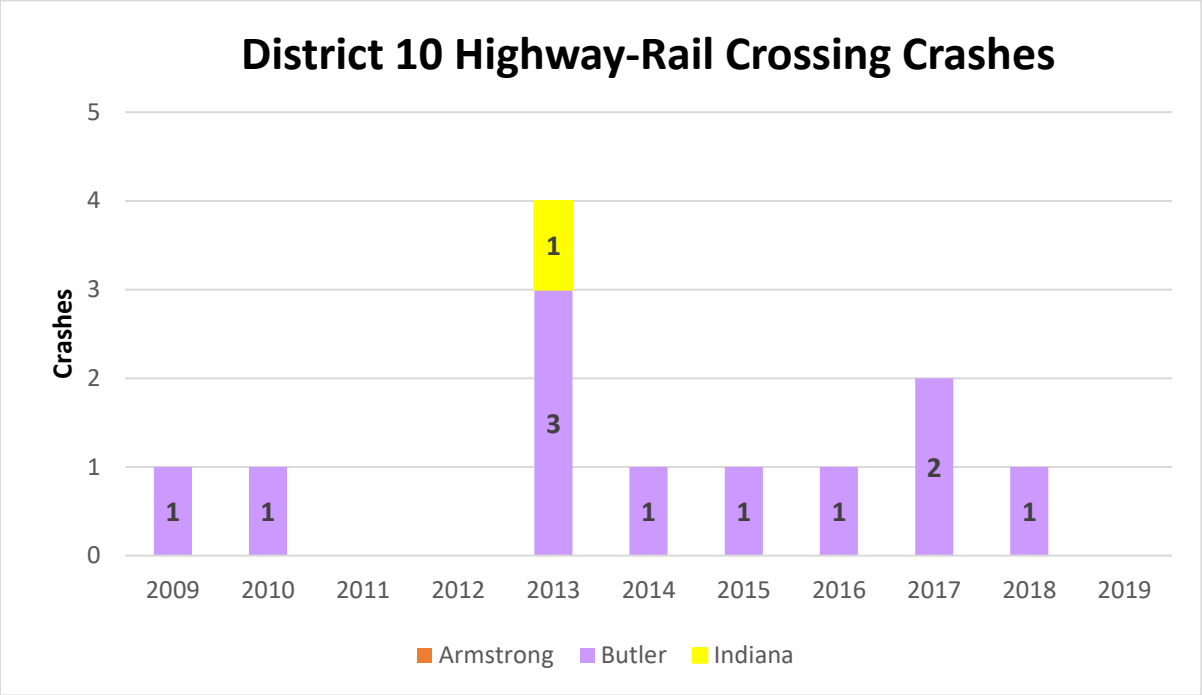

District 10 Heavy Truck Fatalities
Historical Crash Data
Fatalities
16
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
5 2 4 3 1 3 1 3 1 2 1
2 4 6 2 8 5 4 5 3 3 6 1 2 1 1
2 6 1 5 2 3 1
Armstrong
Butler
Indiana

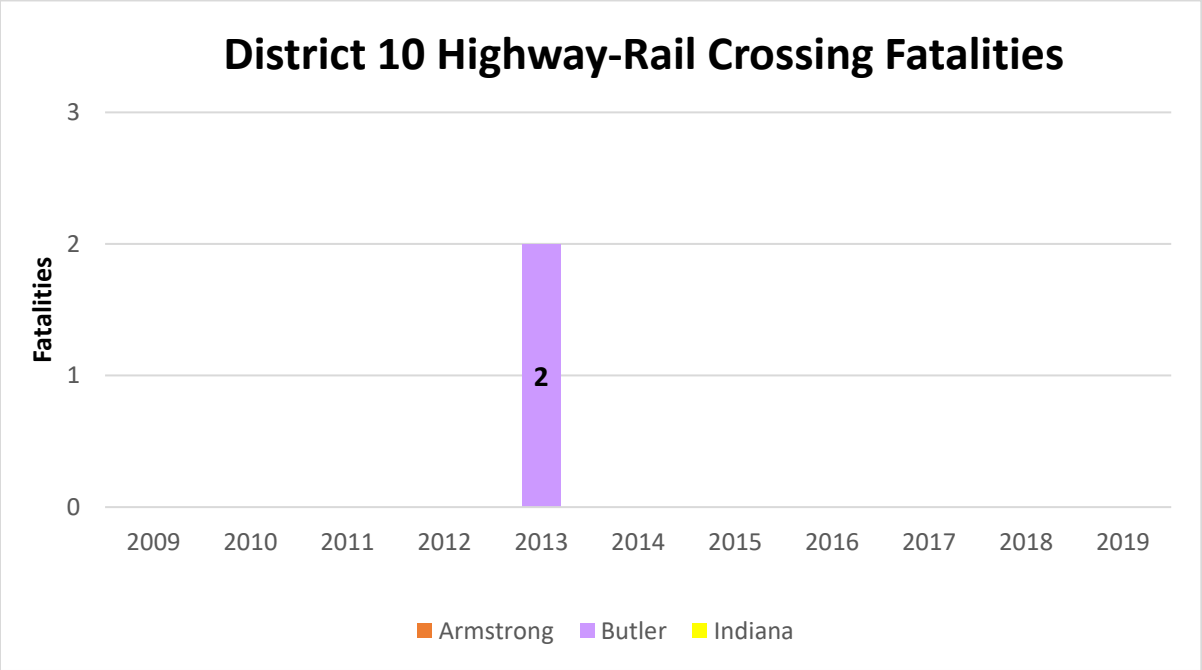

District 10 Secondary Crashes
Historical Crash Data
Crashes
35
30
25
20
15
10
5
0
15
20
23
16
21
30
12
29
27
33
17
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Armstrong
Butler
Indiana

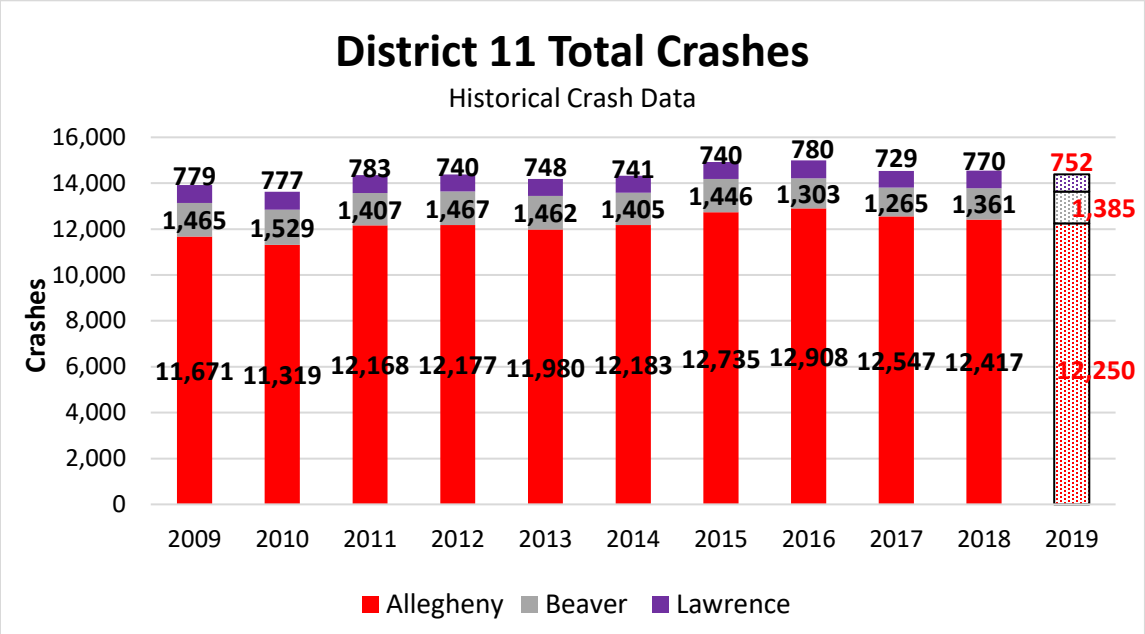

District 10 Secondary Fatalities
Historical Crash Data
Fatalities
2
1
0
1
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Armstrong
Butler
Indiana

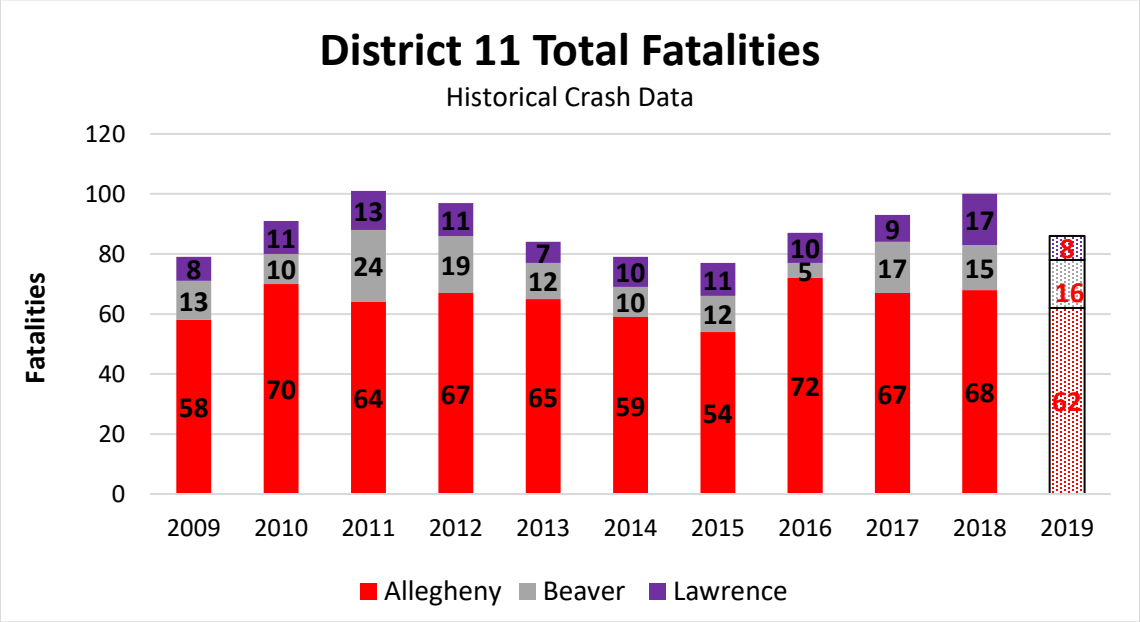

D-10 Transit Related Crashes Per Year
Crashes
4
3
2
1
0
1
1
3
1
2
1
2
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Armstrong
Butler
Indiana

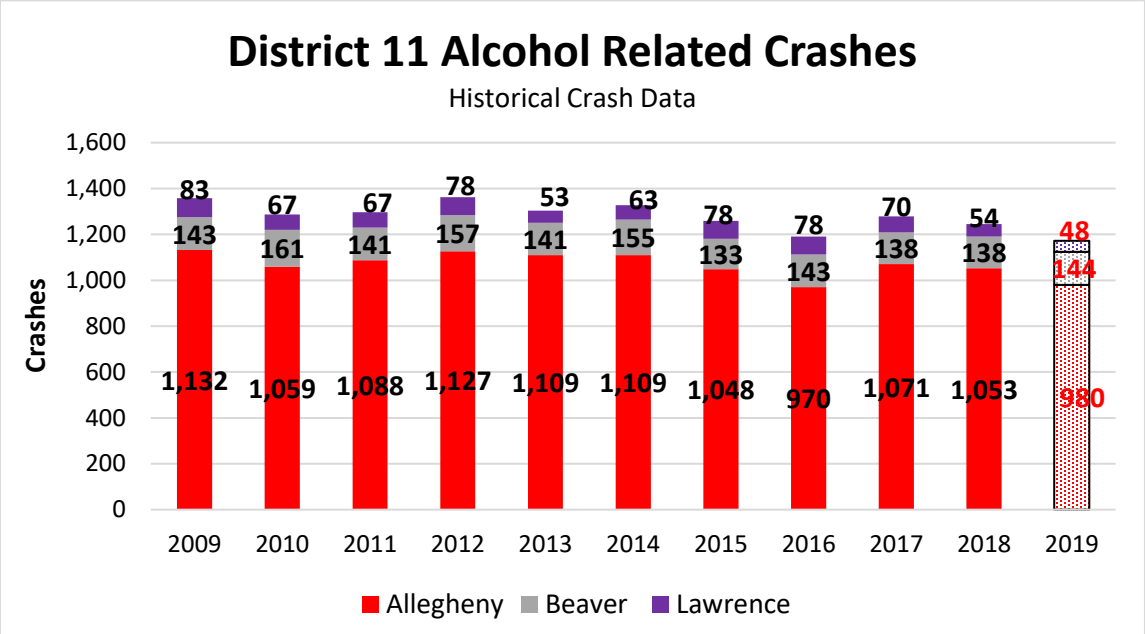

D10 Transit Related Fatalities per Year
Crashes
1
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Armstrong
Butler
Indiana

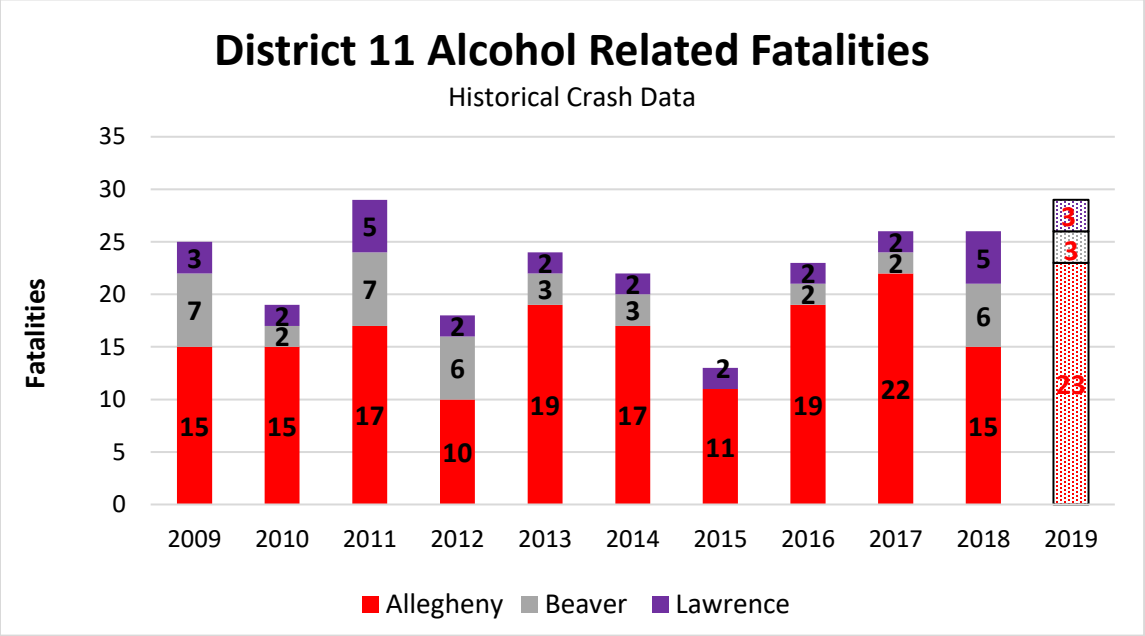

District 10 Highway-Rail Crossing Crashes
Crashes
5
4
3
2
1
0
1
1
3
1
1
1
2
1
1
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Armstrong
Butler
Indiana

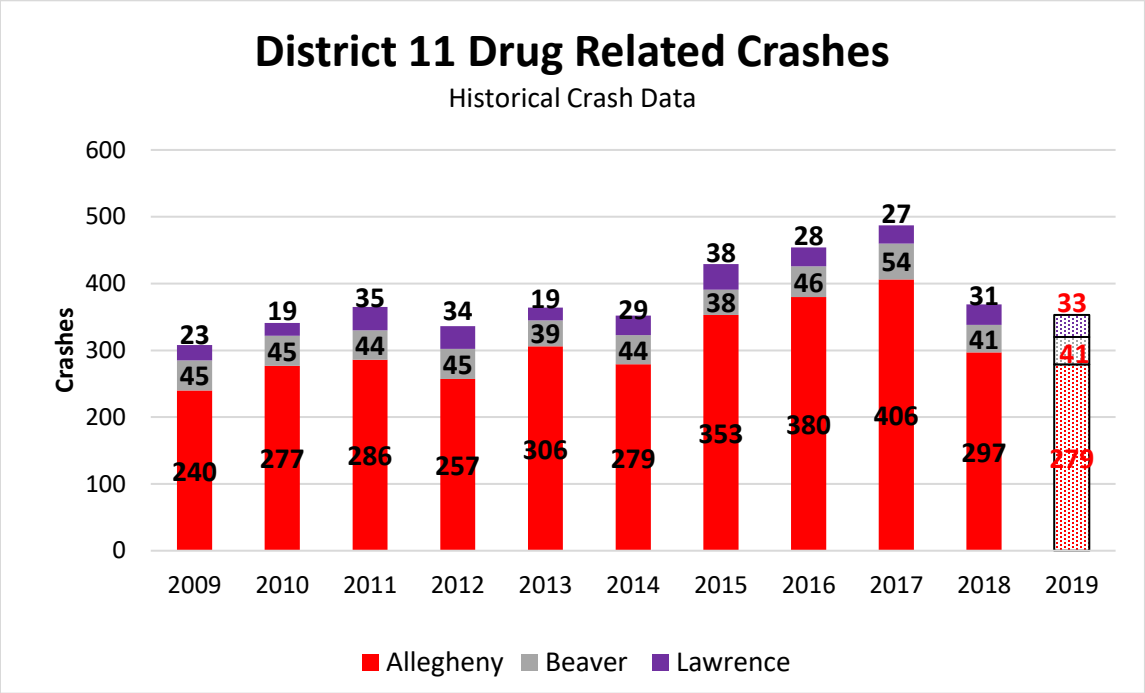

District 10 Highway-Rail Crossing Fatalities
Fatalities
3
2
1
0
2
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Armstrong
Butler
Indiana

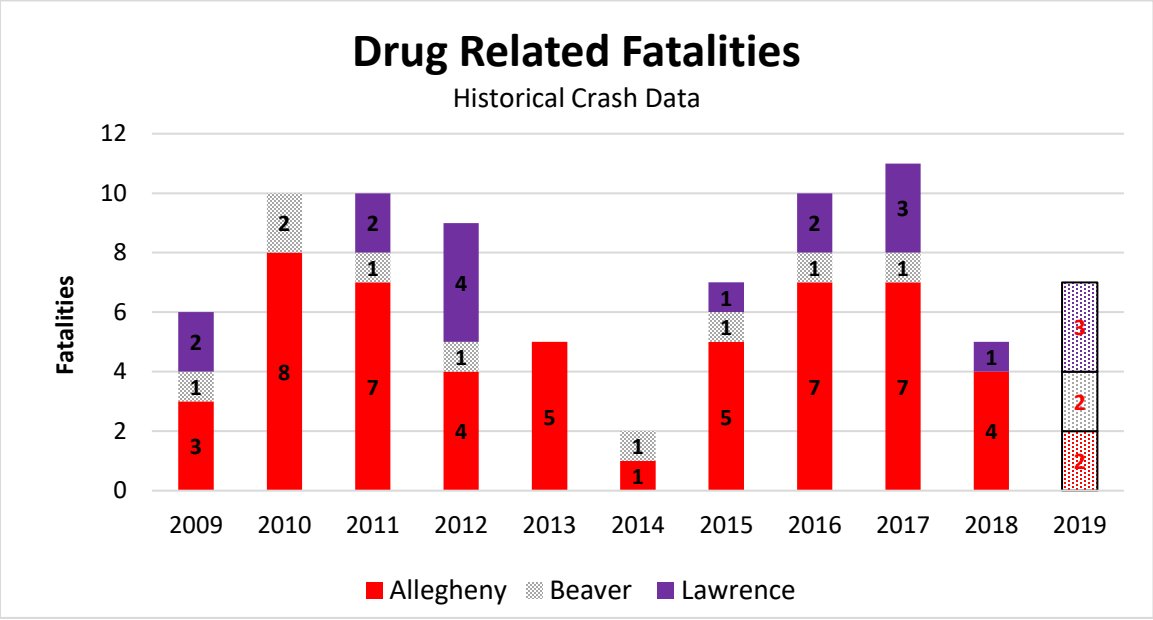

District 11 Total Crashes
Historical Crash Data
Crashes
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
779 777 783 740 748 741 740 780 729 770 752
1,465 1,529 1,407 1,467 1,462 1,405 1,446 1,303 1,265 1,361 1,385
11,671 11,319 12,168 12,177 11,980 12,183 12,735 12,908 12,547 12,417 12,250
Allegheny
Beaver
Lawrence

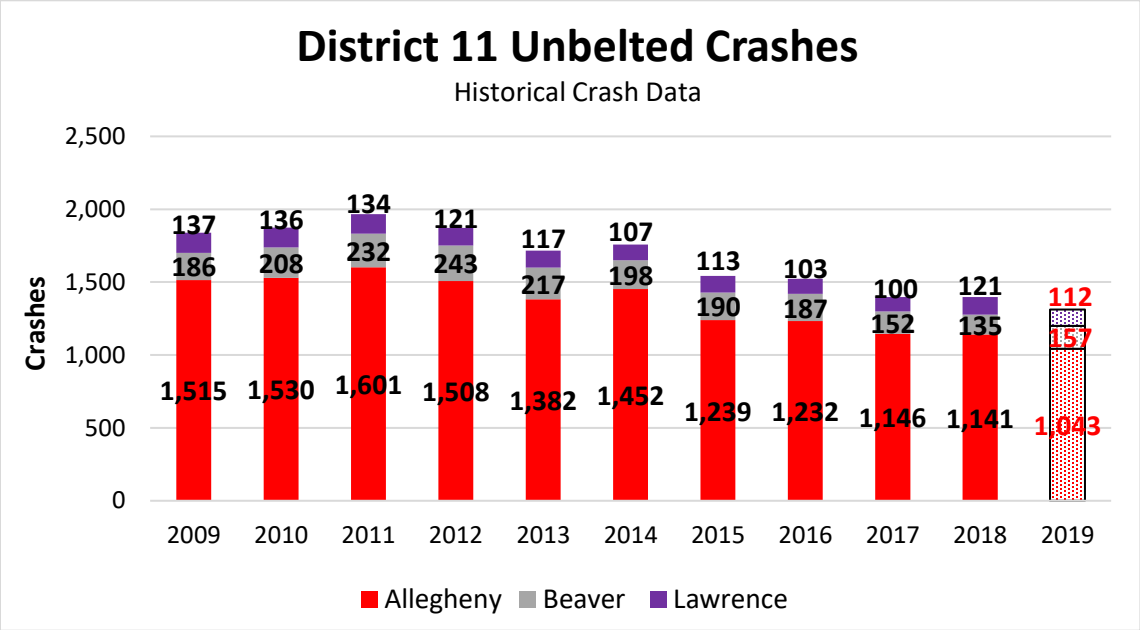

District 11 Total Fatalities
Historical Crash Data
Fatalities
120
100
80
60
40
20
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
8 11 13 11 7 10 11 10 9 17 8
13 10 24 19 12 10 12 5 17 15 16
58 70 64 67 65 59 54 72 67 68 62
Allegheny
Beaver
Lawrence

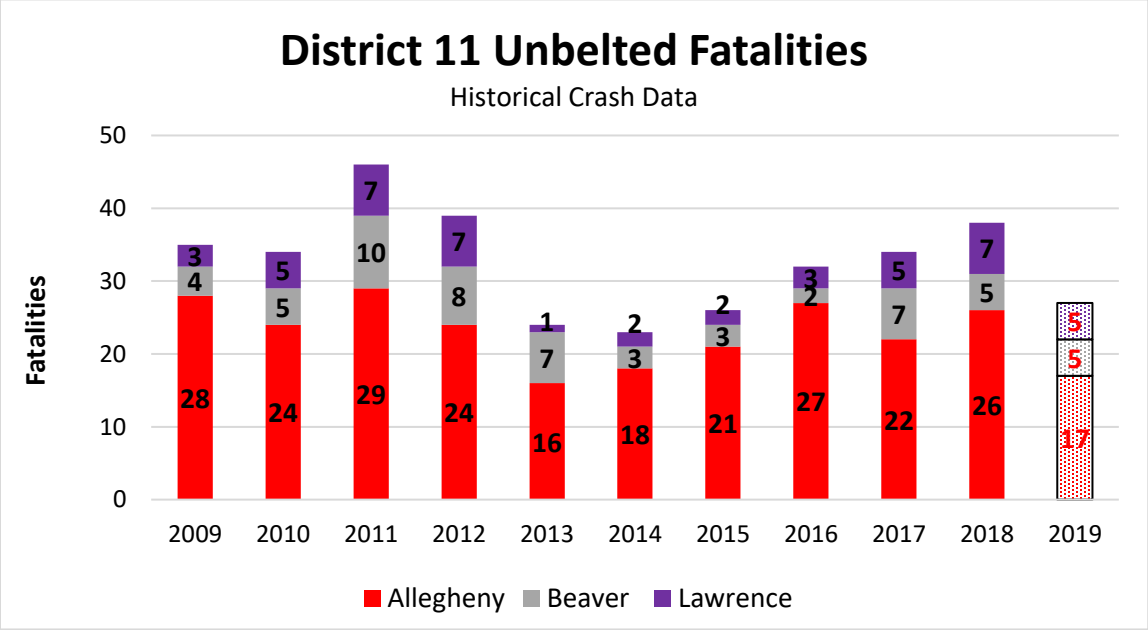

District 11 Alcohol Related Crashes
Historical Crash Data
Crashes
1,600
1,400
1,200
1,000
800
600
400
200
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
83 67 67 78 53 63 78 78 70 54 48
143 161 141 157 141 155 133 143 138 138 144
1,132 1,059 1,088 1,127 1,109 1,109 1,048 970 1,071 1,053 980
Allegheny
Beaver
Lawrence

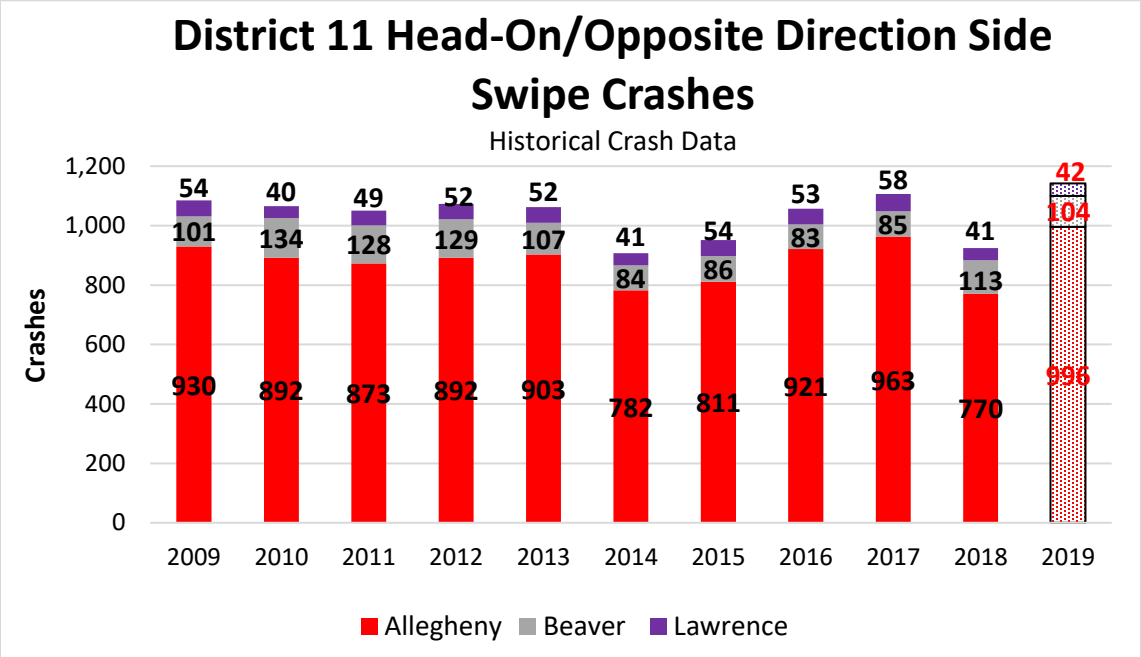

District 11 Alcohol Related Fatalities
Historical Crash Data
Fatalities
35
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
3 2 5 2 2 2 2 2 2 5 3
7 2 7 6 3 3 2 2 2 6 3
15 15 17 10 19 17 11 19 22 15 23
Allegheny
Beaver
Lawrence

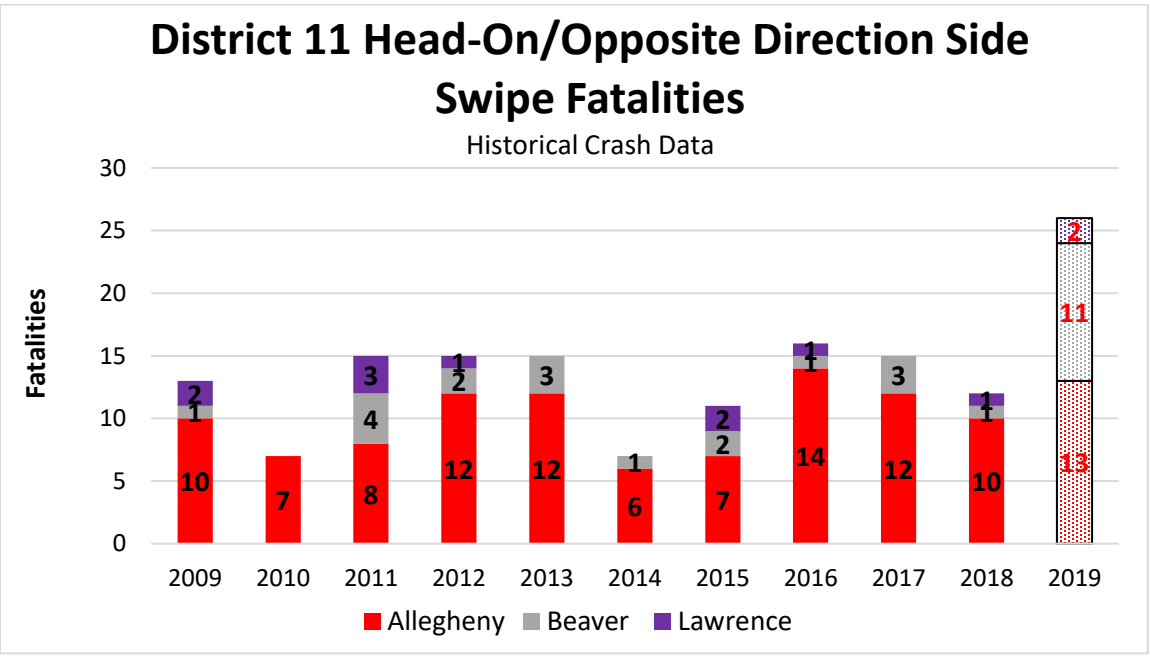

District 11 Drug Related Crashes
Historical Crash Data
Crashes
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
23 19 35 34 19 29 38 28 27 31 33
45 45 44 45 39 44 38 46 54 41 41
240 277 286 257 306 279 353 380 406 297 279
Allegheny
Beaver
Lawrence

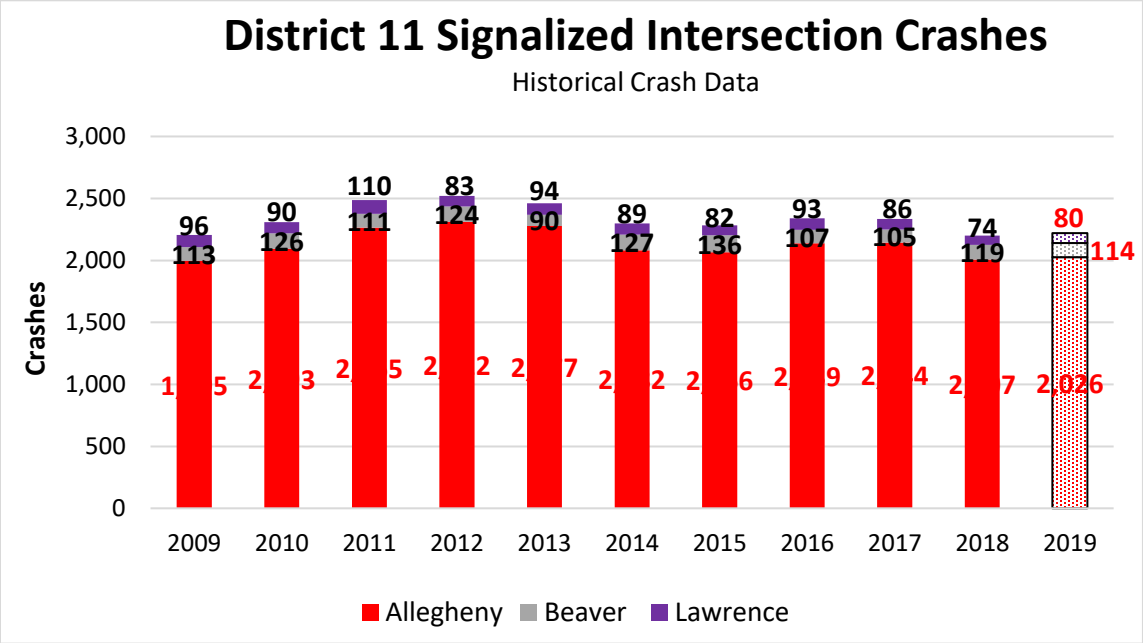

Drug Related Fatalities
Historical Crash Data
Fatalities
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
2 1 3
2 8
2 1 7
4 1 4
5
1 1
1 1 5
2 1 7
3 1 7
1 4
3 2 2
Allegheny
Beaver
Lawrence

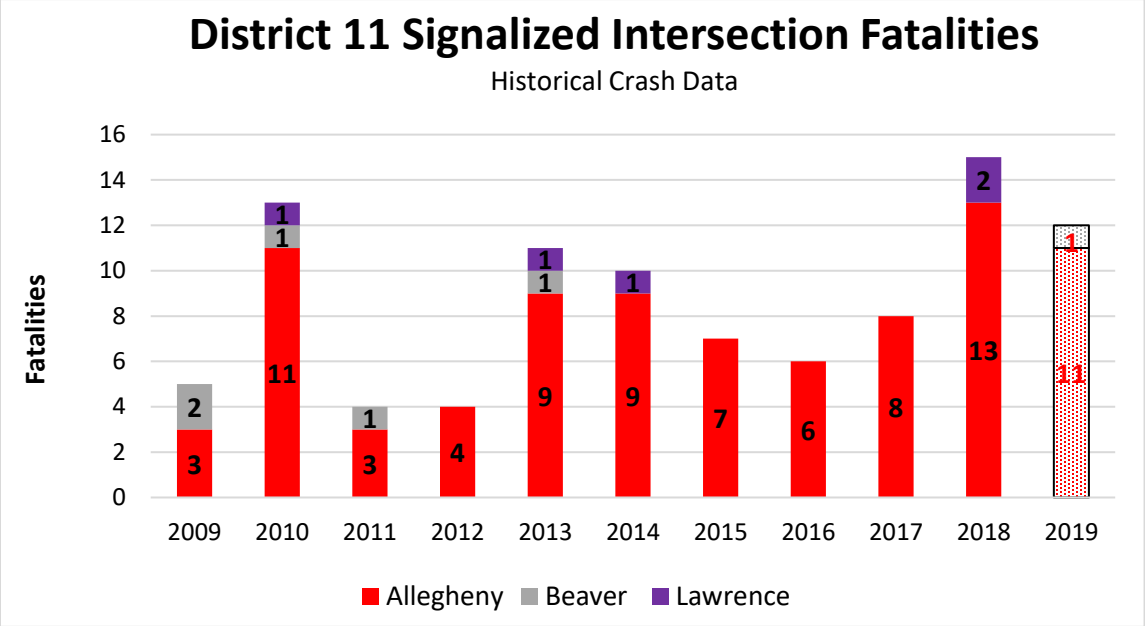

District 11 Unbelted Crashes
Historical Crash Data
Crashes
2,500
2,000
1,500
1,000
500
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
137 136 134 121 117 107 113 103 100 121 112
186 208 232 243 217 198 190 187 152 135 157
1,515 1,530 1,601 1,508 1,382 1,452 1,239 1,232 1,146 1,141 1,043
Allegheny
Beaver
Lawrence

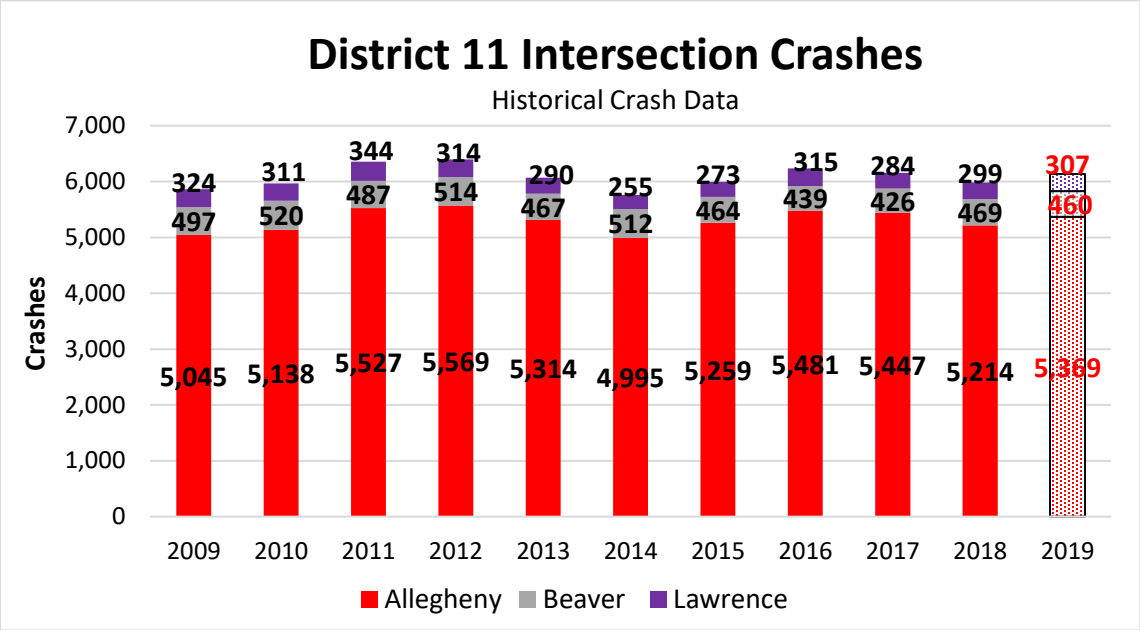

District 11 Unbelted Fatalities
Historical Crash Data
Fatalities
50
40
30
20
10
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
3 5 7 7 1 2 2 3 5 7 5
4 5 10 8 7 3 3 2 7 5 5
28 24 29 24 16 18 21 27 22 26 17
Allegheny
Beaver
Lawrence

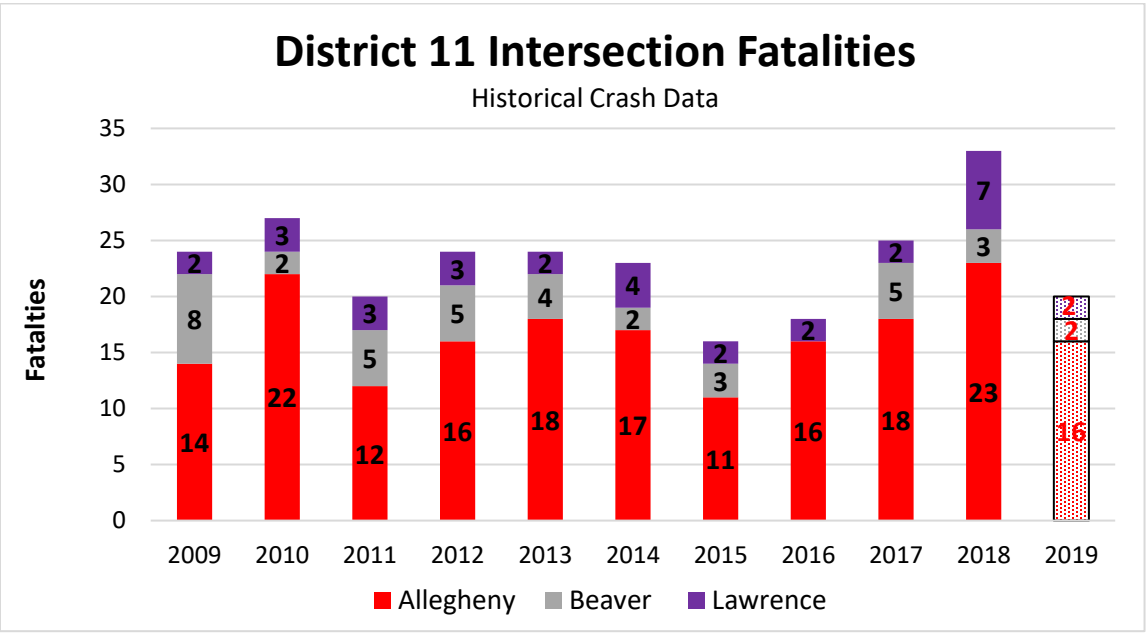

District 11 Head-On/Opposite Direction Side Swipe Crashes
Historical Crash Data
Crashes
1,200
1,000
800
600
400
200
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
54 40 49 52 52 41 54 53 58 41 42
101 134 128 129 107 84 86 83 85 113 104
930 892 873 892 903 782 811 921 963 770 996
Allegheny Beaver Lawrence

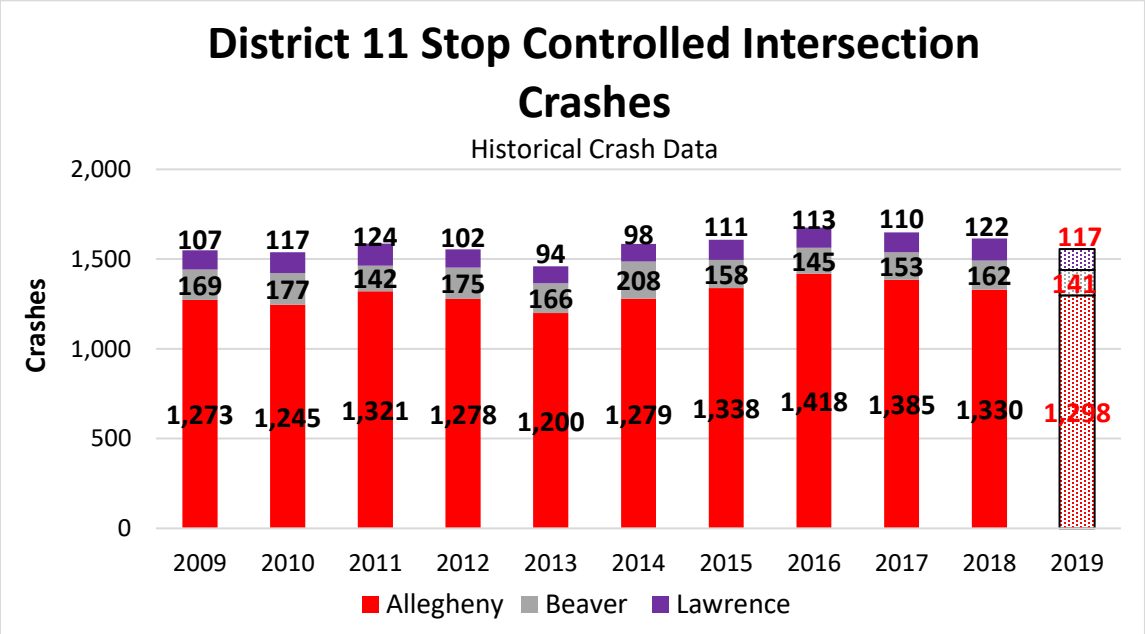

District 11 Head-On/Opposite Direction Side Swipe Fatalities
Historical Crash Data
Fatalities
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
2 1 10
7
3 4 8
1 2 12
3 12
1 6
2 2 7
1 1 14
3 12
1 1 10
2 11 13
Allegheny Beaver Lawrence

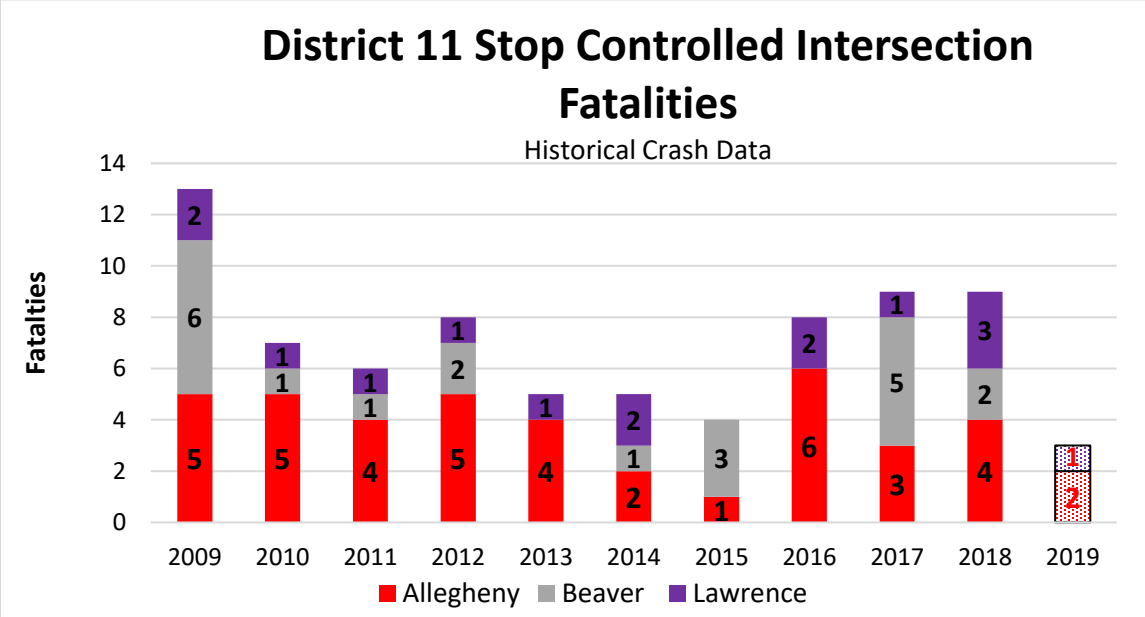

District 11 Signalized Intersection Crashes
Historical Crash Data
Crashes
3,000
2,500
2,000
1,500
1,000
500
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Allegheny
Beaver
Lawrence

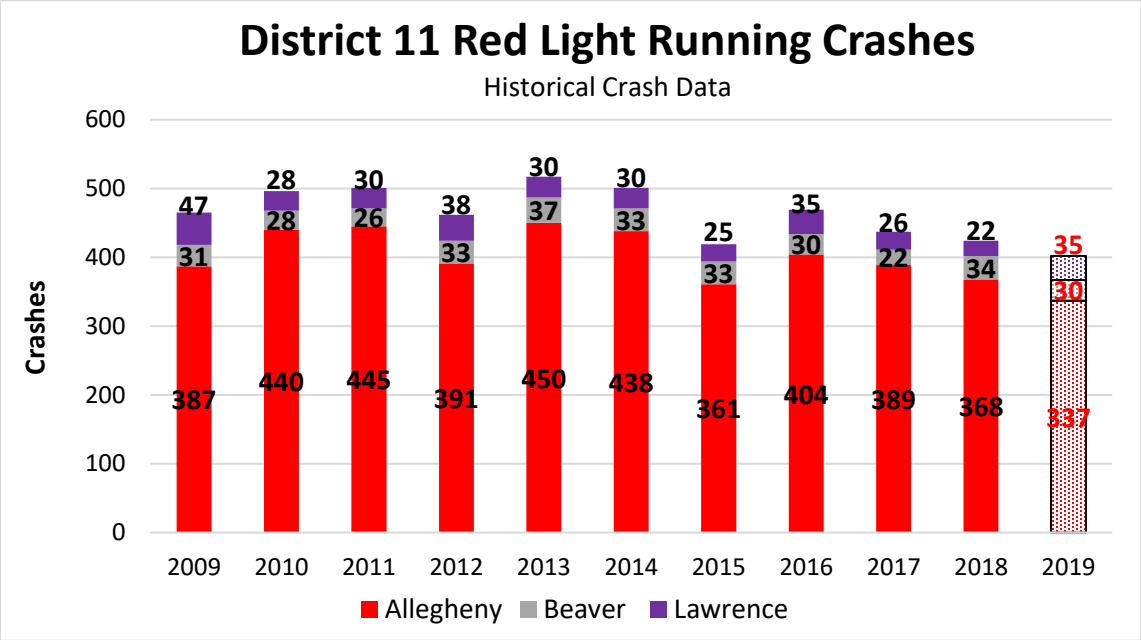

District 11 Signalized Intersection Fatalities
Historical Crash Data
Fatalities
16
14
12
10
8
6
4
2
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Allegheny
Beaver
Lawrence

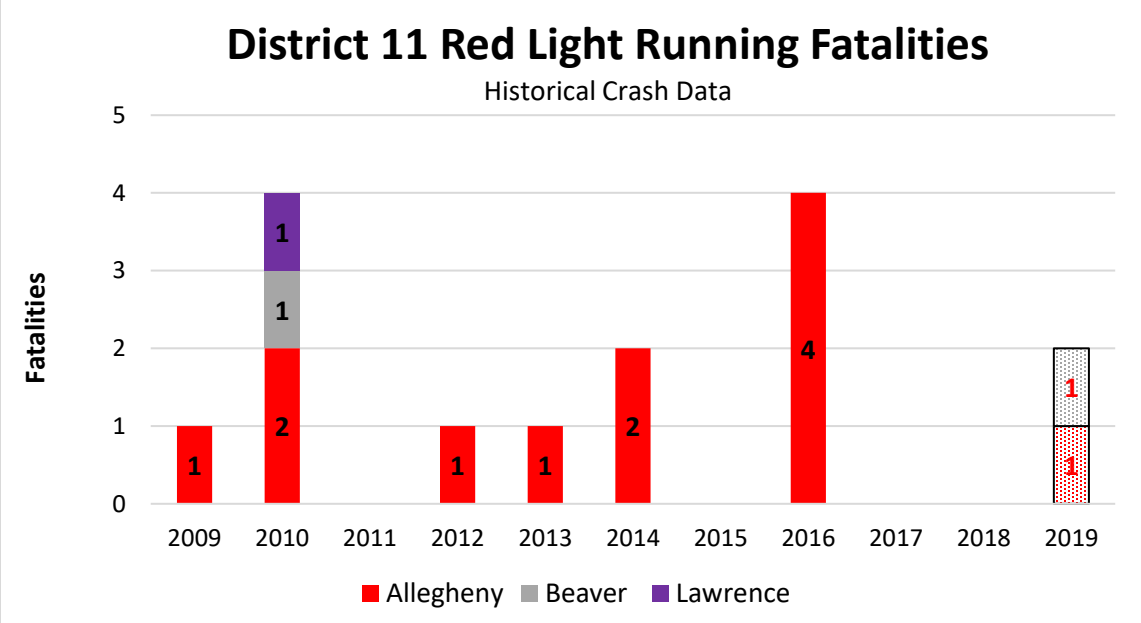

District 11 Intersection Crashes
Historical Crash Data
Crashes
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
324 311 344 314 290 255 273 315 284 299 307
497 520 487 514 467 512 464 439 426 469 460
5,045 5,138 5,527 5,569 5,314 4,995 5,259 5,481 5,447 5,214 5,369
Allegheny
Beaver
Lawrence

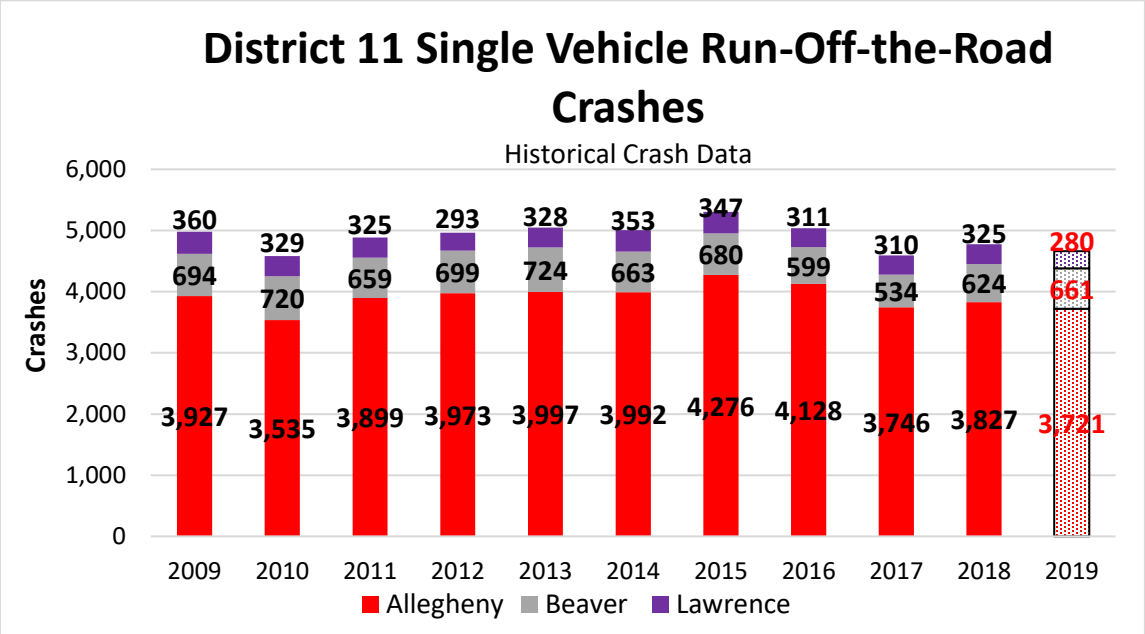

District 11 Intersection Fatalities
Historical Crash Data
Fatalties
35
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
2 3 3 2 3 2 4 2 2 7 2
8 2 5 5 4 2 3 5 3 2
14 22 12 16 18 17 11 16 18 23 16
Allegheny
Beaver
Lawrence

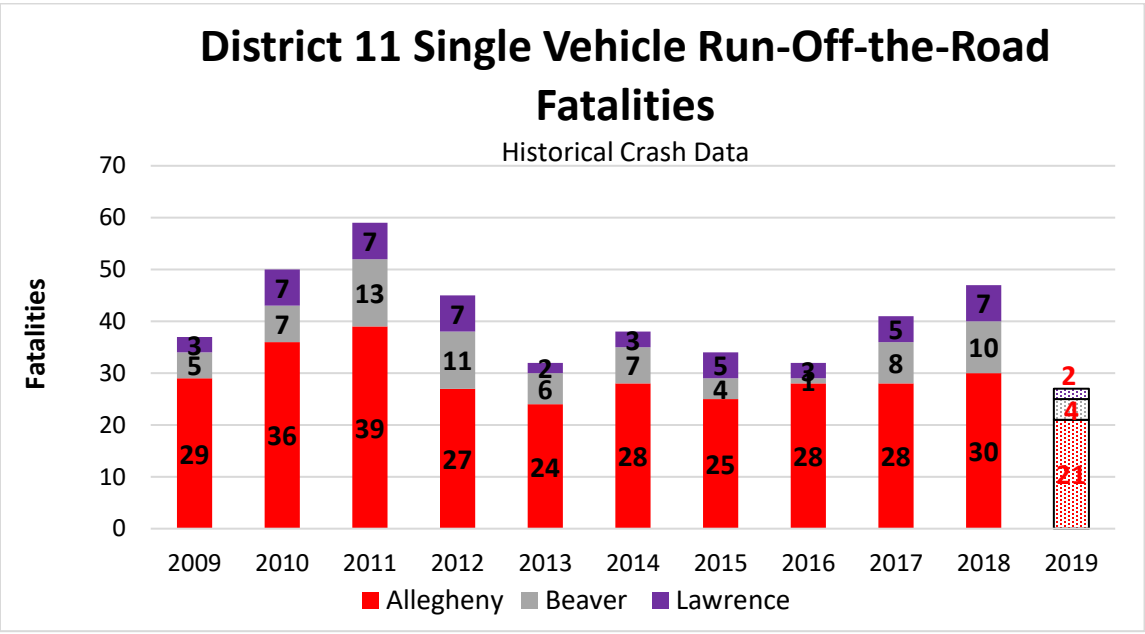

District 11 Stop Controlled Intersection Crashes
Historical Crash Data
Crashes
2,000
1,500
1,000
500
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
107 117 124 102 94 98 111 113 110 122 117
169 177 142 175 166 208 158 145 153 162 141
1,273 1,245 1,321 1,278 1,200 1,279 1,338 1,418 1,385 1,330 1,298
Allegheny Beaver Lawrence

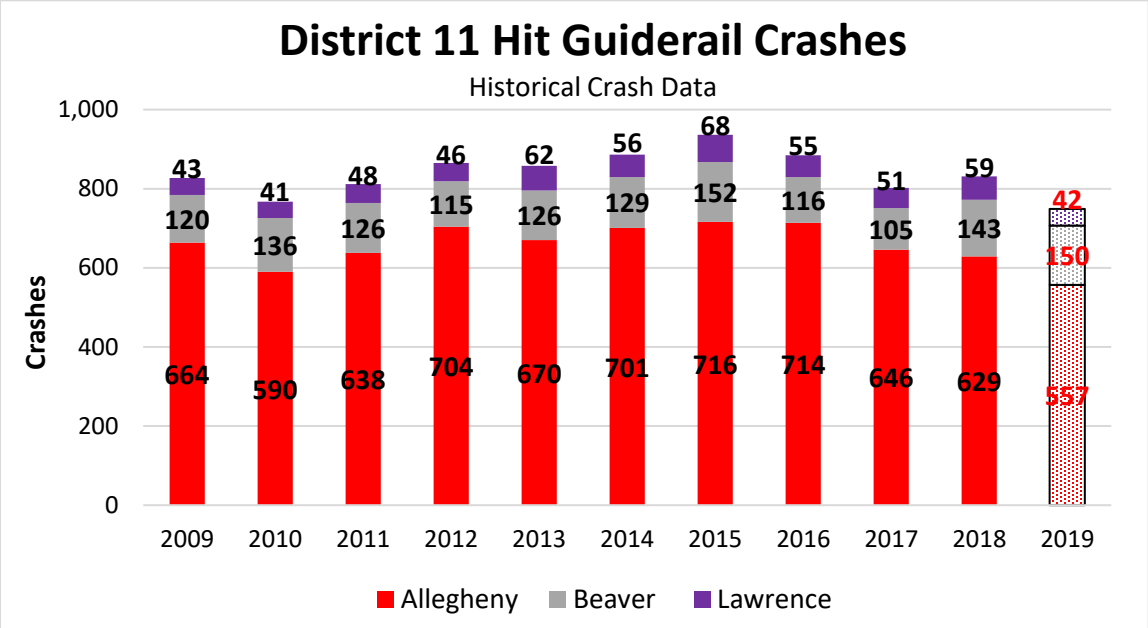

District 11 Stop Controlled Intersection Fatalities
Historical Crash Data
Fatalties
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
2 1 1 1 1 2 3 2 1 3 1
6 1 1 2 1 1 1 5 2 1
5 5 4 5 4 2 1 6 3 4 2
Allegheny Beaver Lawrence

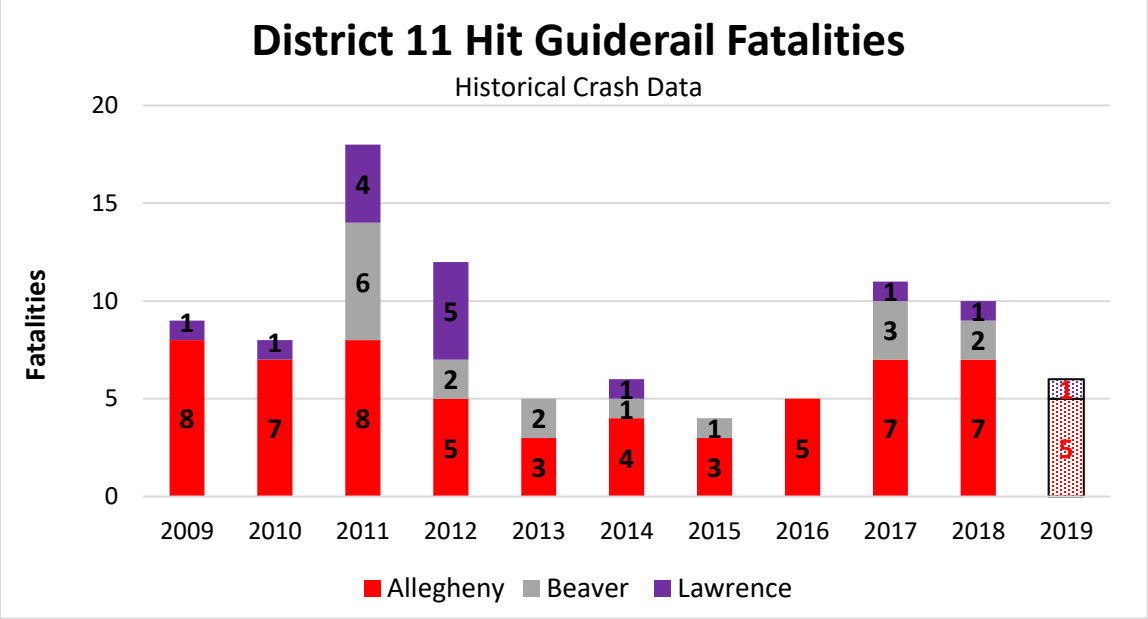

District 11 Red Light Running Crashes
Historical Crash Data
Crashes
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
47 28 30 38 30 30 25 35 26 22 35
31 28 26 33 37 33 33 30 22 34 30
387 440 445 391 450 438 361 404 389 368 337
Allegheny
Beaver
Lawrence

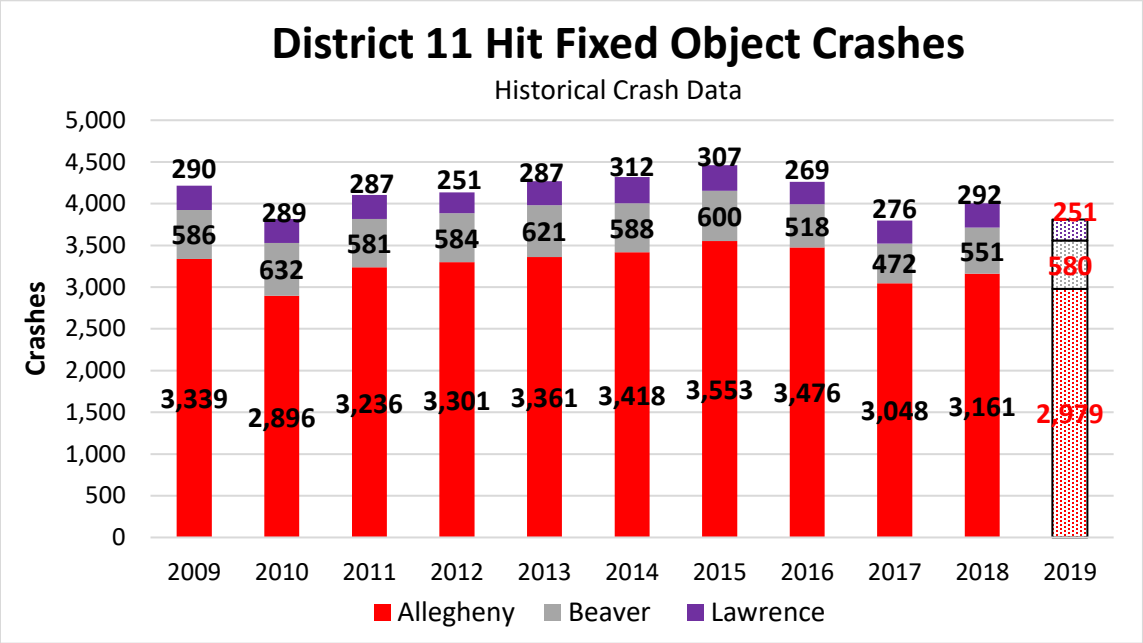

District 11 Red Light Running Fatalities
Historical Crash Data
Fatalities
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1 2 1 1 2 4 1 1
Allegheny
Beaver
Lawrence

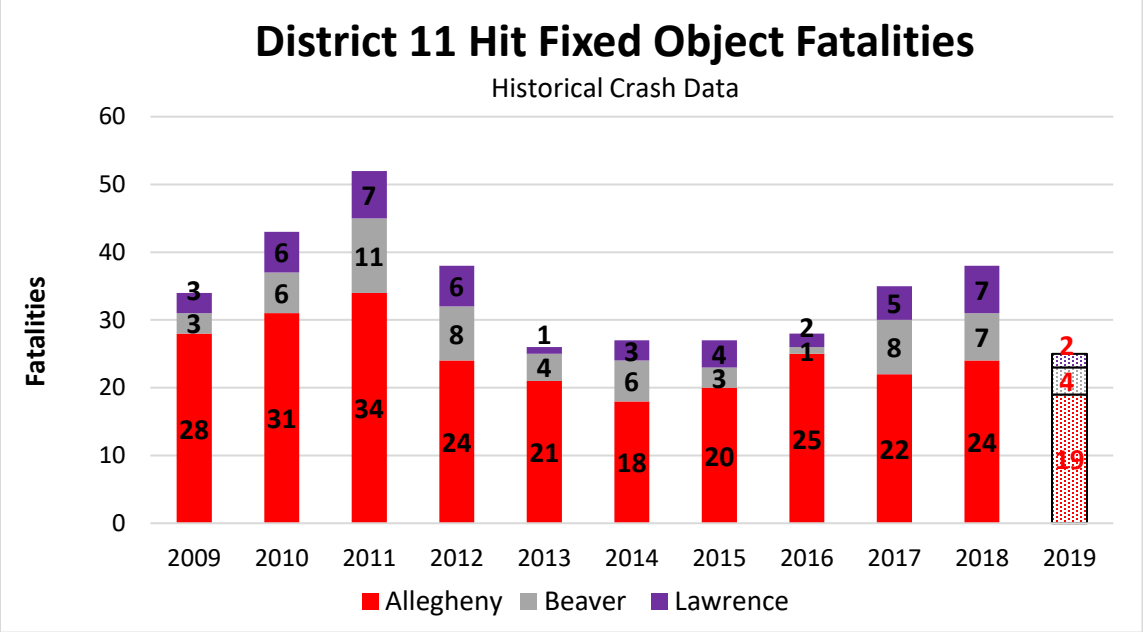

District 11 Single Vehicle Run-Off-the-Road Crashes
Historical Crash Data
Crashes
6,000
5,000
4,000
3,000
2,000
1,000
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
360 329 325 293 328 353 347 311 310 325 280
694 720 659 699 724 663 680 599 534 624 661
3,927 3,535 3,899 3,973 3,997 3,992 4,276 4,128 3,746 3,827 3,721
Allegheny
Beaver
Lawrence

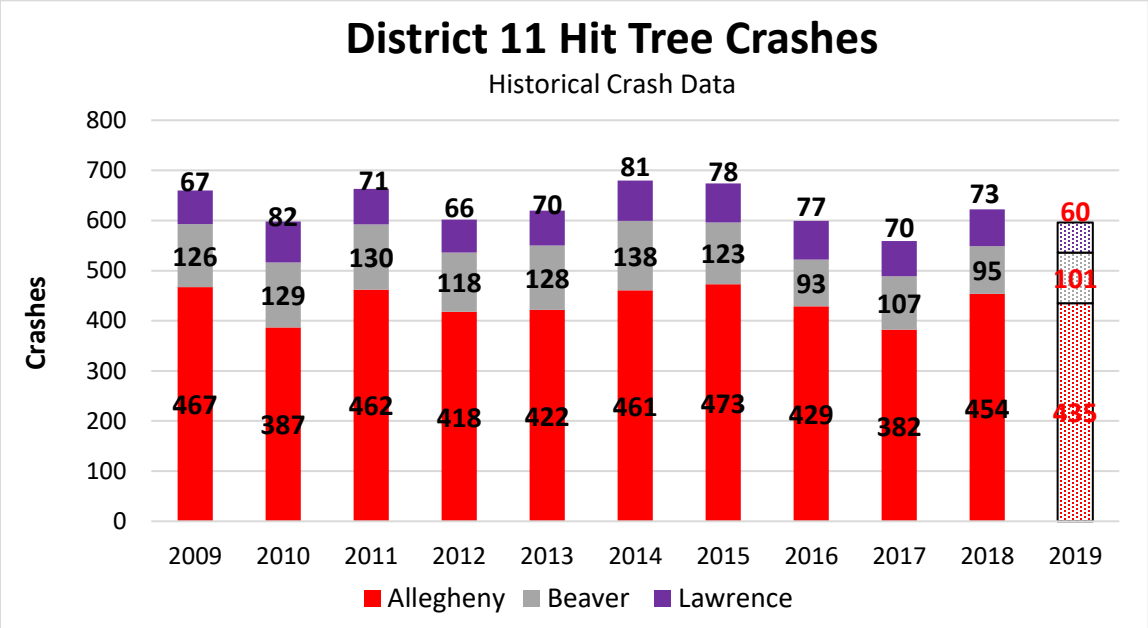

District 11 Single Vehicle Run-Off-the-Road Fatalities
Historical Crash Data
Fatalities
70
60
50
40
30
20
10
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
3 7 7 2 3 5 3 5 7 2
5 7 13 11 6 7 4 1 8 10 4
29 36 39 27 24 28 25 28 28 30 21
Allegheny
Beaver
Lawrence

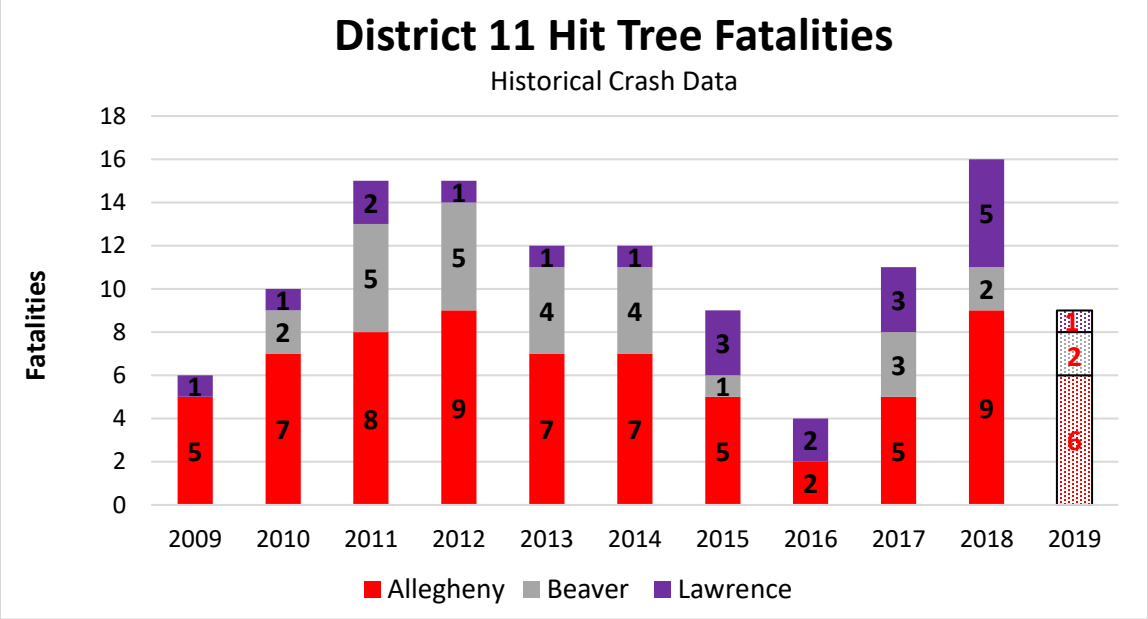

District 11 Hit Guiderail Crashes
Historical Crash Data
Crashes
1,000
800
600
400
200
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
43 41 48 46 62 56 68 55 51 59 42
120 136 126 115 126 129 152 116 105 143 150
664 590 638 704 670 701 716 714 646 629 557
Allegheny
Beaver
Lawrence

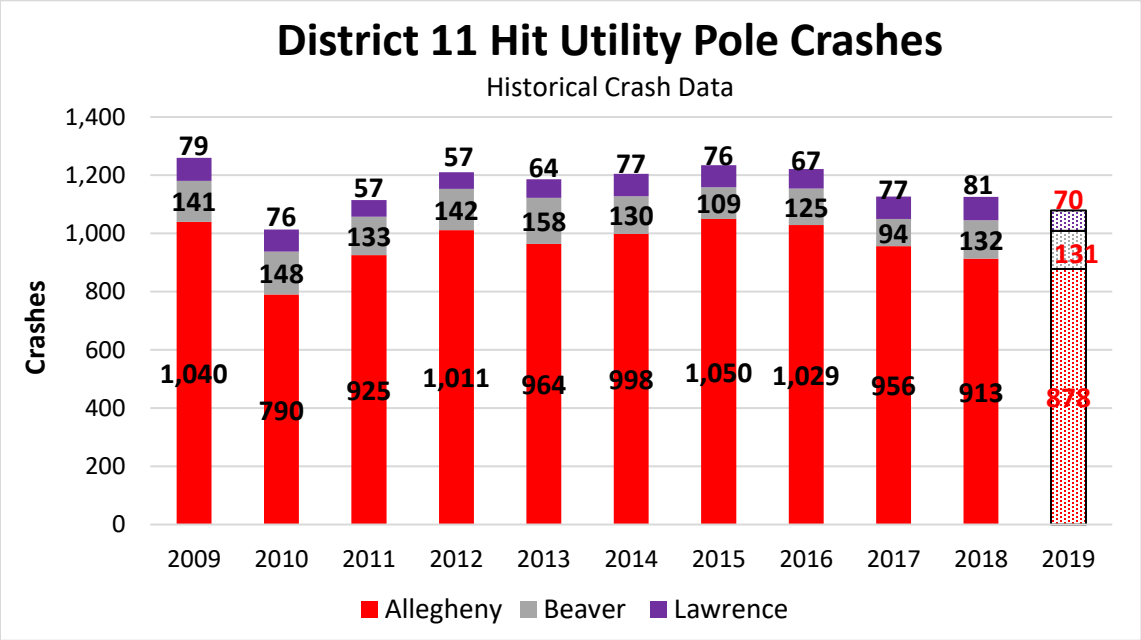

District 11 Hit Guiderail Fatalities
Historical Crash Data
Fatalities
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1 4 5 2 1 1 1 1 1 1
8 7 8 5 3 4 3 5 7 7 5
Allegheny
Beaver
Lawrence

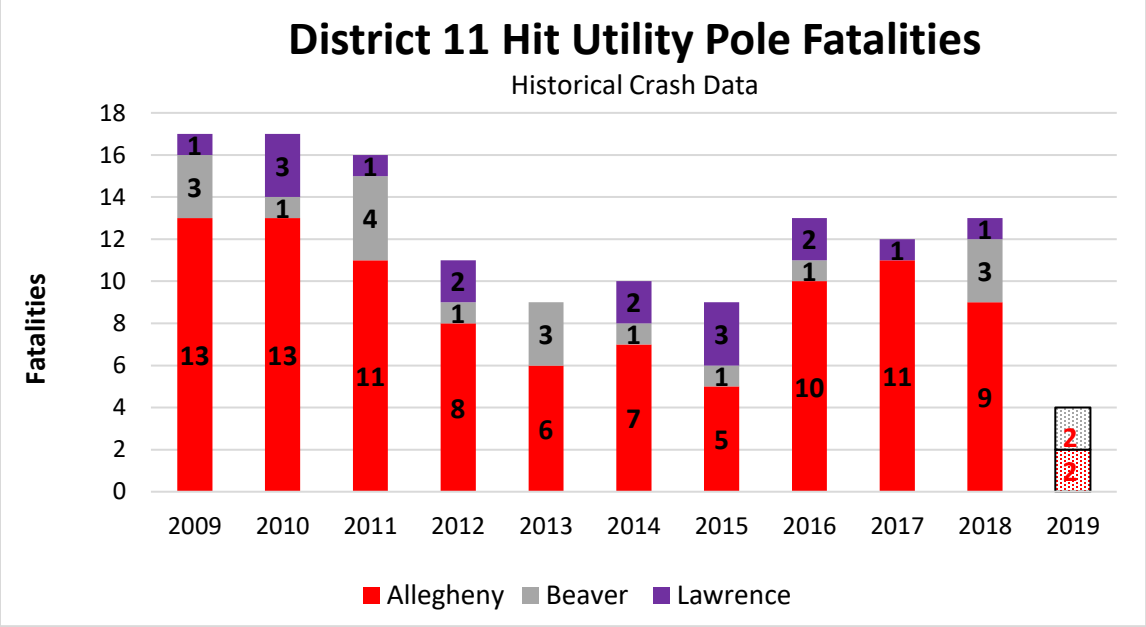

District 11 Hit Fixed Object Crashes
Historical Crash Data
Crashes
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
290
289
287
251
287
312
307
269
276
292
251
586
632
581
584
621
588
600
518
472
551
580
3,339
2,896
3,236
3,301
3,361
3,418
3,553
3,476
3,048
3,161
2,979
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Allegheny
Beaver
Lawrence

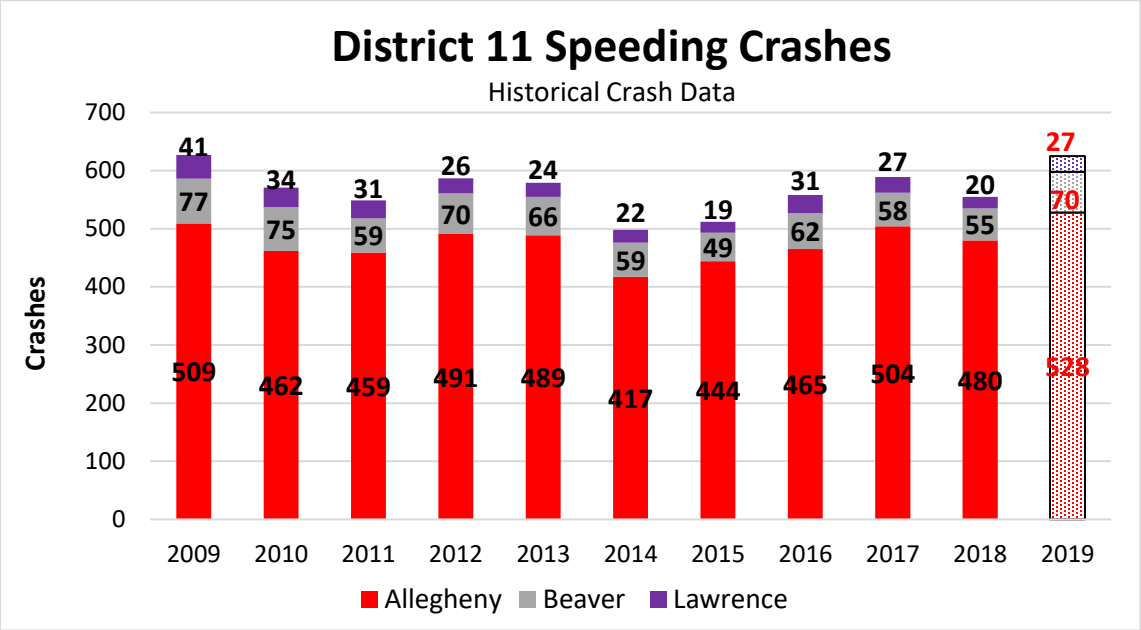

District 11 Hit Fixed Object Fatalities
Historical Crash Data
Fatalities
60
50
40
30
20
10
0
3
6
7
6
11
6
1
3
4
2
5
7
2
3
6
8
4
8
7
4
28
31
34
24
21
18
20
25
22
24
19
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Allegheny
Beaver
Lawrence

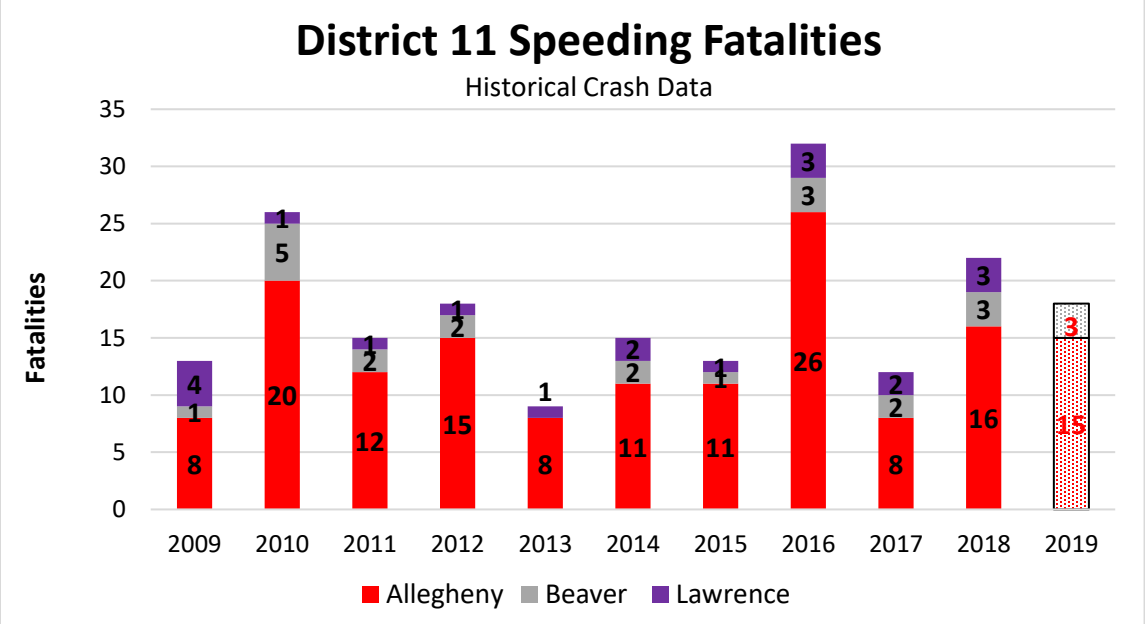

District 11 Hit Tree Crashes
Historical Crash Data
Crashes
800
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
67 82 71 66 70 81 78 77 70 73 60
126 129 130 118 128 138 123 93 107 95 101
467 387 462 418 422 461 473 429 382 454 435
Allegheny
Beaver
Lawrence

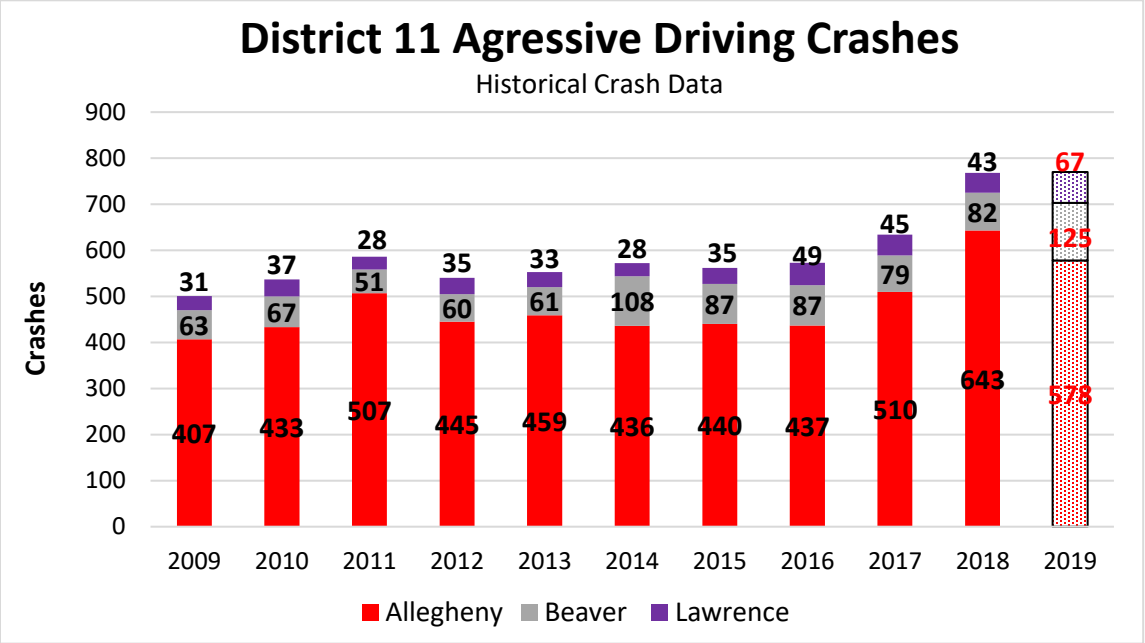

District 11 Hit Tree Fatalities
Historical Crash Data
Fatalities
18
16
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1 2 1 1 1 3 2 3 5 1
5 7 8 9 7 7 5 2 5 9 6
Allegheny
Beaver
Lawrence

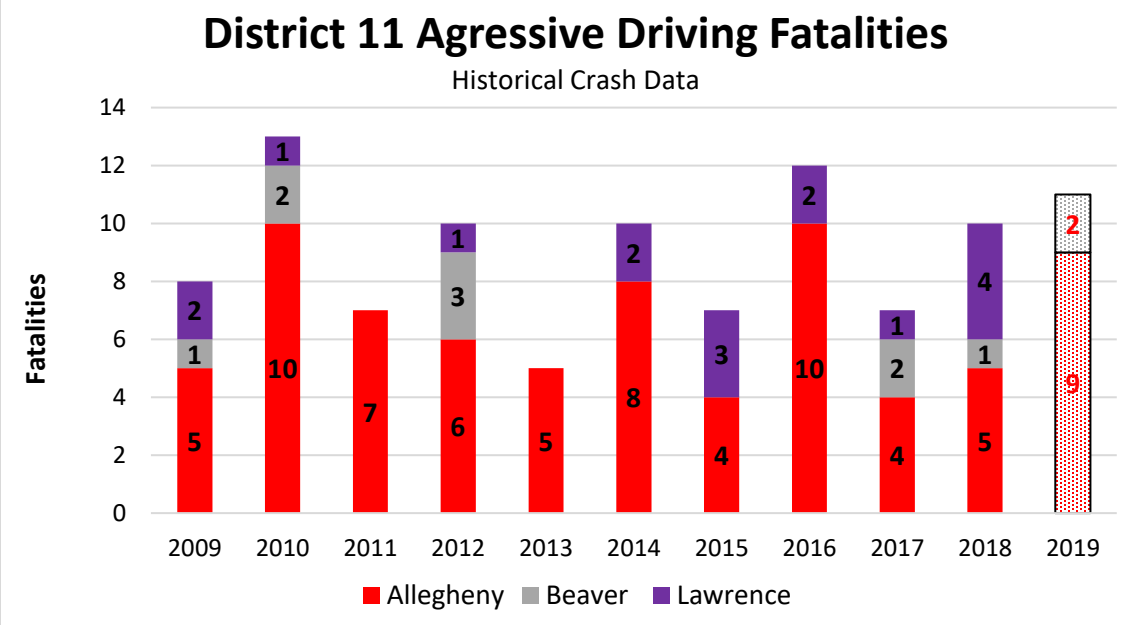

District 11 Hit Utility Pole Crashes
Historical Crash Data
Crashes
1,400
1,200
1,000
800
600
400
200
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
79 76 57 57 64 77 76 67 77 81 70
141 148 133 142 158 130 109 125 94 132 131
1,040 790 925 1,011 964 998 1,050 1,029 956 913 878
Allegheny
Beaver
Lawrence

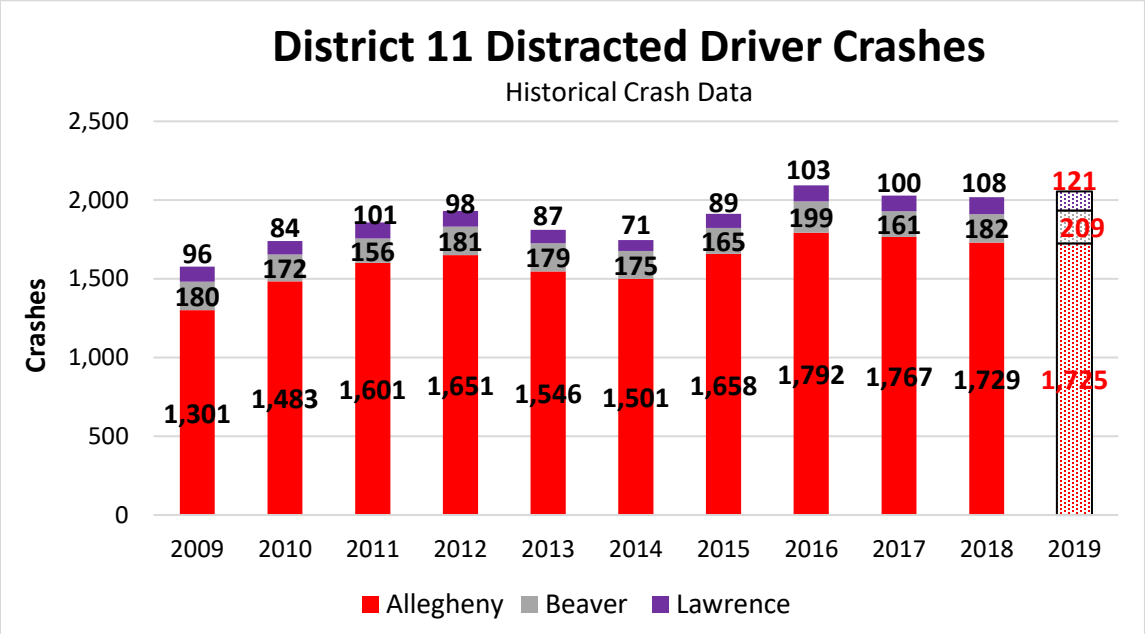

District 11 Hit Utility Pole Fatalities
Historical Crash Data
Fatalities
18
16
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 3 1 2 3 2 3 2 1 1 1 2
3 1 4 1 3 1 1 1 3
13 13 11 8 6 7 5 10 11 9 2
2
Allegheny
Beaver
Lawrence

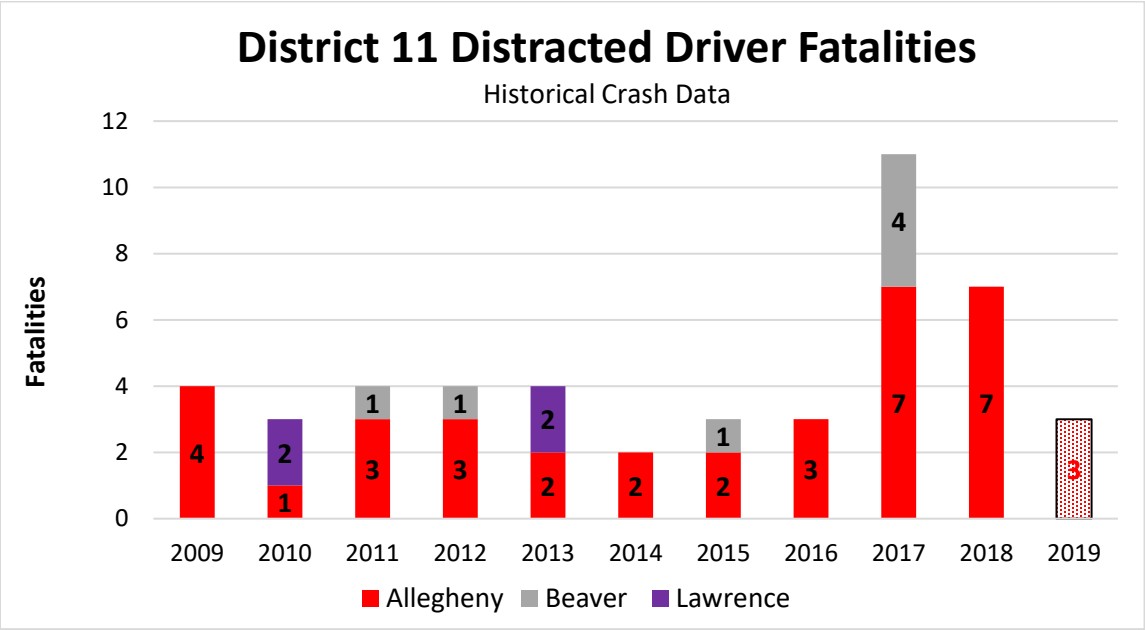

District 11 Speeding Crashes
Historical Crash Data
Crashes
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
41 34 31 26 24 22 19 31 27 20 27
77 75 59 70 66 59 49 62 58 55 70
509 462 459 491 489 417 444 465 504 480 528
Allegheny
Beaver
Lawrence

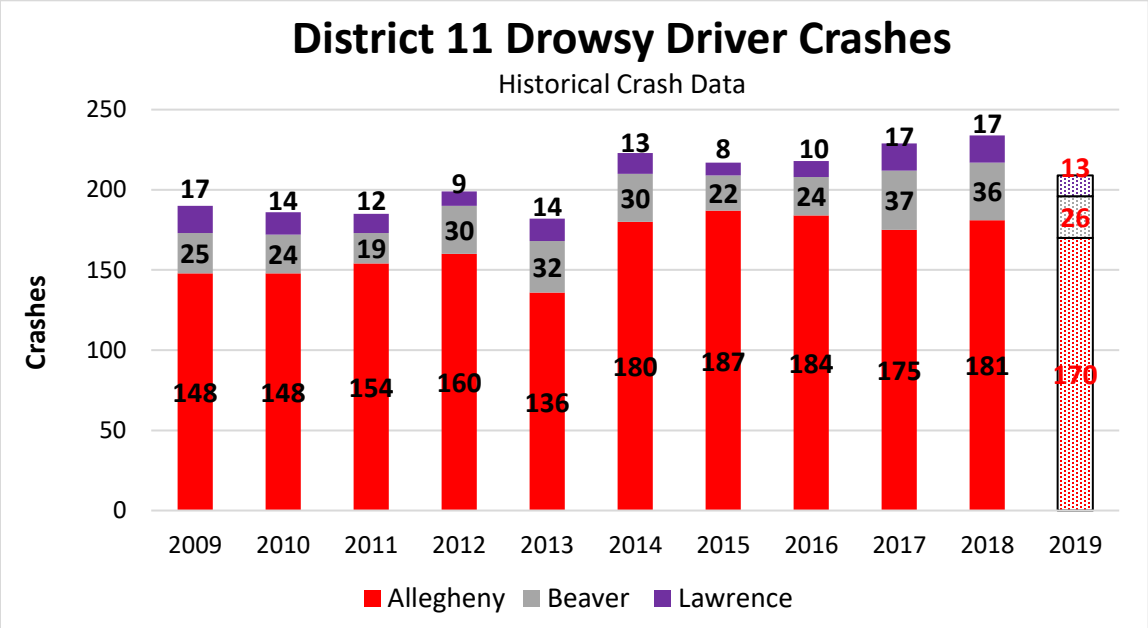

District 11 Speeding Fatalities
Historical Crash Data
Fatalities
35
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
4 1 20 1 5 1 2 12 1 2 15 1 8 2 2 11 1 1 11 3 3 26 2 2 8 3 3 16 3 15
Allegheny
Beaver
Lawrence

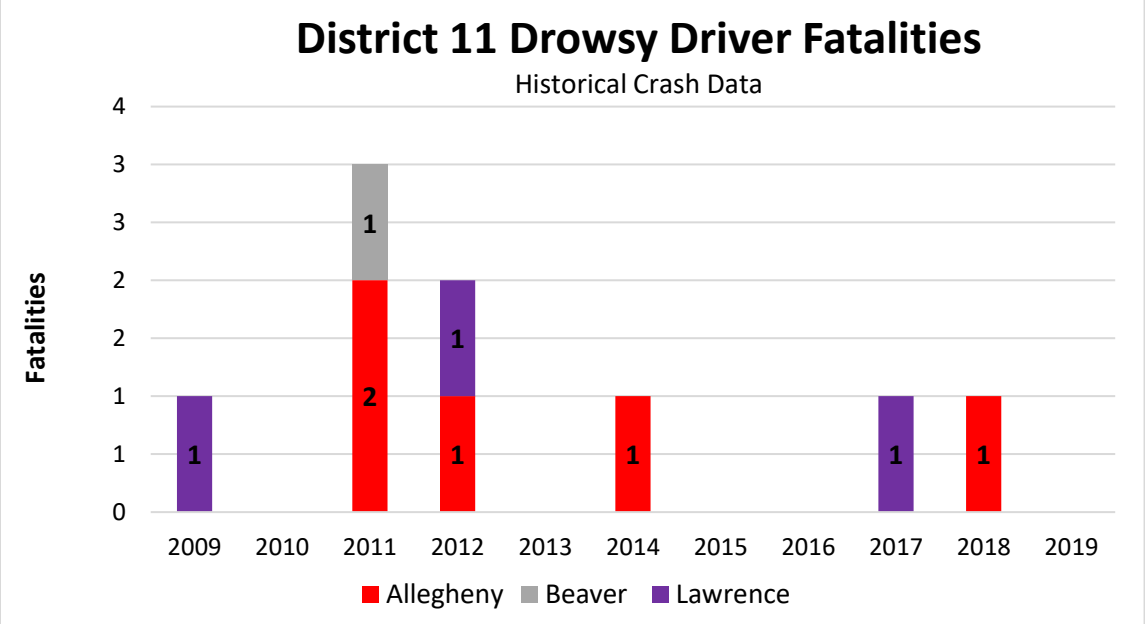

District 11 Agressive Driving Crashes
Historical Crash Data
Crashes
900
800
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
31 37 28 35 33 28 35 49 45 43 67
63 67 51 60 61 108 87 87 79 82 125
407 433 507 445 459 436 440 437 510 643 578
Allegheny
Beaver
Lawrence

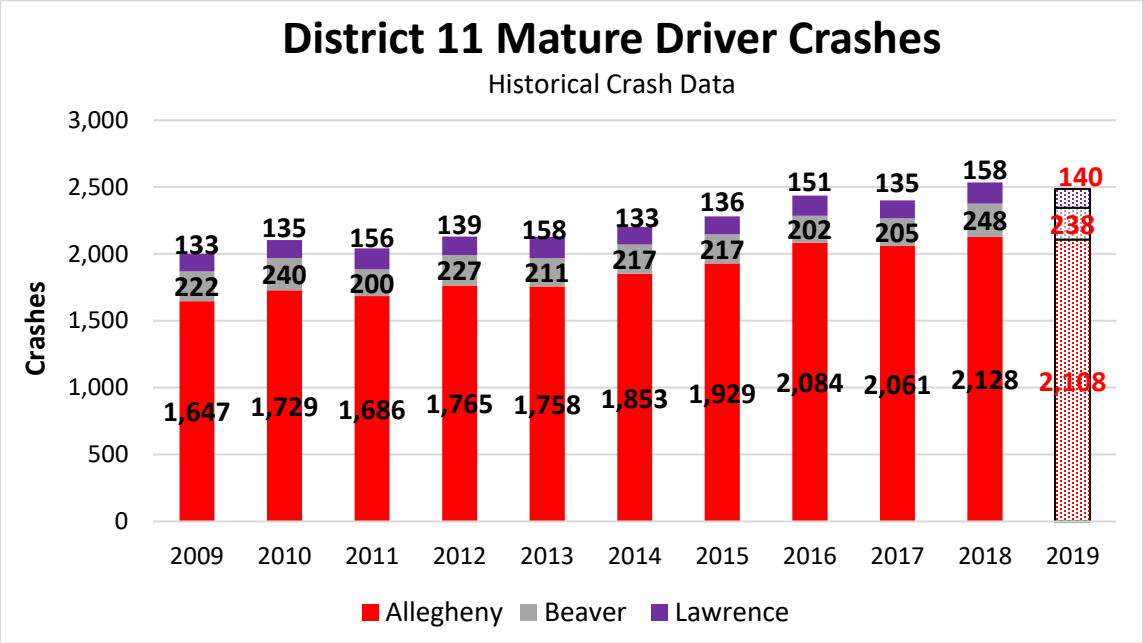

District 11 Agressive Driving Fatalities
Historical Crash Data
Fatalities
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
2 1 2 1 2 2 3 2 1 4 2
1 2 3 2 1 3 2 1 2 1 9
5 10 7 6 5 8 4 10 4 5
Allegheny
Beaver
Lawrence

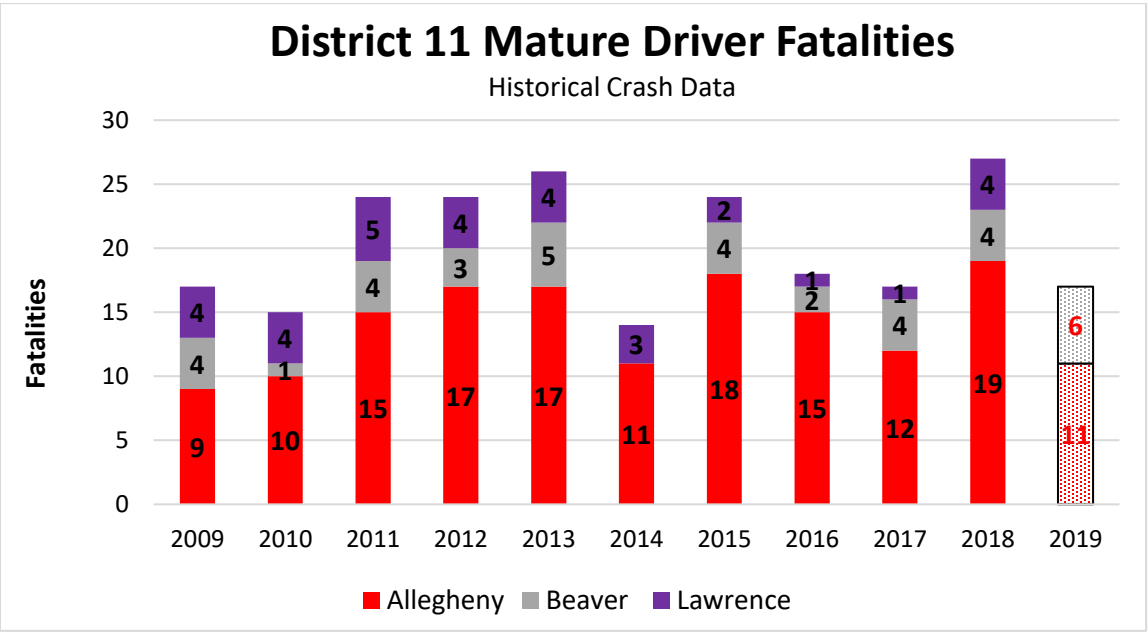

District 11 Distracted Driver Crashes
Historical Crash Data
Crashes
2,500
2,000
1,500
1,000
500
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
96 84 101 98 87 71 89 103 100 108 121
180 172 156 181 179 175 165 199 161 182 209
1,301 1,483 1,601 1,651 1,546 1,501 1,658 1,792 1,767 1,729 1,725
Allegheny
Beaver
Lawrence

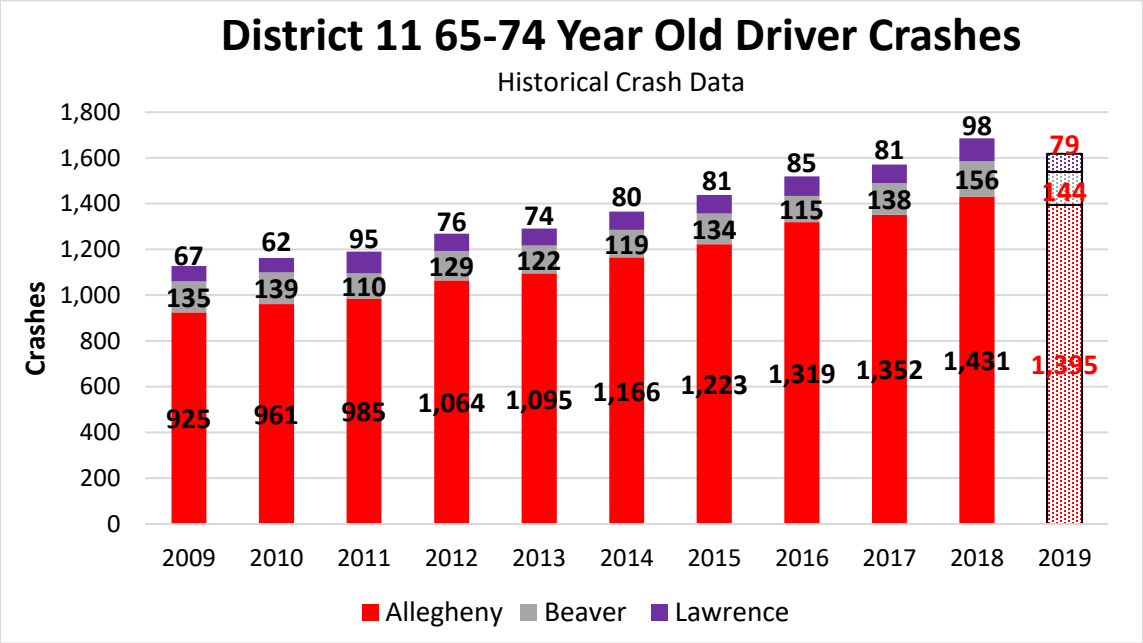

District 11 Distracted Driver Fatalities
Historical Crash Data
Fatalities
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
4 2 1 3 1 3 1 3 2 2 1 2 3 4 7 7 3
Allegheny
Beaver
Lawrence

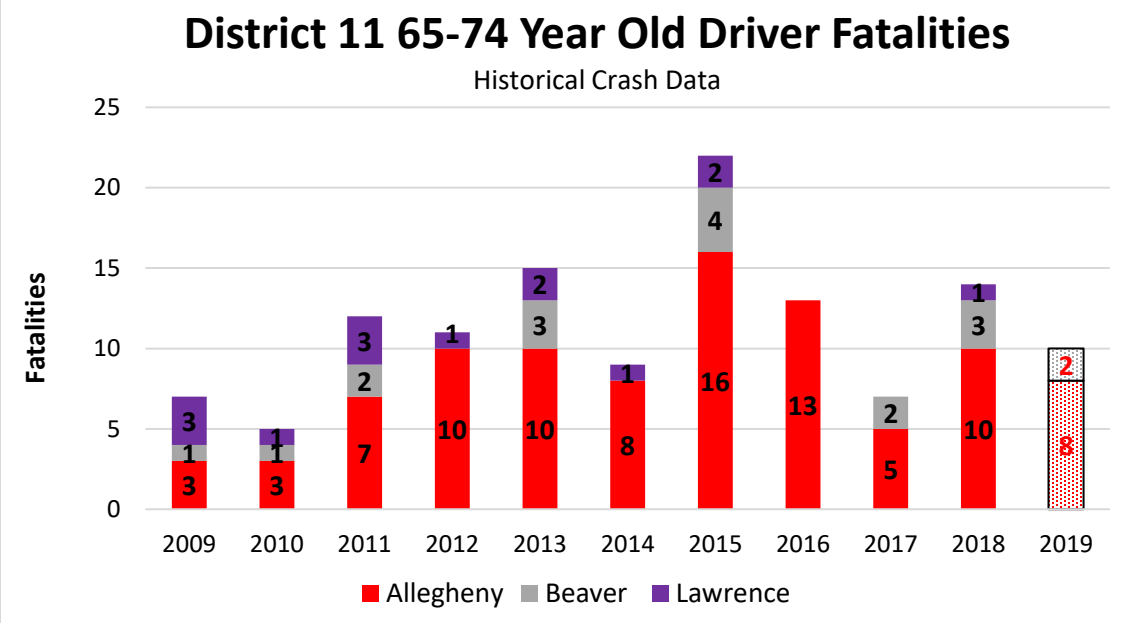

District 11 Drowsy Driver Crashes
Historical Crash Data
Crashes
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
17 14 12 9 14 13 8 10 17 17 13
25 24 19 30 32 30 22 24 37 36 26
148 148 154 160 136 180 187 184 175 181 170
Allegheny Beaver Lawrence

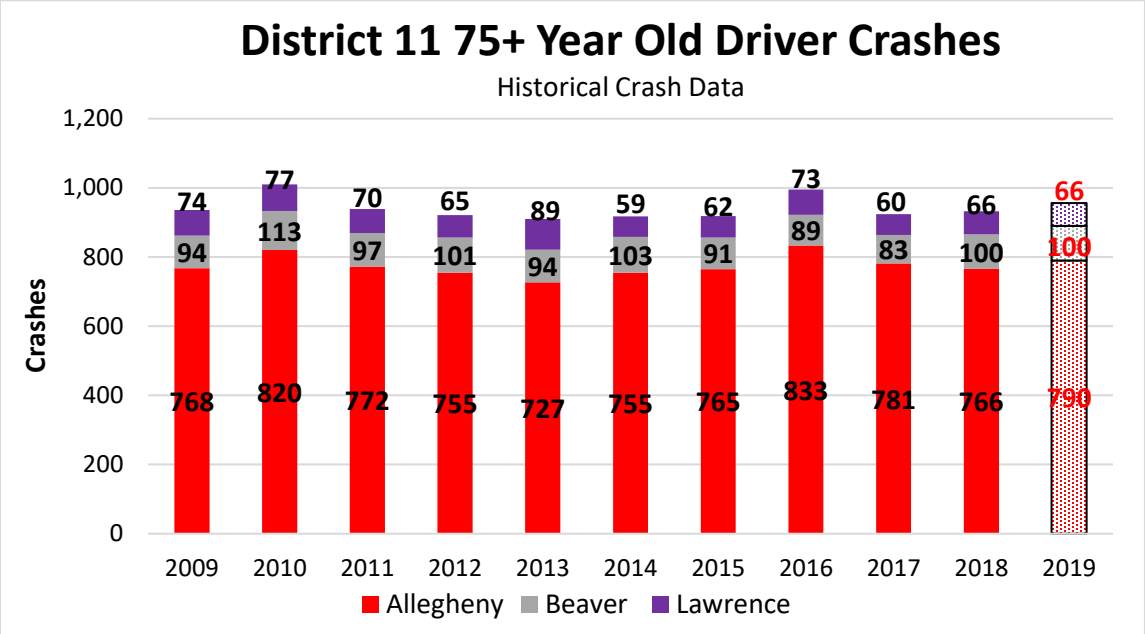

District 11 Drowsy Driver Fatalities
Historical Crash Data
Fatalities
4
3
3
2
2
1
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1 2 1 1 1 1
Allegheny Beaver Lawrence

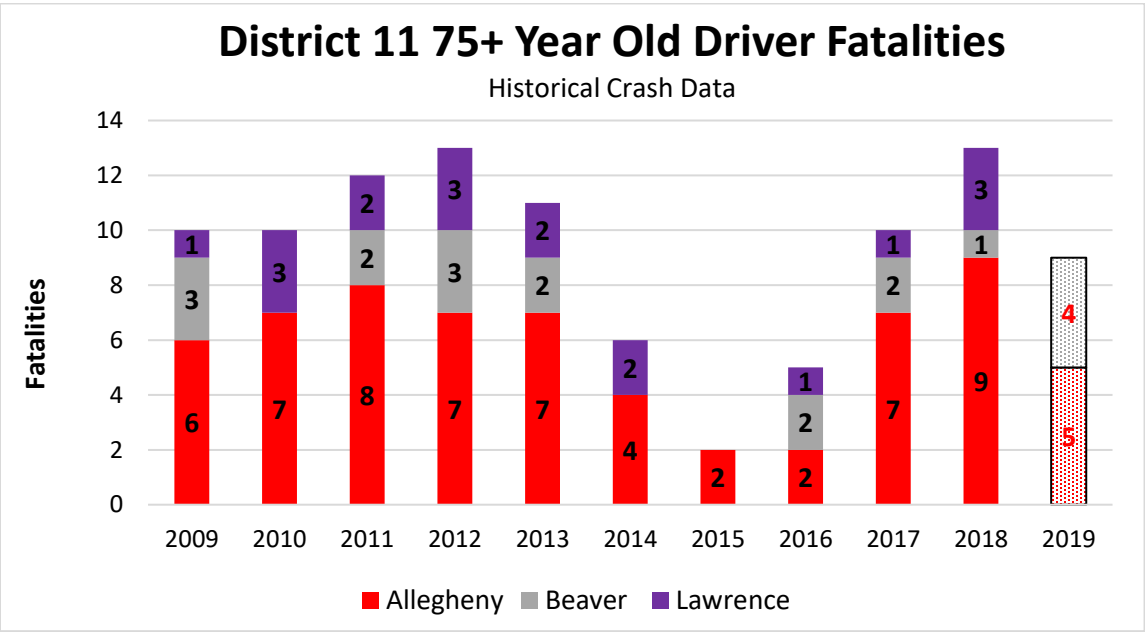

District 11 Mature Driver Crashes
Historical Crash Data
Crashes
3,000
2,500
2,000
1,500
1,000
500
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
133 135 156 139 158 133 136 151 135 158 140
222 240 200 227 211 217 217 202 205 248 238
1,647 1,729 1,686 1,765 1,758 1,853 1,929 2,084 2,061 2,128 2,108
Allegheny
Beaver
Lawrence

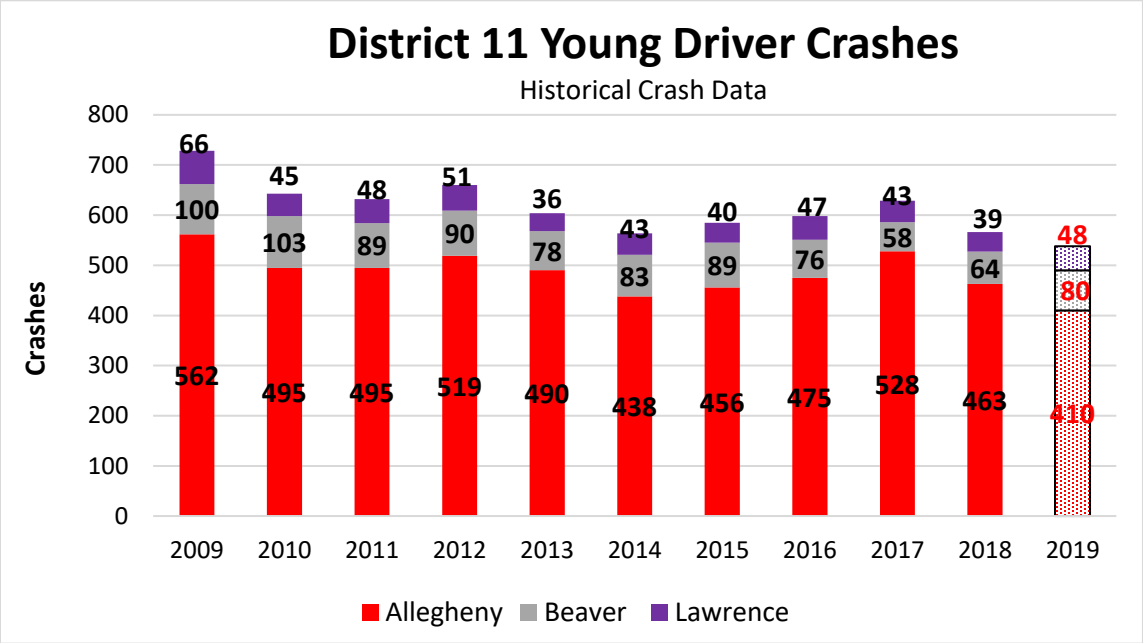

District 11 Mature Driver Fatalities
Historical Crash Data
Fatalities
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
4 4 5 4 4 3 2 1 1 4 6
4 1 4 3 5 4 2 4 1 4 11
9 10 15 17 17 11 18 15 12 19
Allegheny
Beaver
Lawrence

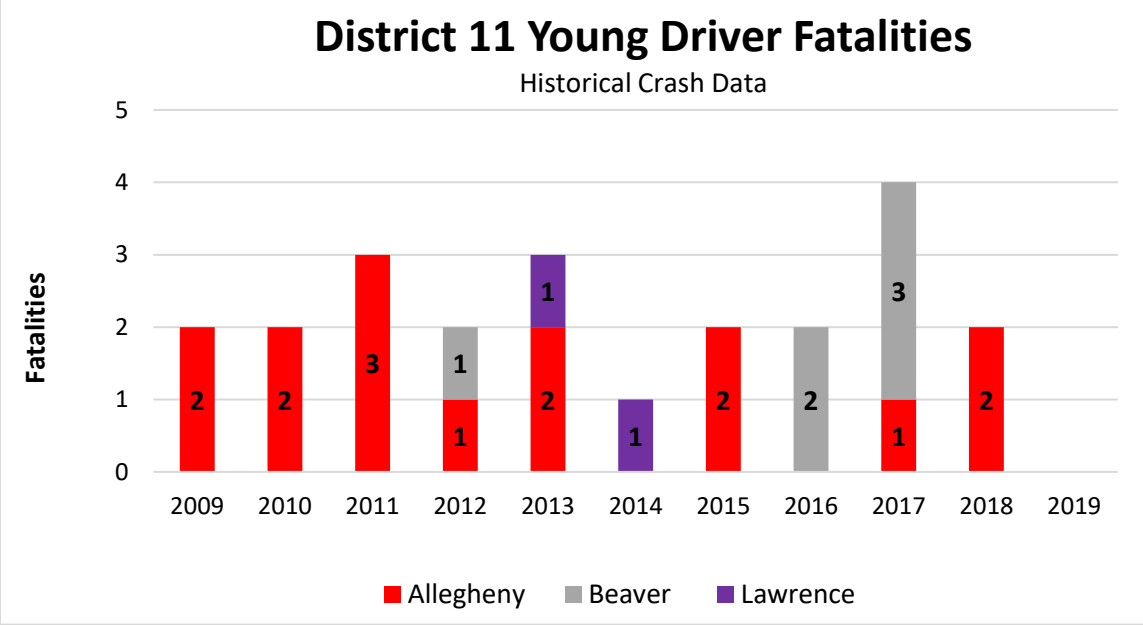

District 11 65-74 Year Old Driver Crashes
Historical Crash Data
Crashes
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
67 62 95 76 74 80 81 85 81 98 79
135 139 110 129 122 119 134 115 138 156 144
925 961 985 1,064 1,095 1,166 1,223 1,319 1,352 1,431 1,395
Allegheny
Beaver
Lawrence

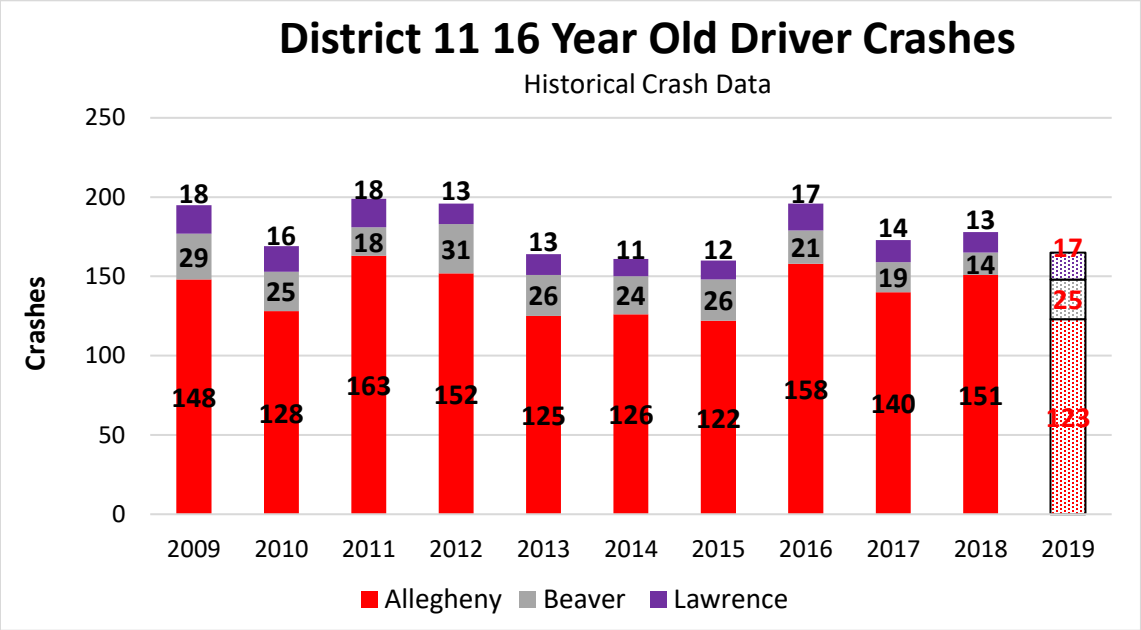

District 11 65-74 Year Old Driver Fatalities
Historical Crash Data
Fatalities
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
3 1 3
1 1 3
3 2 7
1 10
2 3 10
1 8
2 4 16
13
2 5
1 3 10
2 8
Allegheny
Beaver
Lawrence

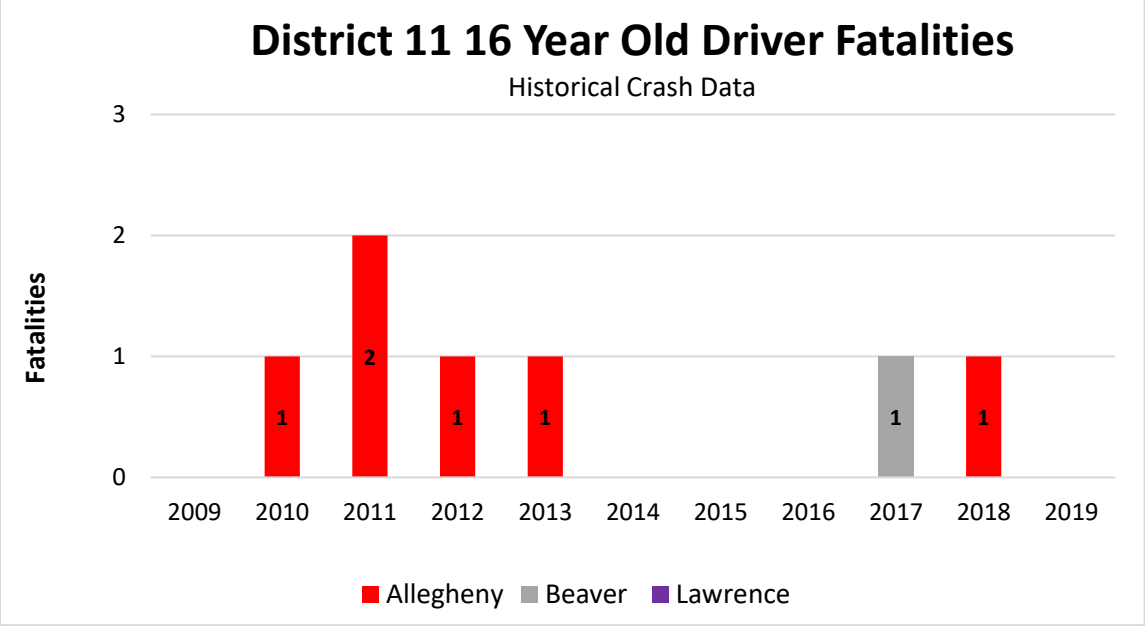

District 11 75+ Year Old Driver Crashes
Historical Crash Data
Crashes
1,200
1,000
800
600
400
200
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
74 77 70 65 89 59 62 73 60 66 66
94 113 97 101 94 103 91 89 83 100 100
768 820 772 755 727 755 765 833 781 766 790
Allegheny
Beaver
Lawrence

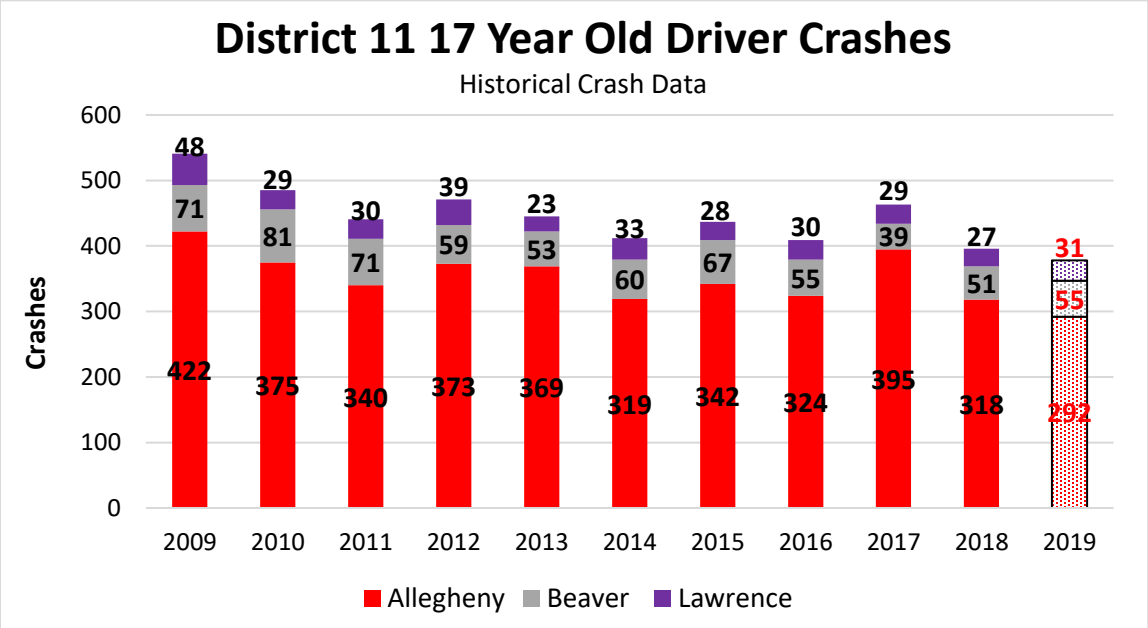

District 11 75+ Year Old Driver Fatalities
Historical Crash Data
Fatalities
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 3 6
3 7
2 2 8
3 3 7
2 2 7
2 4
2
1 2 2
1 2 7
3 1 9
4 5
Allegheny
Beaver
Lawrence

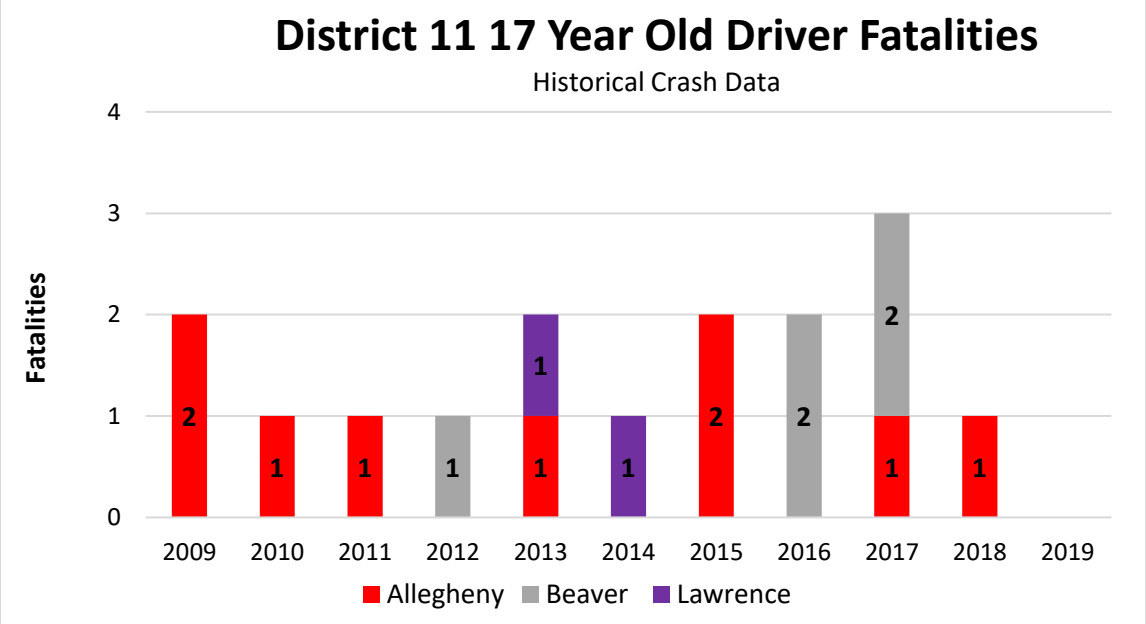

District 11 Young Driver Crashes
Historical Crash Data
Crashes
800
700
600
500
400
300
200
100
0
66
45
48
51
36
43
40
47
43
39
48
100
103
89
90
78
83
89
76
58
64
80
562
495
495
519
490
438
456
475
528
463
410
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Allegheny
Beaver
Lawrence

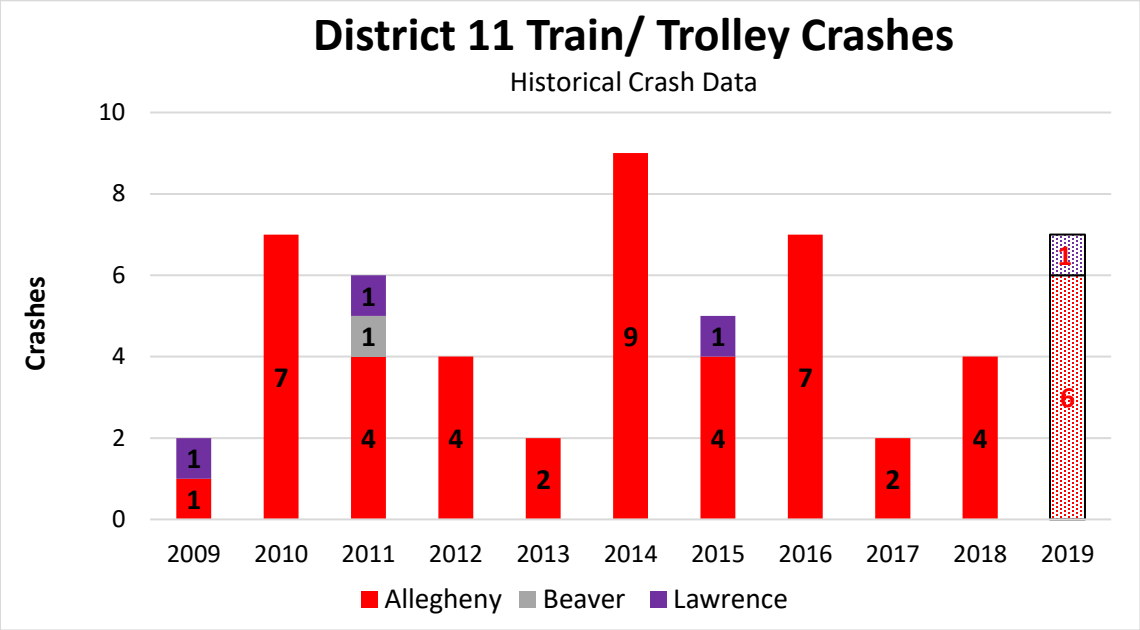

District 11 Young Driver Fatalities
Historical Crash Data
Fatalities
5
4
3
2
1
0
2
2
3
1
1
2
1
2
2
1
3
1
2
2
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Allegheny
Beaver
Lawrence

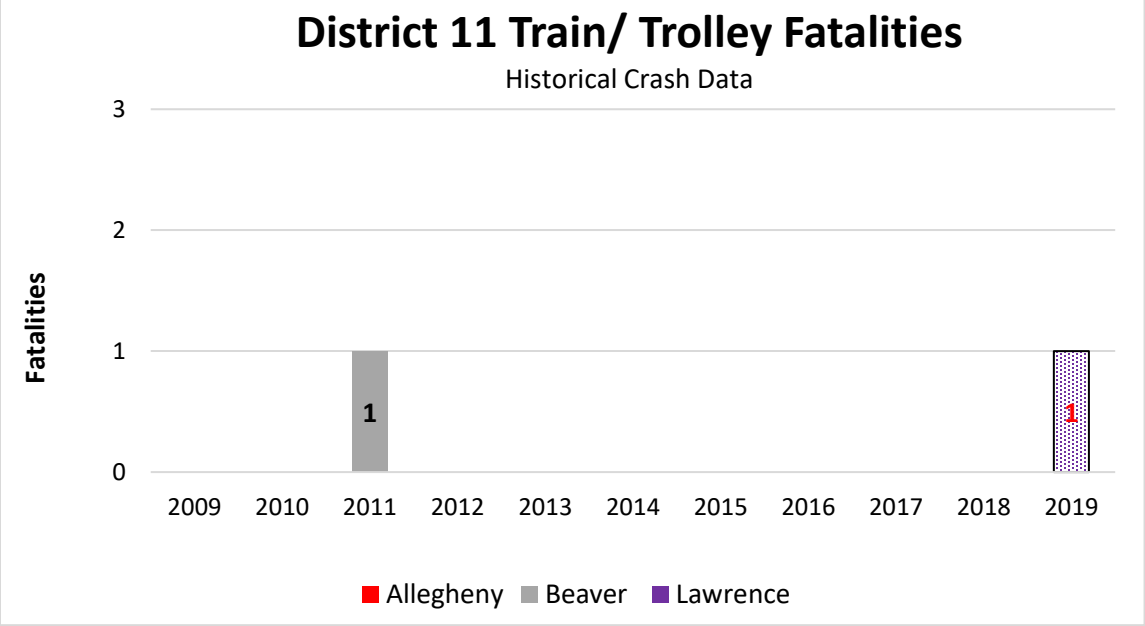

District 11 16 Year Old Driver Crashes
Historical Crash Data
Crashes
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
18 29 148
16 25 128
18 18 163
13 31 152
13 26 125
11 24 126
12 26 122
17 21 158
14 19 140
13 14 151
17 25 123
Allegheny
Beaver
Lawrence

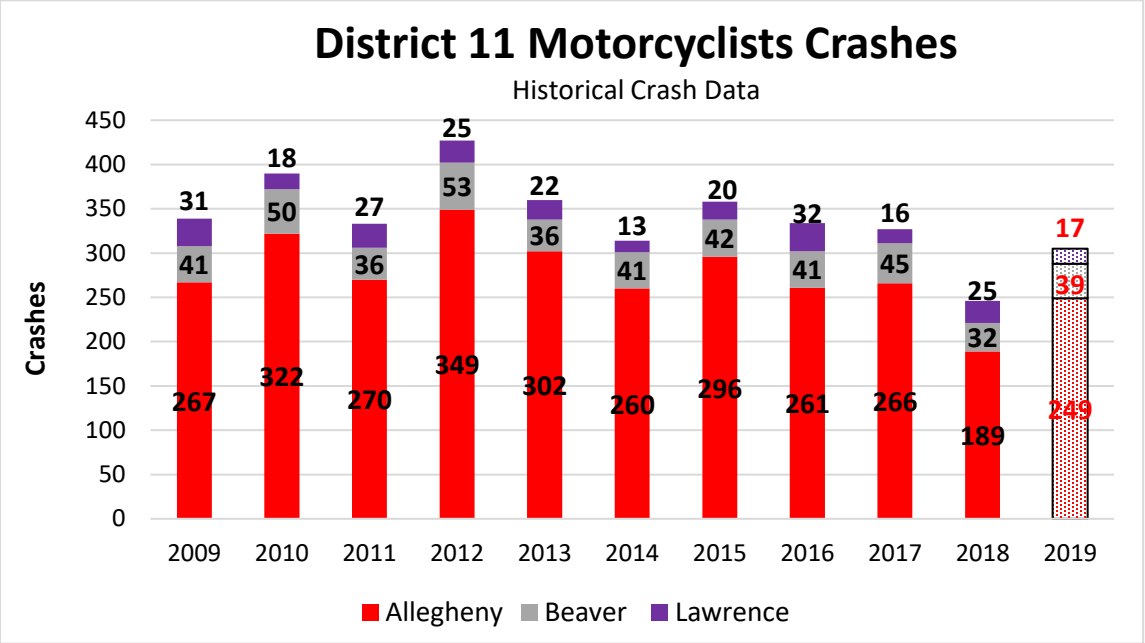

District 11 16 Year Old Driver Fatalities
Historical Crash Data
Fatalities
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1
2
1
1
1
1
Allegheny
Beaver
Lawrence

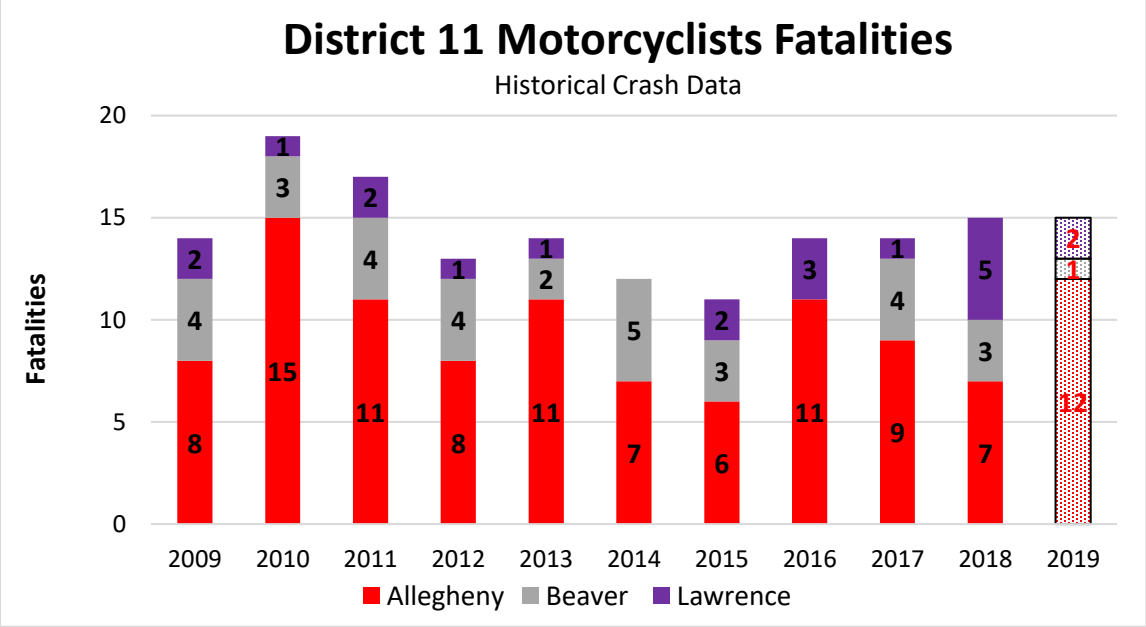

District 11 17 Year Old Driver Crashes
Historical Crash Data
Crashes
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
48 29 30 39 23 33 28 30 29 27 31
71 81 71 59 53 60 67 55 39 51 55
422 375 340 373 369 319 342 324 395 318 292
Allegheny
Beaver
Lawrence

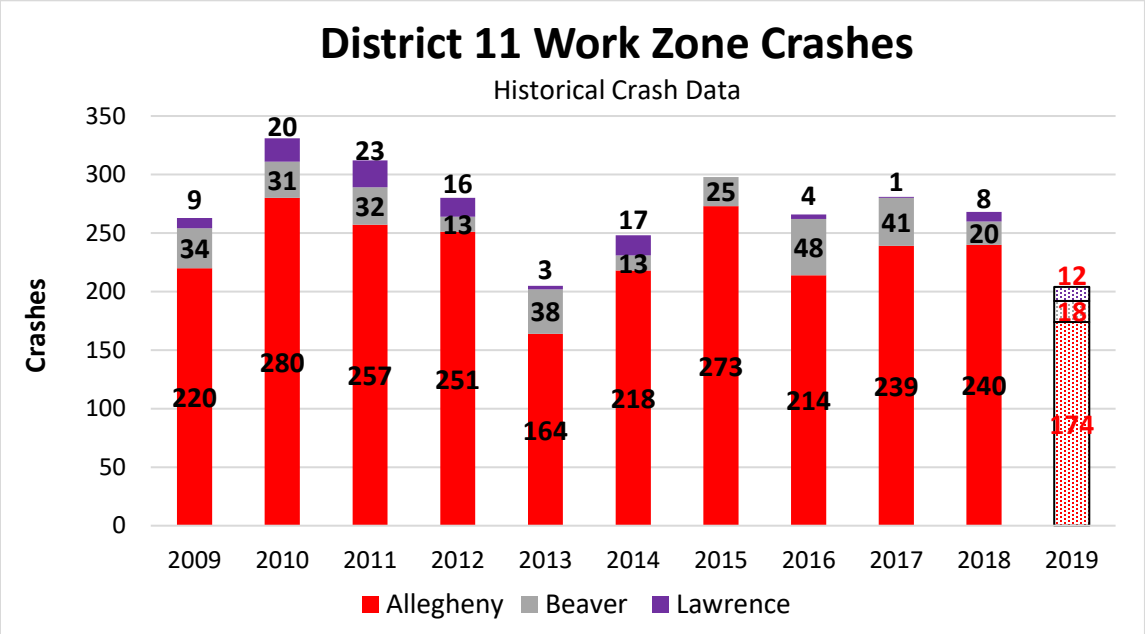

District 11 17 Year Old Driver Fatalities
Historical Crash Data
Fatalities
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
2 1 1 1 1 1 2 2 1 1
1 2
Allegheny
Beaver
Lawrence

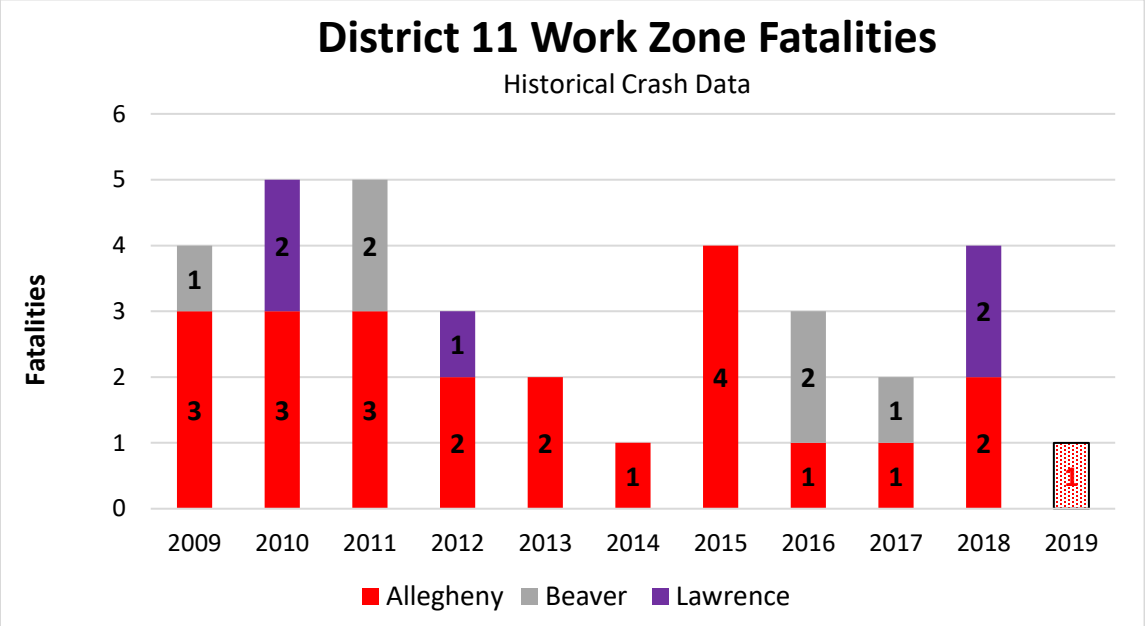

District 11 Train/ Trolley Crashes
Historical Crash Data
Crashes
10
8
6
4
2
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Allegheny
Beaver
Lawrence

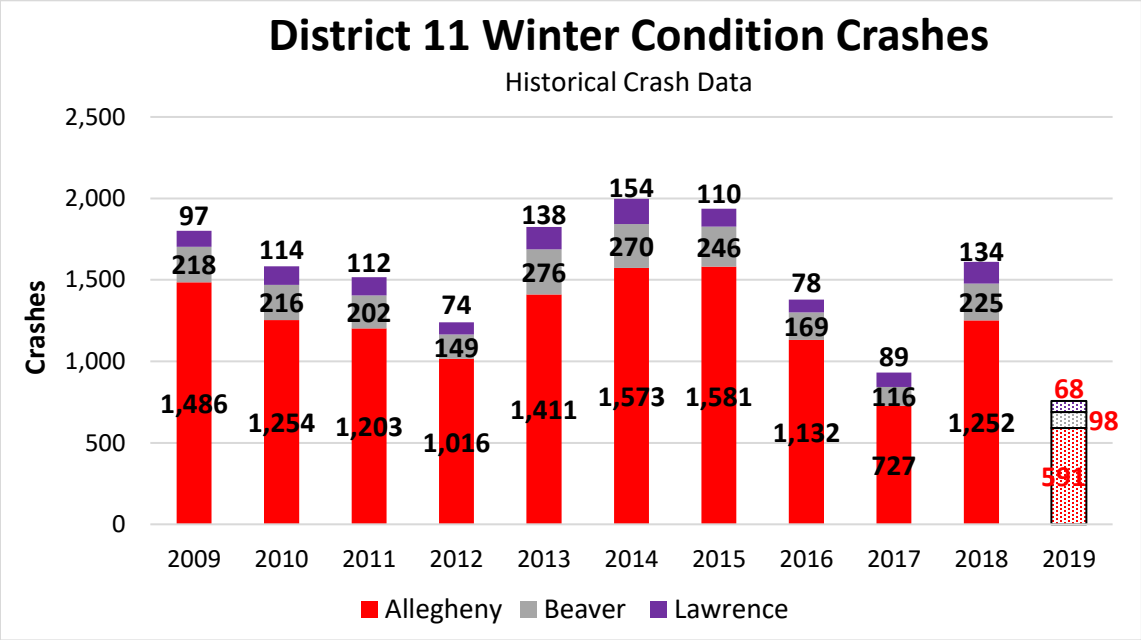

District 11 Train/ Trolley Fatalities
Historical Crash Data
Fatalities
3
2
1
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Allegheny
Beaver
Lawrence

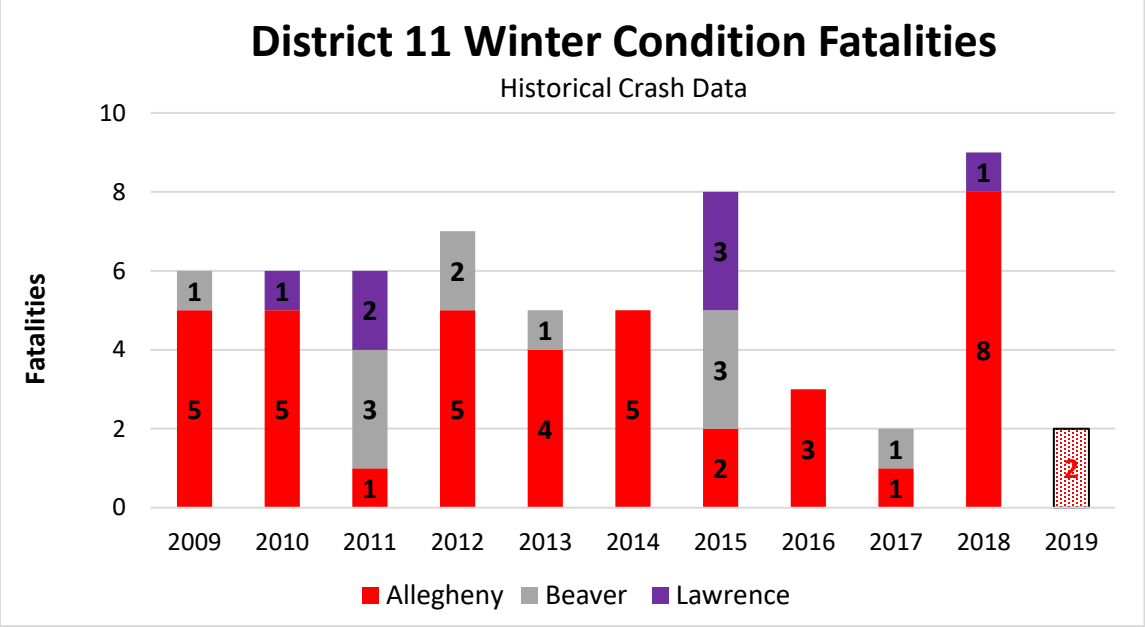

District 11 Motorcyclists Crashes
Historical Crash Data
Crashes
450
400
350
300
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
31 18 27 25 22 13 20 32 16 25 17
41 50 36 53 36 41 42 41 45 32 39
267 322 270 349 302 260 296 261 266 189 249
Allegheny Beaver Lawrence

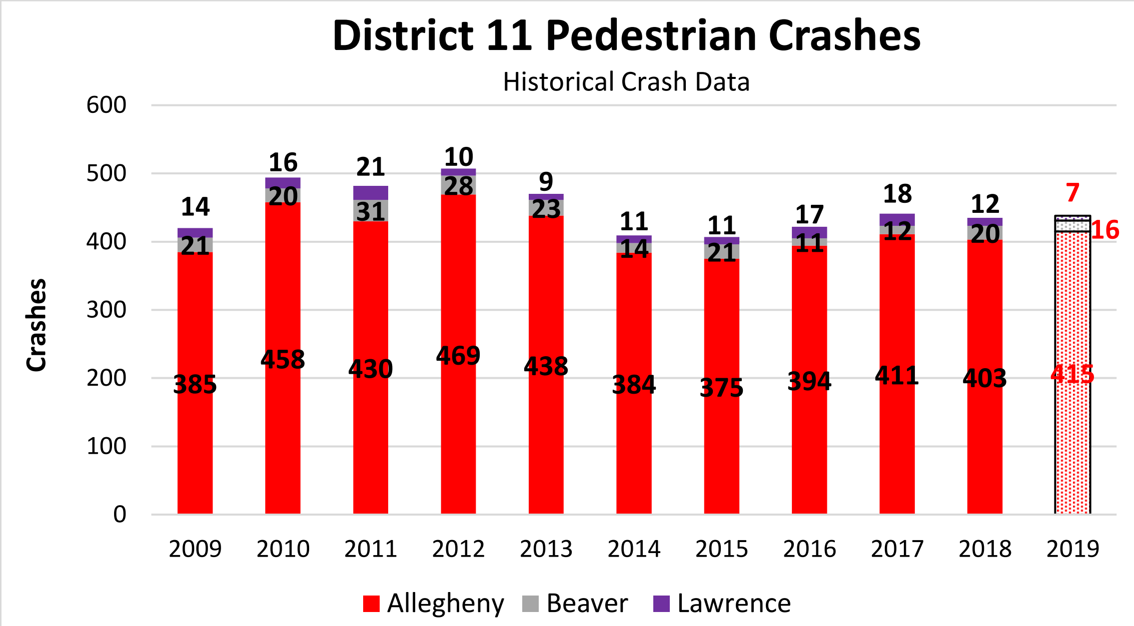

District 11 Motorcyclists Fatalities
Historical Crash Data
Fatalities
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
2 1 2 1 1 1 2 3 1 5 2
4 3 4 4 2 5 3 3 4 3 1
8 15 11 8 11 7 6 11 9 7 12
Allegheny Beaver Lawrence

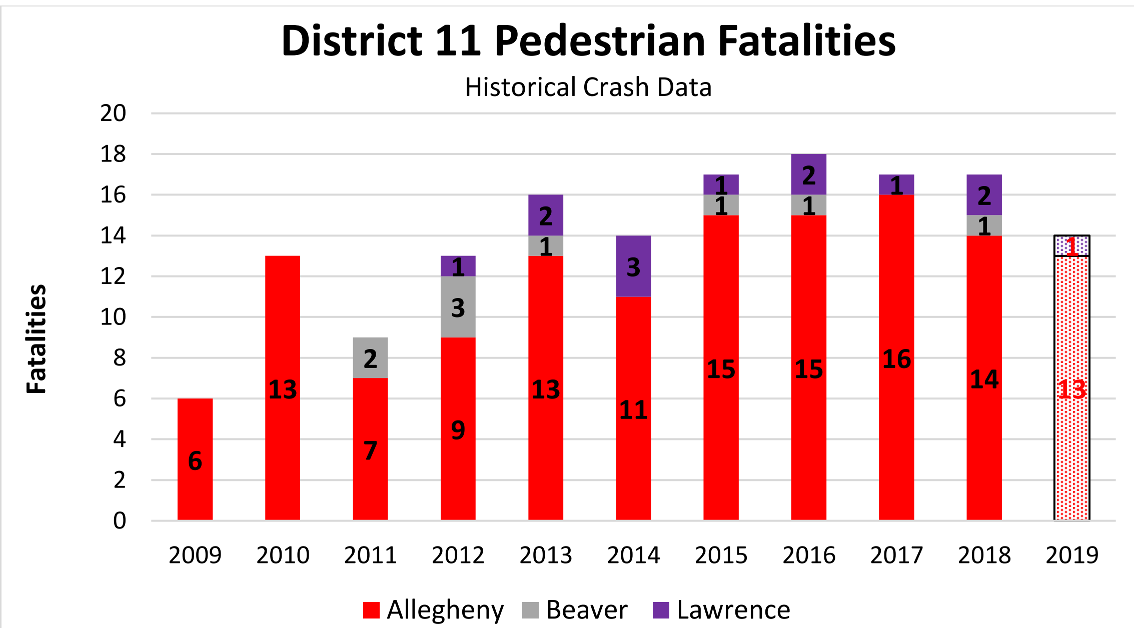

District 11 Work Zone Crashes
Historical Crash Data
Crashes
350
300
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
9 20 23 16 3 17 25 4 1 8 12
34 31 32 13 38 13 48 41 20 18
220 280 257 251 164 218 273 214 239 240 174
Allegheny Beaver Lawrence

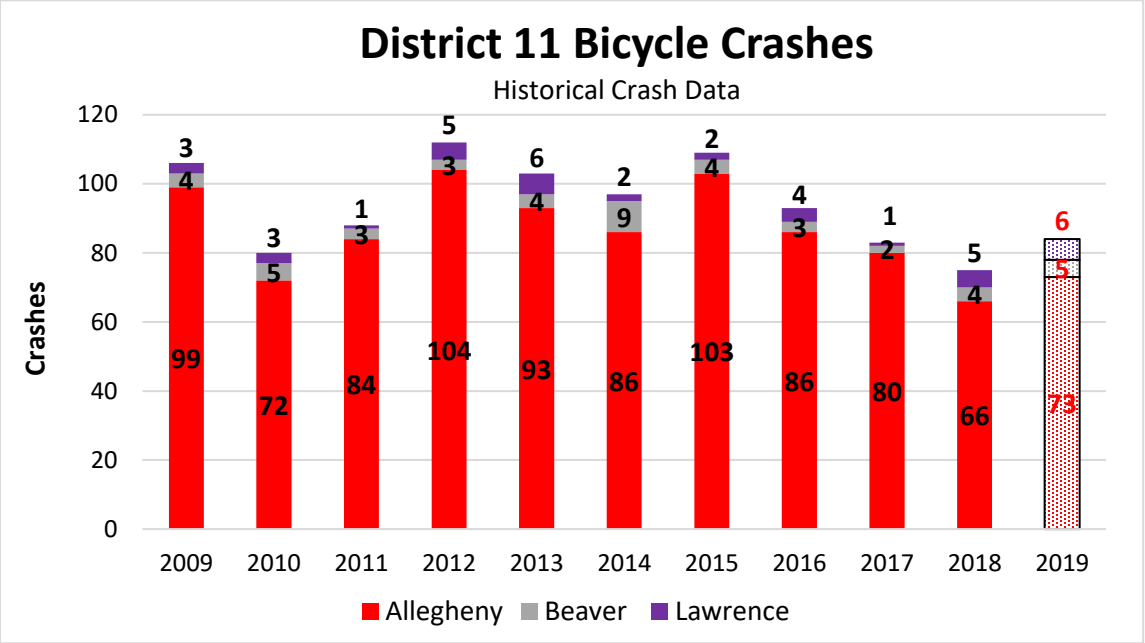

District 11 Work Zone Fatalities
Historical Crash Data
Fatalities
6
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 2 2 1 2 4 2 1 2 1
3 3 3 2 2 1 4 1 1 2 1
Allegheny Beaver Lawrence

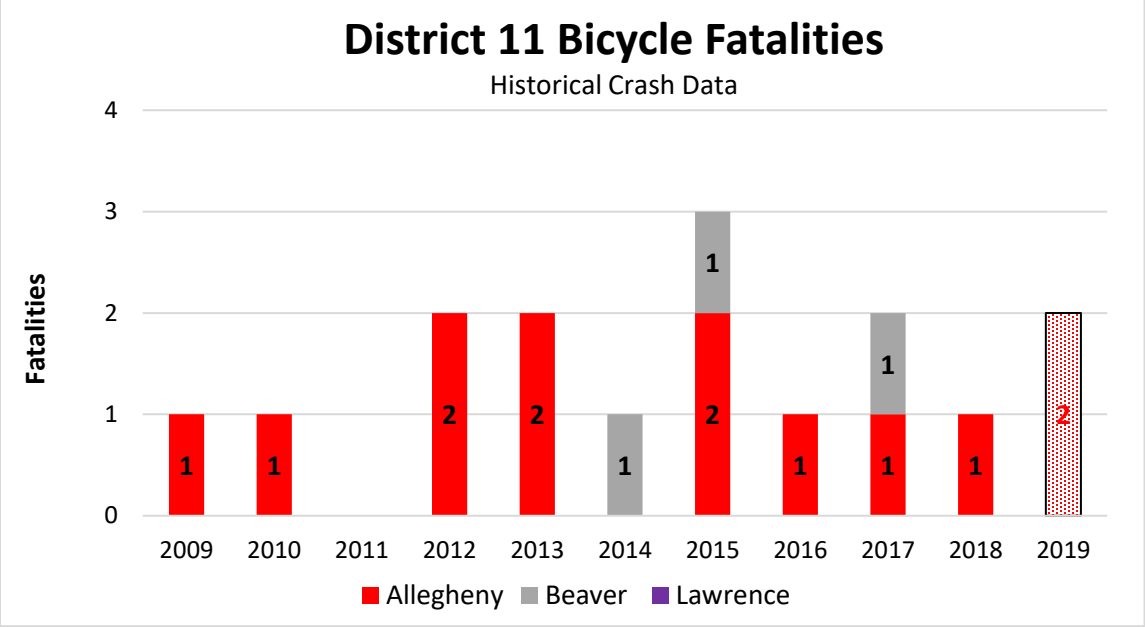

District 11 Winter Condition Crashes
Historical Crash Data
Crashes
2,500
2,000
1,500
1,000
500
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
97 218 1,486
114 216 1,254
112 202 1,203
74 149 1,016
138 276 1,411
154 270 1,573
110 246 1,581
78 169 1,132
89 116 727
134 225 1,252
68 98 591
Allegheny Beaver Lawrence

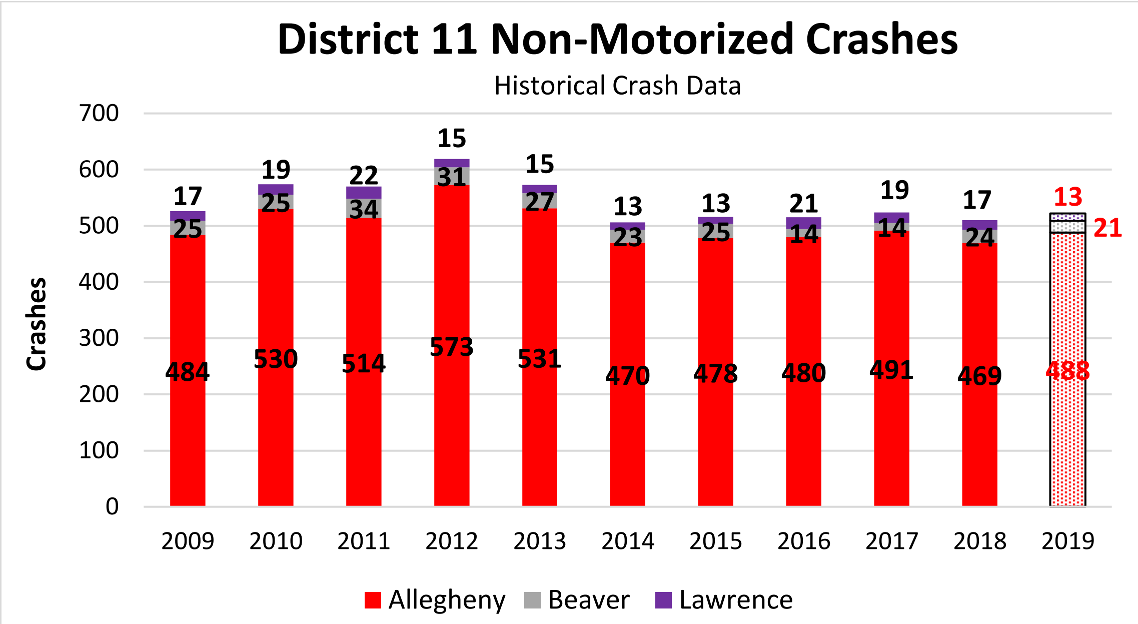

District 11 Winter Condition Fatalities
Historical Crash Data
Fatalities
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 5
1 5
2 3 1
2 5
1 4
5
3 3 2
3
1 1
1 8
2
Allegheny Beaver Lawrence

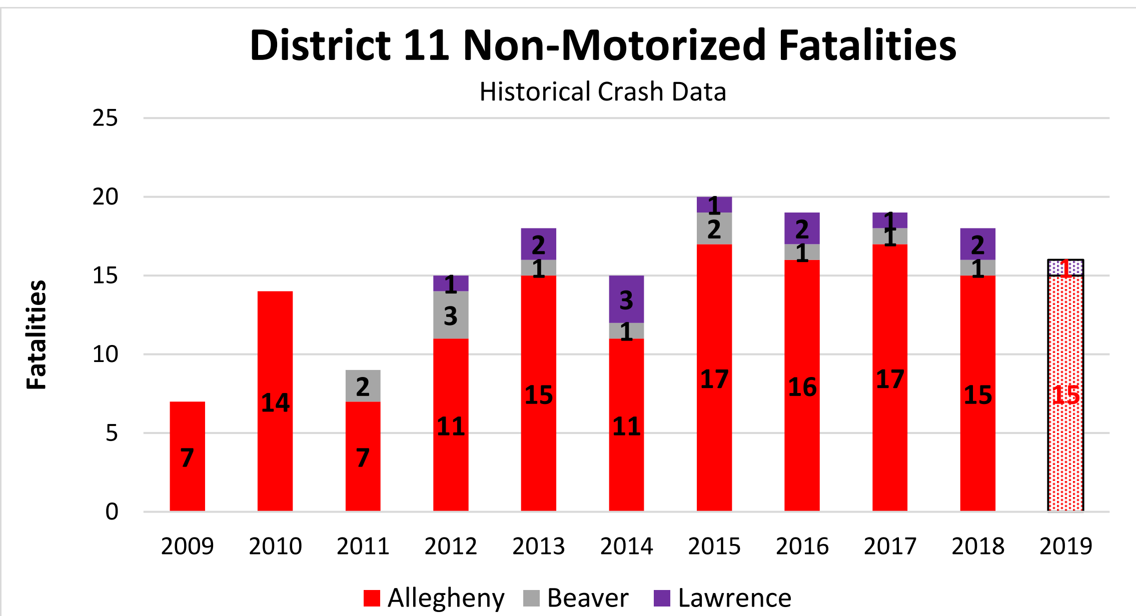

District 11 Pedestrian Crashes
Historical Crash Data
Crashes
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
14 21 385
16 20 458
21 31 430
10 28 469
9 23 438
11 14 384
11 21 375
17 11 394
18 12 411
12 20 403
7 16 415
Allegheny Beaver Lawrence

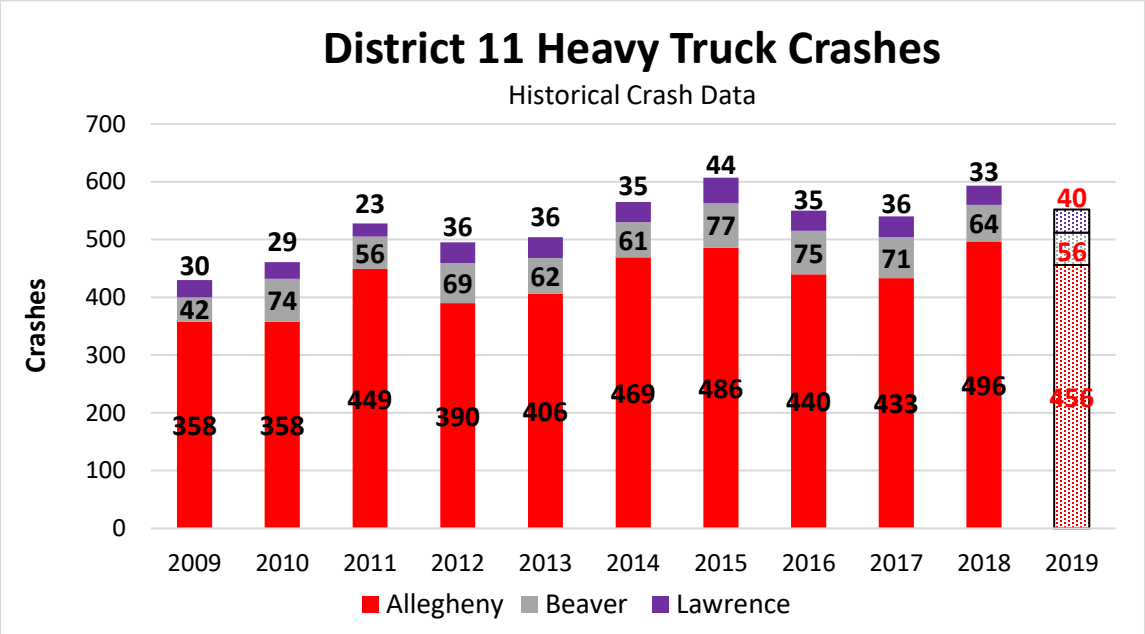

District 11 Pedestrian Fatalities
Historical Crash Data
Fatalities
20
18
16
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
6
13
2 7
1 3 9
2 1 13
3 11
1 1 15
2 1 15
1 16
2 1 14
1 13
Allegheny Beaver Lawrence

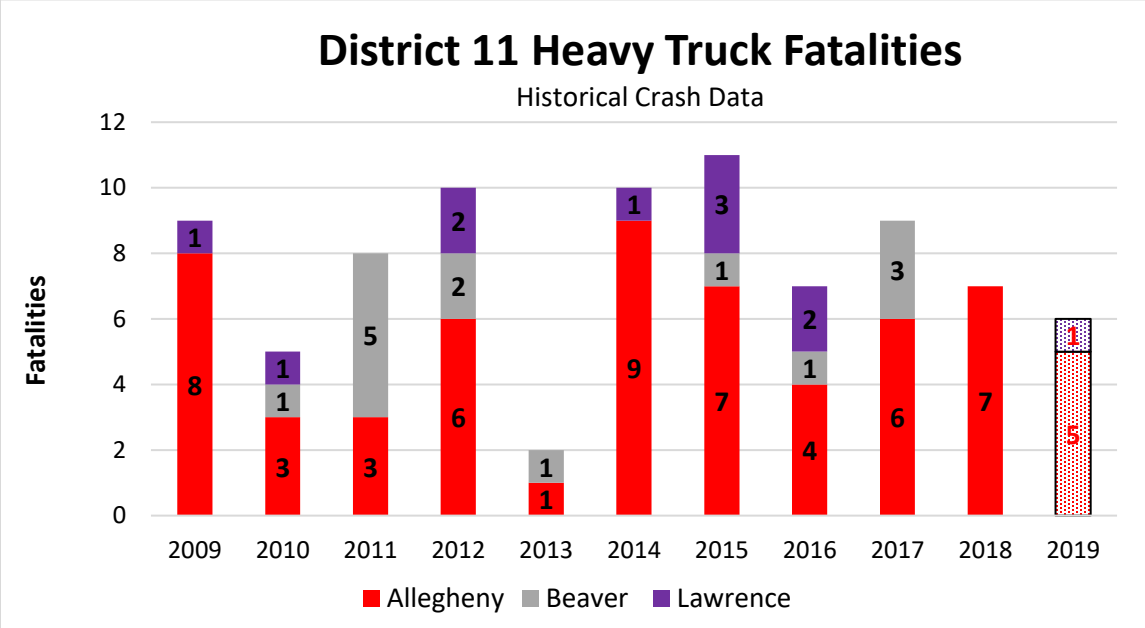

District 11 Bicycle Crashes
Historical Crash Data
Crashes
120
100
80
60
40
20
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
3 3 1 5 6 2 2 4 1 5 6
4 5 3 3 4 9 4 3 2 4 5
99 72 84 104 93 86 103 86 80 66 73
Allegheny
Beaver
Lawrence

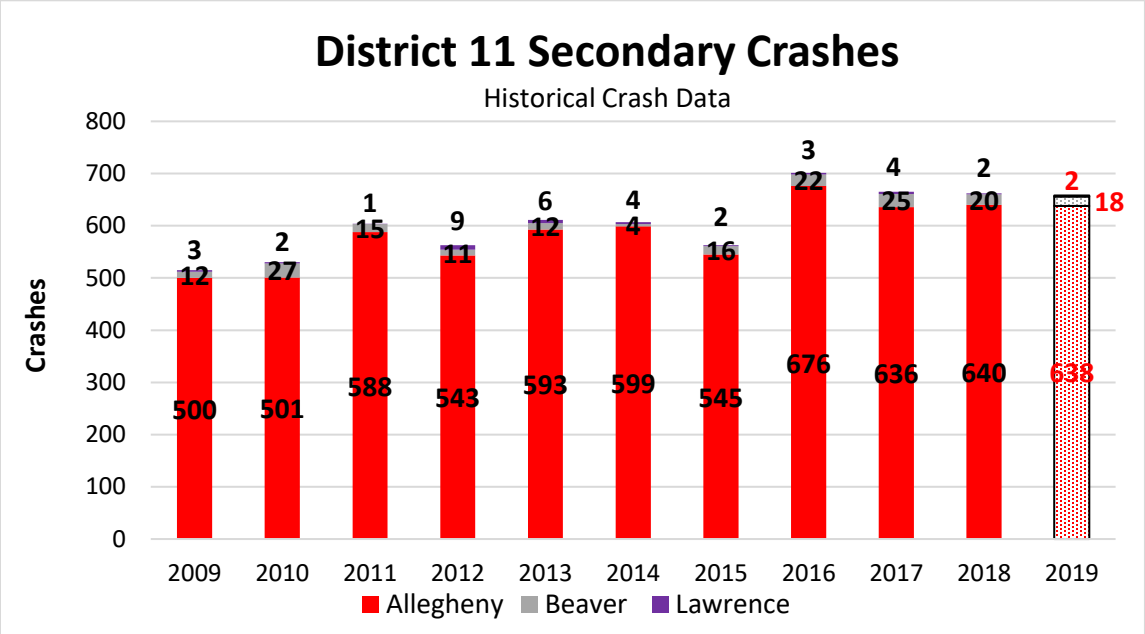

District 11 Bicycle Fatalities
Historical Crash Data
Fatalities
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1 2 2 1 1 2 1 1 1 2
1 1
Allegheny
Beaver
Lawrence

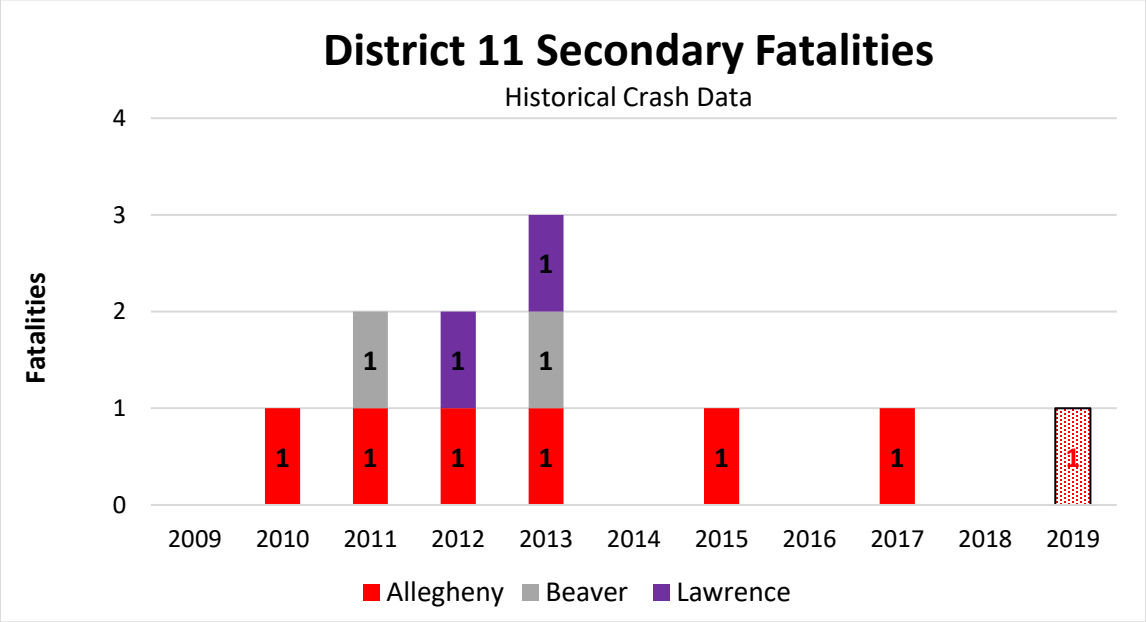

District 11 Non-Motorized Crashes
Historical Crash Data
Crashes
700
600
500
400
300
200
100
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
484 25 17
530 25 19
514 34 22
573 31 15
531 27 15
470 23 13
478 25 13
480 14 21
491 14 19
469 24 17
488 21 13
Allegheny
Beaver
Lawrence

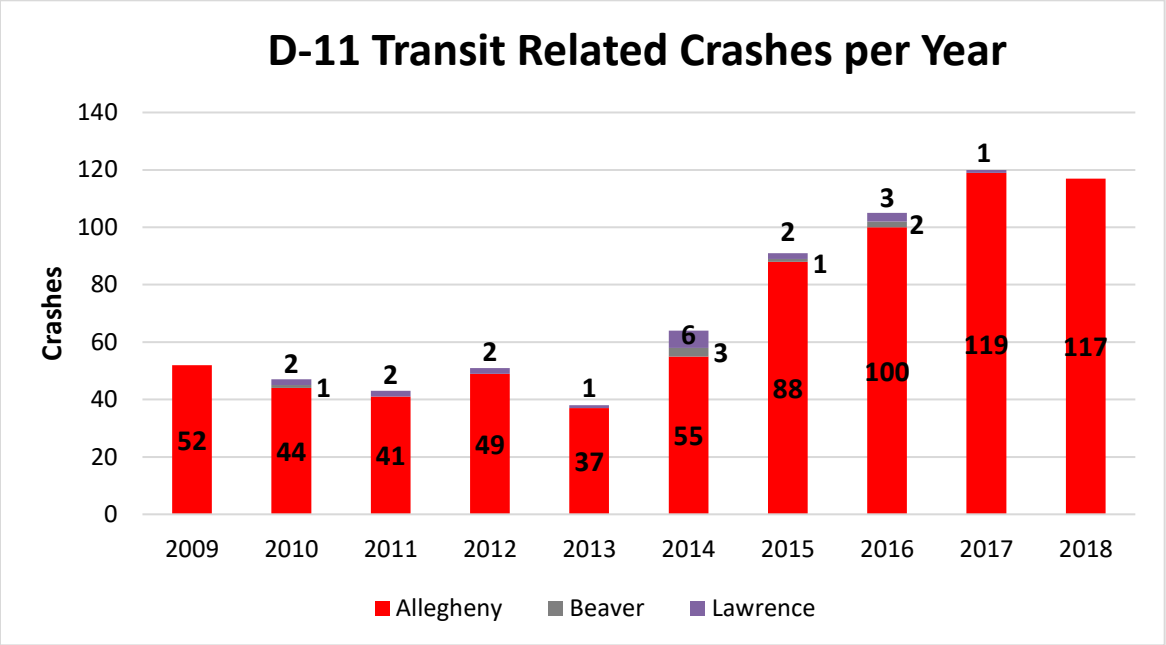

District 11 Non-Motorized Fatalities
Historical Crash Data
Fatalities
25
20
15
10
5
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
7
14
7 2
11 3 1
15 1 2
11 1 3
17 2 1
16 1 2
17 1 1
15 1 2
15 1
Allegheny
Beaver
Lawrence

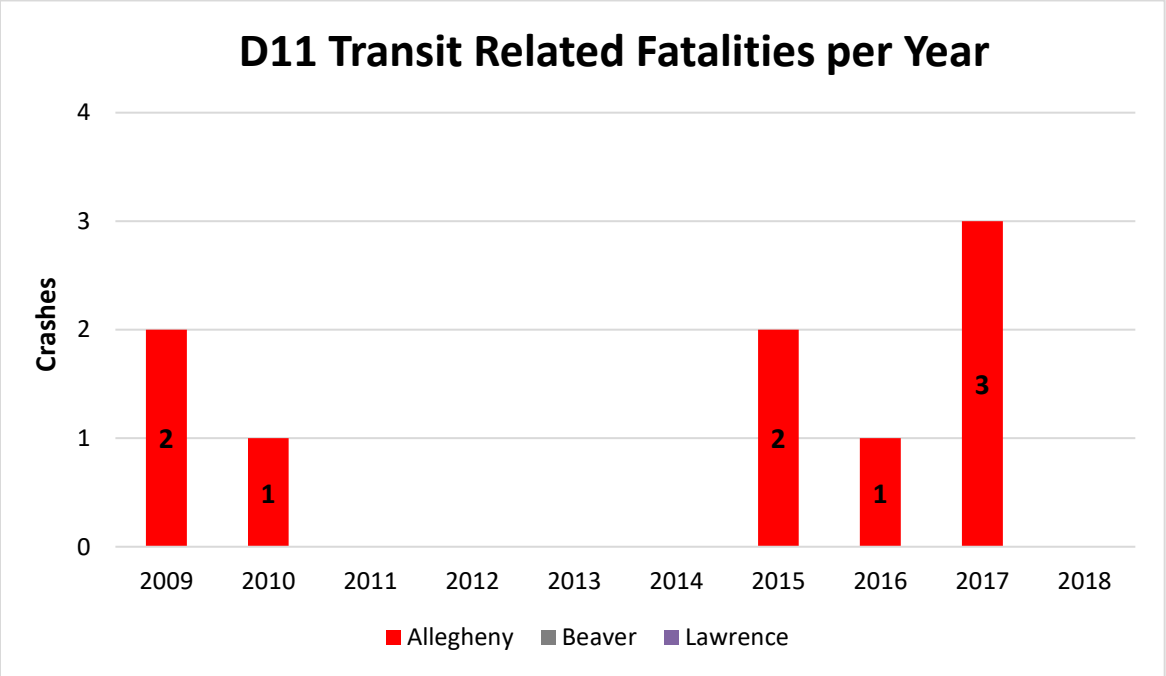

District 11 Heavy Truck Crashes
Historical Crash Data
Crashes
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
30 29 23 36 36 35 44 35 36 33 40
42 74 56 69 62 61 77 75 71 64 56
358 358 449 390 406 469 486 440 433 496 456
Allegheny
Beaver
Lawrence

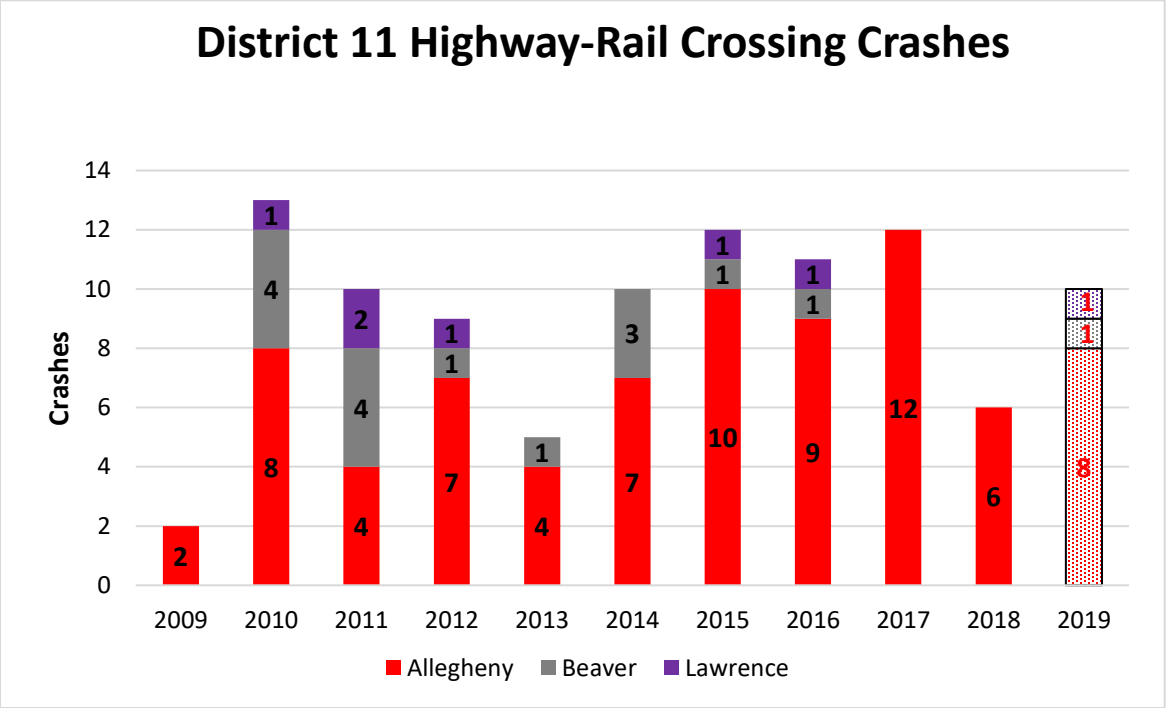

District 11 Heavy Truck Fatalities
Historical Crash Data
Fatalities
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1 5 2 2 1 3 1 2 3 1
8 3 3 6 1 9 7 4 6 7 5
Allegheny
Beaver
Lawrence

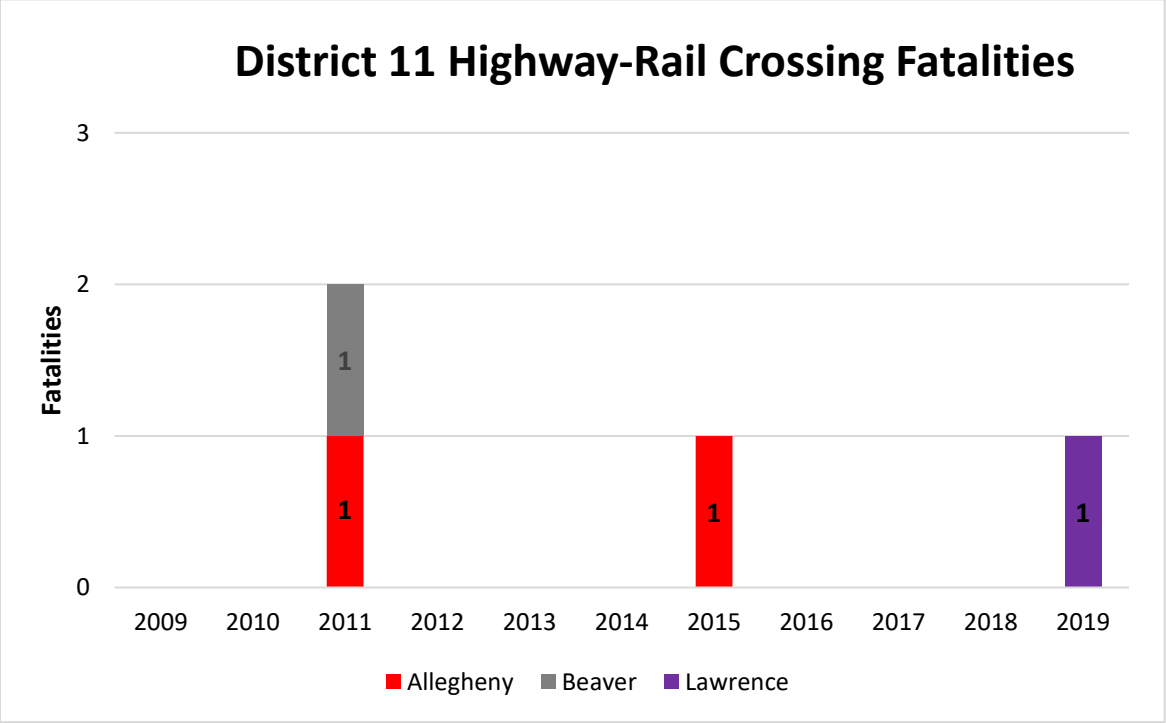

District 11 Secondary Crashes
Historical Crash Data
Crashes
800
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
3 2 1 9 6 4 2 3 4 2 2
12 27 15 11 12 4 16 22 25 20 18
500 501 588 543 593 599 545 676 636 640 638
Allegheny
Beaver
Lawrence

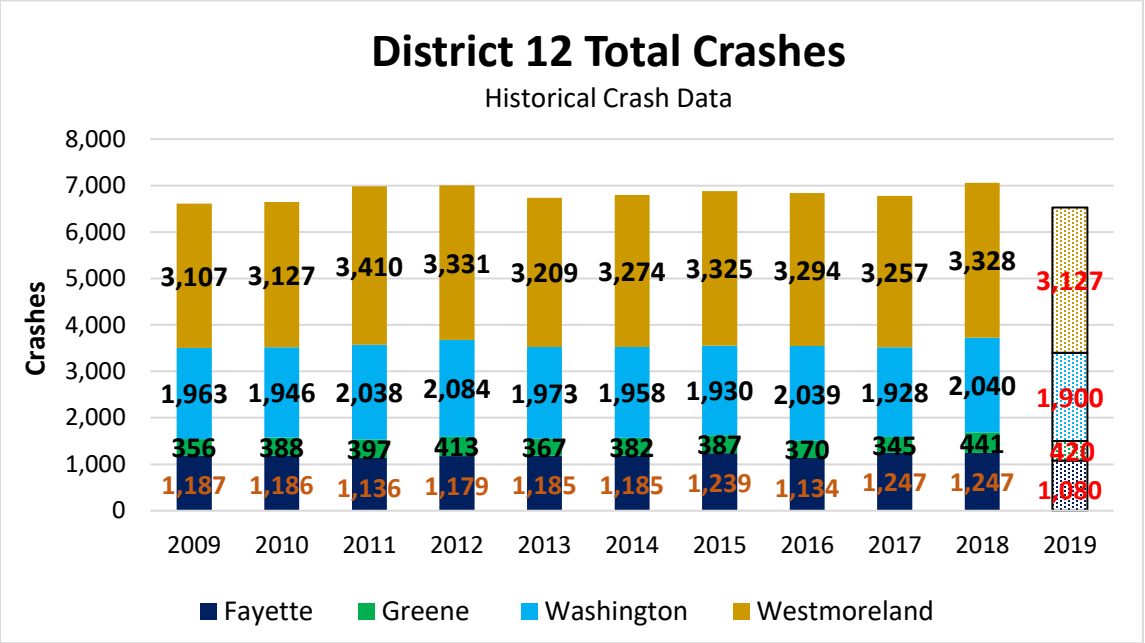

District 11 Secondary Fatalities
Historical Crash Data
Fatalities
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1 1 1 1 1 1
1 1 1
1 1
Allegheny
Beaver
Lawrence

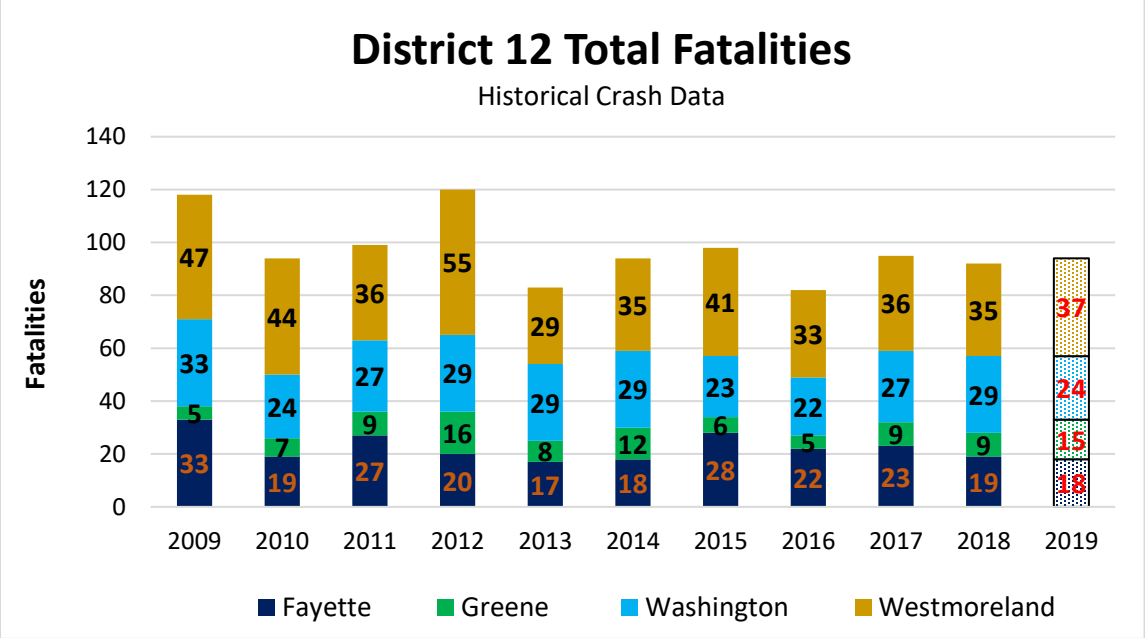

D-11 Transit Related Crashes per Year
Crashes
140
120
100
80
60
40
20
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
52
44
2
1
41
2
49
2
37
1
55
6
3
88
2
1
100
3
2
119
1
117
Allegheny
Beaver
Lawrence

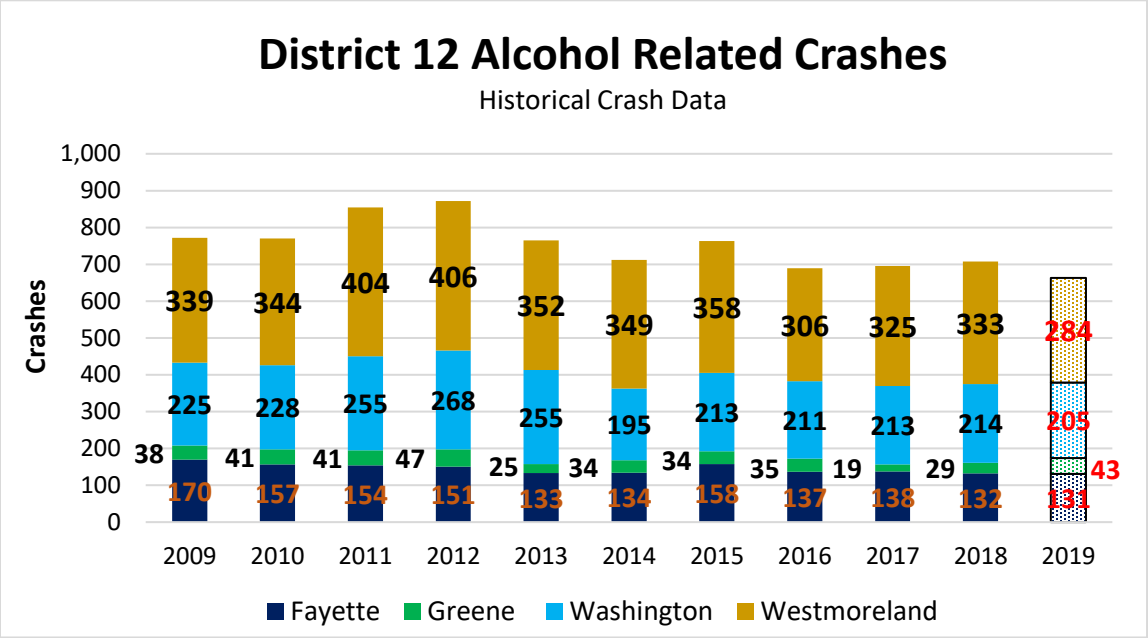

D11 Transit Related Fatalities per Year
Crashes
4
3
2
1
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2
1
2
1
3
Allegheny
Beaver
Lawrence

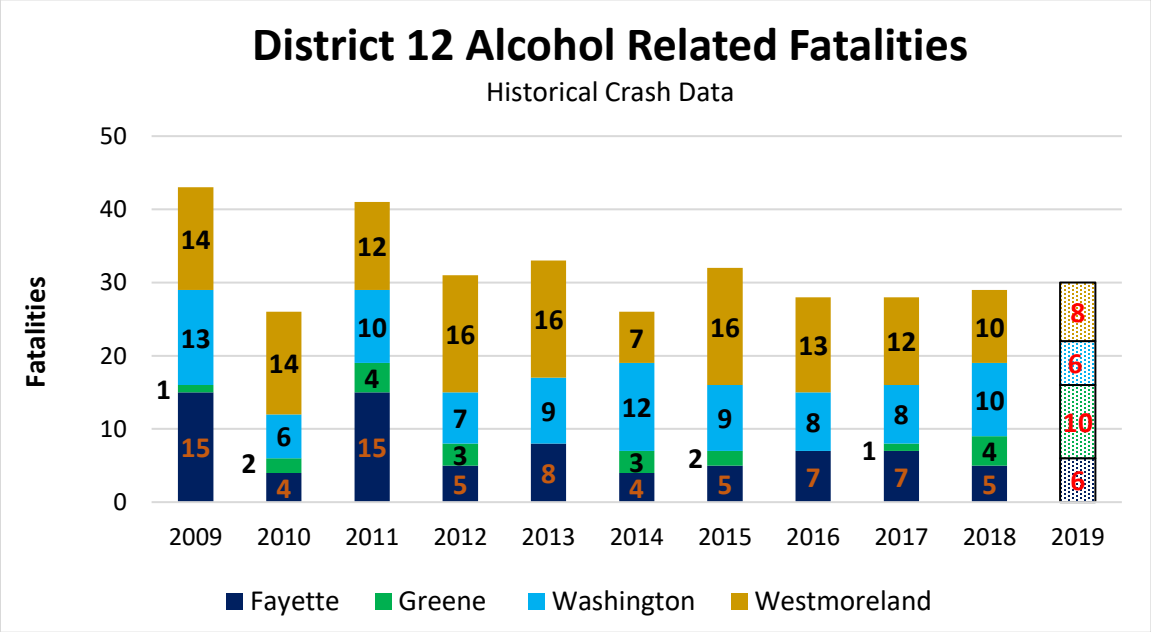

District 11 Highway-Rail Crossing Crashes
Crashes
14
12
10
8
6
4
2
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Allegheny
Beaver
Lawrence

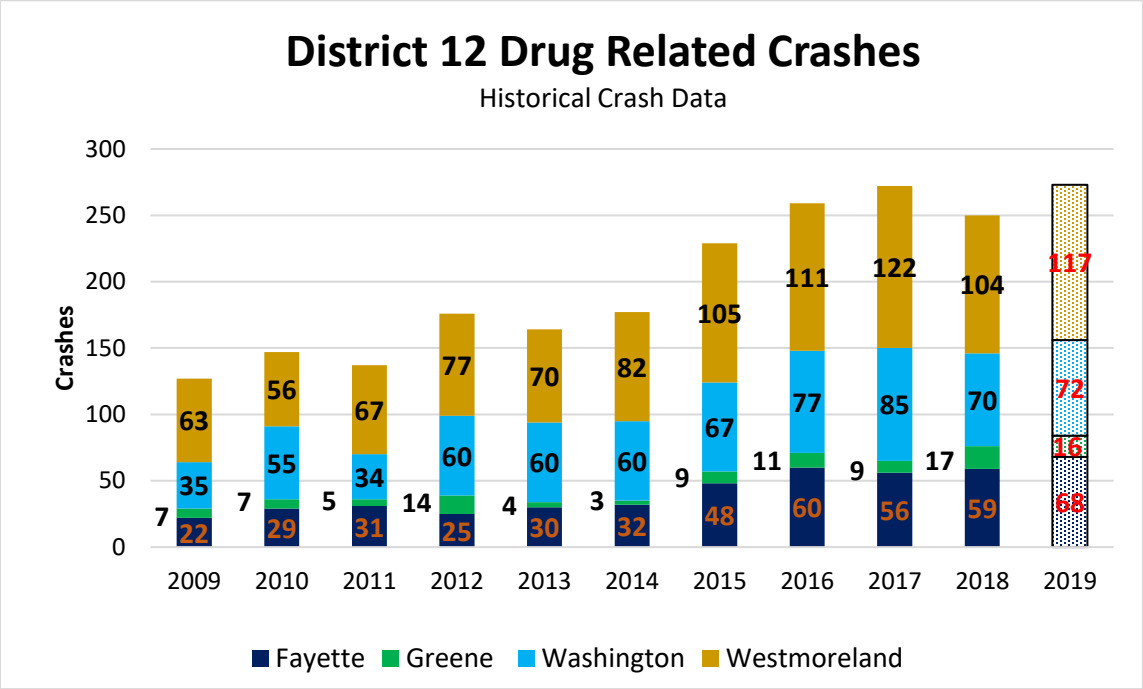

District 11 Highway-Rail Crossing Fatalities
Fatalities
3
2
1
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Allegheny
Beaver
Lawrence

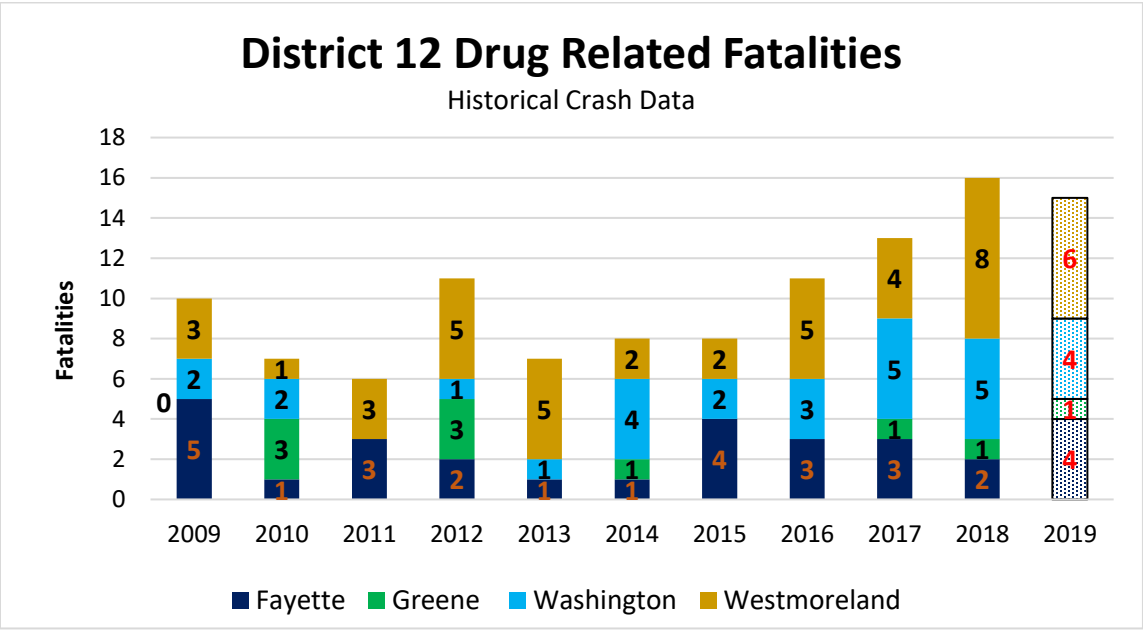

District 12 Total Crashes
Historical Crash Data
Crashes
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
3,107 3,127 3,410 3,331 3,209 3,274 3,325 3,294 3,257 3,328 3,127
1,963 1,946 2,038 2,084 1,973 1,958 1,930 2,039 1,928 2,040 1,900
356 388 397 413 367 382 387 370 345 441 420
1,187 1,186 1,136 1,179 1,185 1,185 1,239 1,134 1,247 1,247 1,080
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
Fayette
Greene
Washington
Westmoreland

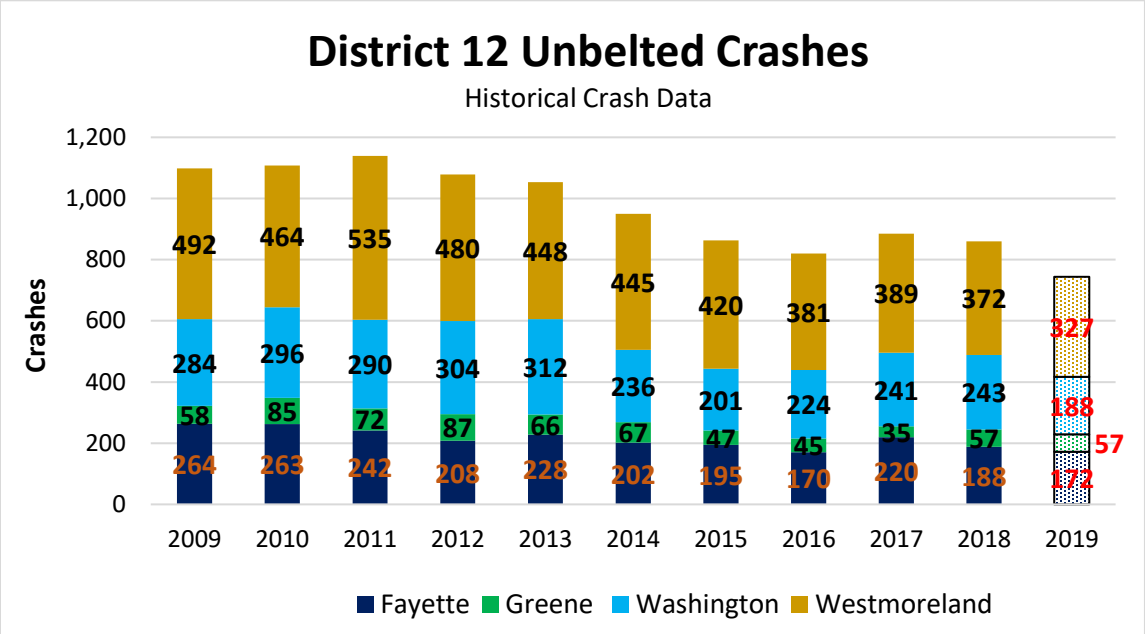

District 12 Total Fatalities
Historical Crash Data
Fatalities
140
120
100
80
60
40
20
0
47 44 36 55 29 35 41 33 36 35 37
33 24 27 29 29 29 23 22 27 29 24
5 7 9 16 8 12 6 5 9 9 15
33 19 27 20 17 18 28 22 23 19 18
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
Fayette
Greene
Washington
Westmoreland

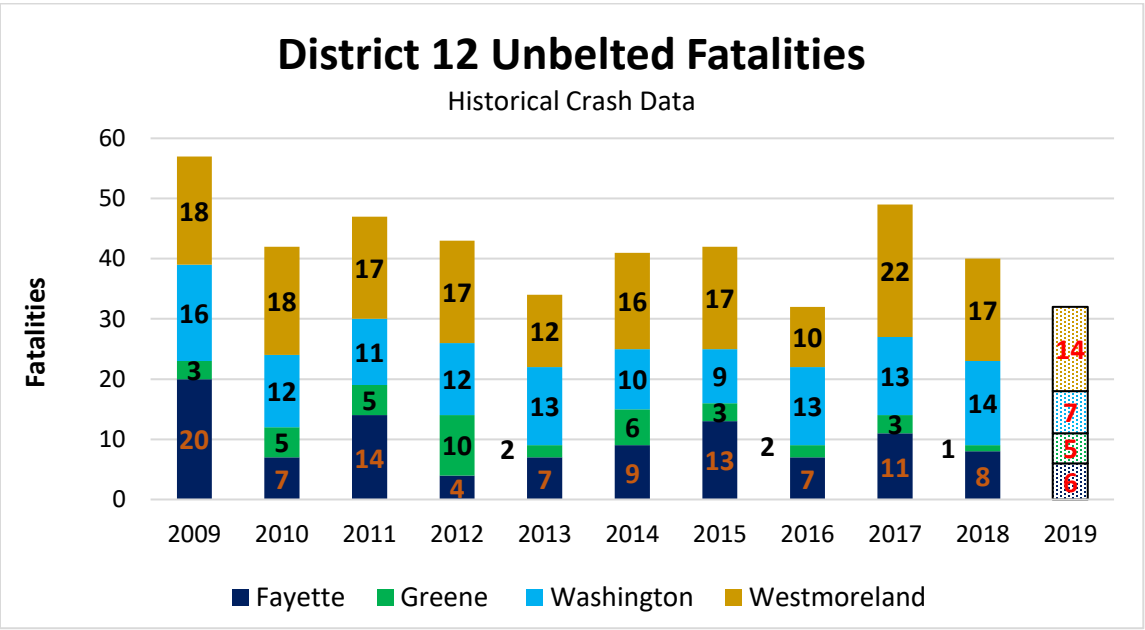

District 12 Alcohol Related Crashes
Historical Crash Data
Crashes
1,000
900
800
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
339 344 404 406 352 349 358 306 325 333 284
225 228 255 268 255 195 213 211 213 214 205
38 41 41 47 25 34 34 35 19 29 43
170 157 154 151 133 134 158 137 138 132 131
Fayette
Greene
Washington
Westmoreland

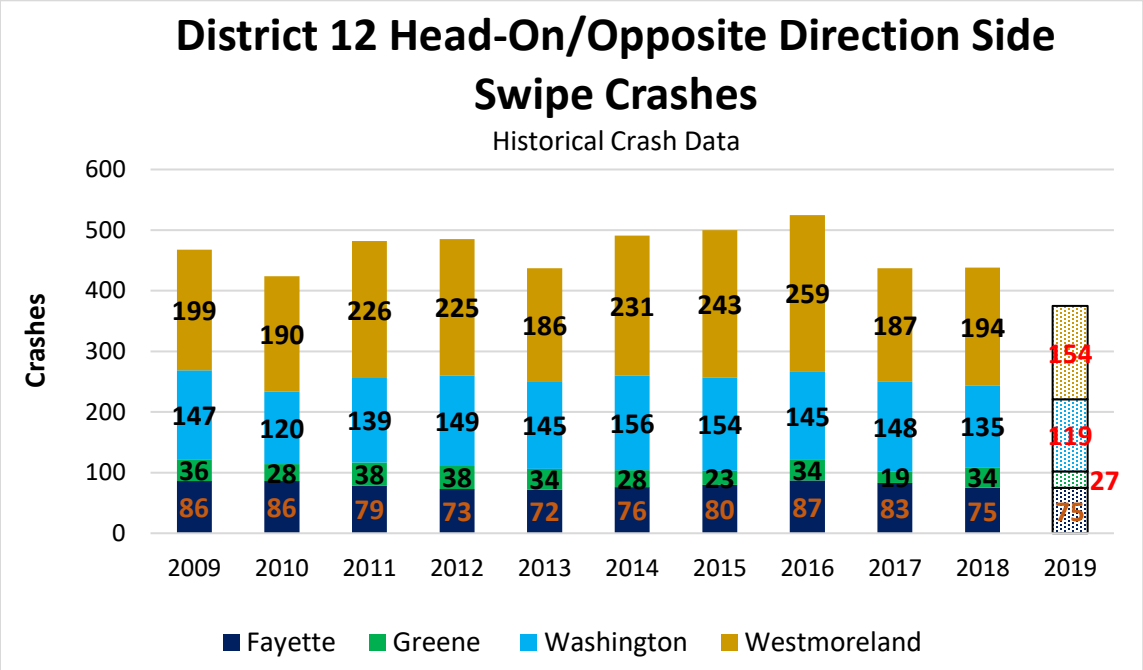

District 12 Alcohol Related Fatalities
Historical Crash Data
Fatalities
50
40
30
20
10
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
14 14 12 16 16 7 16 13 12 10 8
13 6 10 7 9 12 9 8 8 10 6
1 2 4 3 3 3 2 1 1 4 10
15 4 15 5 8 4 5 7 7 5 6
Fayette
Greene
Washington
Westmoreland

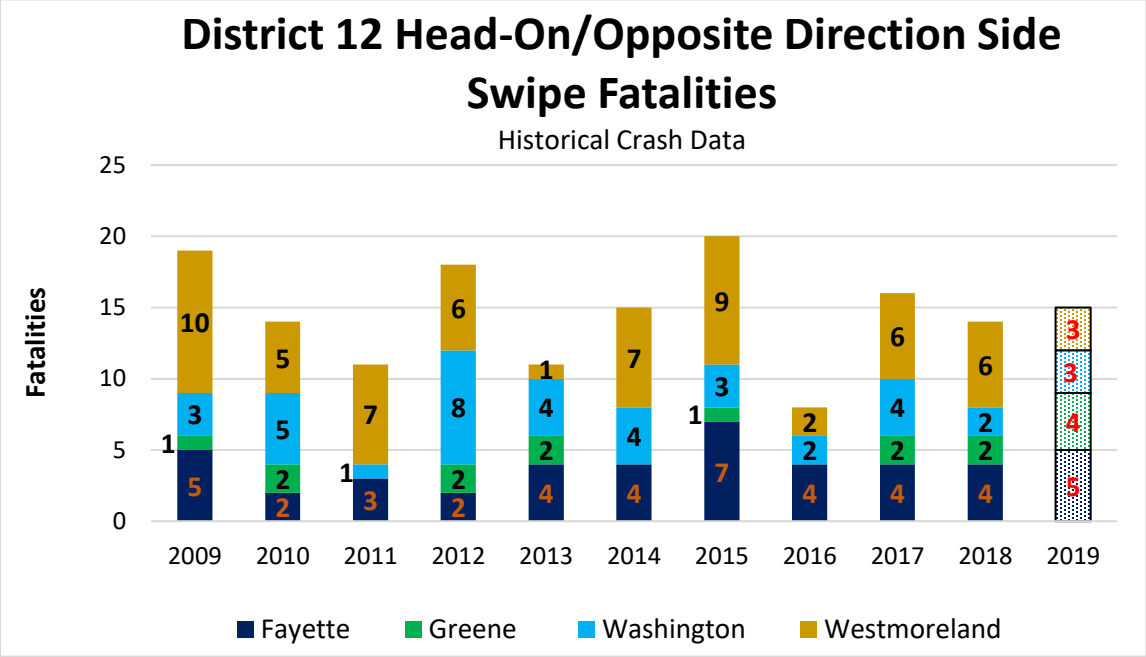

District 12 Drug Related Crashes
Historical Crash Data
Crashes
300
250
200
150
100
50
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
7
63
35
22
7
56
55
29
5
67
34
31
14
77
60
25
4
70
60
30
3
82
60
32
9
105
67
48
11
111
77
60
9
122
85
56
17
104
70
59
117
72
16
68
Fayette
Greene
Washington
Westmoreland

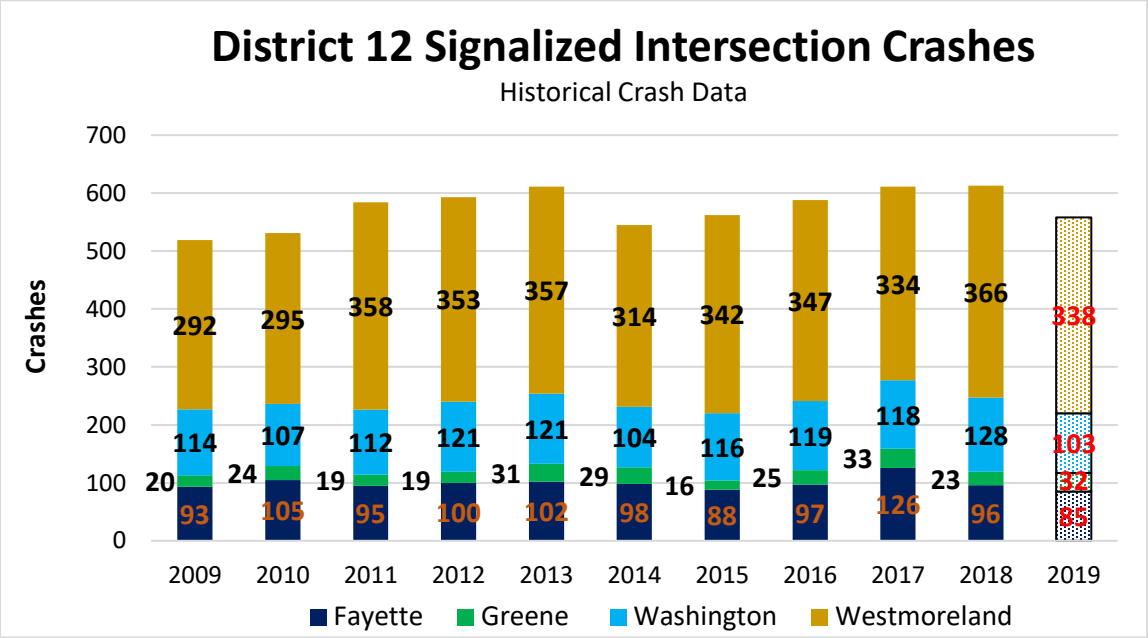

District 12 Drug Related Fatalities
Historical Crash Data
Fatalities
18
16
14
12
10
8
6
4
2
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
0
3
2
5
1
2
3
1
3
3
5
1
3
2
5
1
1
2
4
1
1
2
2
4
3
5
3
4
5
1
3
8
5
1
2
6
4
1
4
Fayette
Greene
Washington
Westmoreland

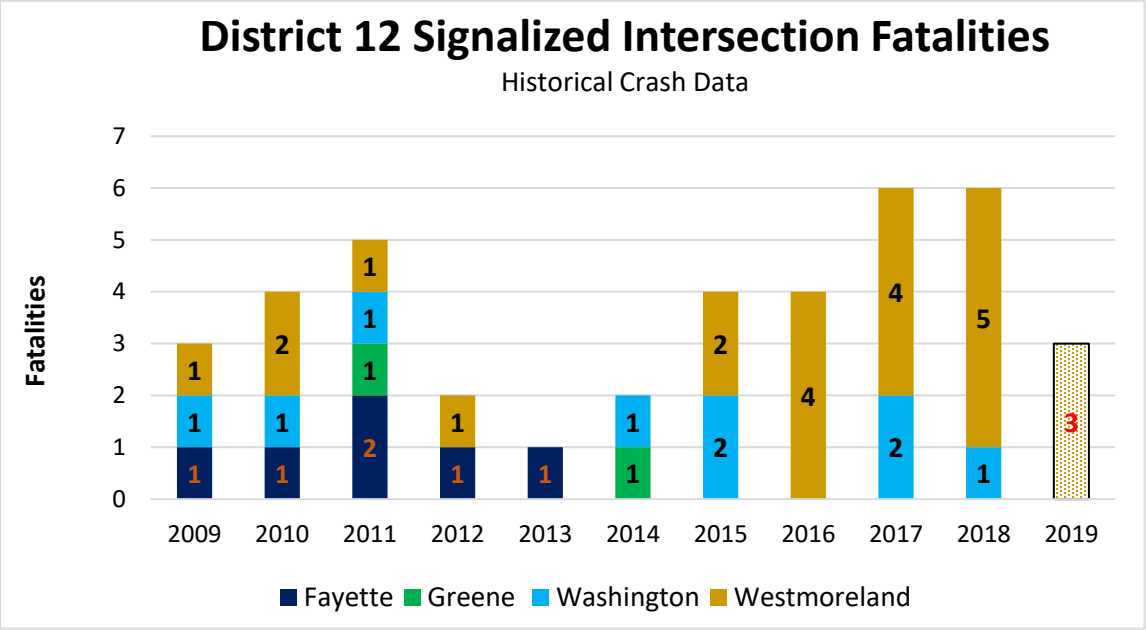

District 12 Unbelted Crashes
Historical Crash Data
Crashes
1,200
1,000
800
600
400
200
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
492 464 535 480 448 445 420 381 389 372 327
284 296 290 304 312 236 201 224 241 243 188
58 85 72 87 66 67 47 45 35 57 57
264 263 242 208 228 202 195 170 220 188 172
Fayette Greene Washington Westmoreland

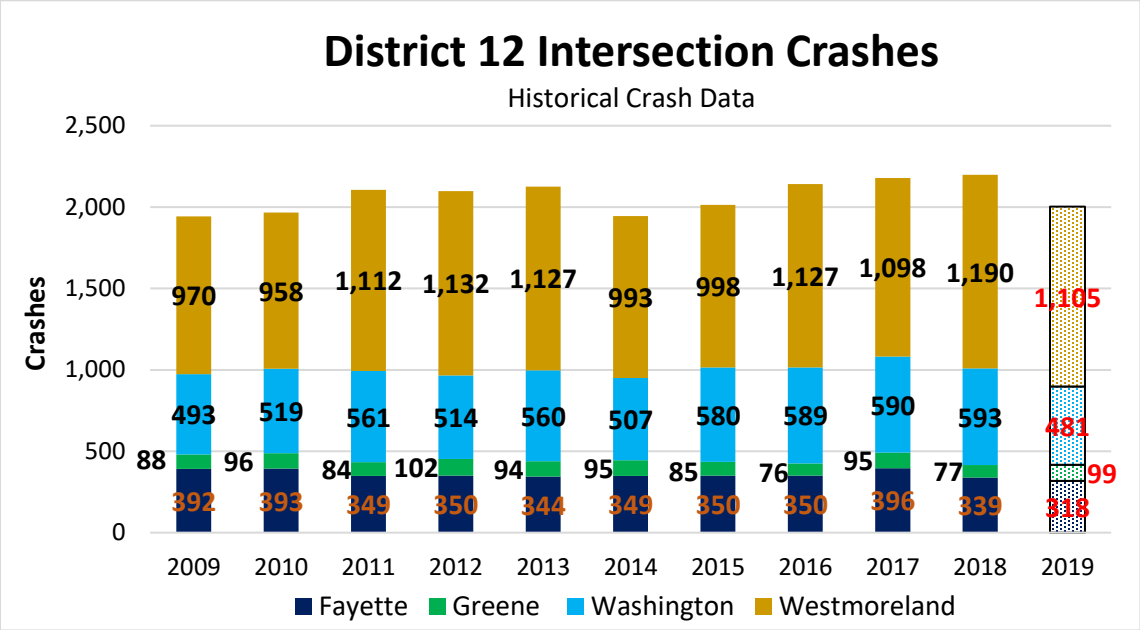

District 12 Unbelted Fatalities
Historical Crash Data
Fatalities
60
50
40
30
20
10
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
18 18 17 17 12 16 17 10 22 17 14
16 12 11 12 13 10 9 13 13 14 7
3 5 5 10 2 6 3 2 3 1 5
20 7 14 4 7 9 13 7 11 8 6
Fayette Greene Washington Westmoreland

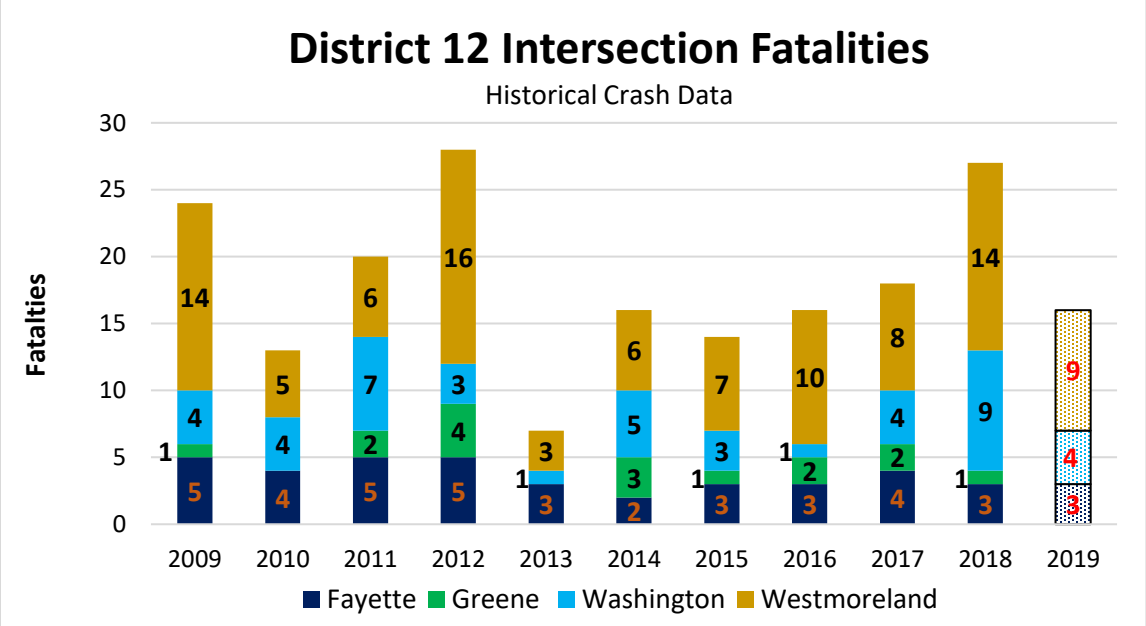

District 12 Head-On/Opposite Direction Side Swipe Crashes
Historical Crash Data
Crashes
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
199 190 226 225 186 231 243 259 187 194 154
147 120 139 149 145 156 154 145 148 135 119
36 28 38 38 34 28 23 34 19 34 27
86 86 79 73 72 76 80 87 83 75 75
Fayette
Greene
Washington
Westmoreland

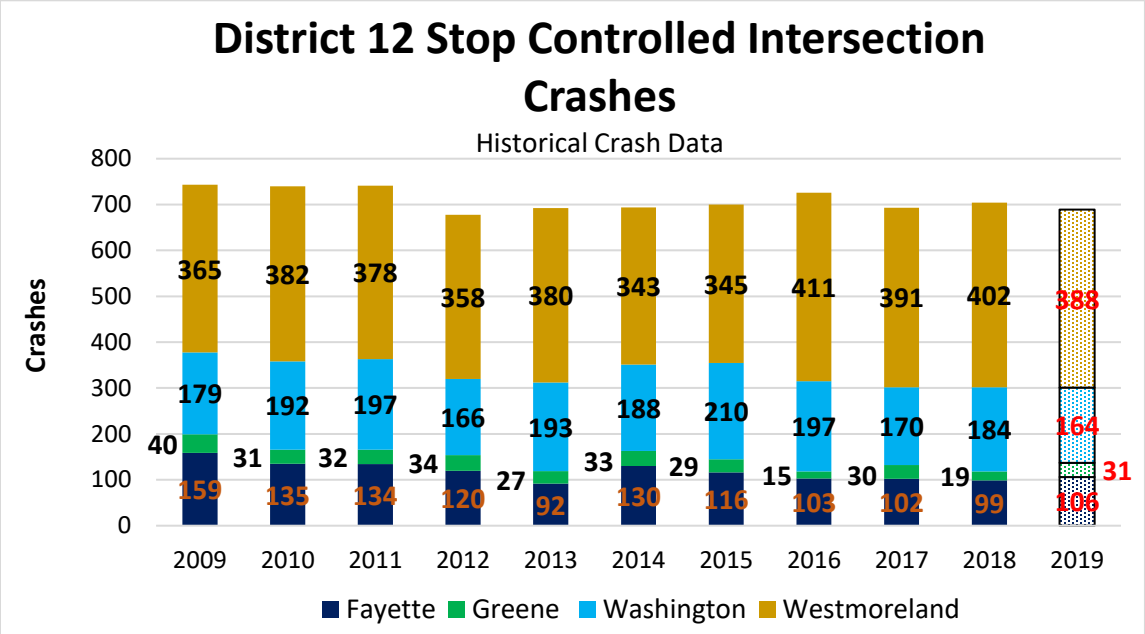

District 12 Head-On/Opposite Direction Side Swipe Fatalities
Historical Crash Data
Fatalities
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
10 5 7 6 1 7 9 2 6 6 3
3 5 1 8 4 4 3 2 4 2 3
1 2 1 2 2 4 4 1 7 4 2 4 4
5 2 3 2 4 4 7 4 4 4 5
Fayette
Greene
Washington
Westmoreland

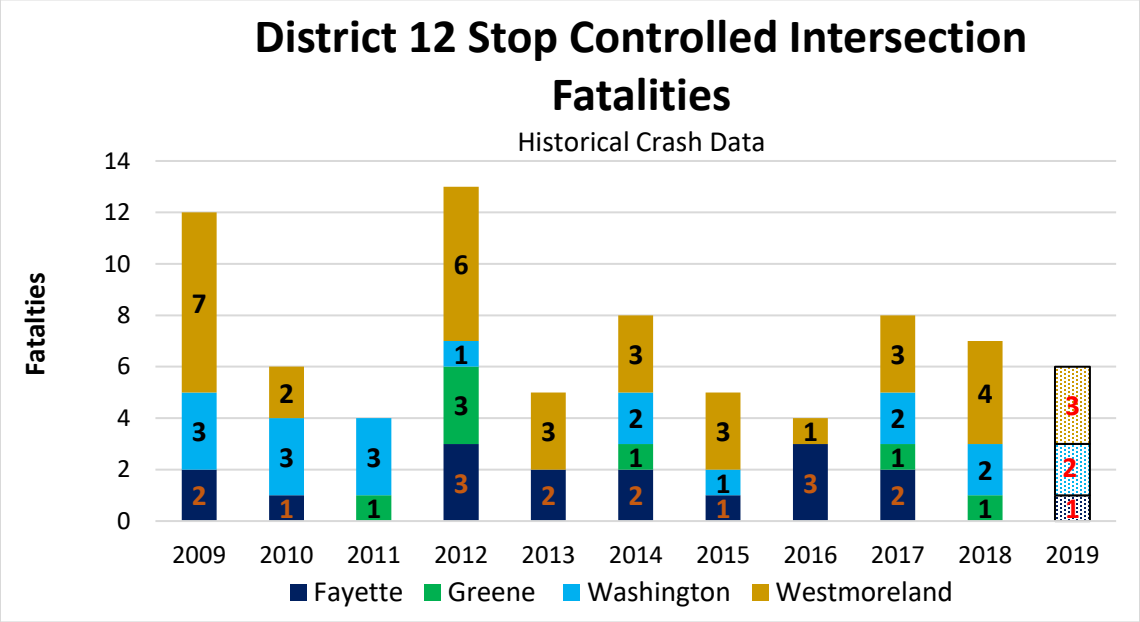

District 12 Signalized Intersection Crashes
Historical Crash Data
Crashes
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
20 24 19 19 31 29 16 25 33 23
114 107 112 121 121 104 116 119 118 128 103
292 295 358 353 357 314 342 347 334 366 338
93 105 95 100 102 98 88 97 126 96 65
32
Fayette
Greene
Washington
Westmoreland

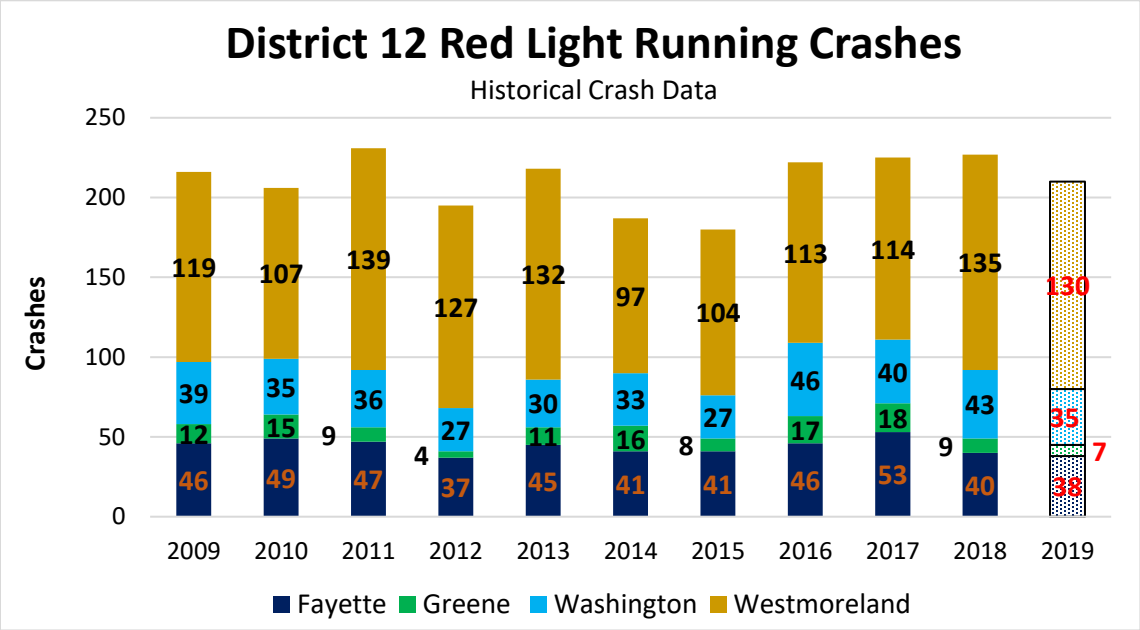

District 12 Signalized Intersection Fatalities
Historical Crash Data
Fatalities
7
6
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1 2 1 1 1 2 4 2 1 3
1 2 1 1 1 1 2 4 4 5
1 1 2 1 1 1 2
Fayette
Greene
Washington
Westmoreland

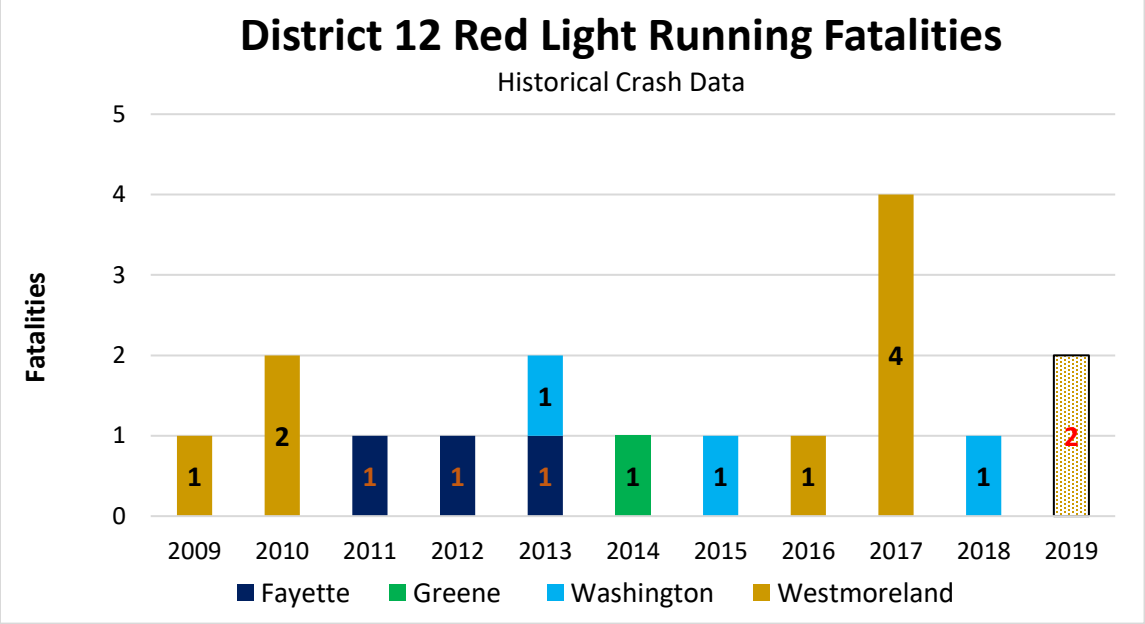

District 12 Intersection Crashes
Historical Crash Data
Crashes
2,500
2,000
1,500
1,000
500
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
88 96 84 102 94 95 85 76 95 77
493 519 561 514 560 507 580 589 590 593
970 958 1,112 1,132 1,127 993 998 1,127 1,098 1,190
392 393 349 350 344 349 350 350 396 339
1,105 481 99 318
Fayette Greene Washington Westmoreland

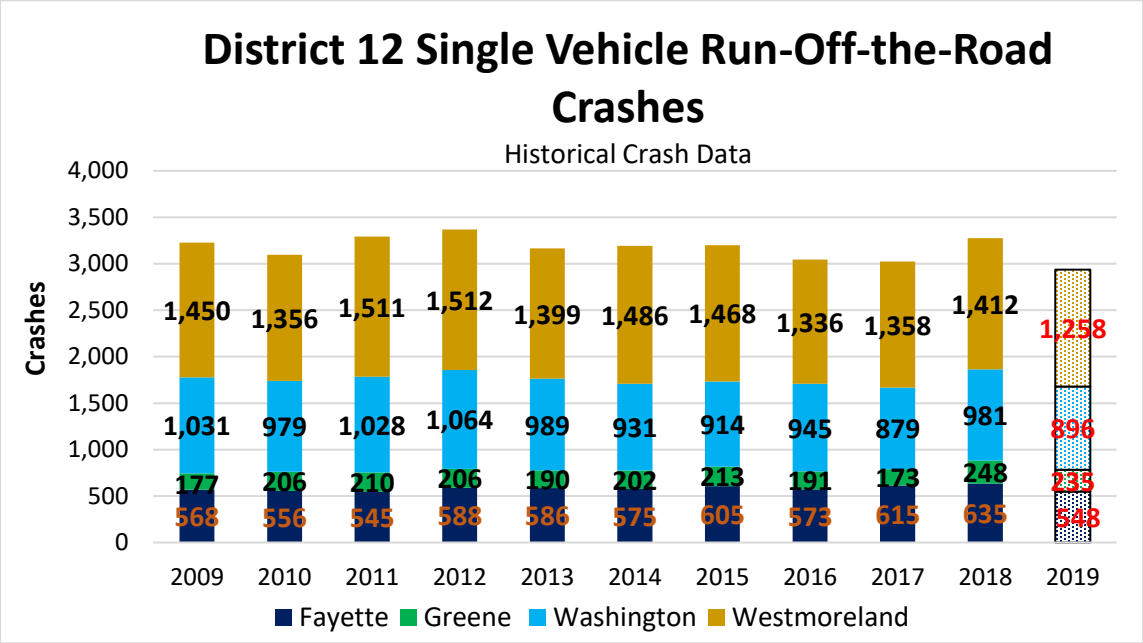

District 12 Intersection Fatalities
Historical Crash Data
Fatalties
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 5 4 14
4 4 5
5 2 7 6
5 4 3 16
1 3 3
2 3 5 6
1 3 3 7
3 2 10
4 4 8
1 3 9 14
3 4 9
Fayette Greene Washington Westmoreland

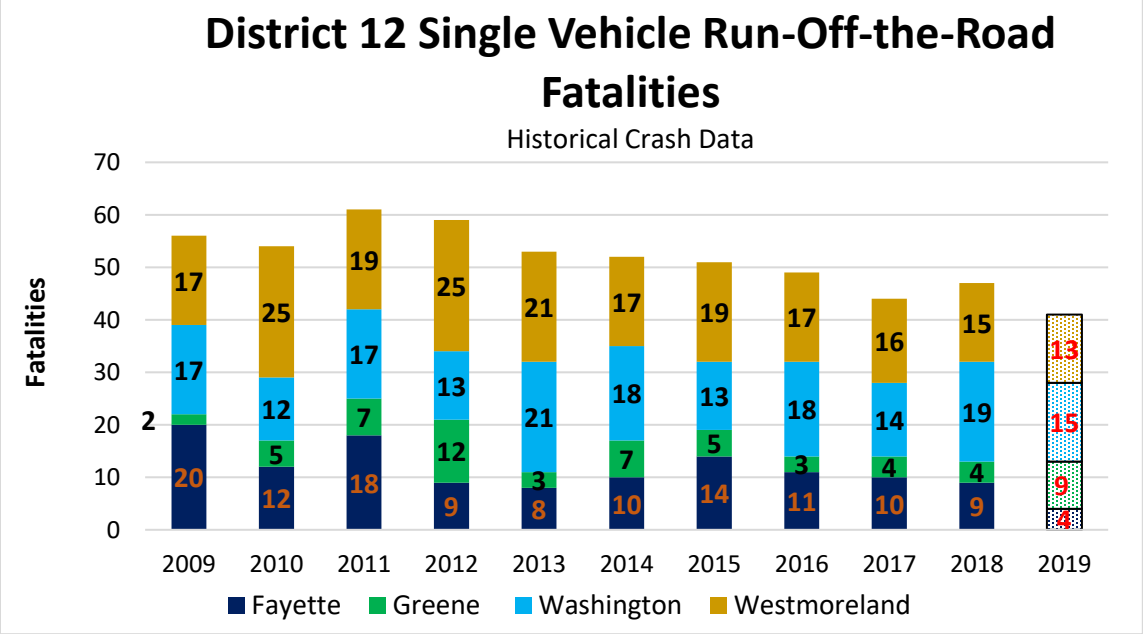

District 12 Stop Controlled Intersection Crashes
Historical Crash Data
Crashes
800
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
365 382 378 358 380 343 345 411 391 402 388
179 192 197 166 193 188 210 197 170 184 164
40 31 32 34 27 33 29 15 30 19 31
159 135 134 120 92 130 116 103 102 99 106
Fayette
Greene
Washington
Westmoreland

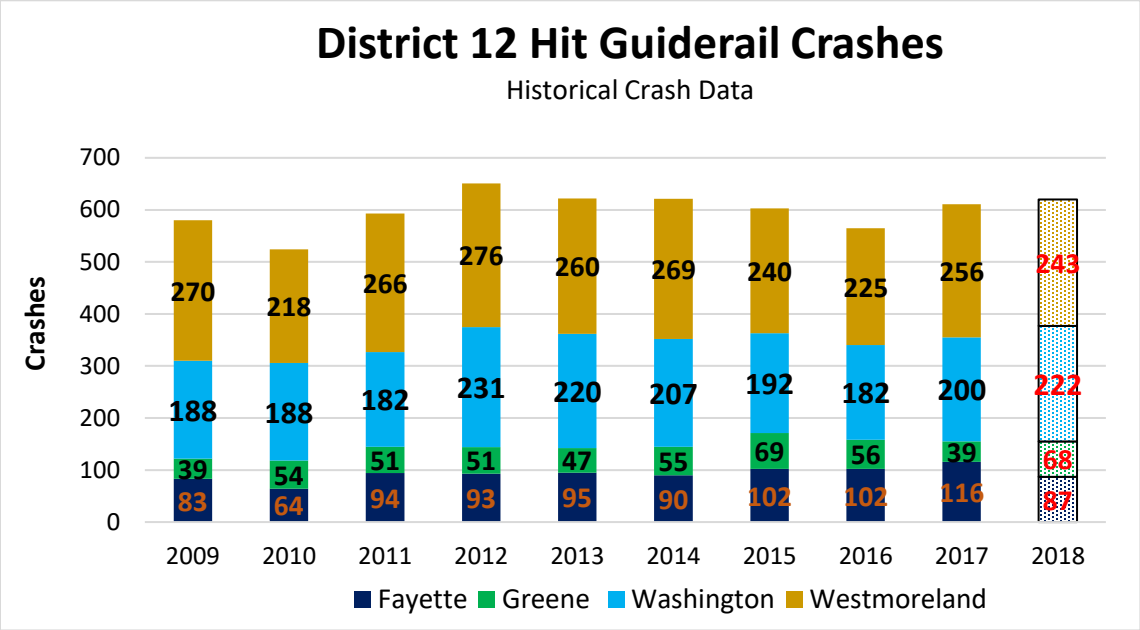

District 12 Stop Controlled Intersection Fatalities
Historical Crash Data
Fatalties
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
7 2 6 3 3 3 3 1 3 4 3
3 3 3 1 3 2 1 1 2 1 2
2 1 1 3 2 2 1 3 2 1 1
Fayette
Greene
Washington
Westmoreland

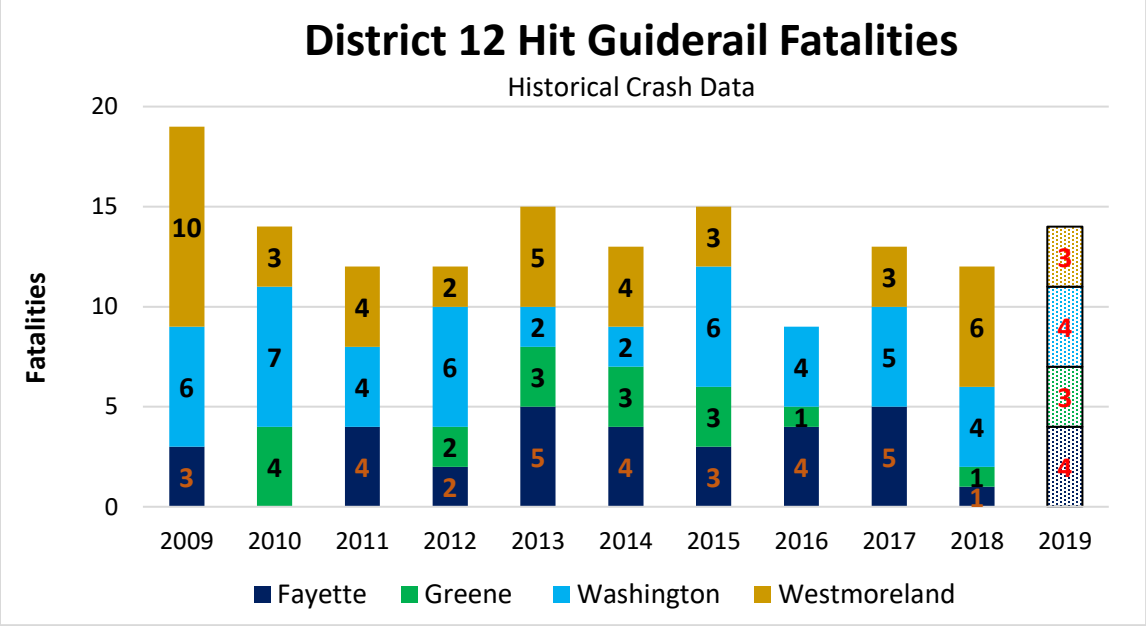

District 12 Red Light Running Crashes
Historical Crash Data
Crashes
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
119 107 139 127 132 97 104 113 114 135 130
39 35 36 27 30 33 27 46 40 43 35
12 15 9 4 11 16 8 17 18 9 7
46 49 47 37 45 41 41 46 53 40 38
Fayette Greene Washington Westmoreland

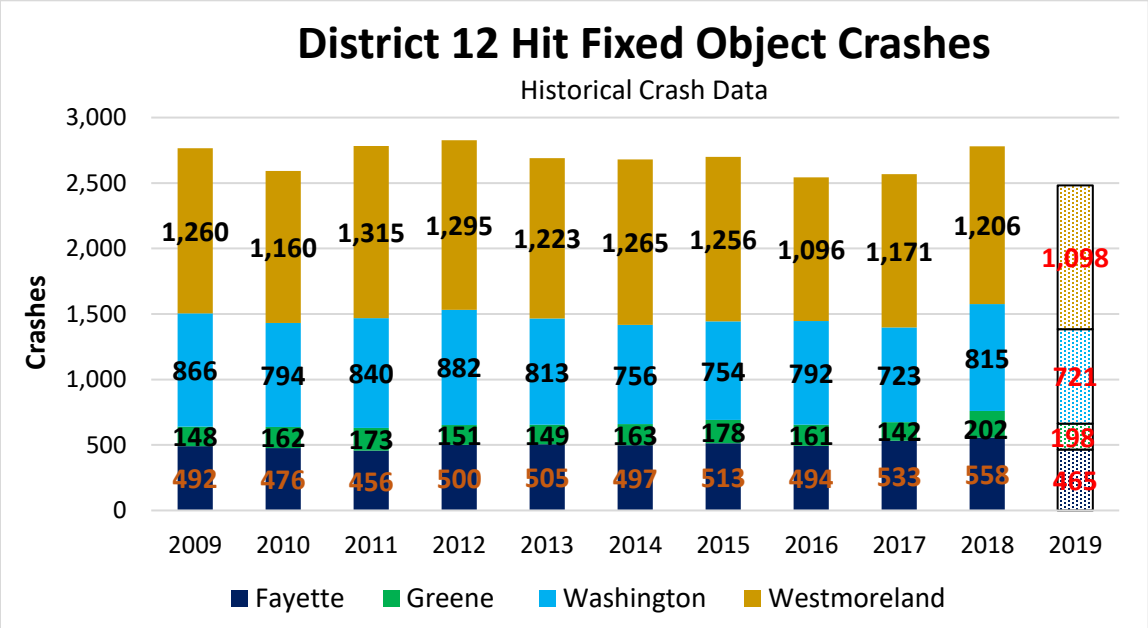

District 12 Red Light Running Fatalities
Historical Crash Data
Fatalities
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 2 1 1 1 1 1 1 4 1 2
Fayette Greene Washington Westmoreland

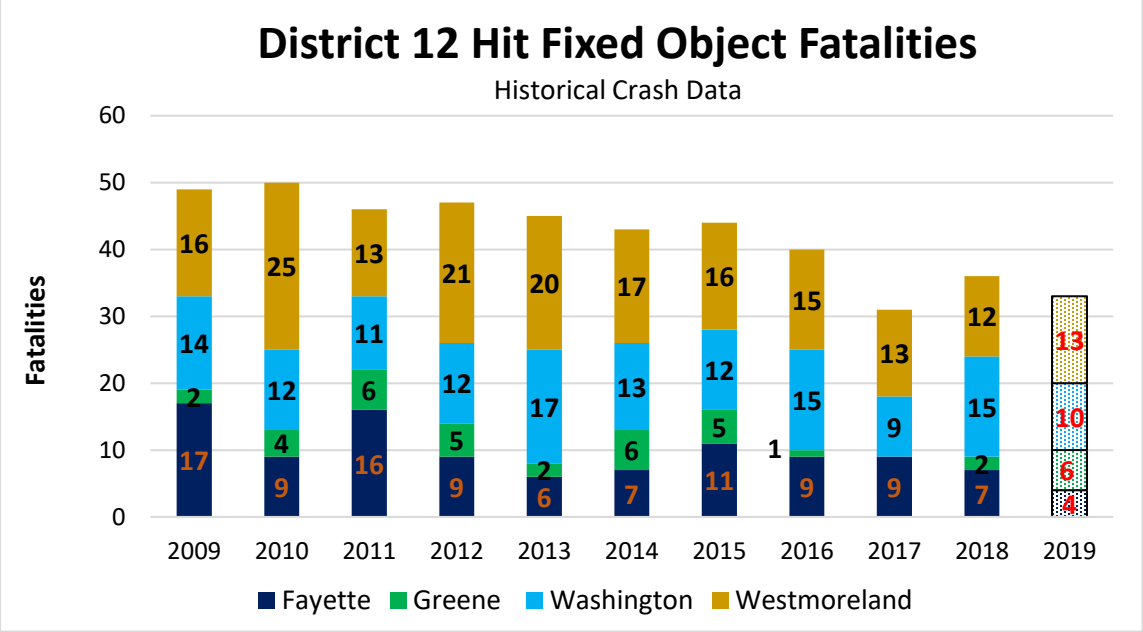

District 12 Single Vehicle Run-Off-the-Road Crashes
Historical Crash Data
Crashes
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1,450
1,356
1,511
1,512
1,399
1,486
1,468
1,336
1,358
1,412
1,258
1,031
979
1,028
1,064
989
931
914
945
879
981
896
177
206
210
206
190
202
213
191
173
248
235
568
556
545
588
586
575
605
573
615
635
548
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Fayette
Greene
Washington
Westmoreland

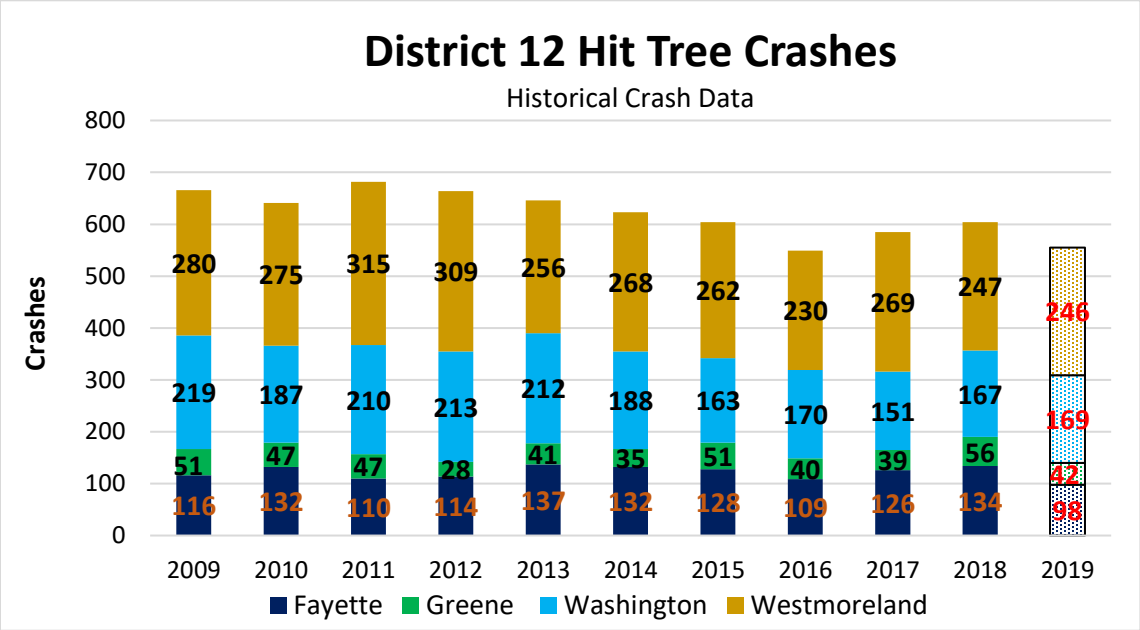

District 12 Single Vehicle Run-Off-the-Road Fatalities
Historical Crash Data
Fatalities
70
60
50
40
30
20
10
0
17
25
19
25
21
17
19
17
16
15
13
17
12
17
13
21
18
13
18
14
19
15
2
5
7
12
3
7
5
3
4
4
20
12
18
9
8
10
14
11
10
9
4
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Fayette
Greene
Washington
Westmoreland

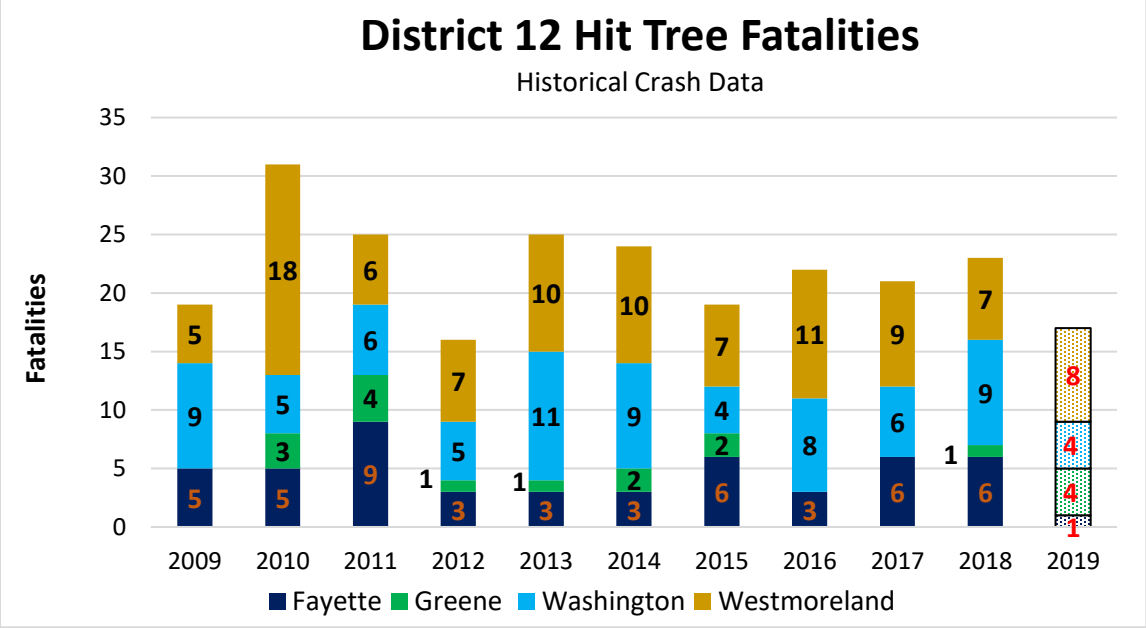

District 12 Hit Guiderail Crashes
Historical Crash Data
Crashes
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018
270 218 266 276 260 269 240 225 256 243
188 188 182 231 220 207 192 182 200 222
39 54 51 51 47 55 69 56 39 68
83 64 94 93 95 90 102 102 116 87
Fayette Greene Washington Westmoreland

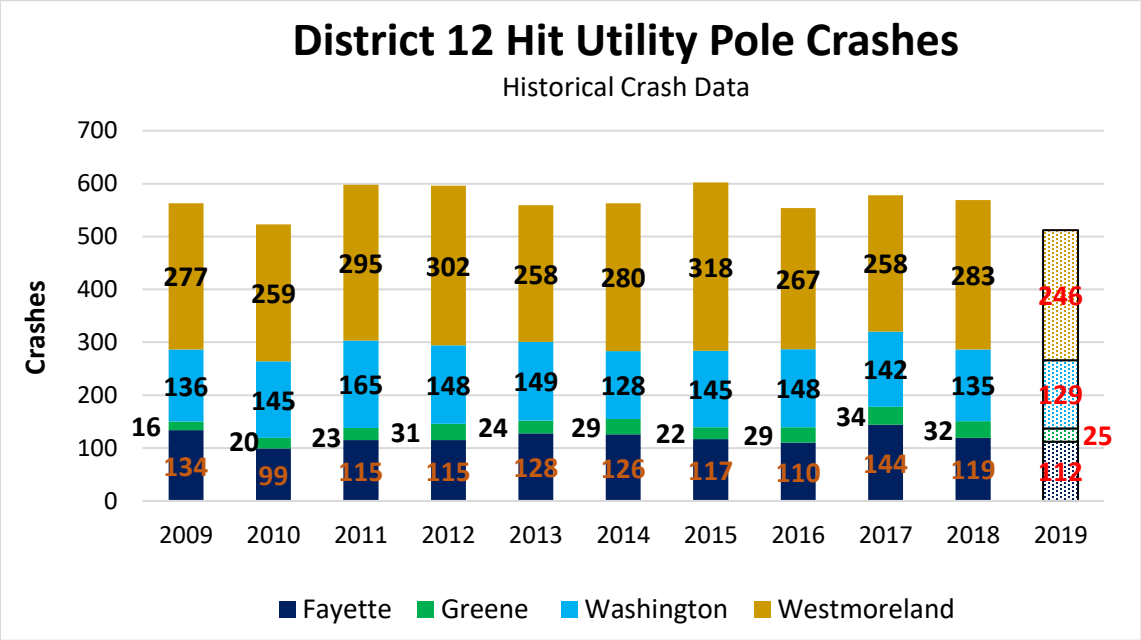

District 12 Hit Guiderail Fatalities
Historical Crash Data
Fatalities
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
10 3 4 2 5 4 3 4 3 6 3
6 7 4 6 2 2 3 1 5 4 4
3 4 4 2 5 4 3 4 5 1 4
Fayette Greene Washington Westmoreland

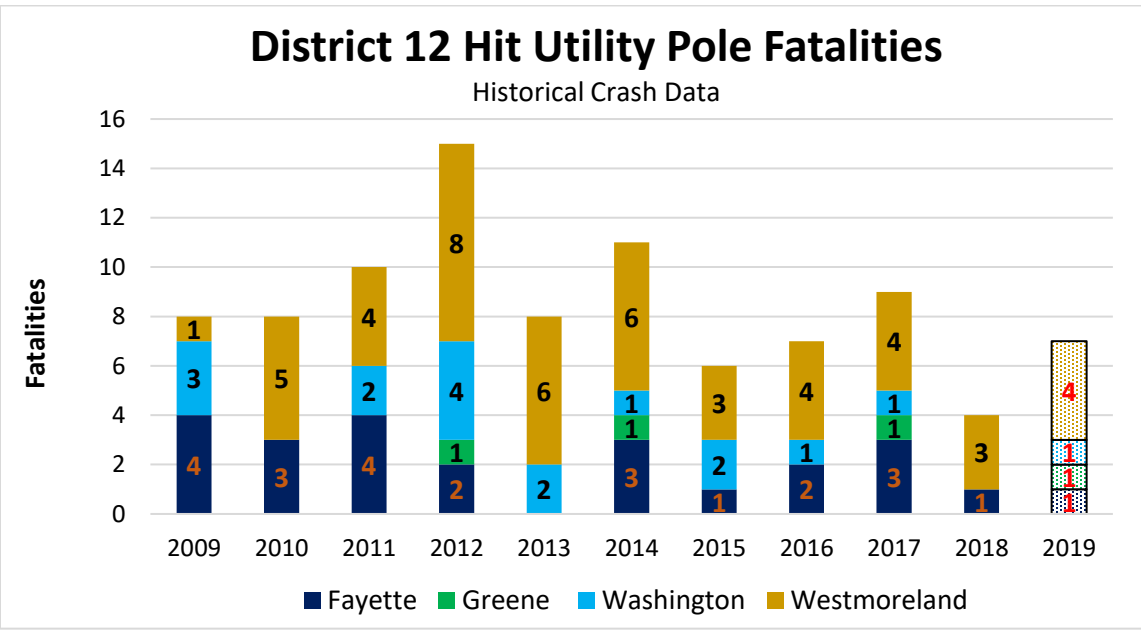

District 12 Hit Fixed Object Crashes
Historical Crash Data
Crashes
3,000
2,500
2,000
1,500
1,000
500
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1,260 1,160 1,315 1,295 1,223 1,265 1,256 1,096 1,171 1,206 1,098
866 794 840 882 813 756 754 792 723 815 721
148 162 173 151 149 163 178 161 142 202 198
492 476 456 500 505 497 513 494 533 558 465
Fayette
Greene
Washington
Westmoreland

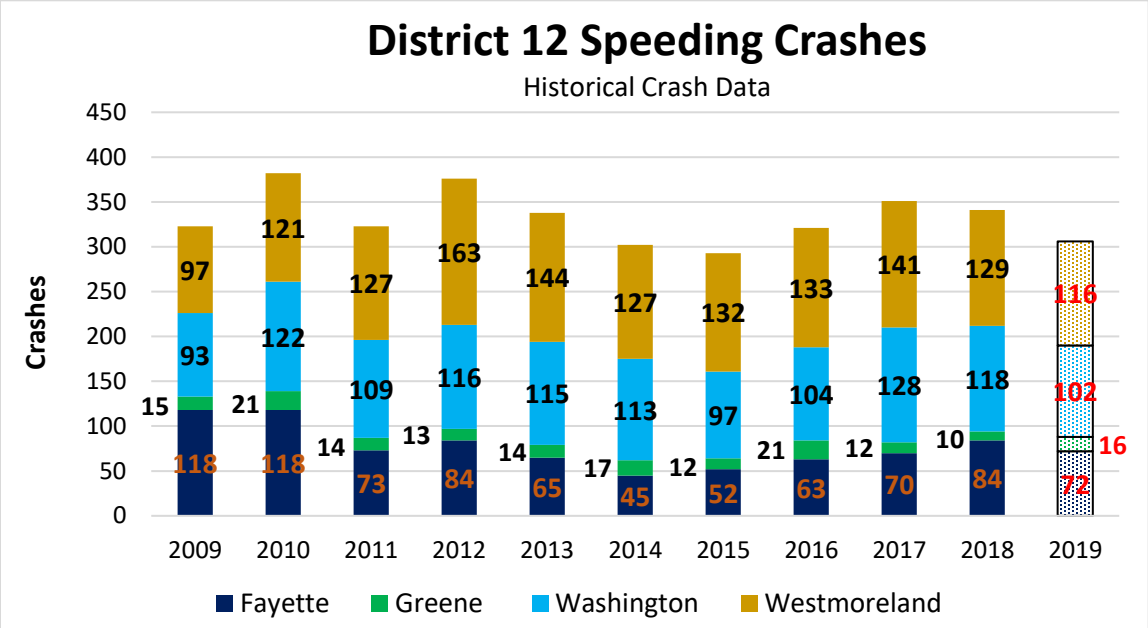

District 12 Hit Fixed Object Fatalities
Historical Crash Data
Fatalities
60
50
40
30
20
10
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
16 25 13 21 20 17 16 15 13 12 13
14 12 11 12 17 13 12 15 9 15 10
2 4 6 5 2 6 5 1 15 2 6
17 9 16 9 6 7 11 9 9 7 4
Fayette
Greene
Washington
Westmoreland

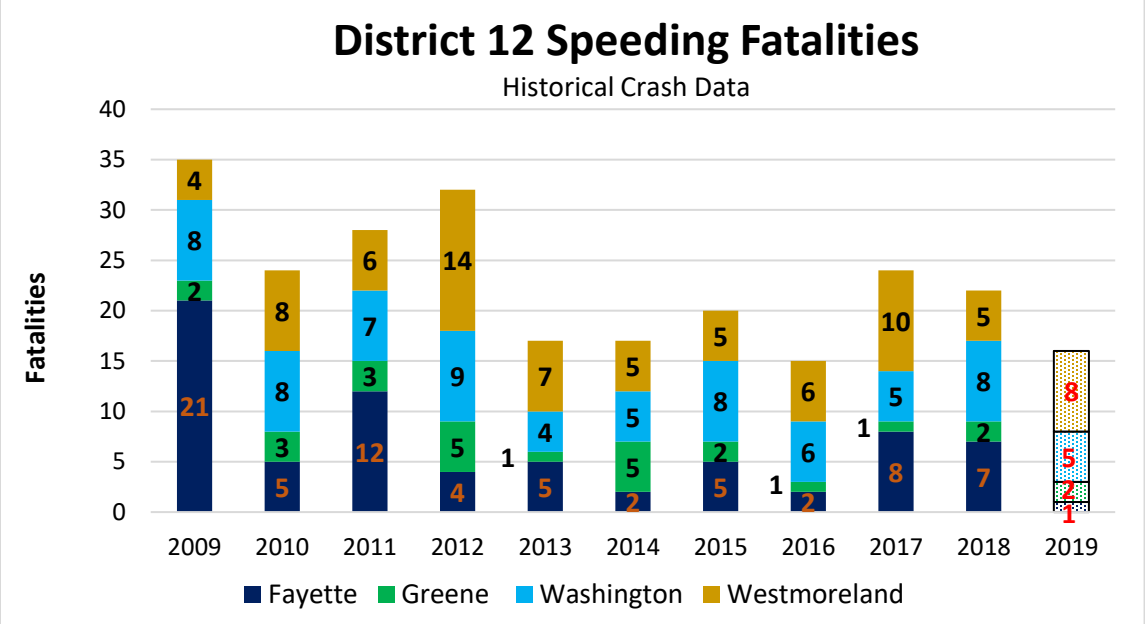

District 12 Hit Tree Crashes
Historical Crash Data
Crashes
800
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
280 275 315 309 256 268 262 230 269 247 246
219 187 210 213 212 188 163 170 151 167 169
51 47 47 28 41 35 51 40 39 56 42
116 132 110 114 137 132 128 109 126 134 98
Fayette Greene Washington Westmoreland

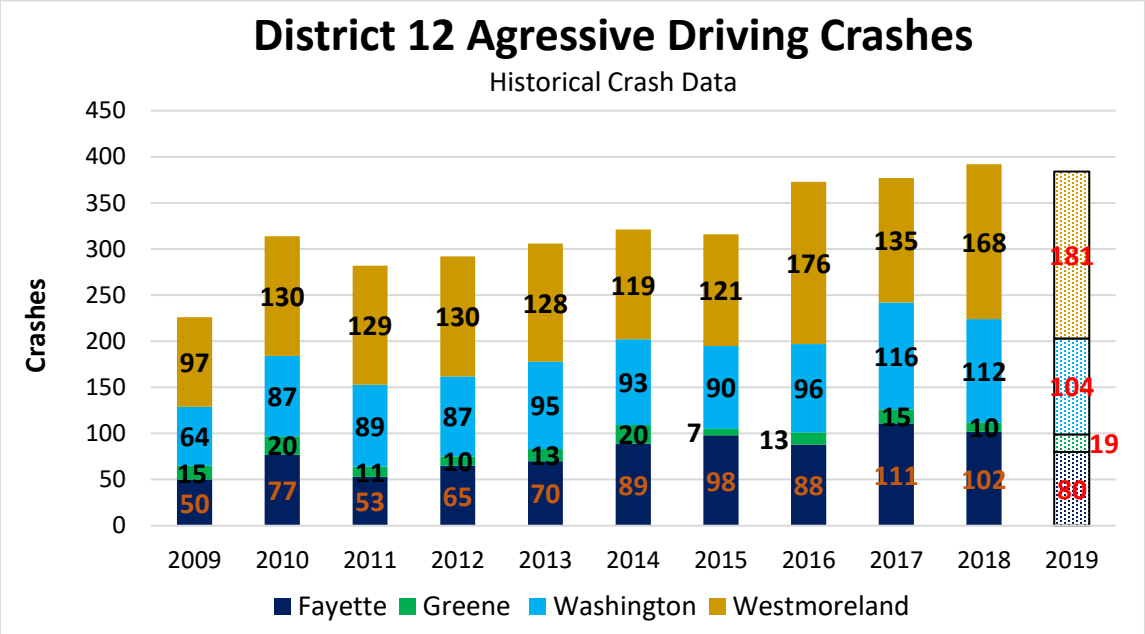

District 12 Hit Tree Fatalities
Historical Crash Data
Fatalities
35
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
5 18 6 7 10 10 7 11 9 7 8
9 5 6 5 11 9 4 8 6 9 4
5 3 4 1 1 2 2 3 1 1 4
5 5 9 3 3 3 6 3 6 6 1
Fayette Greene Washington Westmoreland

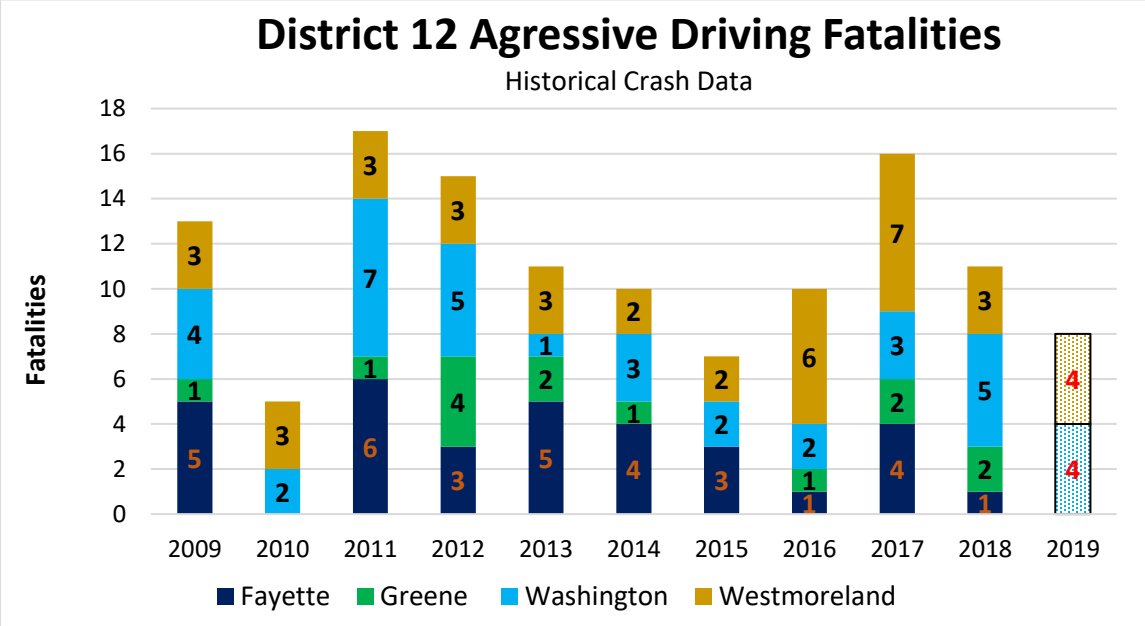

District 12 Hit Utility Pole Crashes
Historical Crash Data
Crashes
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
277 259 295 302 258 280 318 267 258 283 246
136 145 165 148 149 128 145 148 142 135 129
16 20 23 31 24 29 22 29 34 32 25
134 99 115 115 128 126 117 110 144 119 112
Fayette
Greene
Washington
Westmoreland

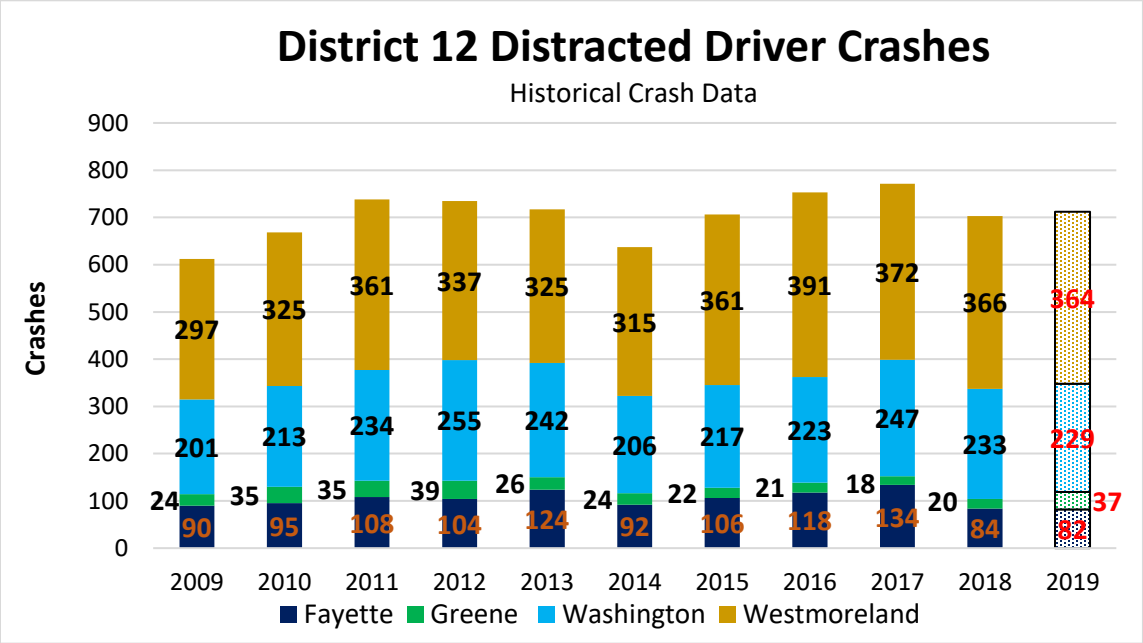

District 12 Hit Utility Pole Fatalities
Historical Crash Data
Fatalities
16
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 5 4 8 6 6 3 4 4 3 4
3 4 2 4 1 1 2 1 1 1 1
4 3 4 2 2 3 1 2 3 1 1
Fayette
Greene
Washington
Westmoreland

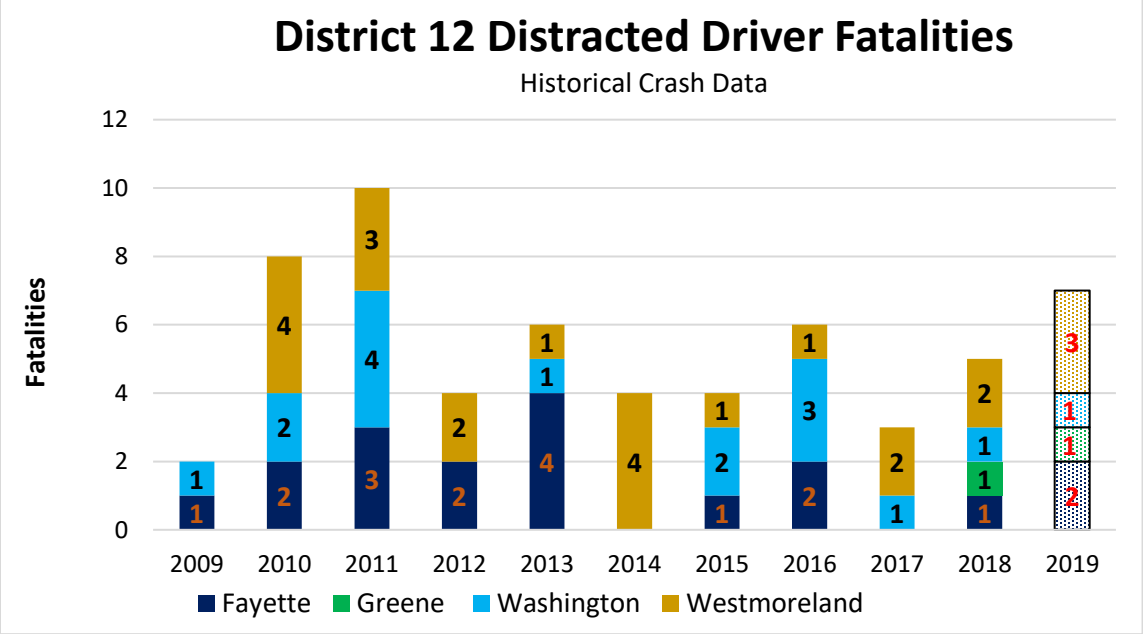

District 12 Speeding Crashes
Historical Crash Data
Crashes
450
400
350
300
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
15 118 93 97
21 118 122 121
14 73 109 127
13 84 116 163
14 65 115 144
17 45 113 127
12 52 97 132
21 63 104 133
12 70 128 141
10 84 118 129
16 72 102 116
Fayette
Greene
Washington
Westmoreland

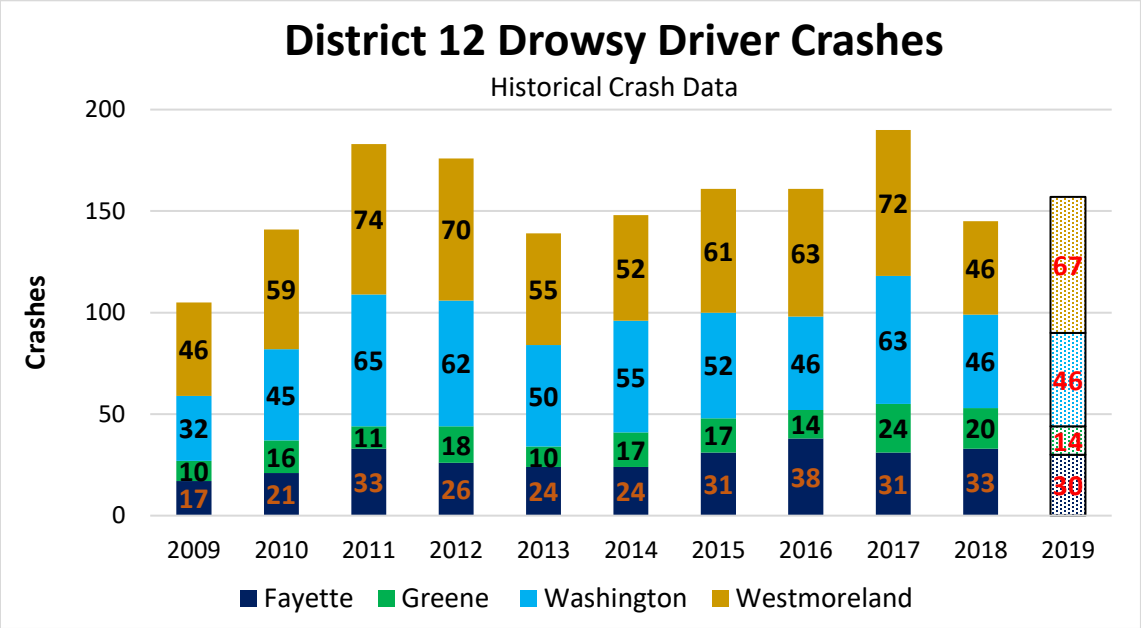

District 12 Speeding Fatalities
Historical Crash Data
Fatalities
40
35
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
21 2 8 4
5 3 8 8
12 3 7 6
4 5 9 14
1 5 4 7
2 5 5 5
5 2 8 5
1 2 6 6
1 8 5 10
7 2 8 5
1 2 5 8
Fayette
Greene
Washington
Westmoreland

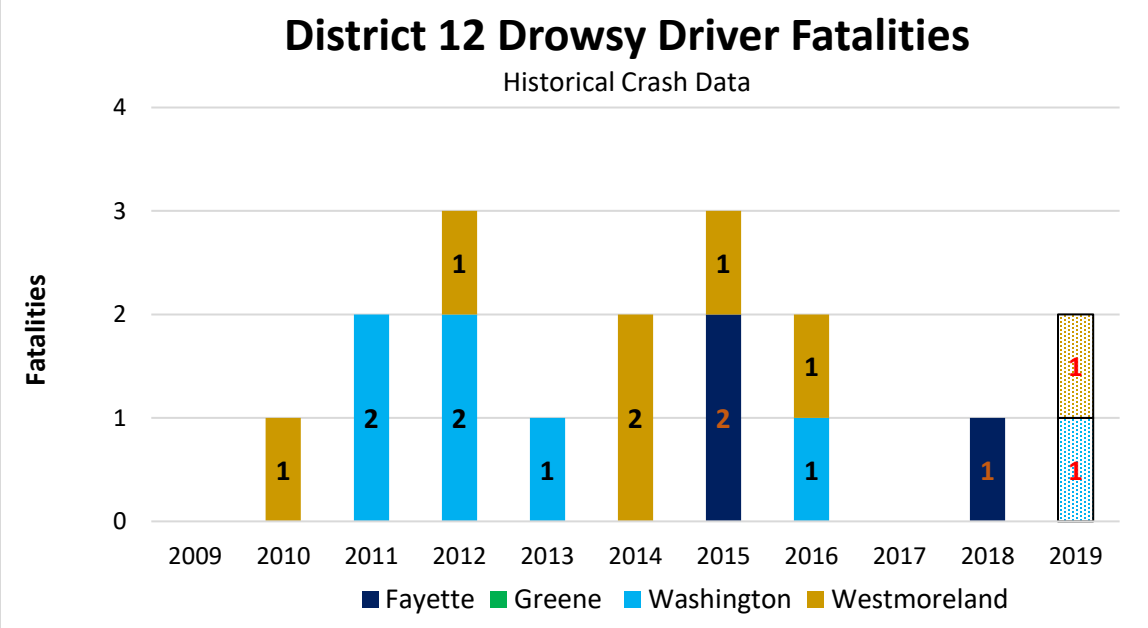

District 12 Agressive Driving Crashes
Historical Crash Data
Crashes
450
400
350
300
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
97 64 15 50
130 87 20 77
129 89 11 53
130 87 10 65
128 95 13 70
119 93 20 89
121 90 7 98
176 96 13 88
135 116 15 111
168 112 10 102
181 104 19 80
Fayette Greene Washington Westmoreland

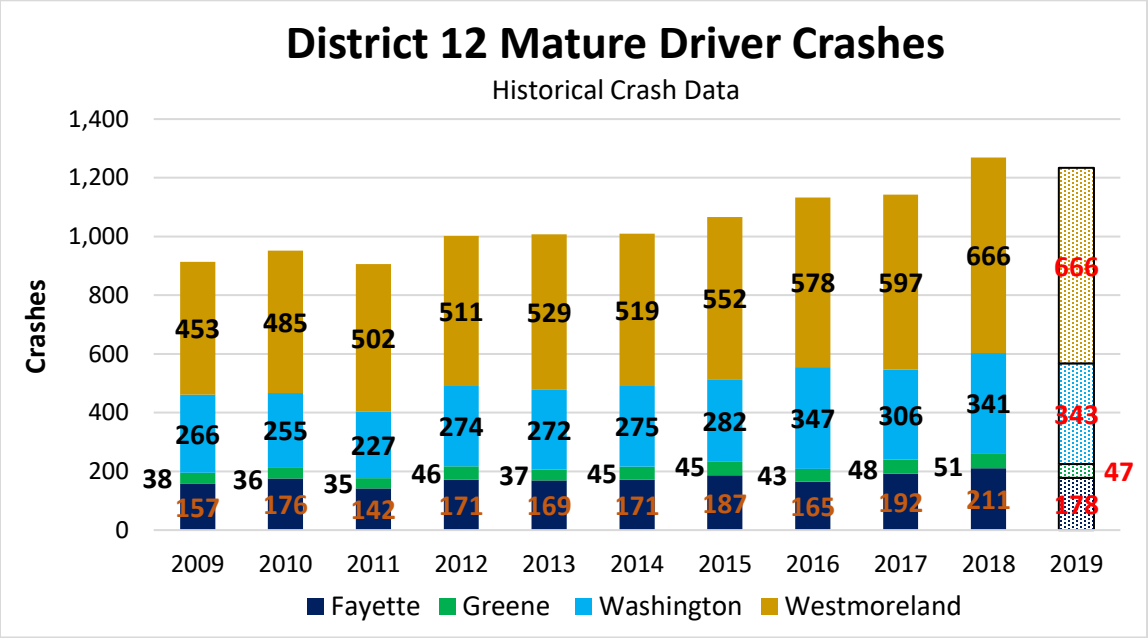

District 12 Agressive Driving Fatalities
Historical Crash Data
Fatalities
18
16
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
3 4 1 5
3 2
3 7 1 6
3 5 4 3
3 1 2 5
2 3 1 4
2 2 2 3
6 2 1 1
7 3 2 4
3 5 2 1
4 4
Fayette Greene Washington Westmoreland

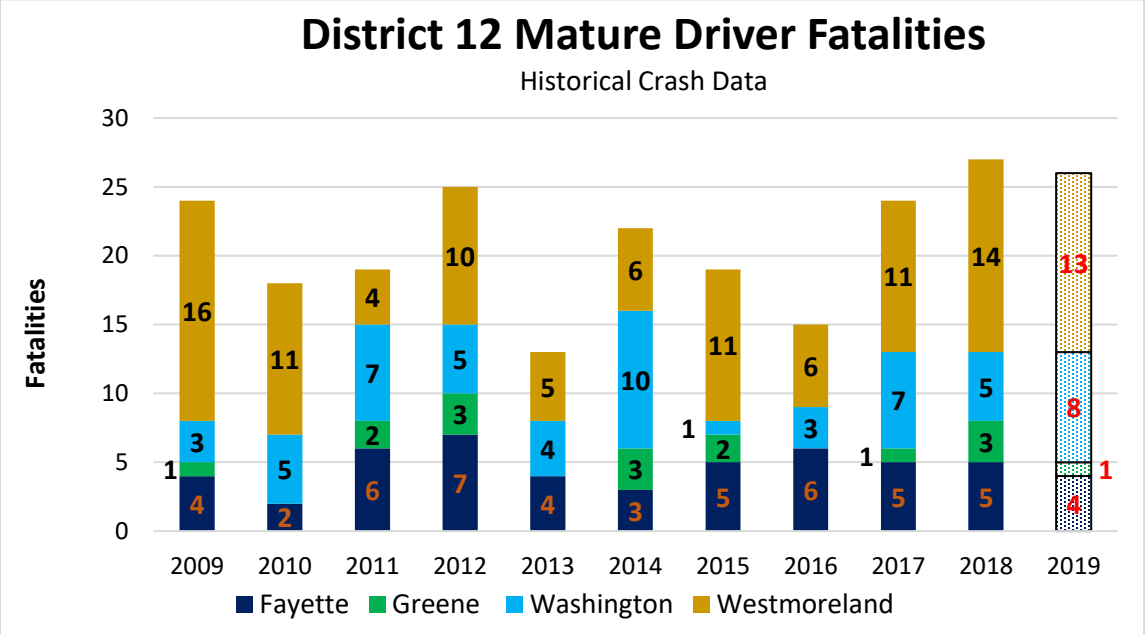

District 12 Distracted Driver Crashes
Historical Crash Data
Crashes
900
800
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
24 201 297
35 213 325
35 234 361
39 255 337
26 242 325
24 206 315
22 217 361
21 223 391
18 247 372
20 233 366
229 364
37
90 95 108 104 124 92 106 118 134 84 82
Fayette Greene Washington Westmoreland

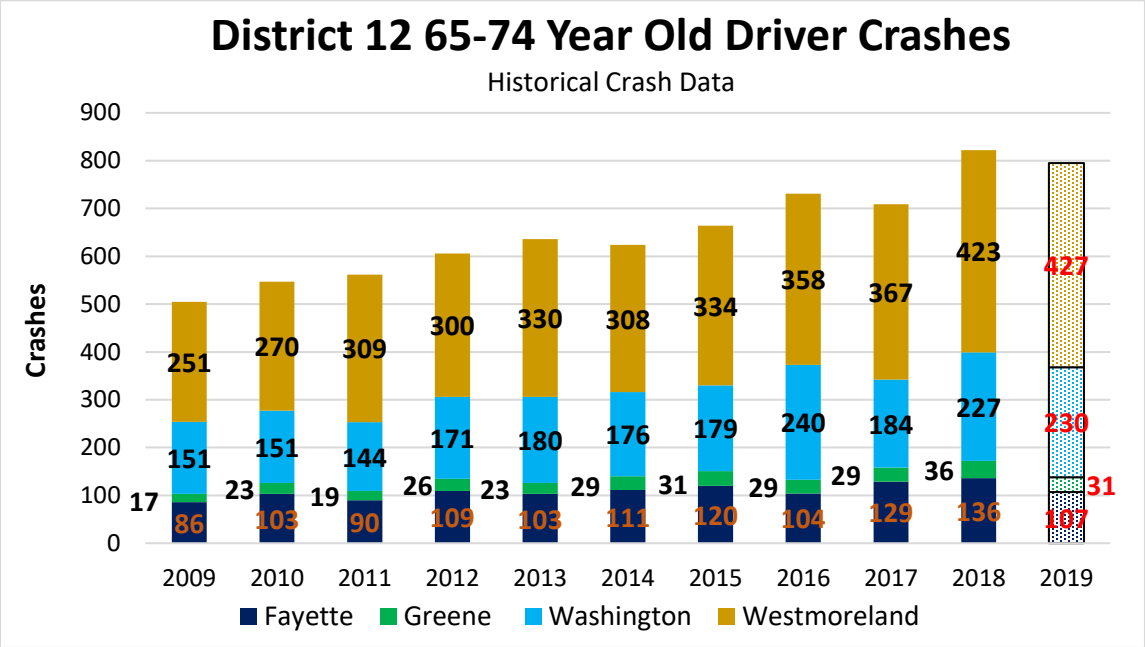

District 12 Distracted Driver Fatalities
Historical Crash Data
Fatalities
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1
2 2 4
3 4 3
2 2
4 1 1
4
1 2 1
2 3 1
1 2
1 1 1 2
1 1 3
2
Fayette Greene Washington Westmoreland

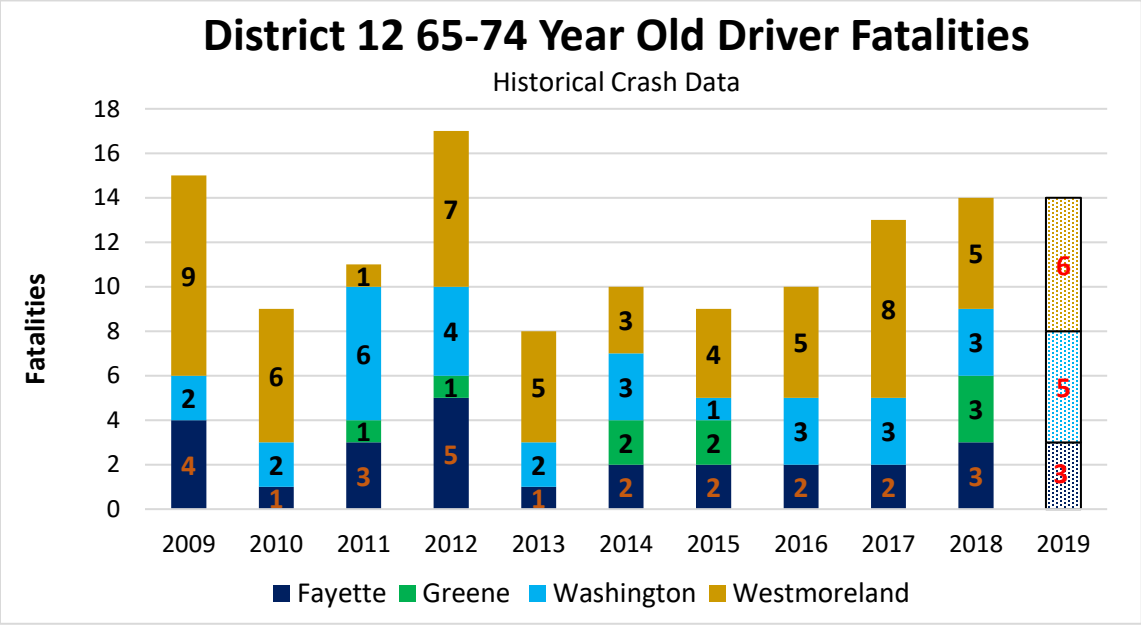

District 12 Drowsy Driver Crashes
Historical Crash Data
Crashes
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
Fayette Greene Washington Westmoreland
17 10 32 46
21 16 45 59
33 11 65 74
26 18 62 70
24 10 50 55
24 17 55 52
31 17 52 61
38 14 46 63
31 24 63 72
33 20 46 46
30 14 46 67

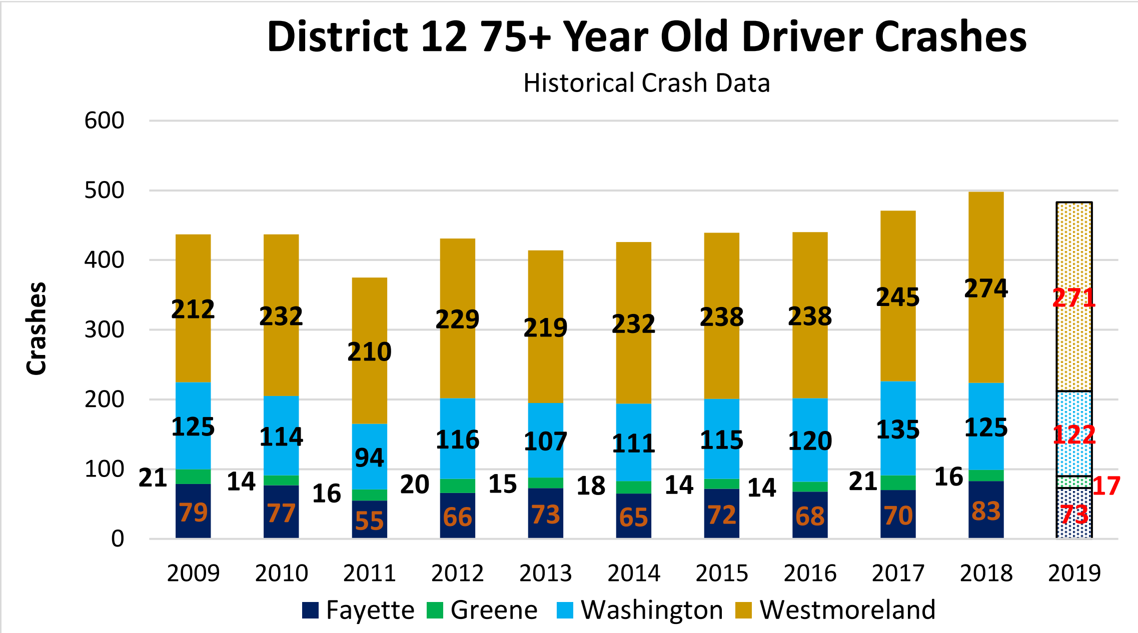

District 12 Drowsy Driver Fatalities
Historical Crash Data
Fatalities
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
Fayette Greene Washington Westmoreland
1
2 2
1 1
2
2 2 1
1 1
1
1 1

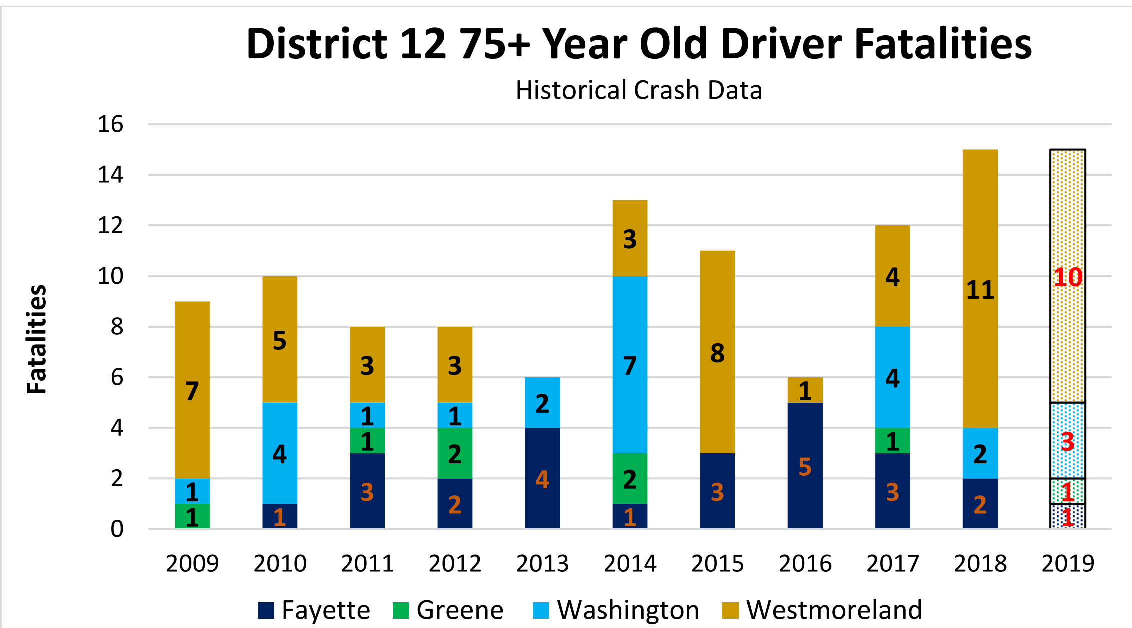

District 12 Mature Driver Crashes
Historical Crash Data
Crashes
1,400
1,200
1,000
800
600
400
200
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
38 36 35 46 37 45 45 43 48 51
266 255 227 274 272 275 282 347 306 341
453 485 502 511 529 519 552 578 597 666
157 176 142 171 169 171 187 165 192 211 178
343
47
666
Fayette Greene Washington Westmoreland

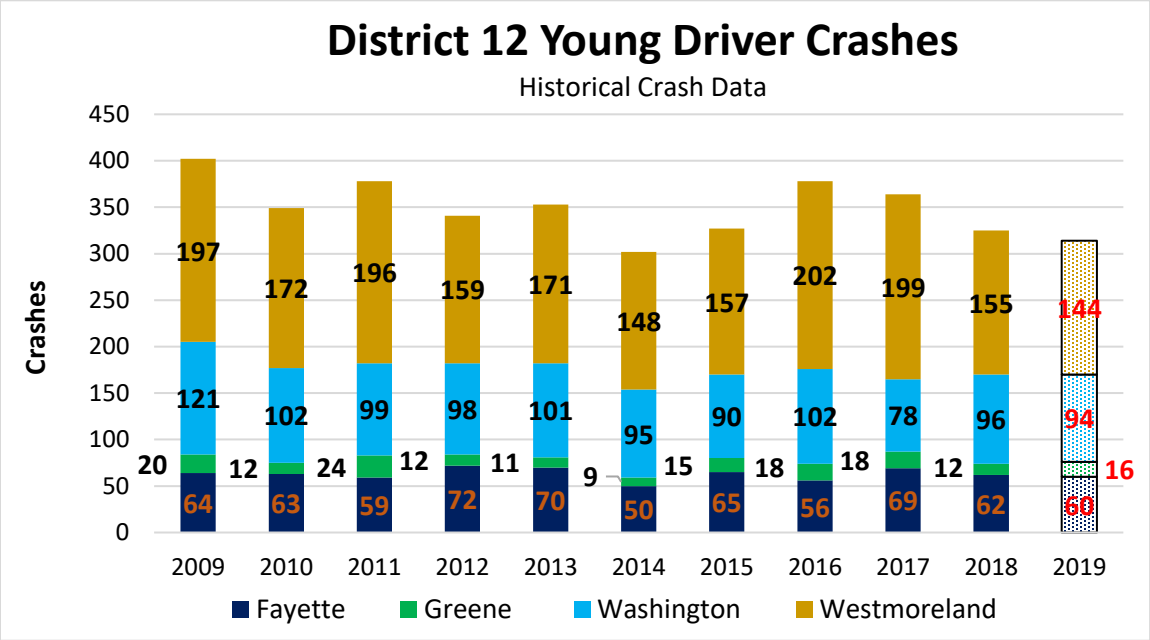

District 12 Mature Driver Fatalities
Historical Crash Data
Fatalities
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 5 6 7 4 3 1 6 1 5
3 5 2 7 5 10 2 3 7 5
16 11 4 10 5 6 11 6 11 14
4 2 6 7 4 3 5 6 5 5
13
8
1
4
Fayette Greene Washington Westmoreland

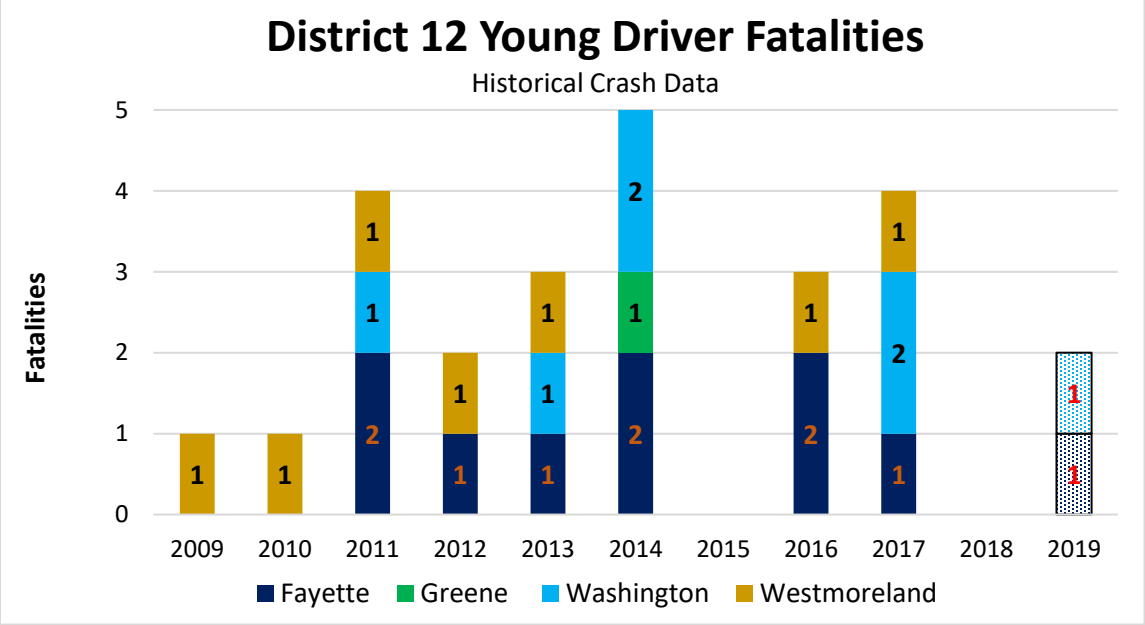

District 12 65-74 Year Old Driver Crashes
Historical Crash Data
Crashes
900
800
700
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
17 23 19 26 23 29 31 29 29 36
251 270 309 300 330 308 334 358 367 423 427
151 151 144 171 180 176 179 240 184 227 230
86 103 90 109 103 111 120 104 129 136 107
31
Fayette
Greene
Washington
Westmoreland

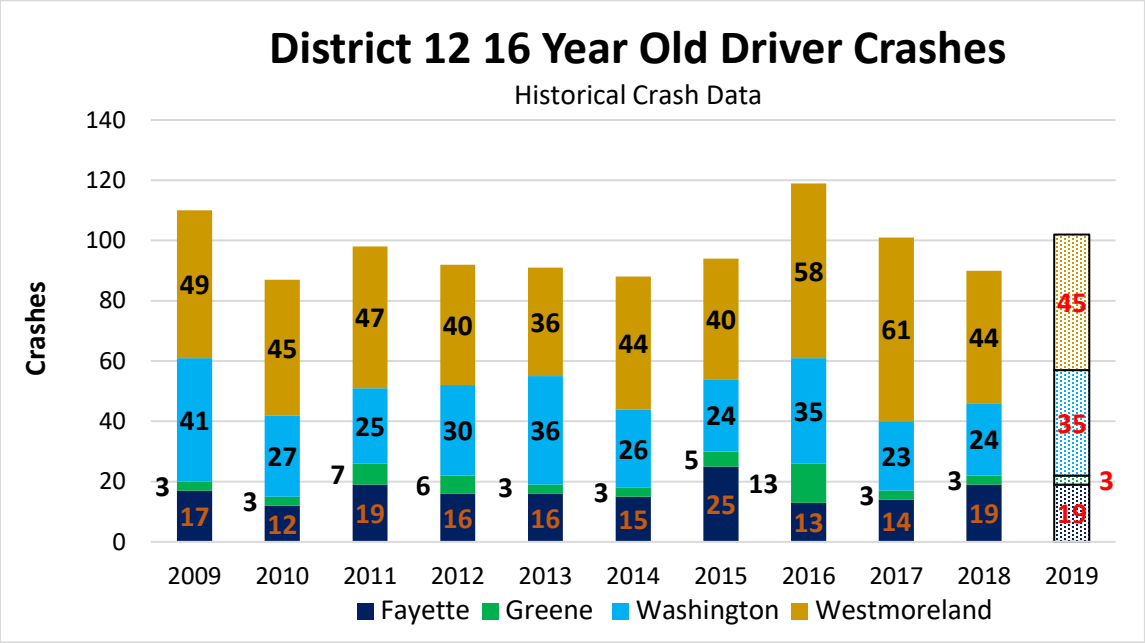

District 12 65-74 Year Old Driver Fatalities
Historical Crash Data
Fatalities
18
16
14
12
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
9 6 1 7 5 3 4 5 8 5 6
2 2 6 4 2 3 1 3 3 3 5
4 1 3 5 1 2 2 2 2 3 3
Fayette
Greene
Washington
Westmoreland

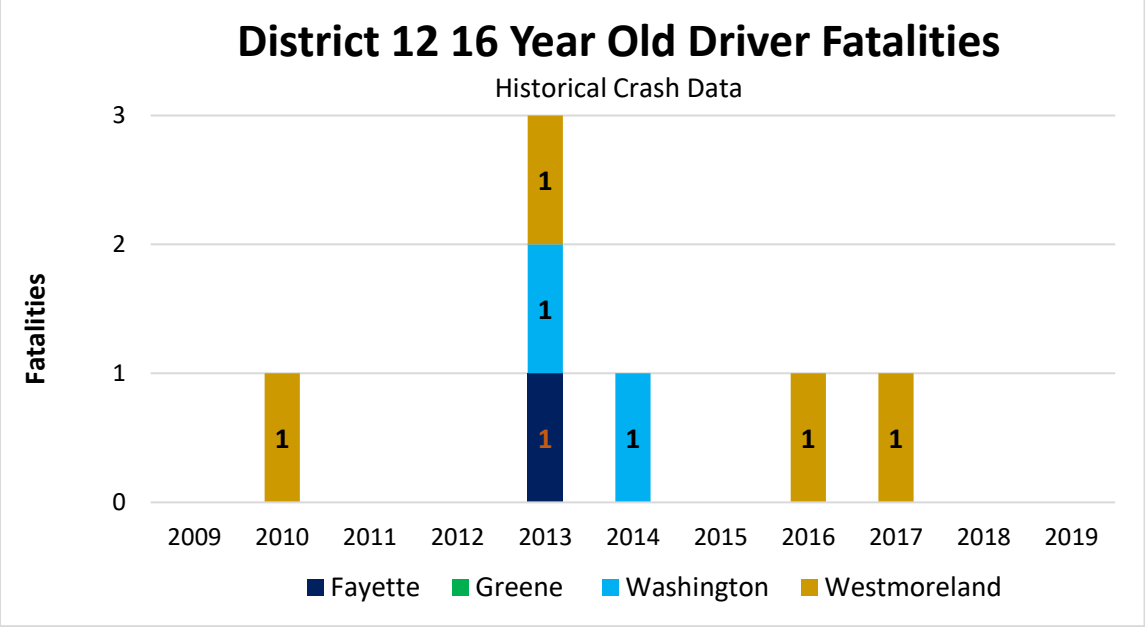

District 12 75+ Year Old Driver Crashes
Historical Crash Data
Crashes
600
500
400
300
200
100
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
212 232 210 229 219 232 238 238 245 274 271
125 114 94 116 107 111 115 120 135 125 122
21 14 16 20 15 18 14 14 21 16 17
79 77 55 66 73 65 72 68 70 83 73
Fayette
Greene
Washington
Westmoreland

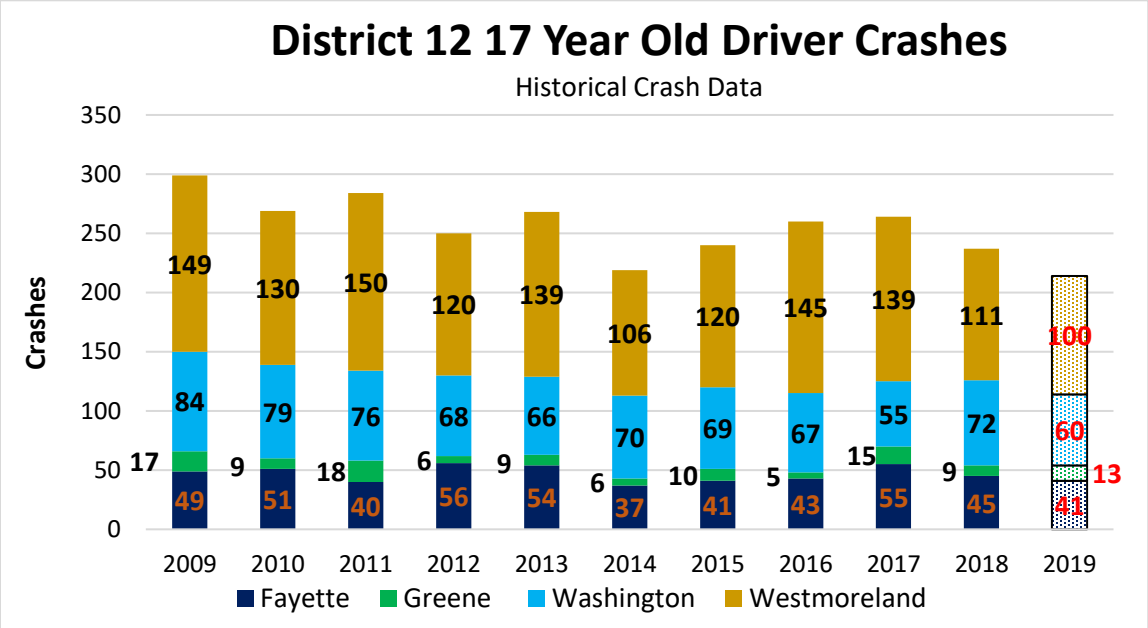

District 12 75+ Year Old Driver Fatalities
Historical Crash Data
Fatalities
16
14
12
10
8
6
4
2
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
7 5 3 3 3 8 1 4 11 10
1 4 1 1 2 7 4 2 3
1 1 2 2 1 1
1 3 2 4 1 3 5 3 2 1
Fayette
Greene
Washington
Westmoreland

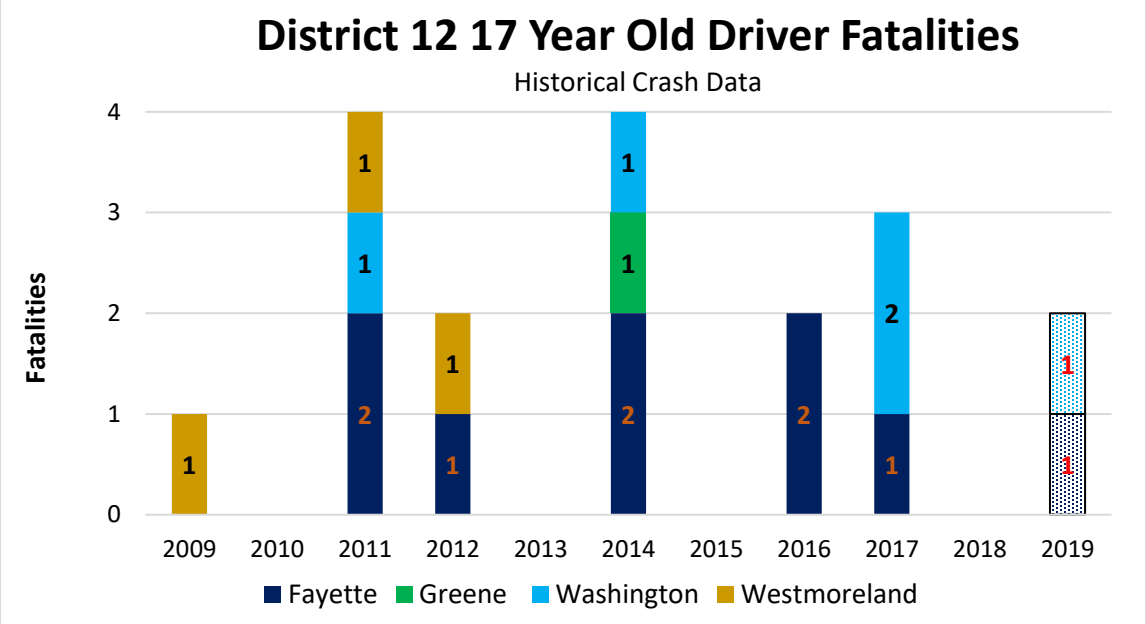

District 12 Young Driver Crashes
Historical Crash Data
Crashes
450
400
350
300
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
197 172 196 159 171 148 157 202 199 155 144
121 102 99 98 101 95 90 102 78 96 94
20 12 24 12 11 9 15 18 18 12 16
64 63 59 72 70 50 65 56 69 62 60
Fayette
Greene
Washington
Westmoreland

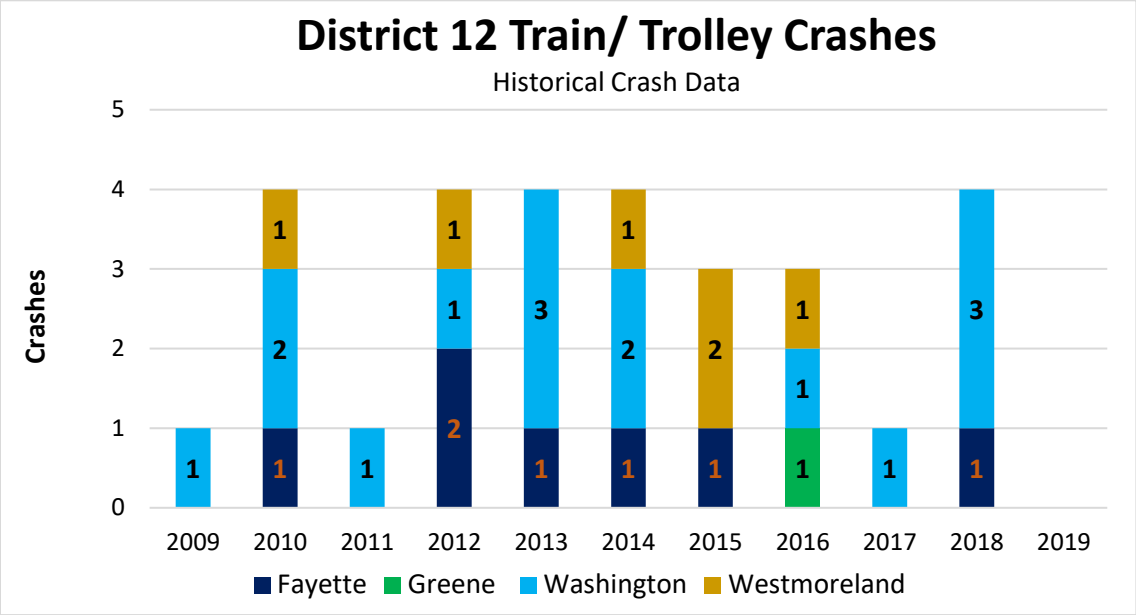

District 12 Young Driver Fatalities
Historical Crash Data
Fatalities
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1 1 1 1 2 1 1 1 1
1 1 2 1 1 2 2 2 1 1
1 1 1 1 1 1 1
Fayette
Greene
Washington
Westmoreland

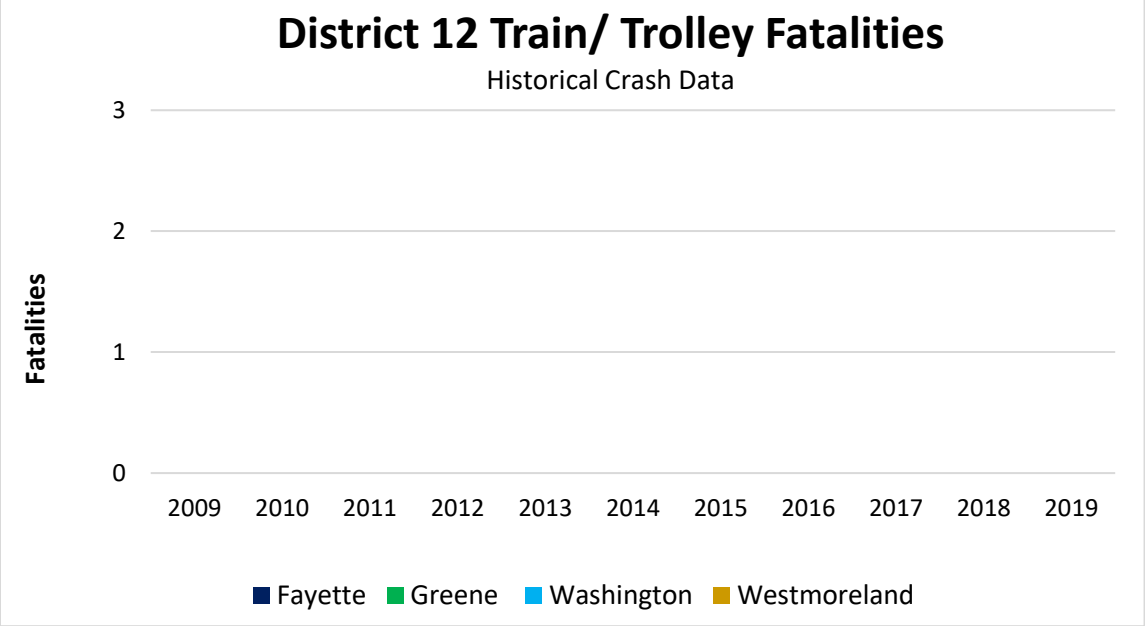

District 12 16 Year Old Driver Crashes
Historical Crash Data
Crashes
140
120
100
80
60
40
20
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
Fayette Greene Washington Westmoreland
49 41 3 17
45 27 3 12
47 25 7 19
40 30 6 16
36 36 3 16
44 26 3 15
40 24 5 25
58 35 13 13
61 23 3 14
44 24 3 19
45 35 3 19

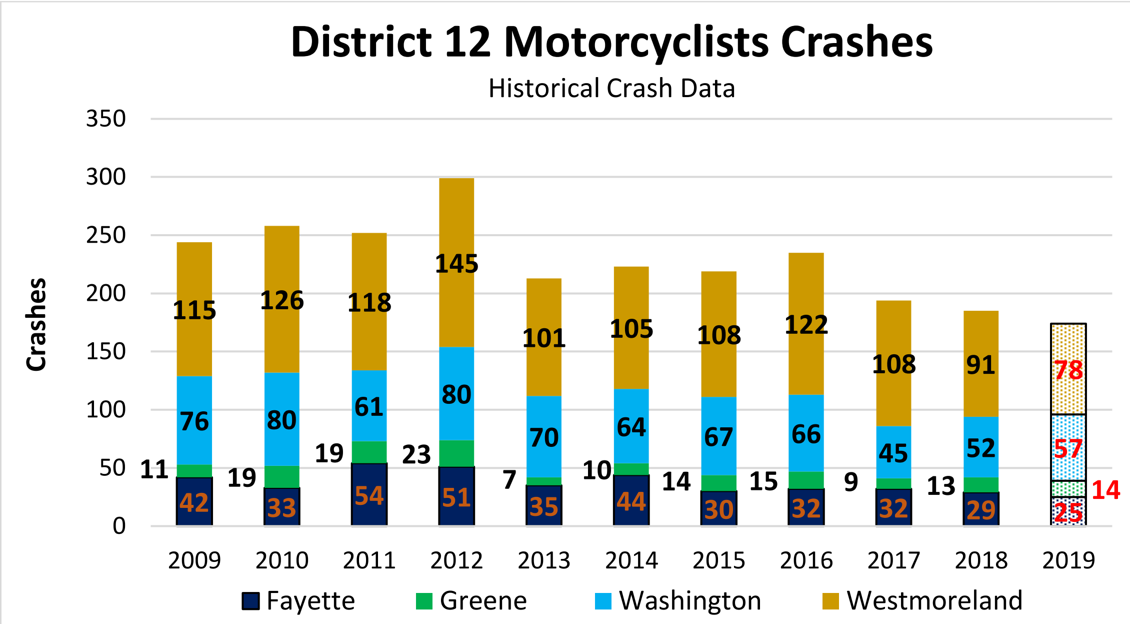

District 12 16 Year Old Driver Fatalities
Historical Crash Data
Fatalities
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
Fayette Greene Washington Westmoreland
1
1 1 1
1
1
1

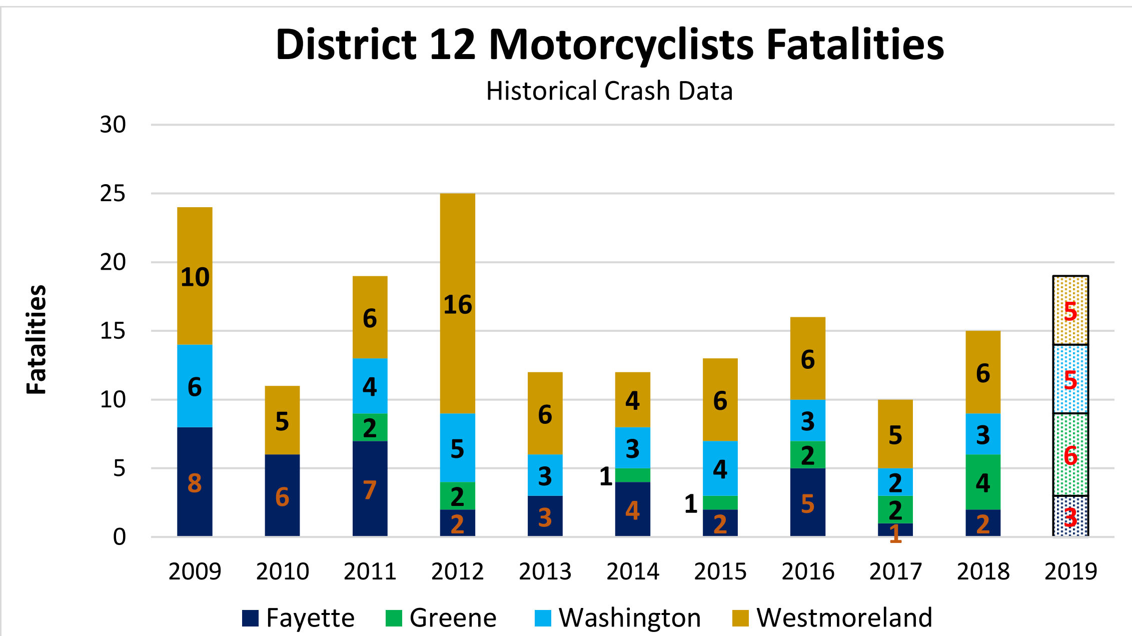

District 12 17 Year Old Driver Crashes
Historical Crash Data
Crashes
350
300
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
17 84 149
49
9 79 130
51
18 76 150
40
6 68 120
56
9 66 139
54
6 70 106
37
10 69 120
41
5 67 145
43
15 55 139
55
9 72 111
45
100 60 13
41
Fayette
Greene
Washington
Westmoreland

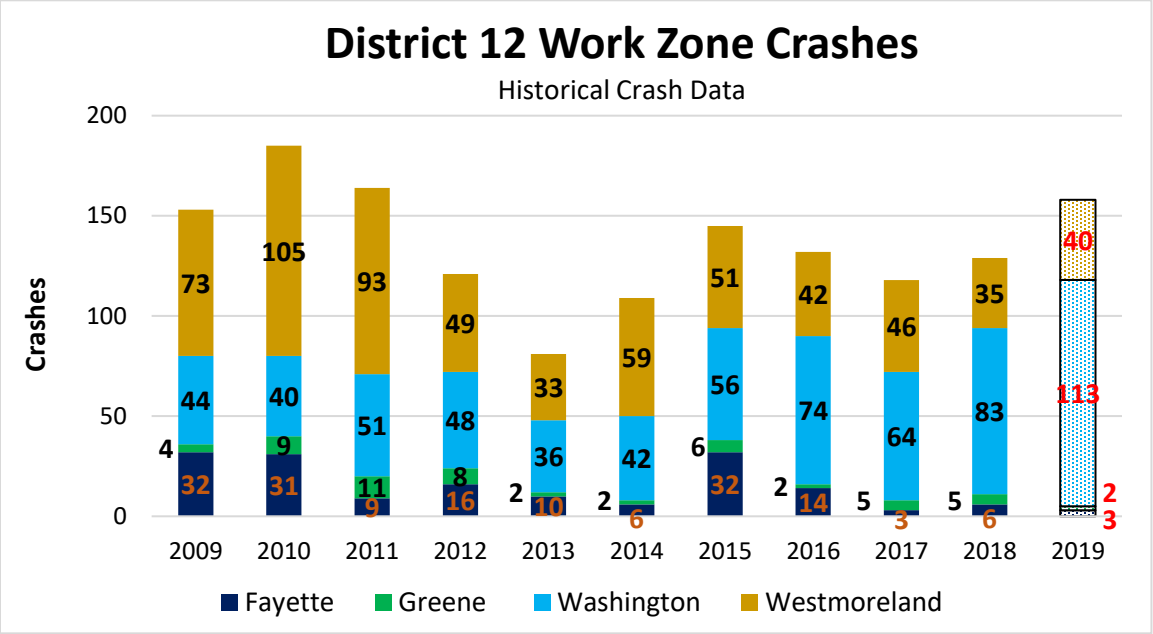

District 12 17 Year Old Driver Fatalities
Historical Crash Data
Fatalities
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1
1 1 2
1 1
2
1 1 2
1
2
1 2
1
1
1
Fayette
Greene
Washington
Westmoreland

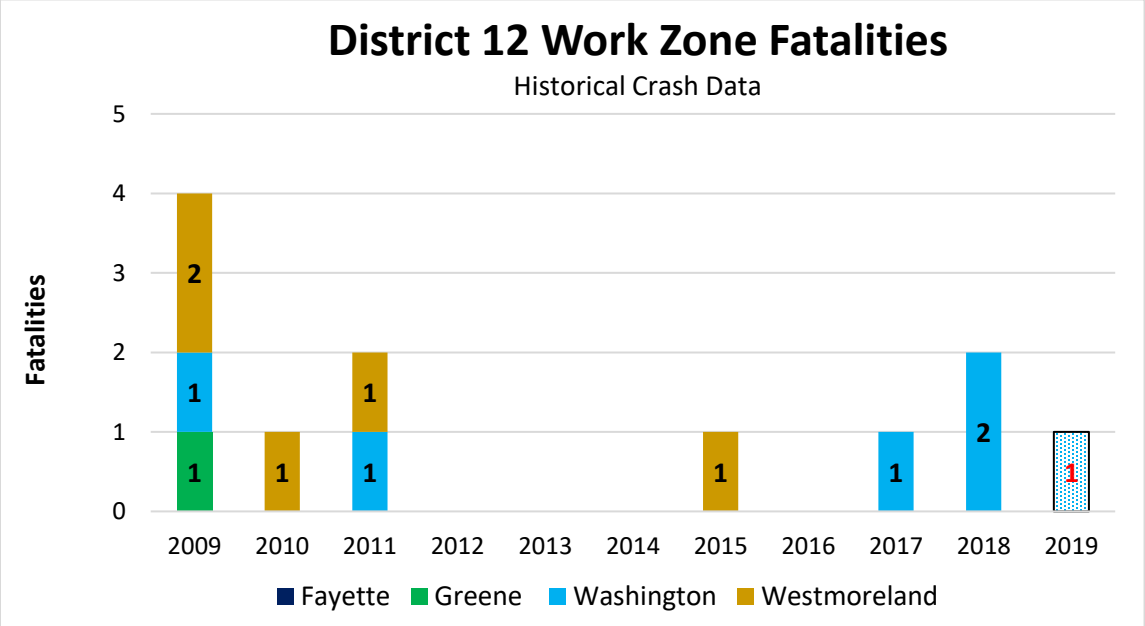

District 12 Train/ Trolley Crashes
Historical Crash Data
Crashes
5
4
3
2
1
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Fayette
Greene
Washington
Westmoreland

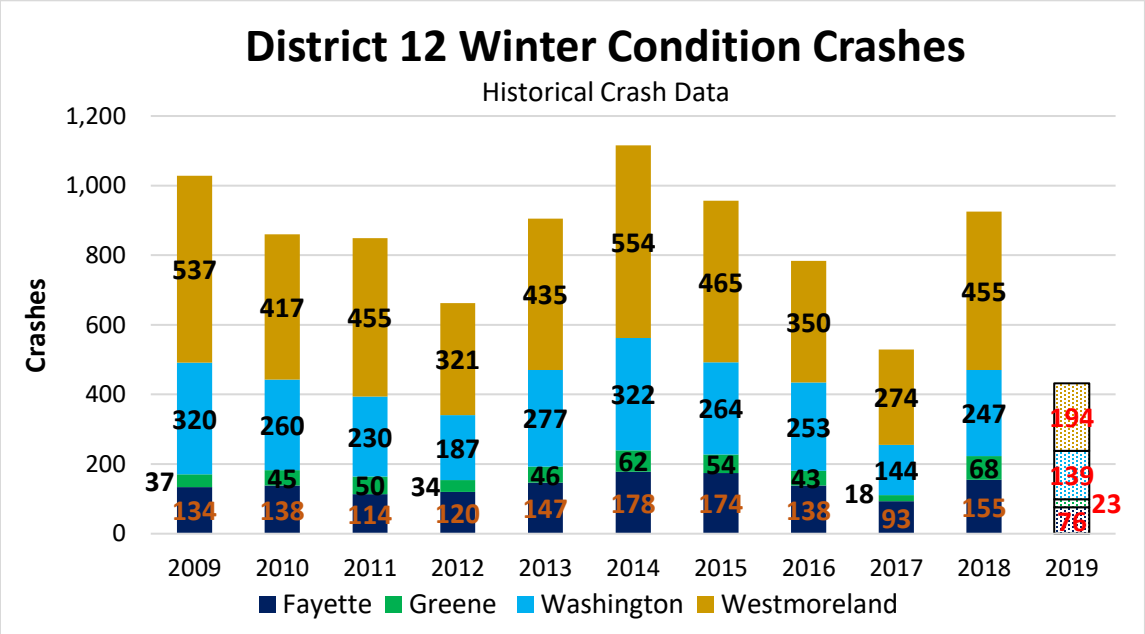

District 12 Train/ Trolley Fatalities
Historical Crash Data
Fatalities
3
2
1
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Fayette
Greene
Washington
Westmoreland

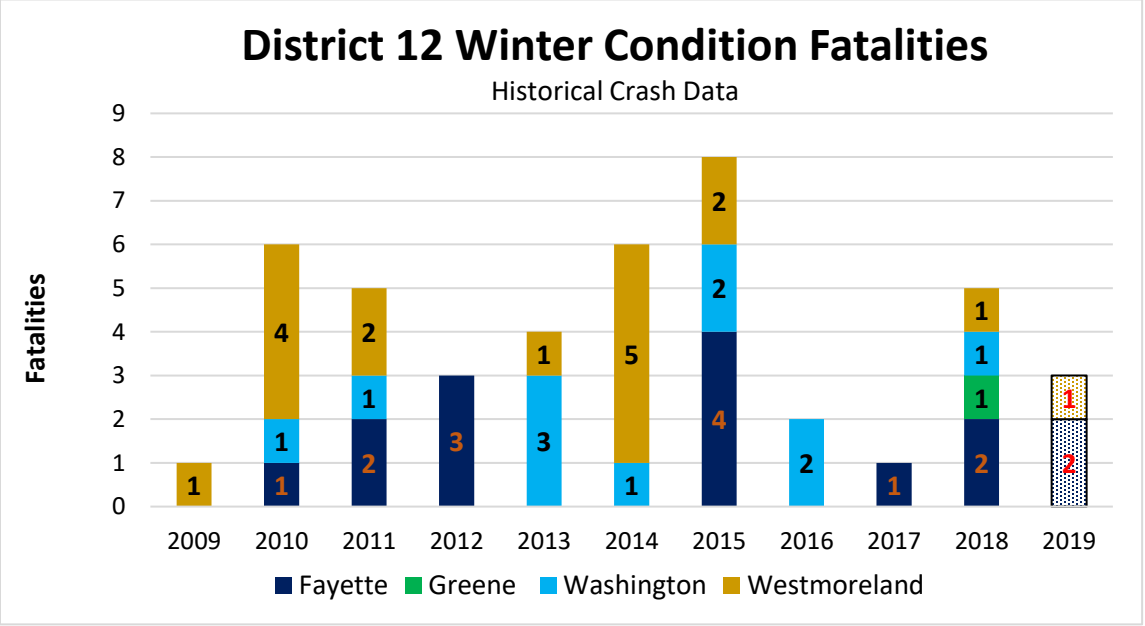

District 12 Motorcyclists Crashes
Historical Crash Data
Crashes
350
300
250
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
115 126 118 145 101 105 108 122 108 91 78
76 80 61 80 70 64 67 66 45 52 57
11 19 19 23 7 10 14 15 9 13 14
42 33 54 51 35 44 30 32 32 29 25
Fayette
Greene
Washington
Westmoreland

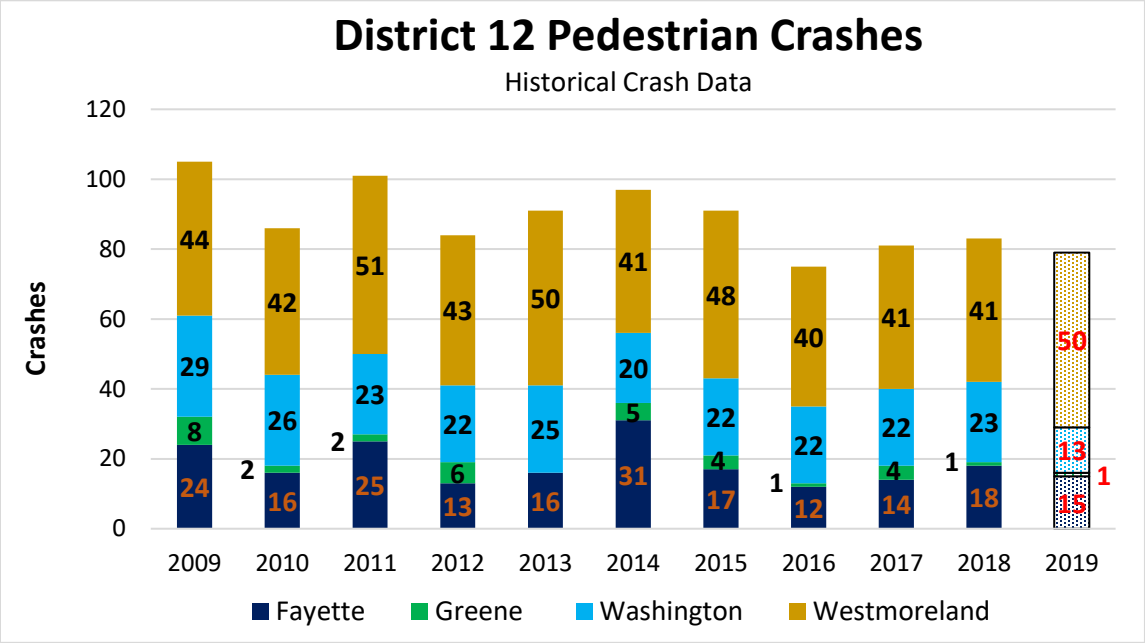

District 12 Motorcyclists Fatalities
Historical Crash Data
Fatalities
30
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
10 5 6 16 6 4 6 6 5 6 5
6 4 5 3 3 4 3 2 3 5
2 2 1 1 2 2 4 6
8 6 7 2 3 4 2 5 1 2 3
Fayette
Greene
Washington
Westmoreland

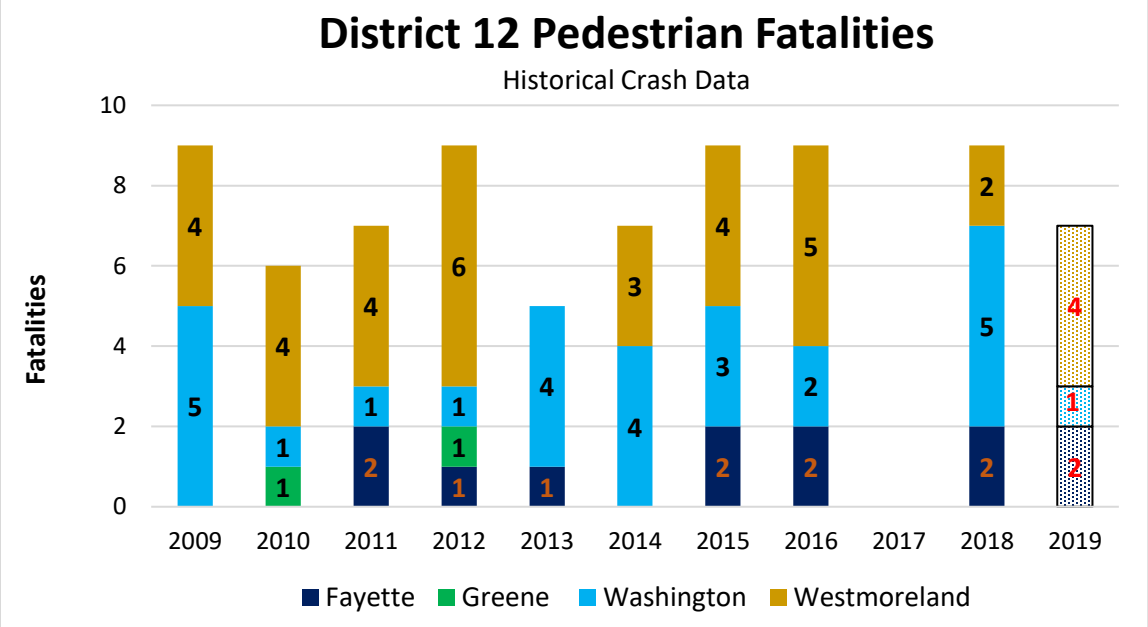

District 12 Work Zone Crashes
Historical Crash Data
Crashes
200
150
100
50
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
4 44 73
32
9 40 105
31
11 51 93
9
16 8 48 49
2 36 33
10
2 42 59
6
6 56 51
32
2 74 42
14
5 64 46
3
5 83 35
6
113 40
2
3
Fayette
Greene
Washington
Westmoreland

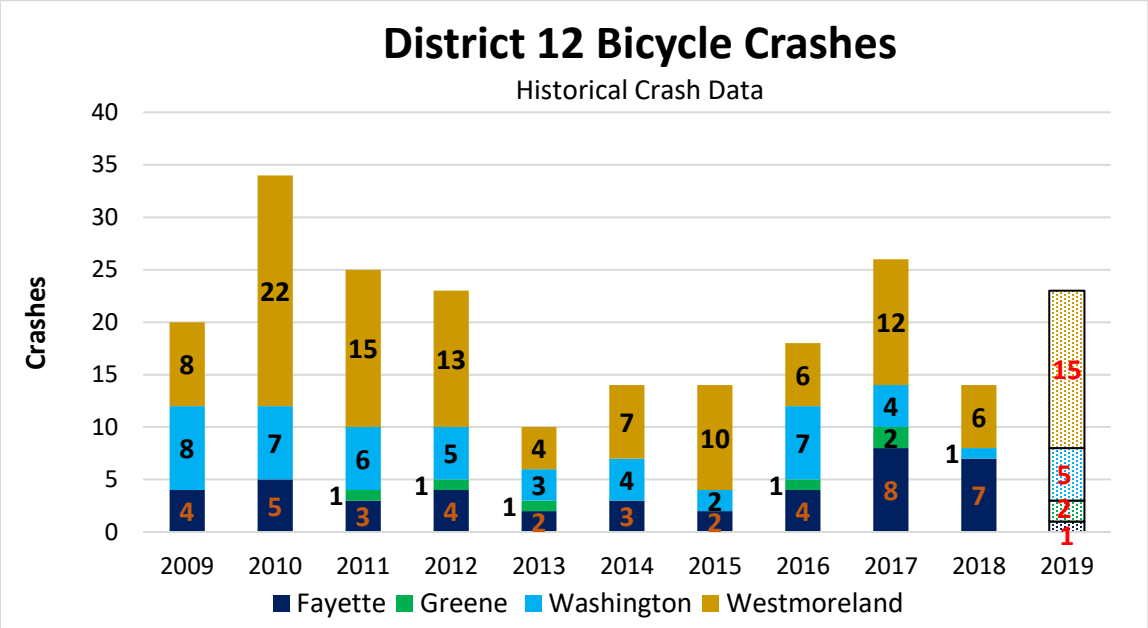

District 12 Work Zone Fatalities
Historical Crash Data
Fatalities
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1 2
1 1 1
1
1
1
2
1
Fayette
Greene
Washington
Westmoreland

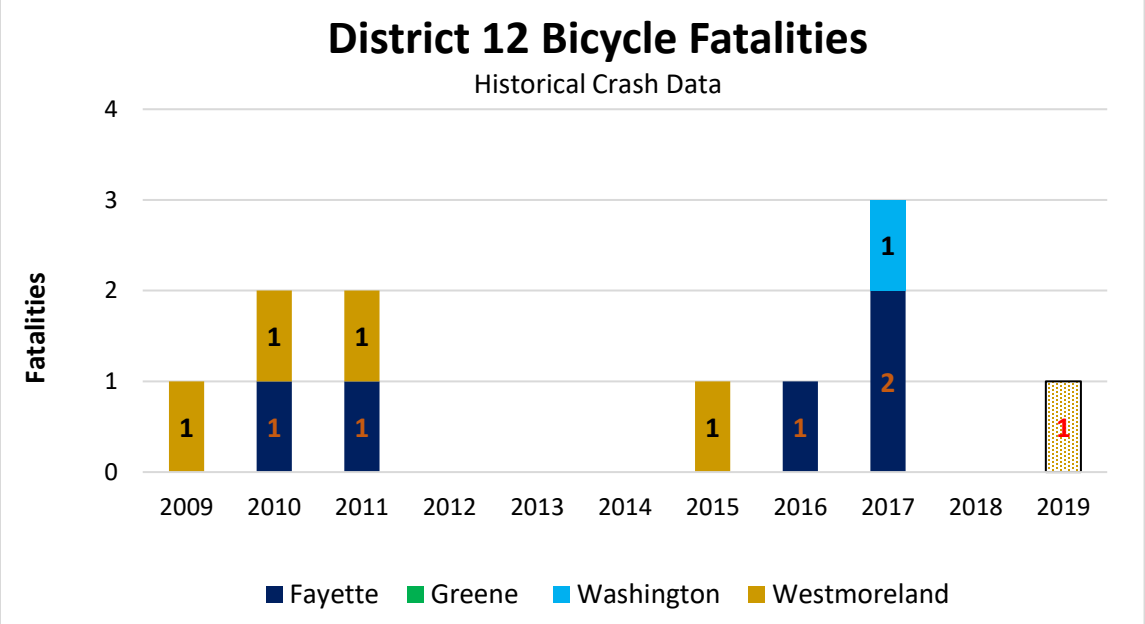

District 12 Winter Condition Crashes
Historical Crash Data
Crashes
1,200
1,000
800
600
400
200
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
537 320 37 134
417 260 45 138
455 230 50 114
321 187 34 120
435 277 46 147
554 322 62 178
465 264 54 174
350 253 43 138
274 144 18 93
455 247 68 155
194 139 23 76
Fayette Greene Washington Westmoreland

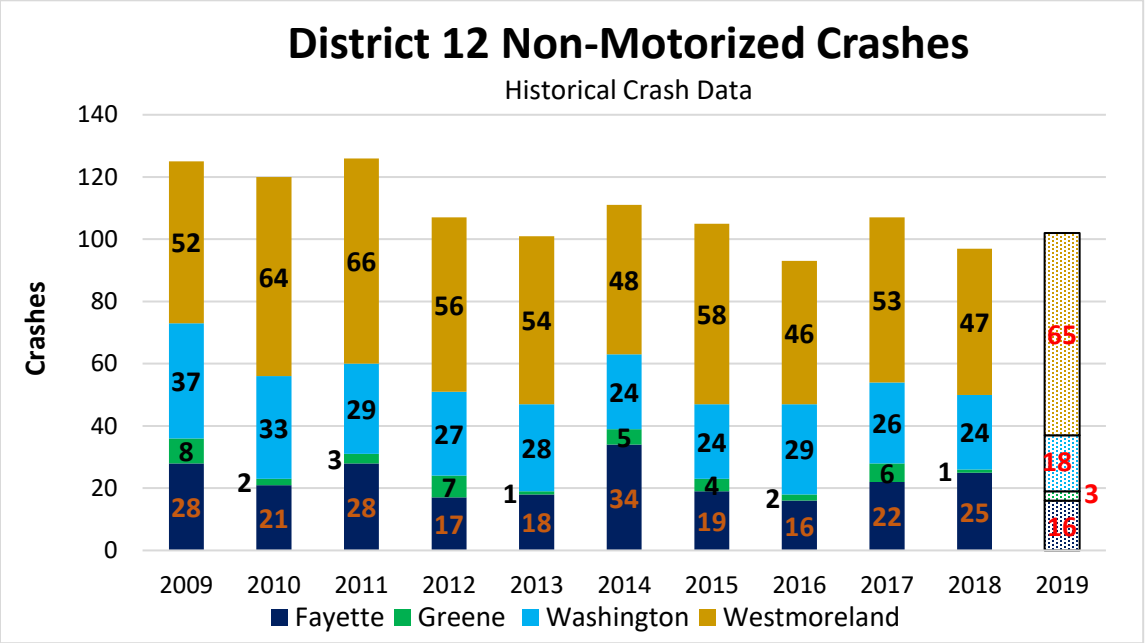

District 12 Winter Condition Fatalities
Historical Crash Data
Fatalities
9
8
7
6
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1
4 1 1
2 1 2
3
1 3
5 1
2 2 4
2
1
1 1 1 2
1 2
Fayette Greene Washington Westmoreland

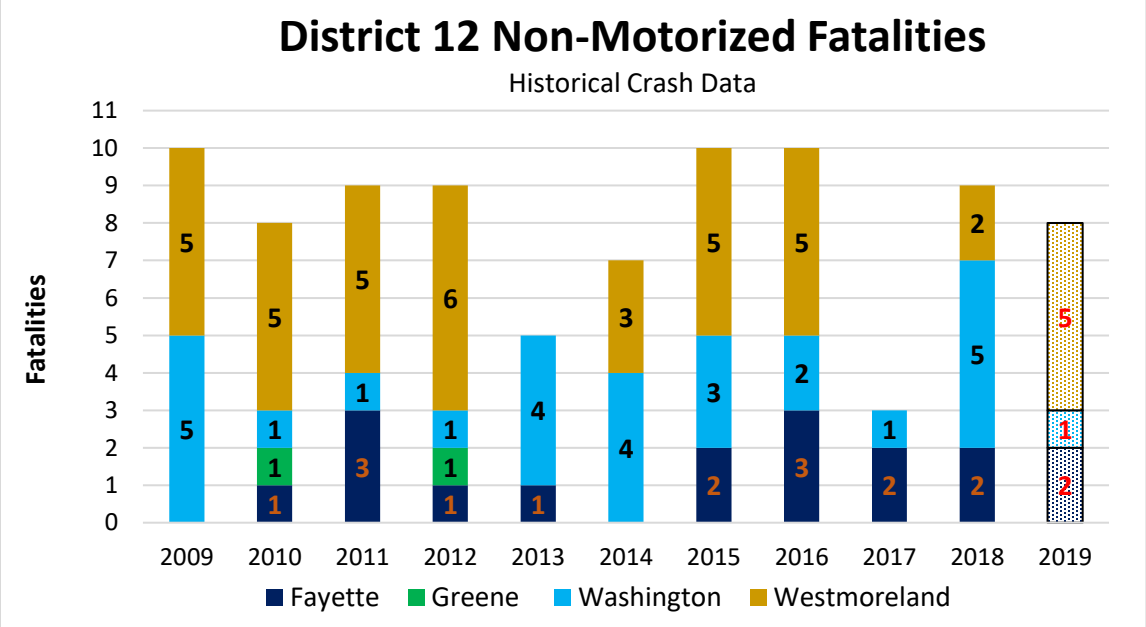

District 12 Pedestrian Crashes
Historical Crash Data
Crashes
120
100
80
60
40
20
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
24 8 29 44
2 16 26 42
2 25 23 51
13 6 22 43
16 25 50
31 5 20 41
17 4 22 48
1 12 22 40
14 4 22 41
1 18 23 41
15 13 50 1
Fayette
Greene
Washington
Westmoreland

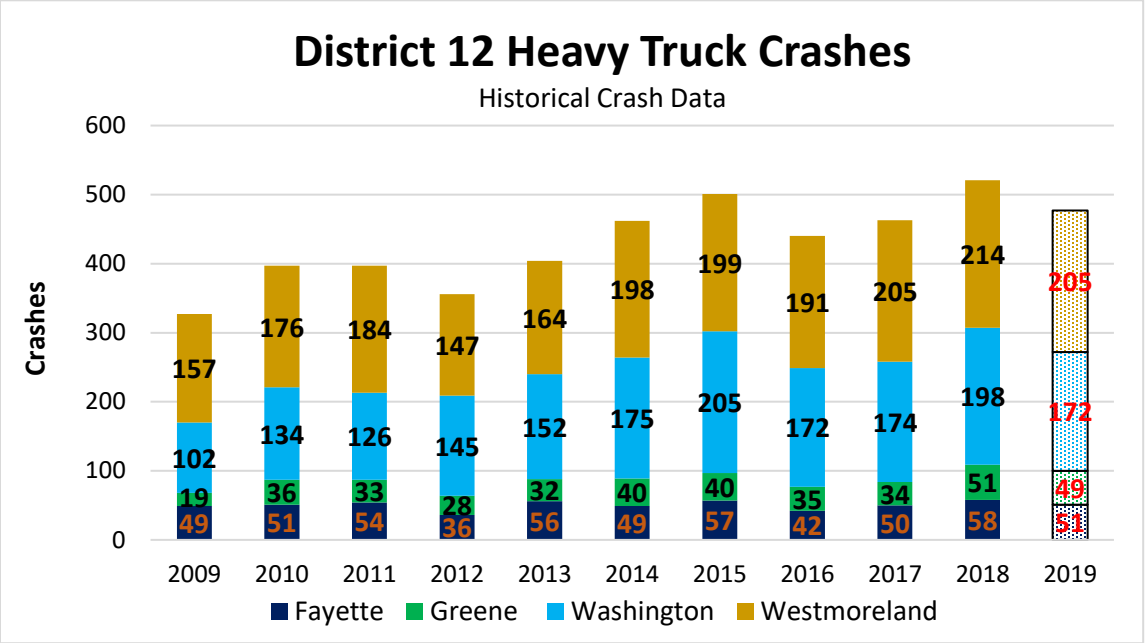

District 12 Pedestrian Fatalities
Historical Crash Data
Fatalities
10
8
6
4
2
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
5 4
1 1 4
2 1 4
1 1 6
1 4
4 3
2 3 4
2 2 5
2 5 2
2 1 4
2 1
Fayette
Greene
Washington
Westmoreland

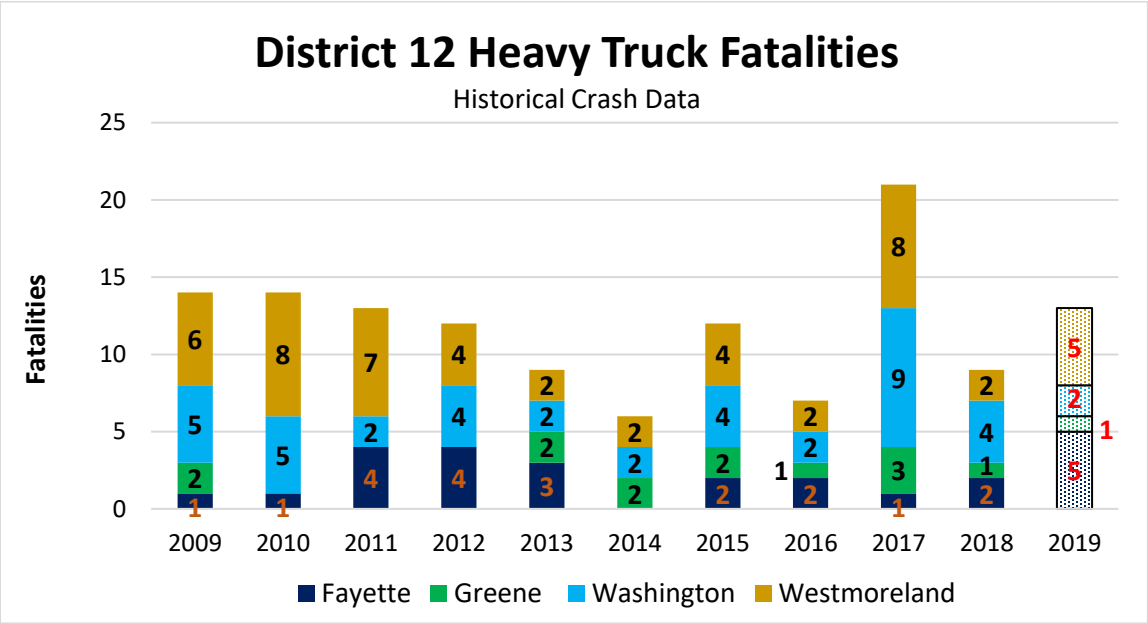

District 12 Bicycle Crashes
Historical Crash Data
Crashes
40
35
30
25
20
15
10
5
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Fayette
Greene
Washington
Westmoreland

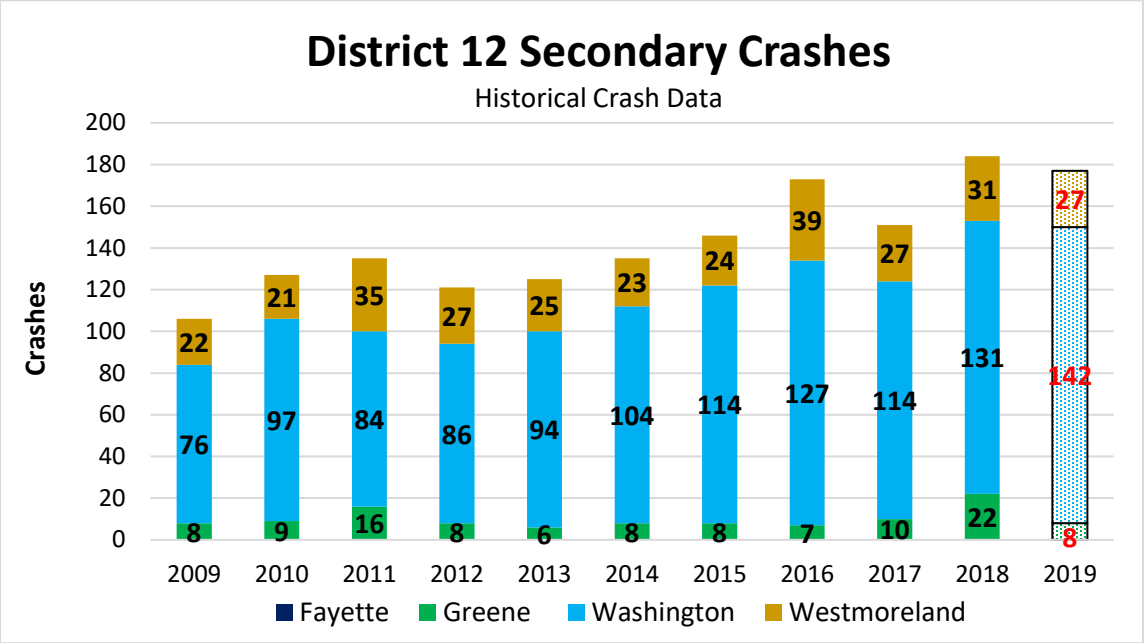

District 12 Bicycle Fatalities
Historical Crash Data
Fatalities
4
3
2
1
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Fayette
Greene
Washington
Westmoreland

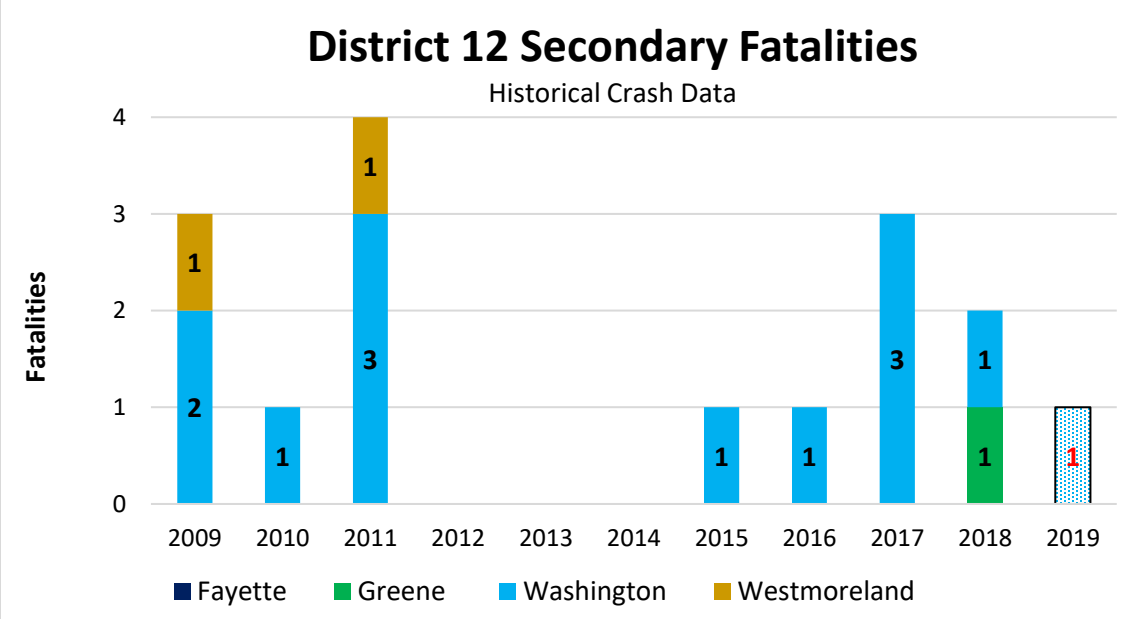

District 12 Non-Motorized Crashes
Historical Crash Data
Crashes
140
120
100
80
60
40
20
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
28 8 37 52
2 21 33 64
3 28 29 66
17 7 27 56
1 18 28 54
34 5 24 48
19 4 24 58
2 16 29 46
22 6 26 53
1 25 24 47
16 3 18 65
Fayette Greene Washington Westmoreland

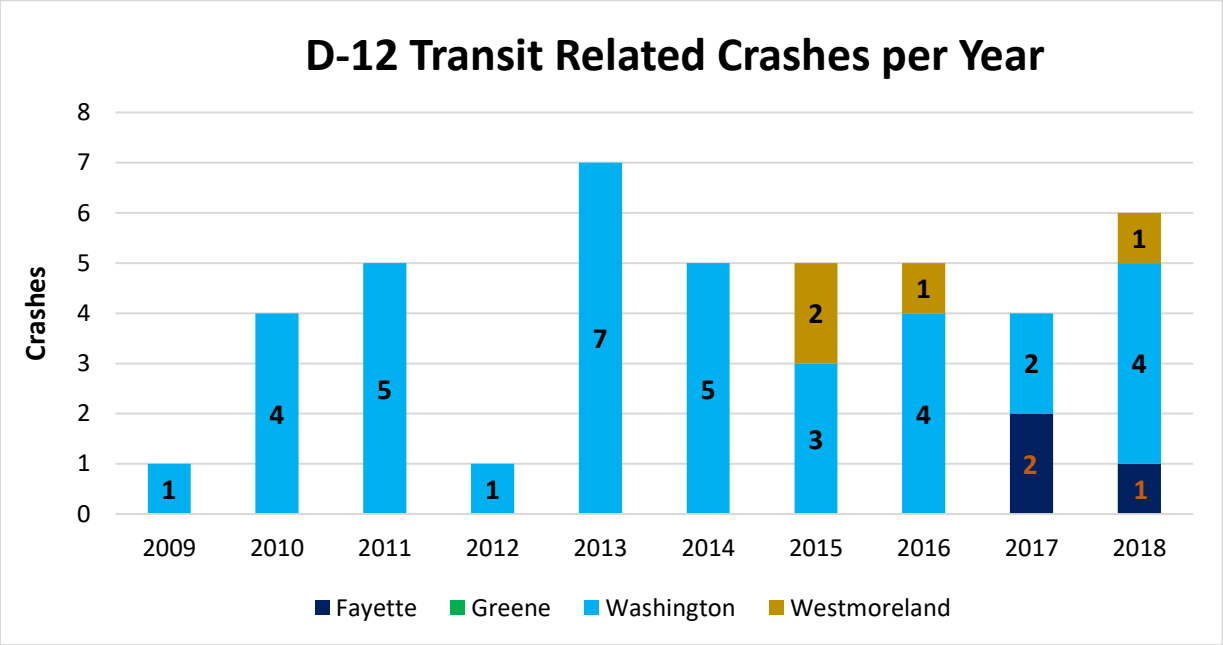

District 12 Non-Motorized Fatalities
Historical Crash Data
Fatalities
11
10
9
8
7
6
5
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
5 5
1 1 5
3 1 5
1 1 6
1 4
4 3
2 3 5
3 2 5
2 1
2 5 2
2 1 5
Fayette Greene Washington Westmoreland

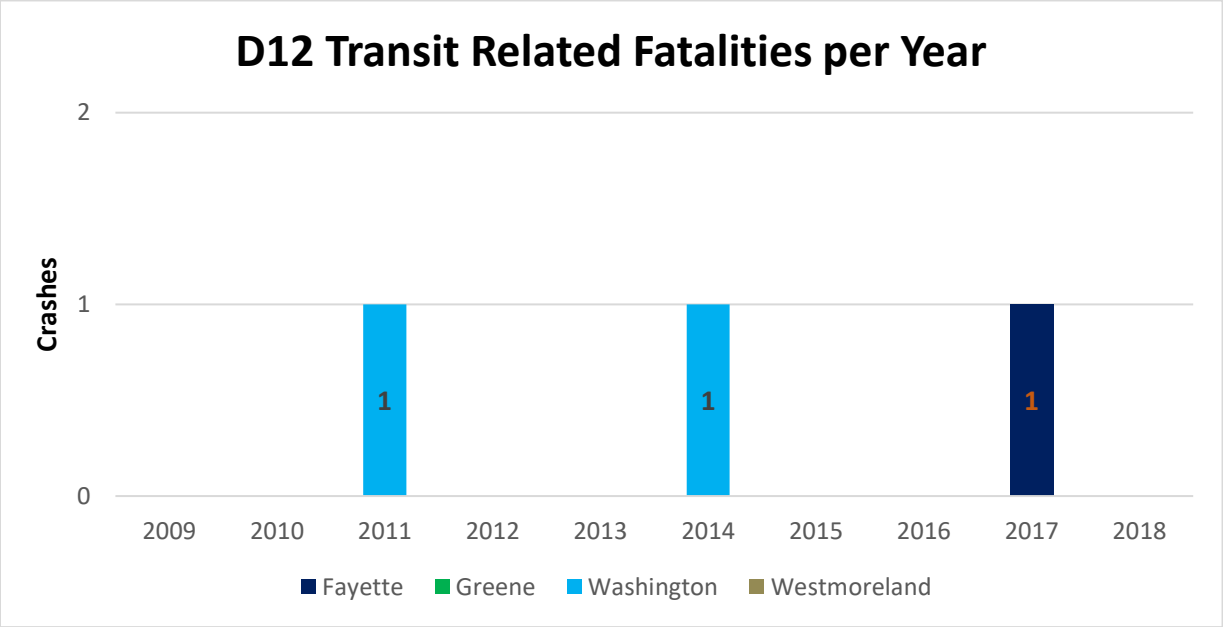

District 12 Heavy Truck Crashes
Historical Crash Data
Crashes
600
500
400
300
200
100
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
157 176 184 147 164 198 199 191 205 214 205
102 134 126 145 152 175 205 172 174 198 172
19 36 33 28 32 40 40 35 34 51 49
49 51 54 36 56 49 57 42 50 58 51
Fayette Greene Washington Westmoreland

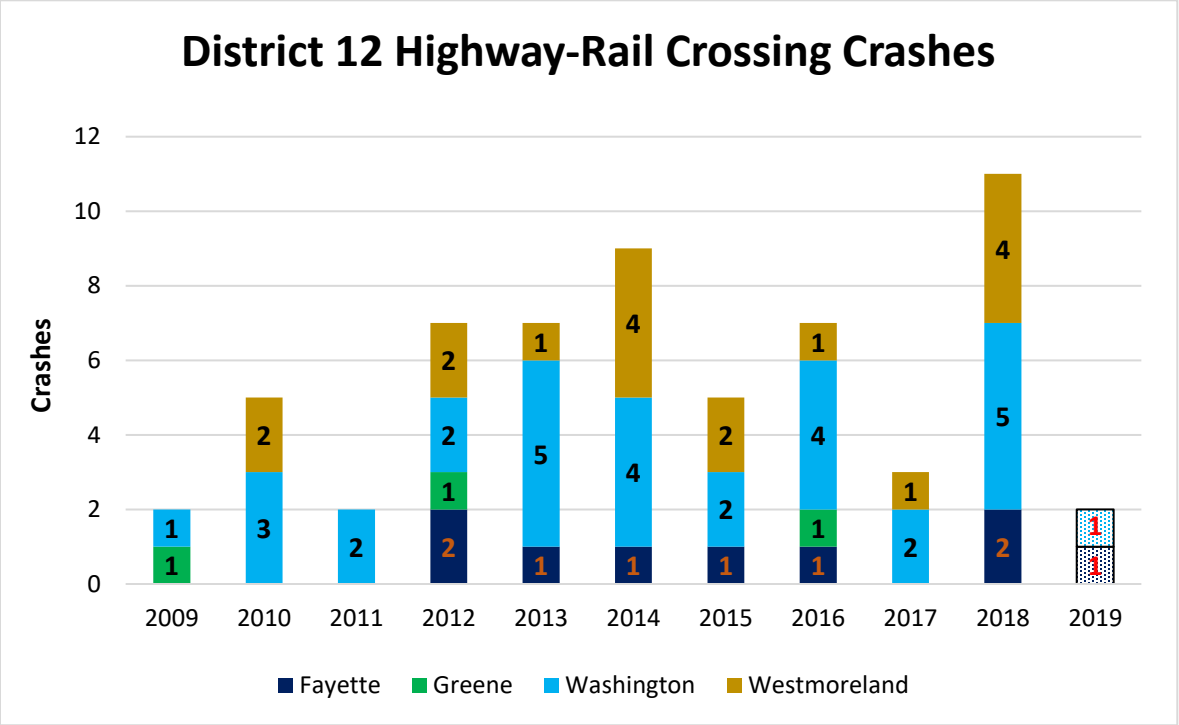

District 12 Heavy Truck Fatalities
Historical Crash Data
Fatalities
25
20
15
10
5
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
6 8 7 4 2 2 4 2 8 2 5
5 5 2 4 2 2 2 4 9 4 2 1
2 1 4 4 3 2 2 1 3 1 5 1
1 1 4 4 3 2 2 2 1 2 5
Fayette Greene Washington Westmoreland

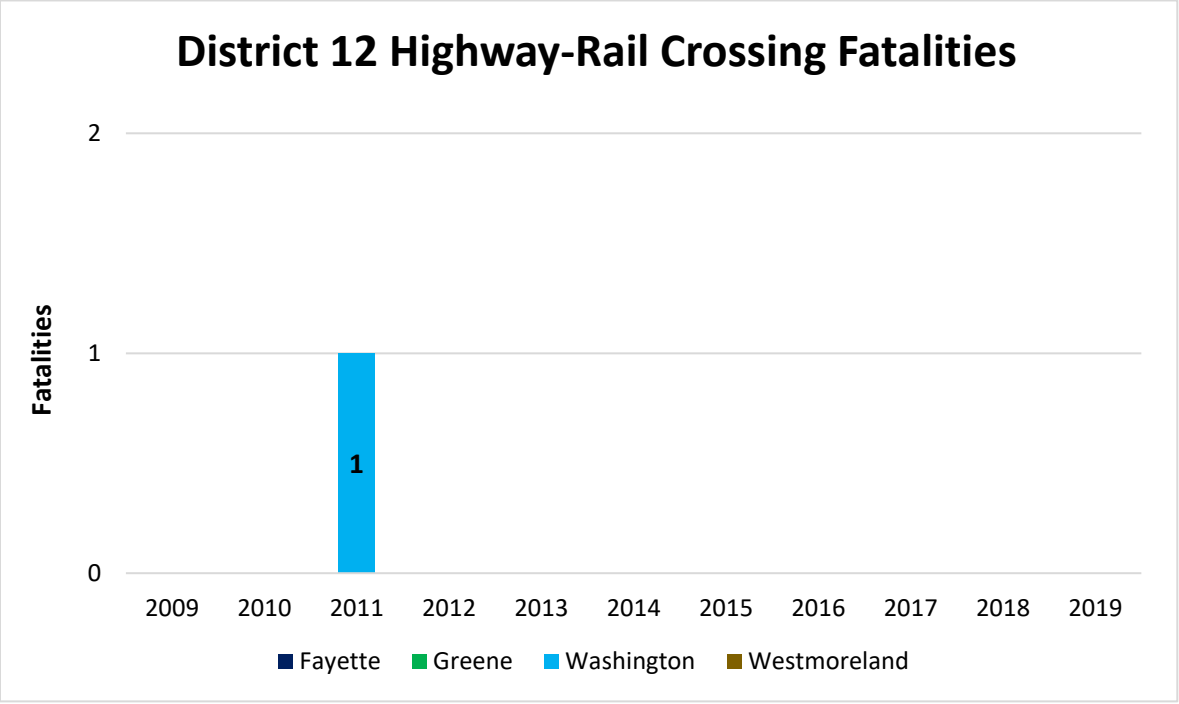

District 12 Secondary Crashes
Historical Crash Data
Crashes
200
180
160
140
120
100
80
60
40
20
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
22 21 35 27 25 23 24 39 27 31 27
76 97 84 86 94 104 114 127 114 131 142
8 9 16 8 6 8 8 7 10 22 8
Fayette Greene Washington Westmoreland


District 12 Secondary Fatalities
Historical Crash Data
Fatalities
4
3
2
1
0
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 1 1 3 1 1 3 1 1
2 1 3 1 1 1
Fayette Greene Washington Westmoreland


D-12 Transit Related Crashes per Year
Crashes
8
7
6
5
4
3
2
1
0
1
4
5
1
7
5
2
3
1
4
2
2
1
4
1
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Fayette
Greene
Washington
Westmoreland


D12 Transit Related Fatalities per Year
Crashes
2
1
0
1
1
1
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Fayette
Greene
Washington
Westmoreland


District 12 Highway-Rail Crossing Crashes
Crashes
12
10
8
6
4
2
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Fayette
Greene
Washington
Westmoreland


District 12 Highway-Rail Crossing Fatalities
Fatalities
2
1
0
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Fayette
Greene
Washington
Westmoreland

Appendix D – Regional Safety Focus Area Trend Analysis (Steering Committee Meeting 2)

SPC SAFETY ACTION PLAN UPDATE

Steering Committee Meeting 1
Stakeholder Group Meeting 1

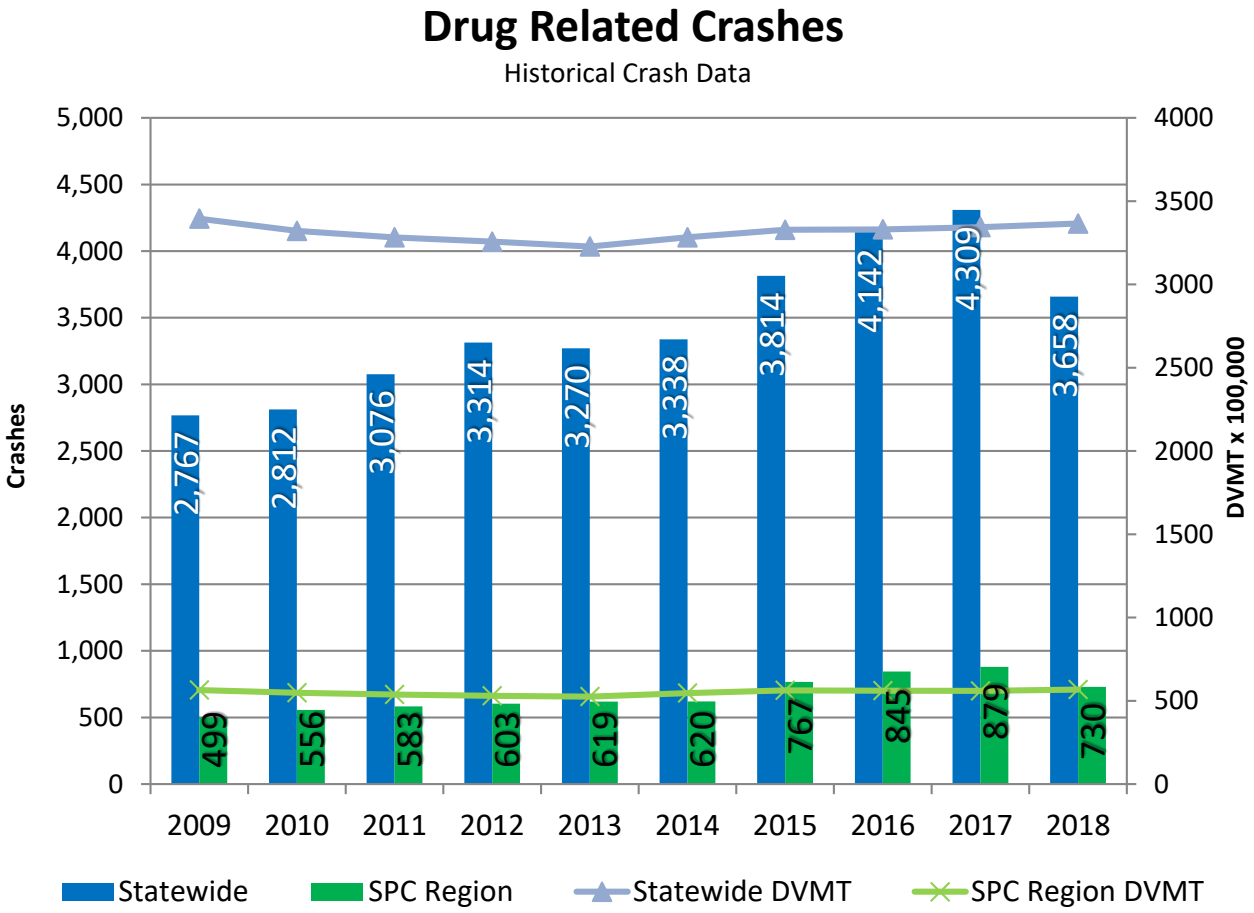
April 21, 2020

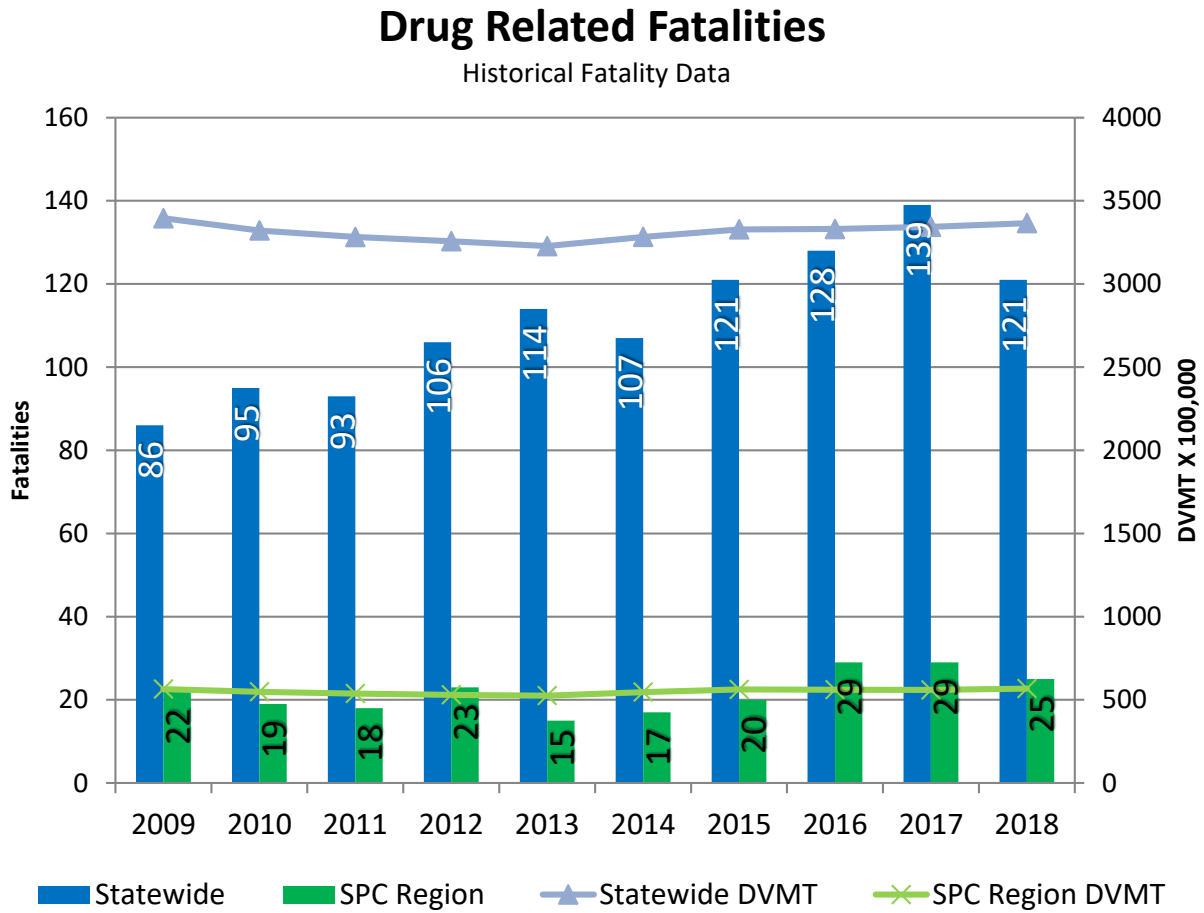
2015 SAP Recommendations

Location-specific improvement:

- McKeesport School
  - Conducted RSA in April 2014
  - Improvements installed in 2016:
    - Pedestrian railings
    - Sidewalk enhancements
    - Relocated/upgraded crosswalks

SAP 2015 Recommended Focus Area Performance



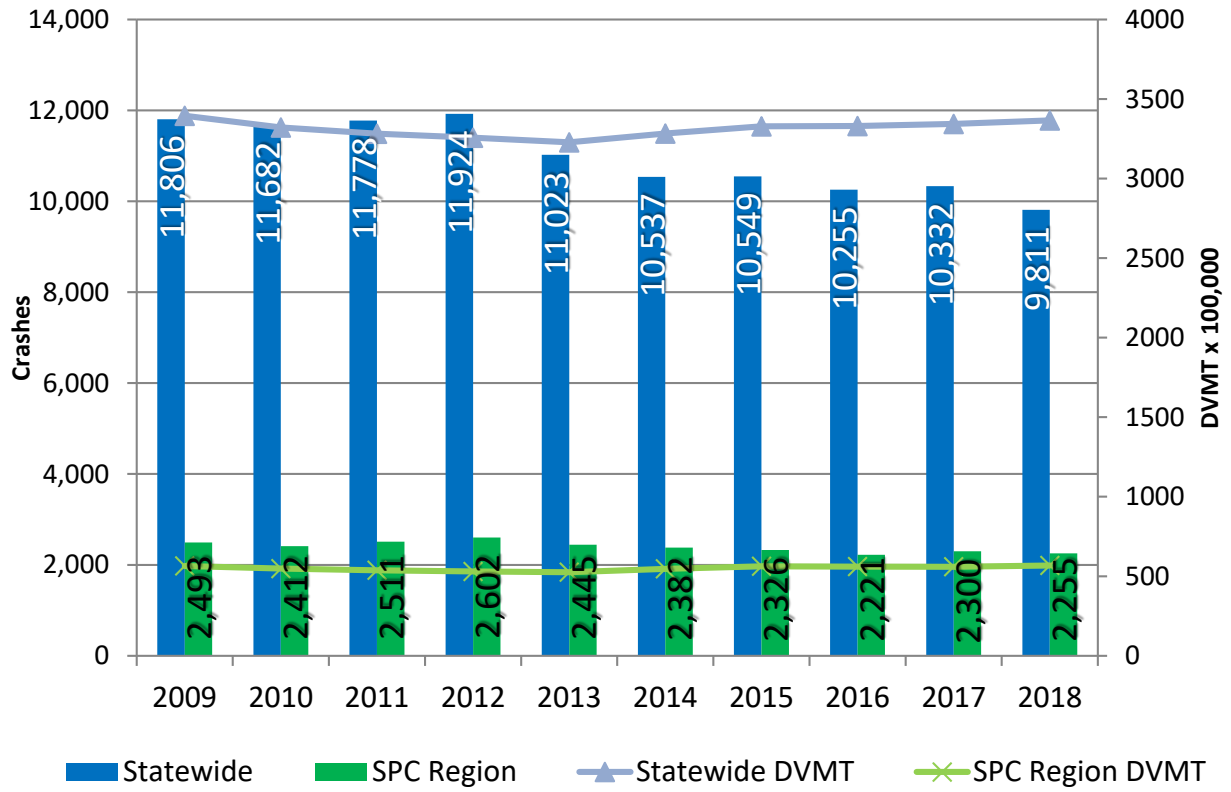


Upward Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

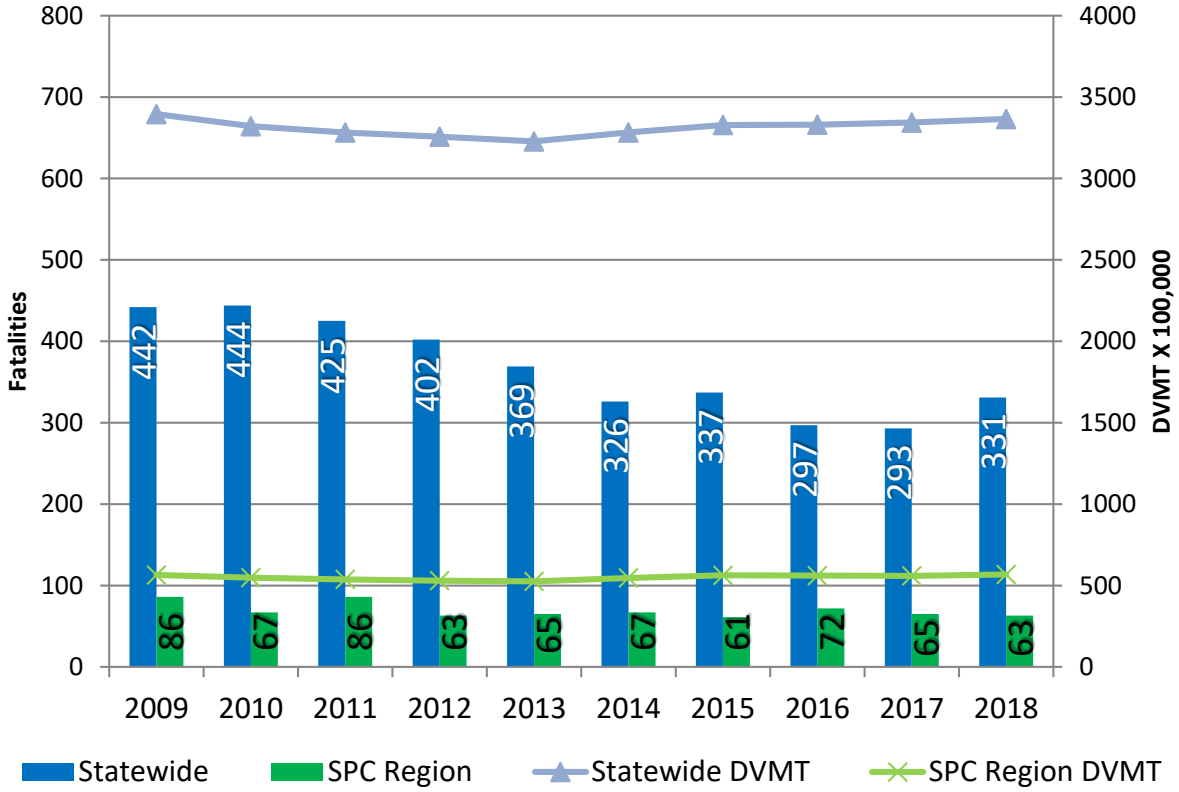
Alcohol-Related Crashes

Historical Crash Data



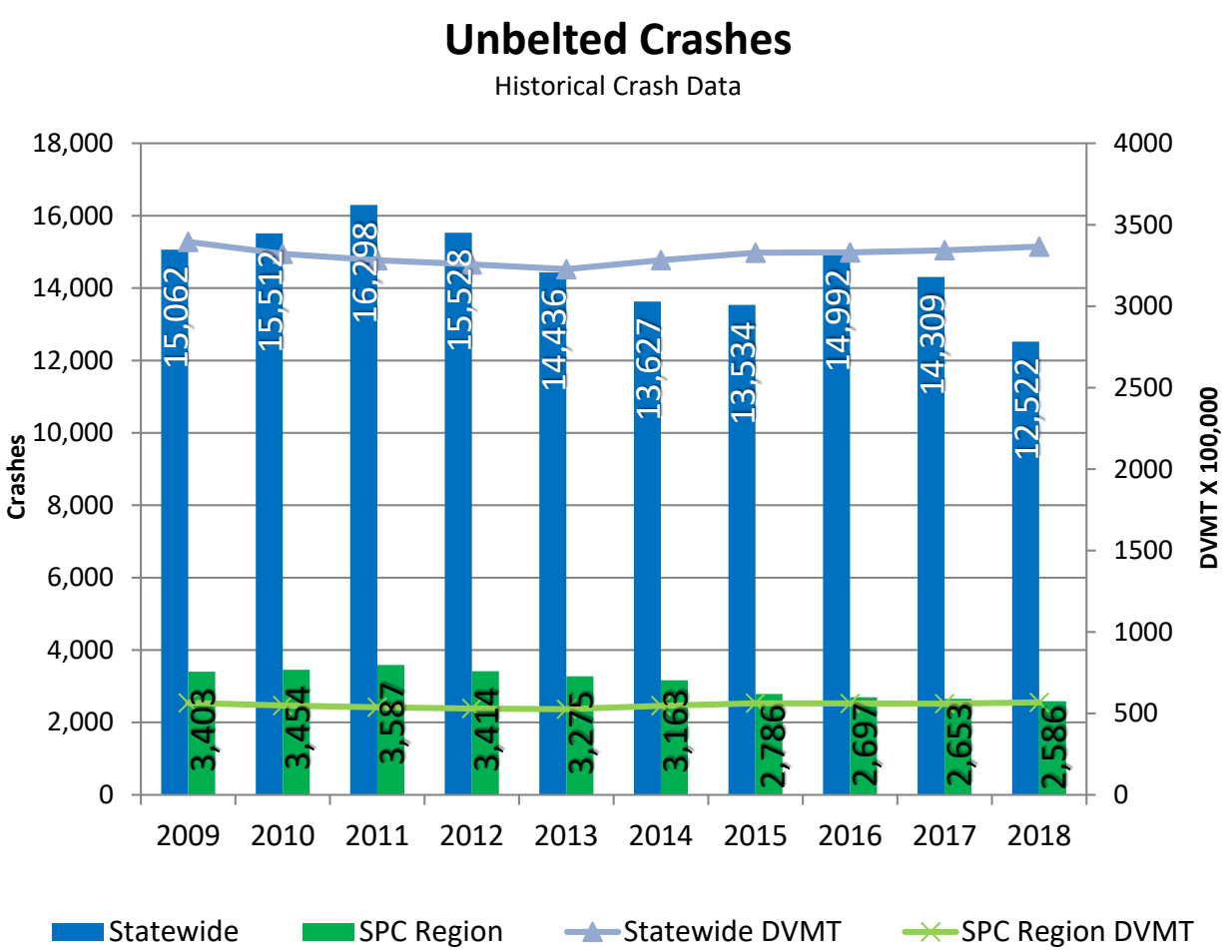
Alcohol-Related Fatalities

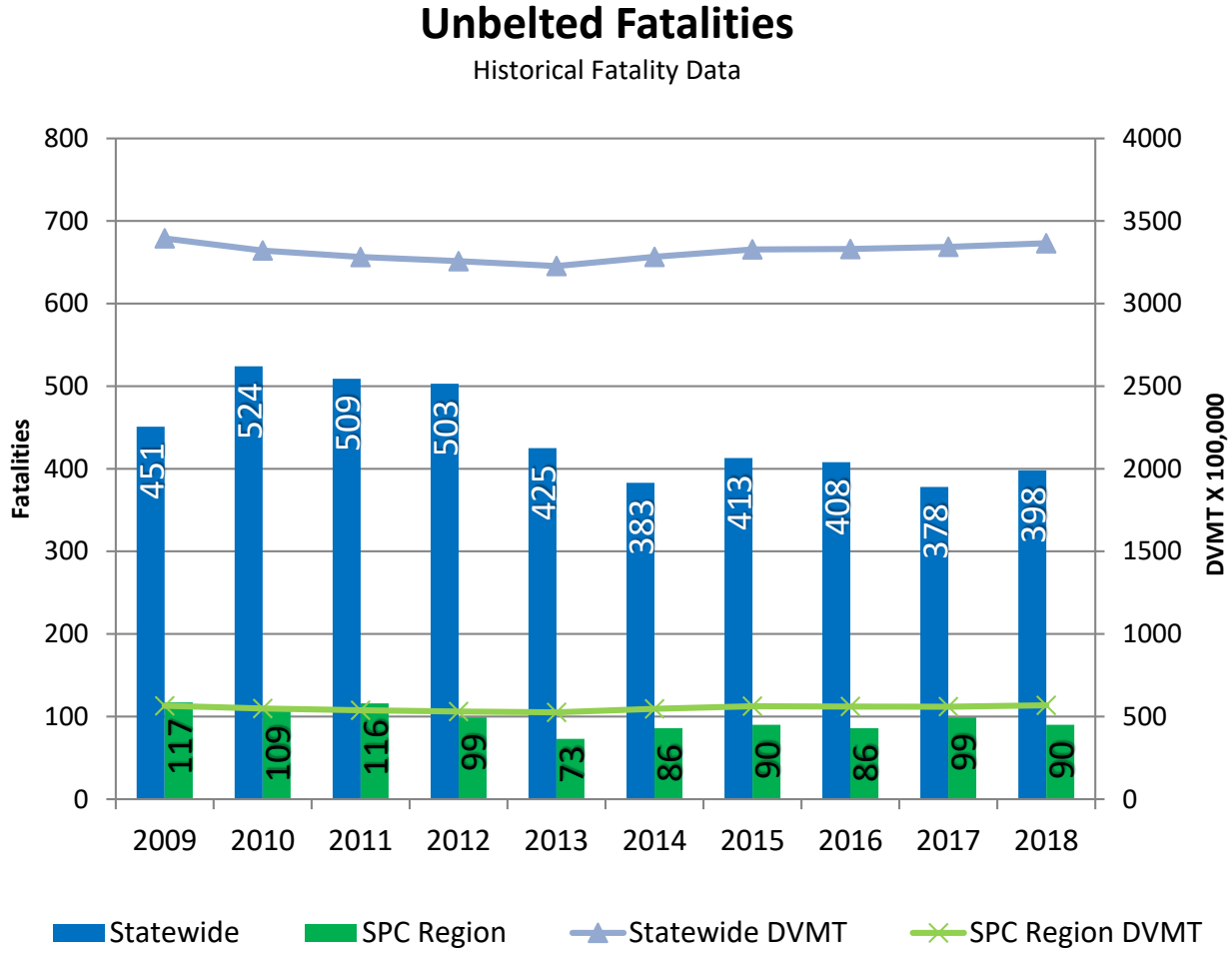
Historical Fatality Data



Downward Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance



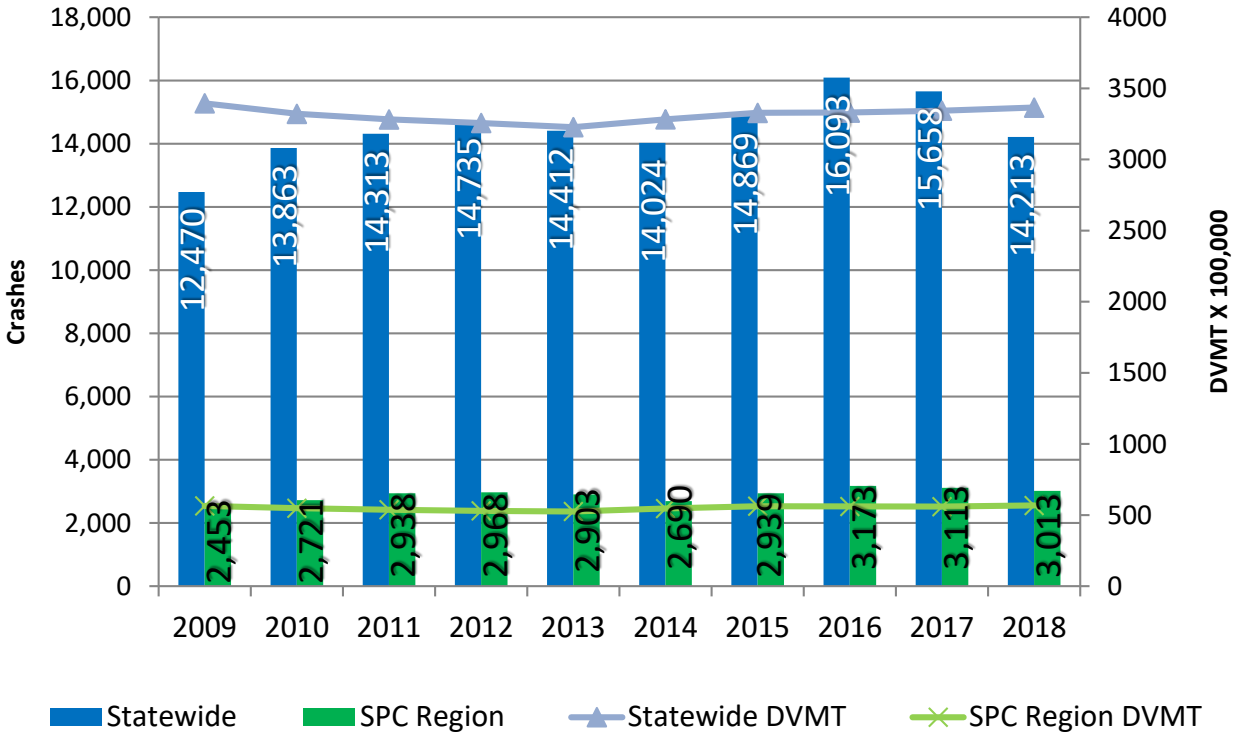


Downward Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

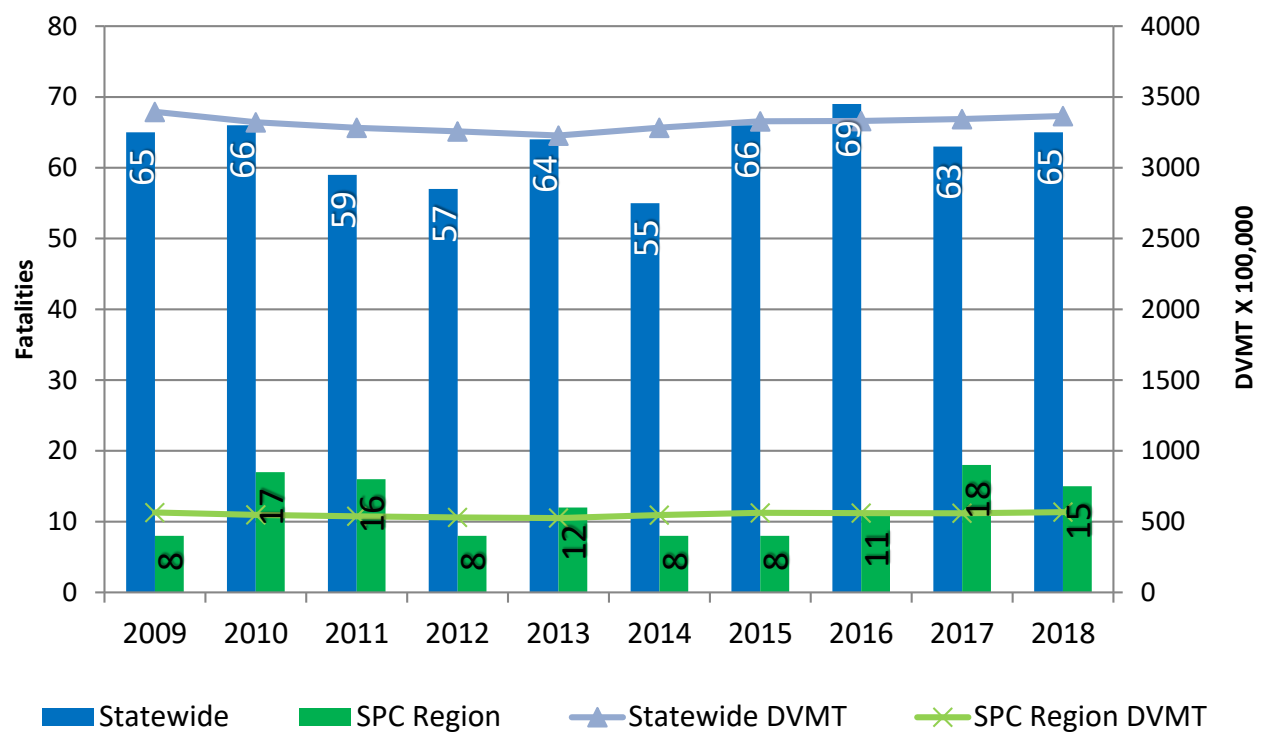
Distracted Driver Crashes

Historical Crash Data



Distracted Driver Fatalities

Historical Fatality Data

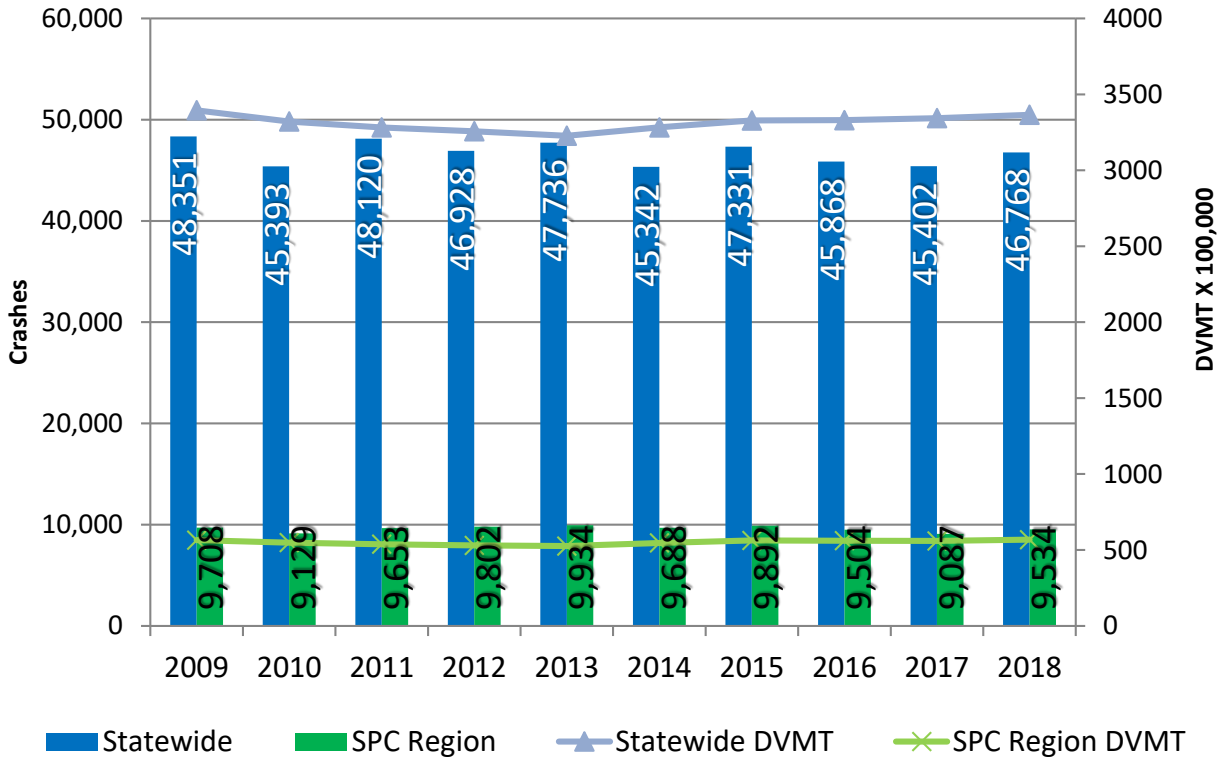


Upward Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

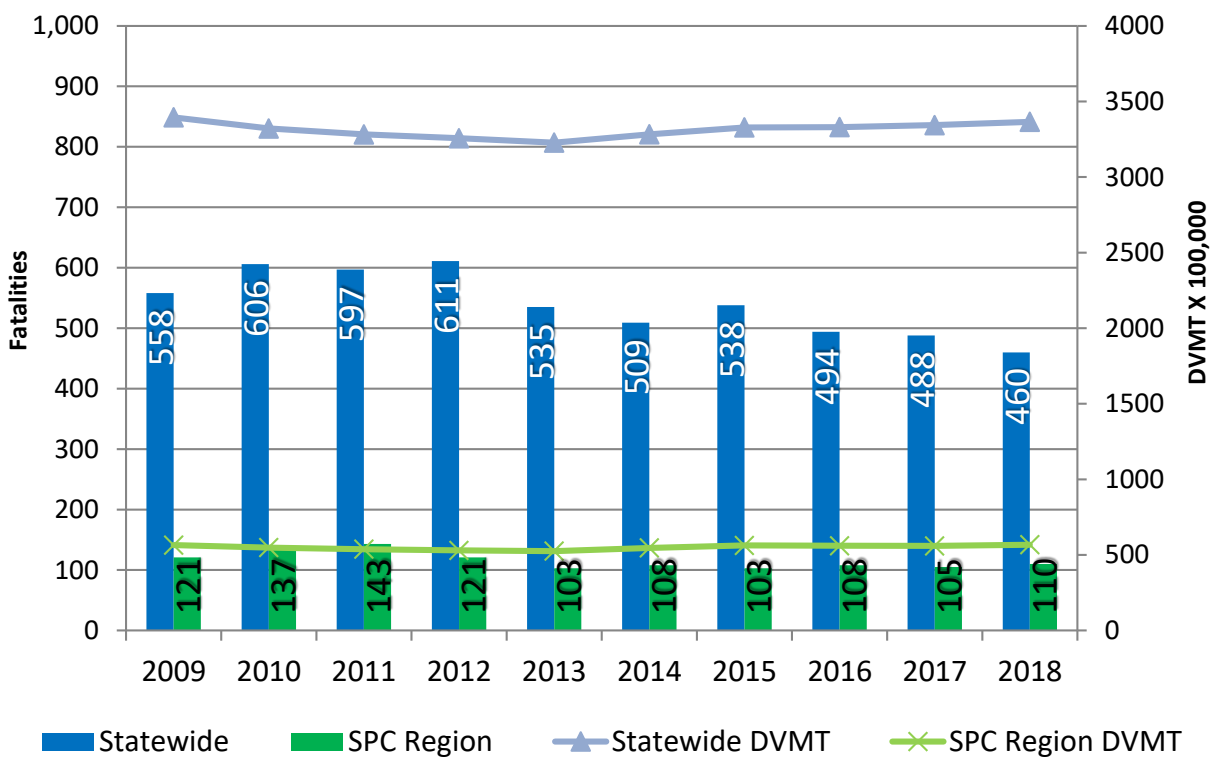
Single Vehicle Run-Off-The-Road Crashes

Historical Crash Data



Single Vehicle Run-Off-The-Road Fatalities

Historical Fatality Data

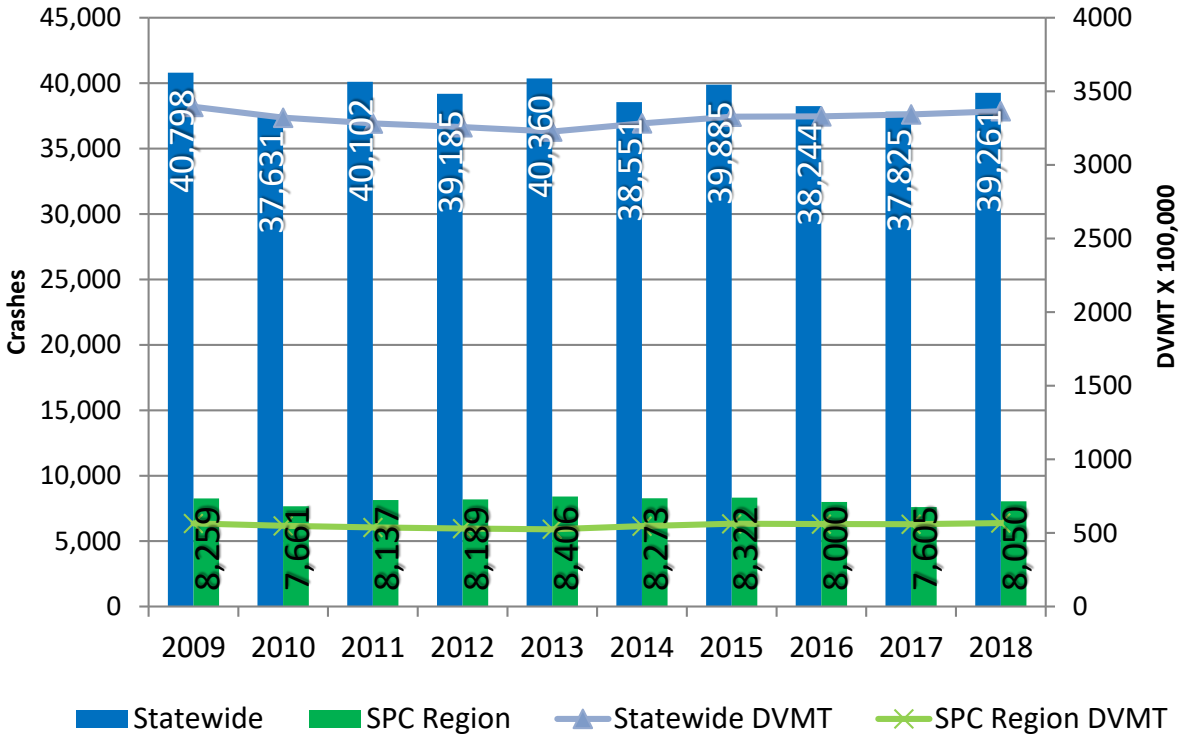


Flat Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

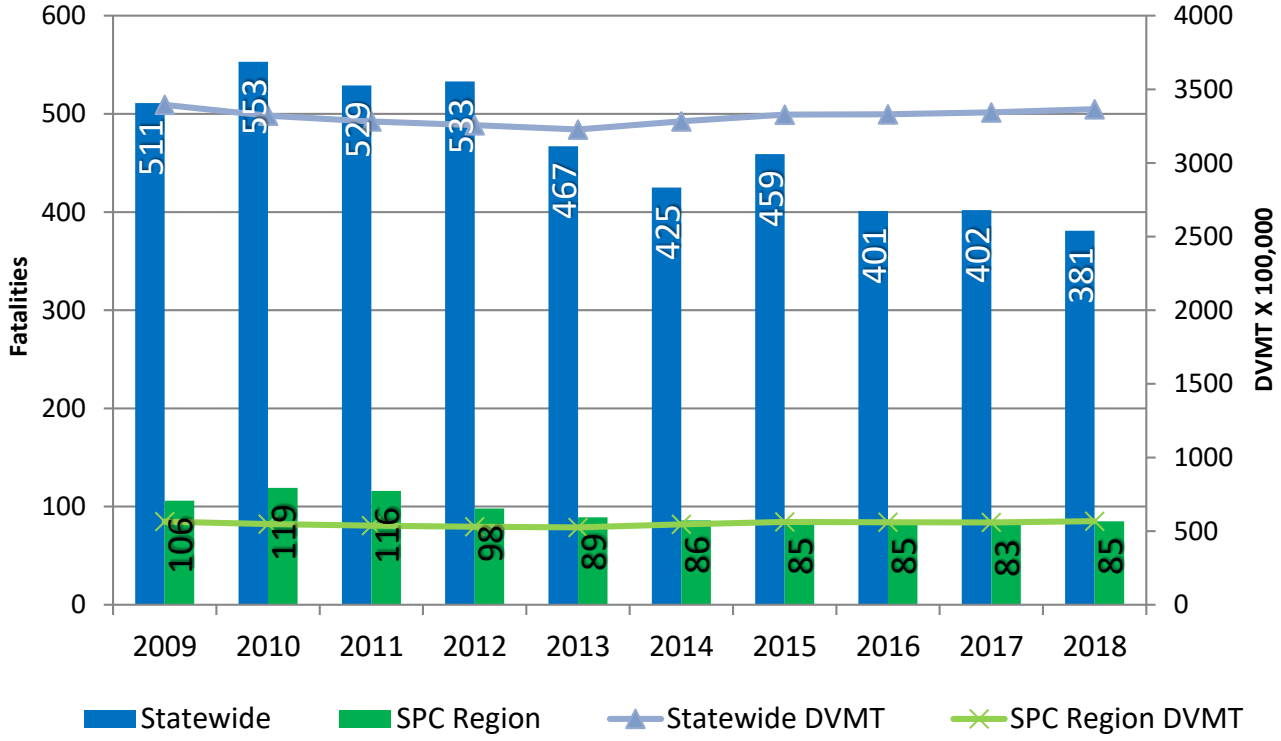
Hit Fixed Object Crashes

Historical Crash Data



Hit Fixed Object Fatalities

Historical Fatality Data

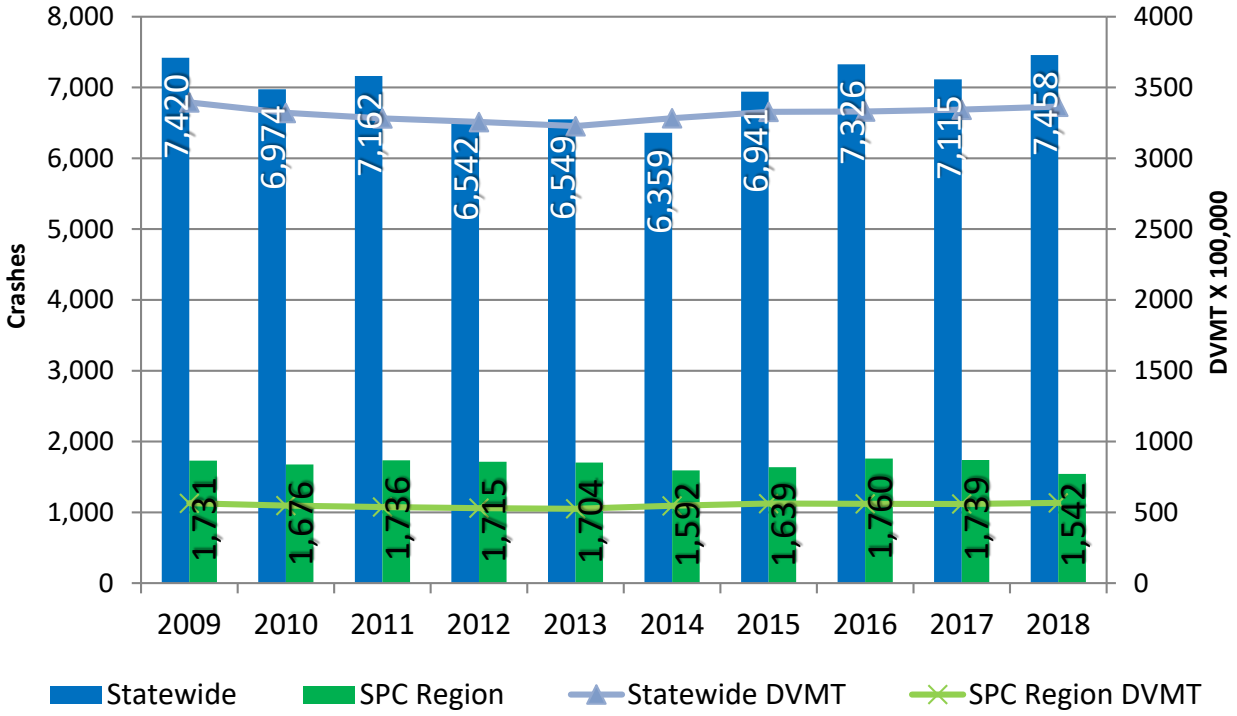


Downward Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

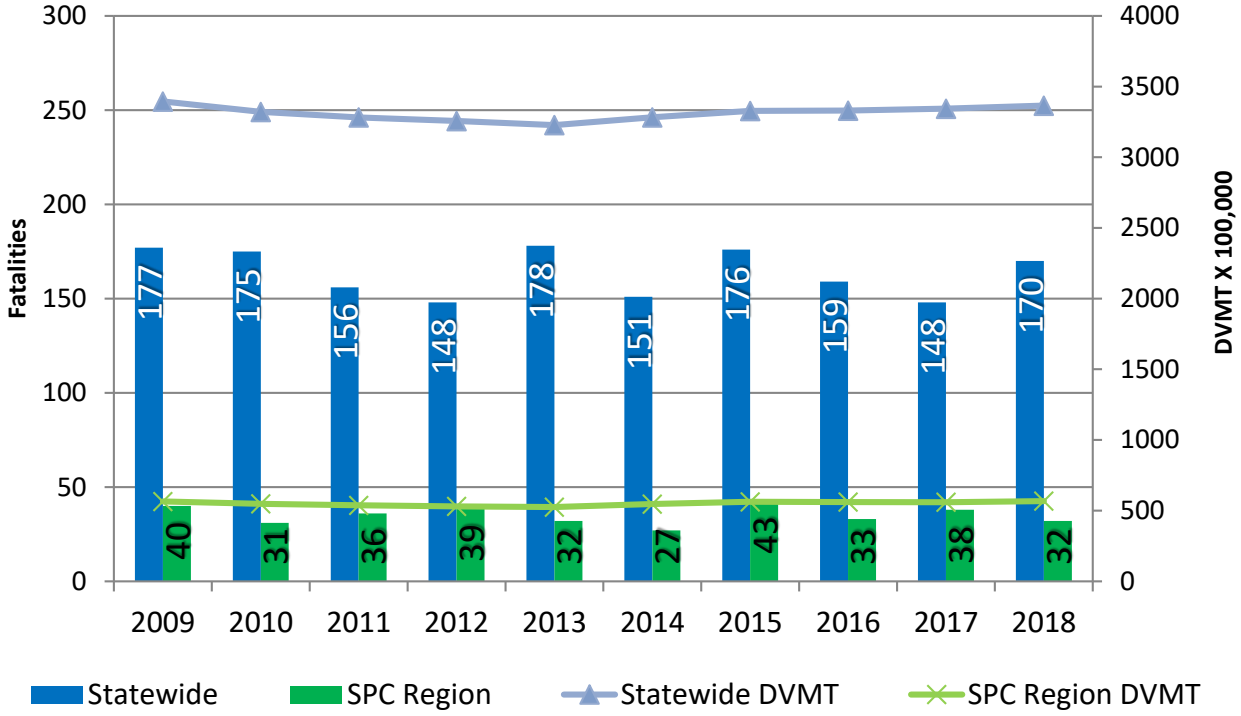
Head-On / Opposite Direction Side Swipe Crashes

Historical Crash Data



Head-On / Opposite Direction Side Swipe Fatalities

Historical Fatality Data

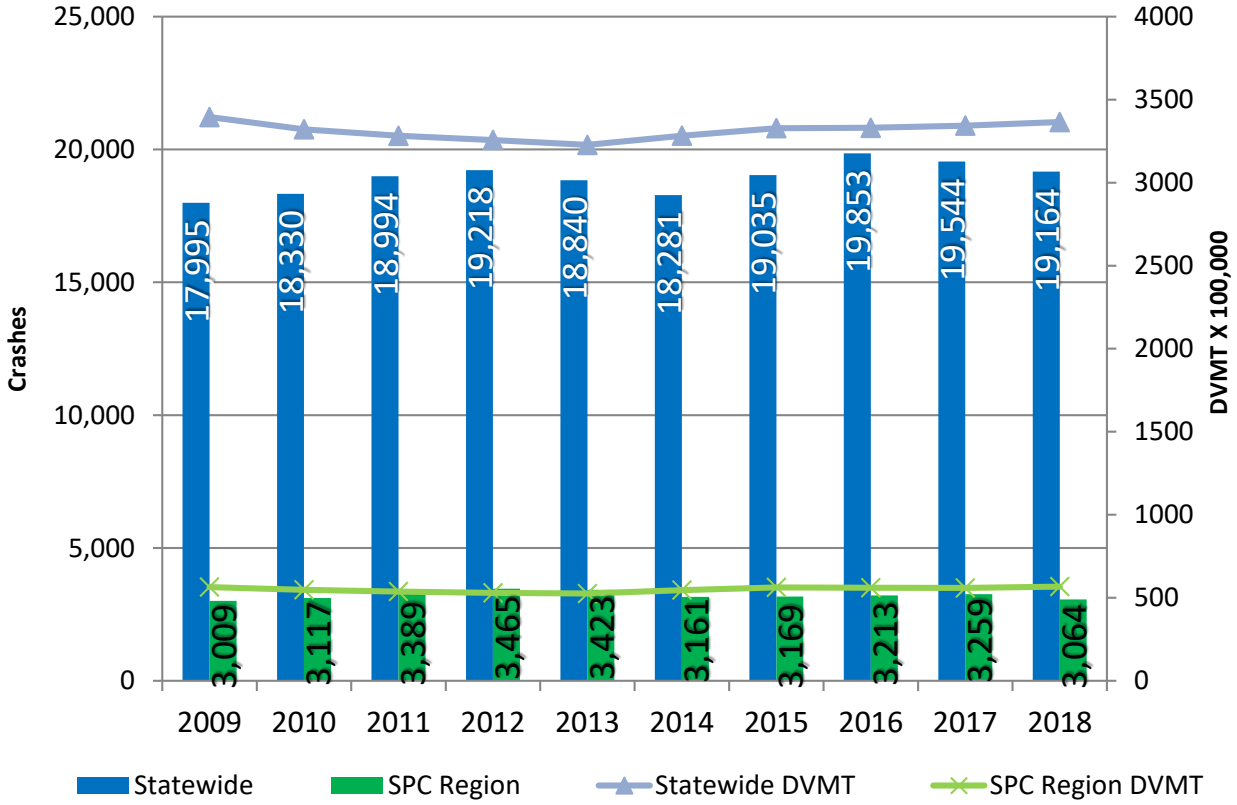


Flat Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

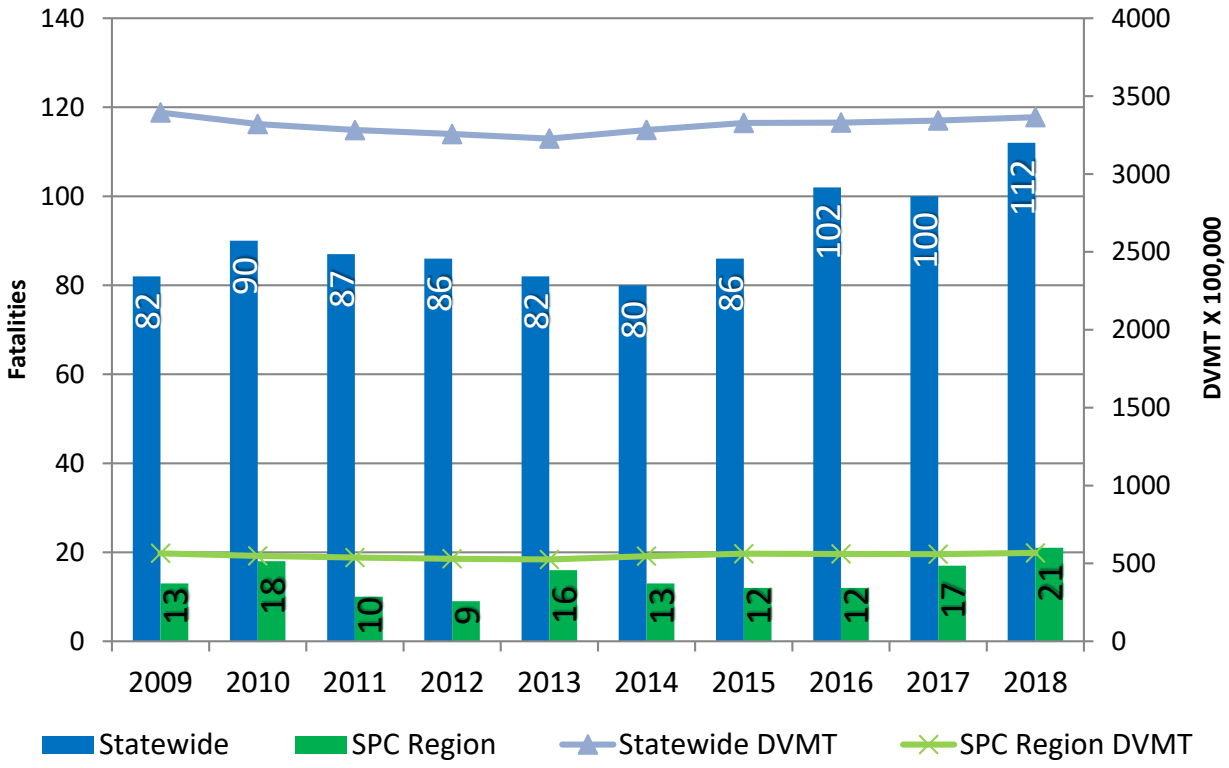
Signalized Intersection Crashes

Historical Crash Data



Signalized Intersection Fatalities

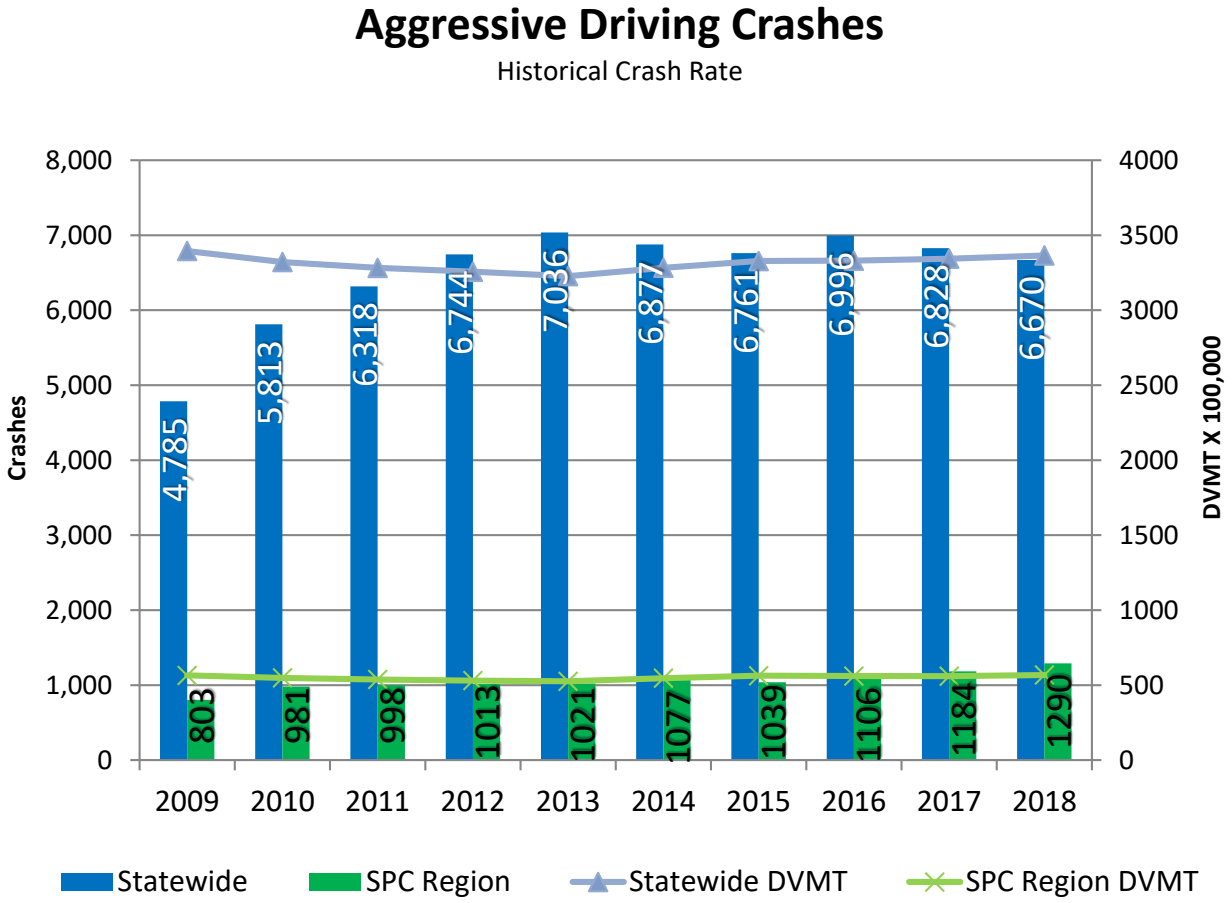
Historical Fatality Data

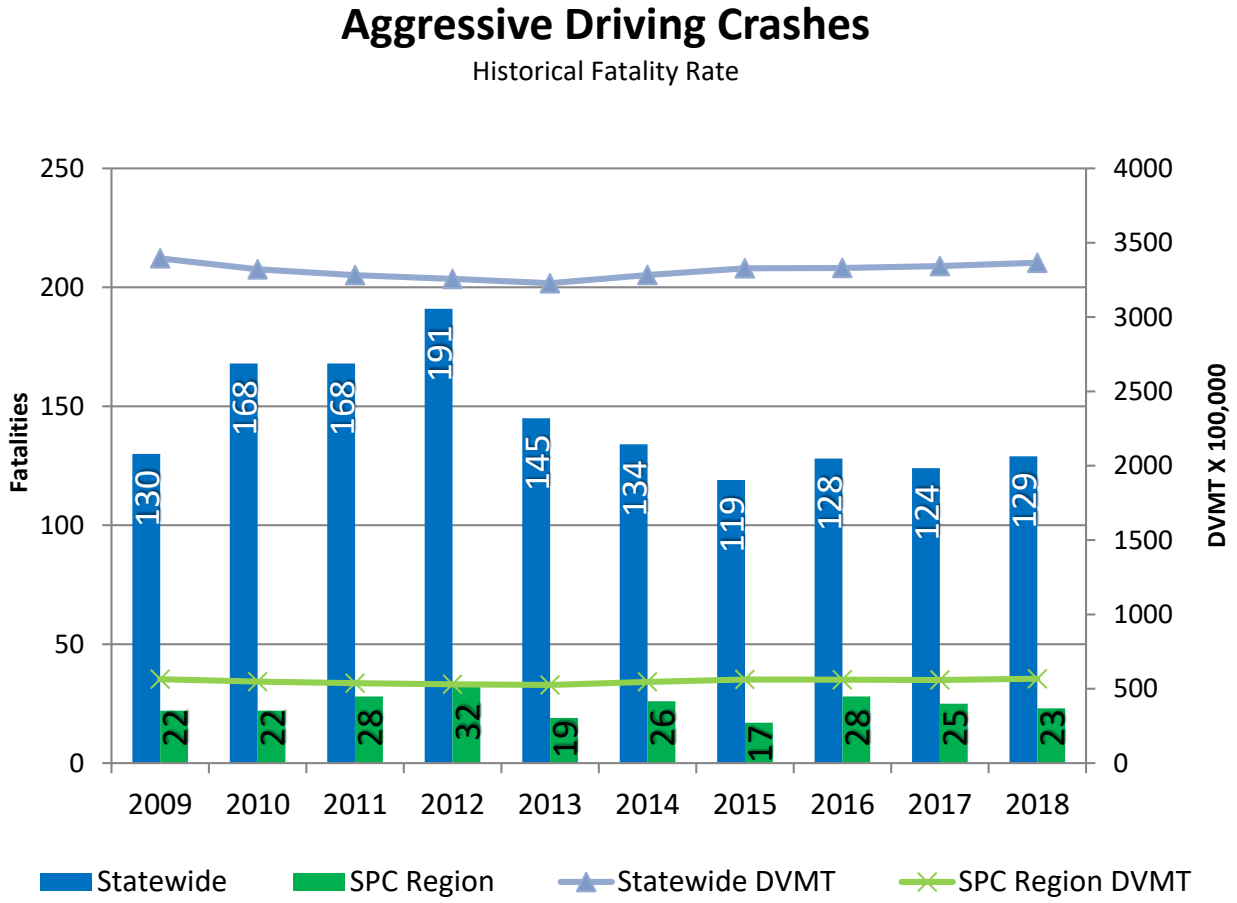


Downward Trend in Crashes

Upward Trend in Fatals

SAP 2015 Recommended Focus Area Performance





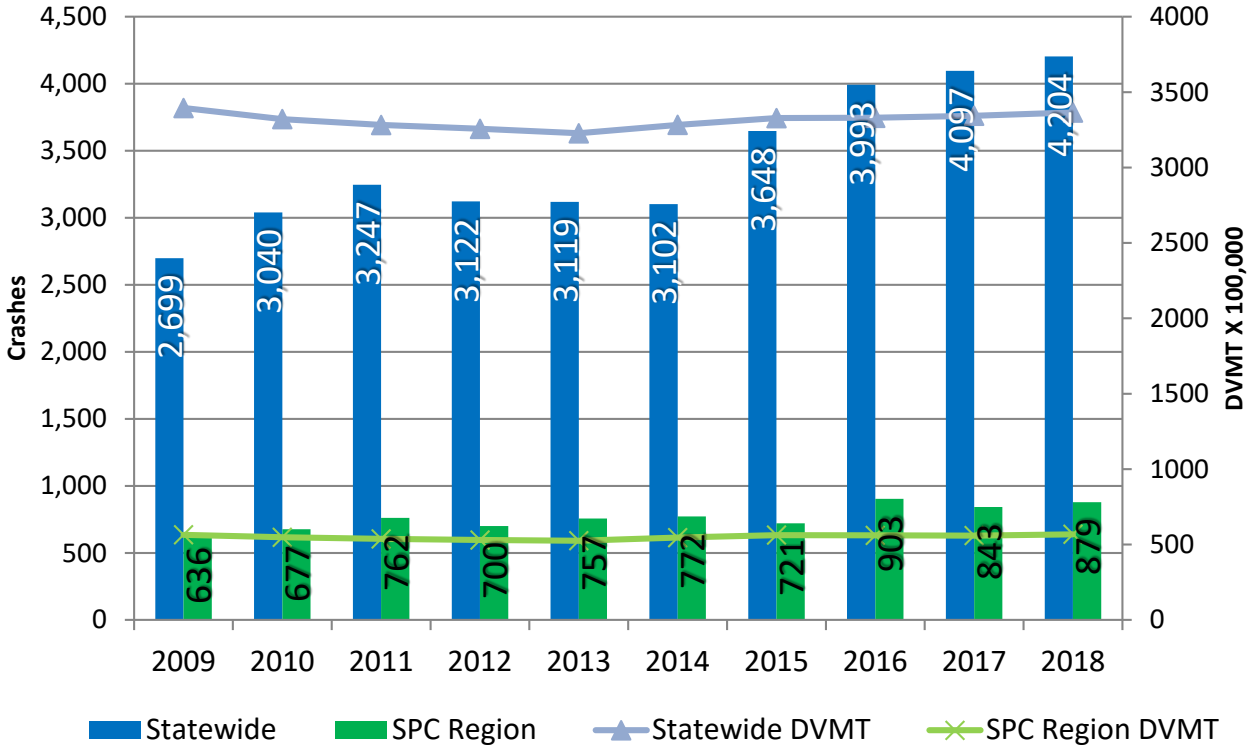
Upward Trend in Crashes

Flat Trend in Fatals

SAP 2015 Recommended Focus Area Performance

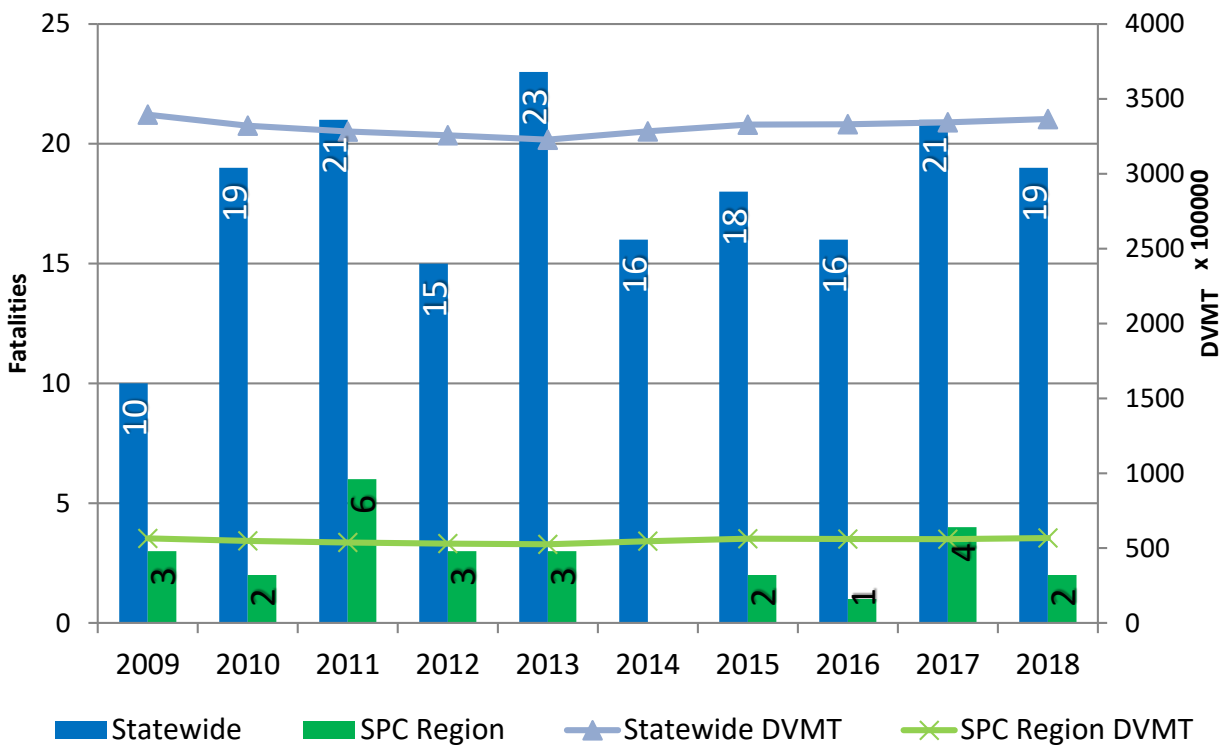
Secondary Crashes

Historical Crash Data



Secondary Crash Fatalities

Historical Fatality Data



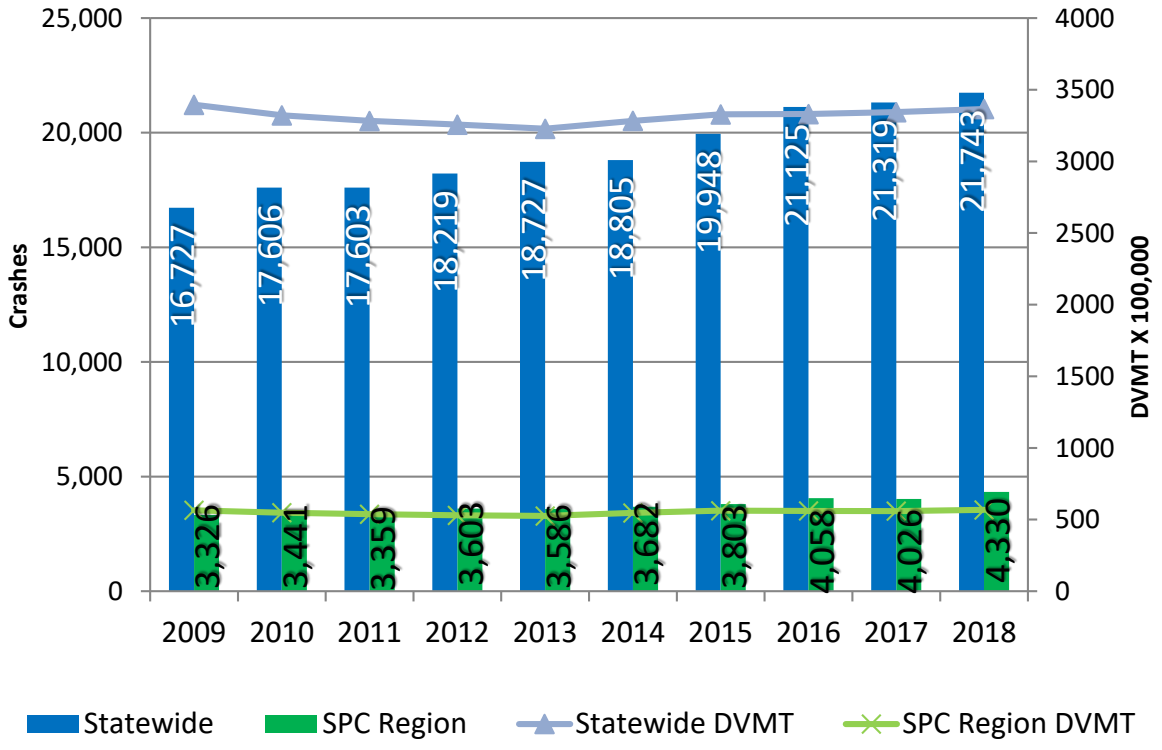
Upward Trend in Crashes

Downward Trend in Fatals

SAP 2015 Recommended Focus Area Performance

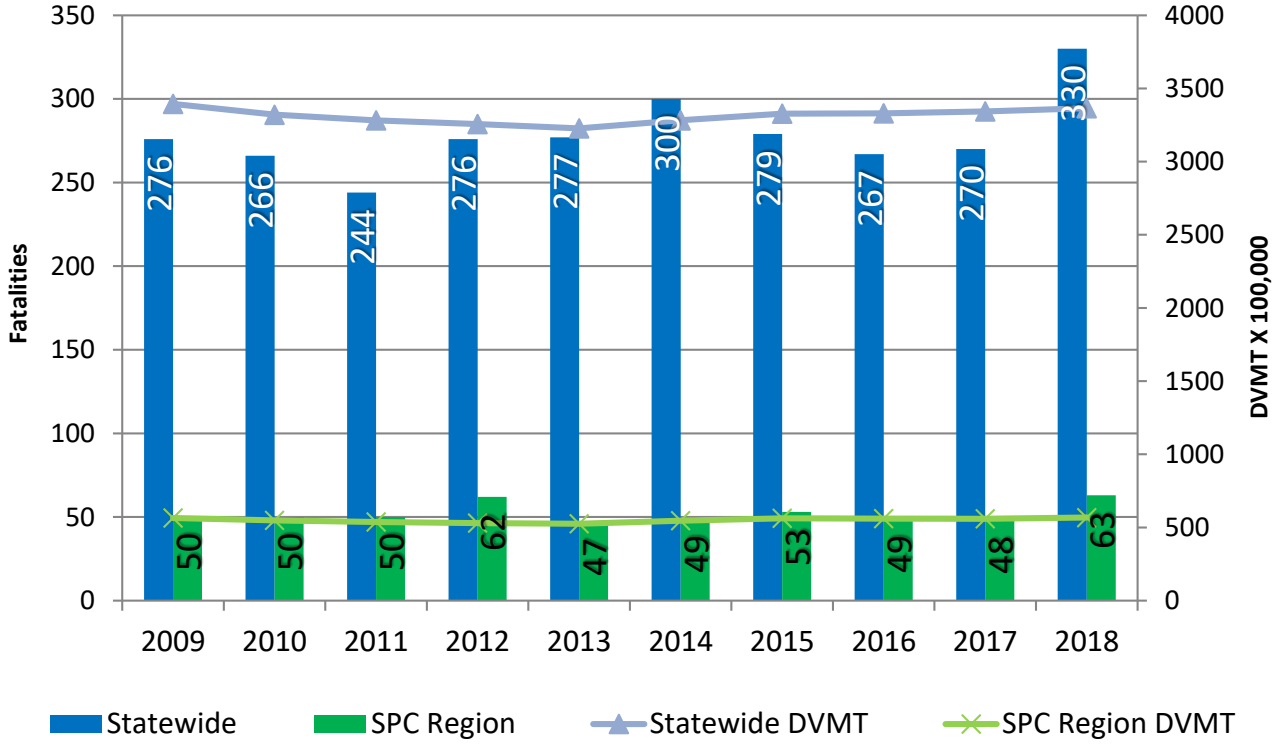
65+ Year Old Driver Crashes

Historical Crash Data



65+ Year Old Driver Fatalities

Historical Fatality Data

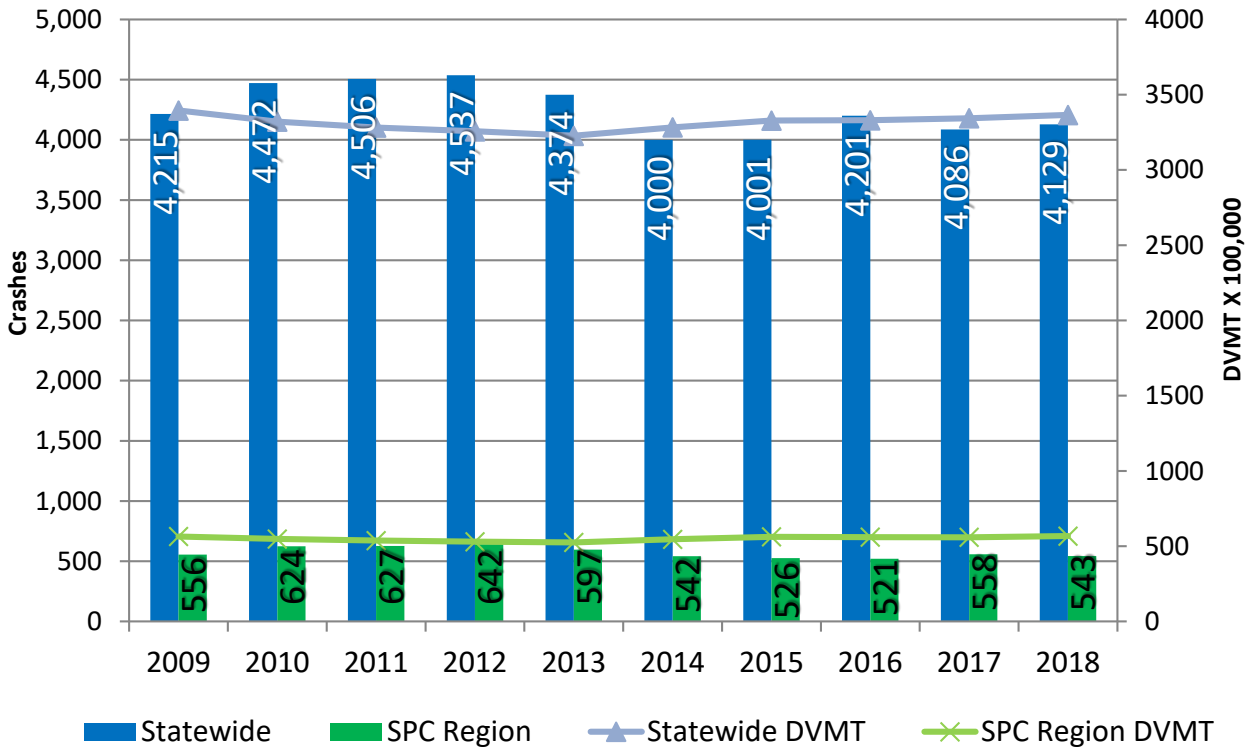


Upward Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

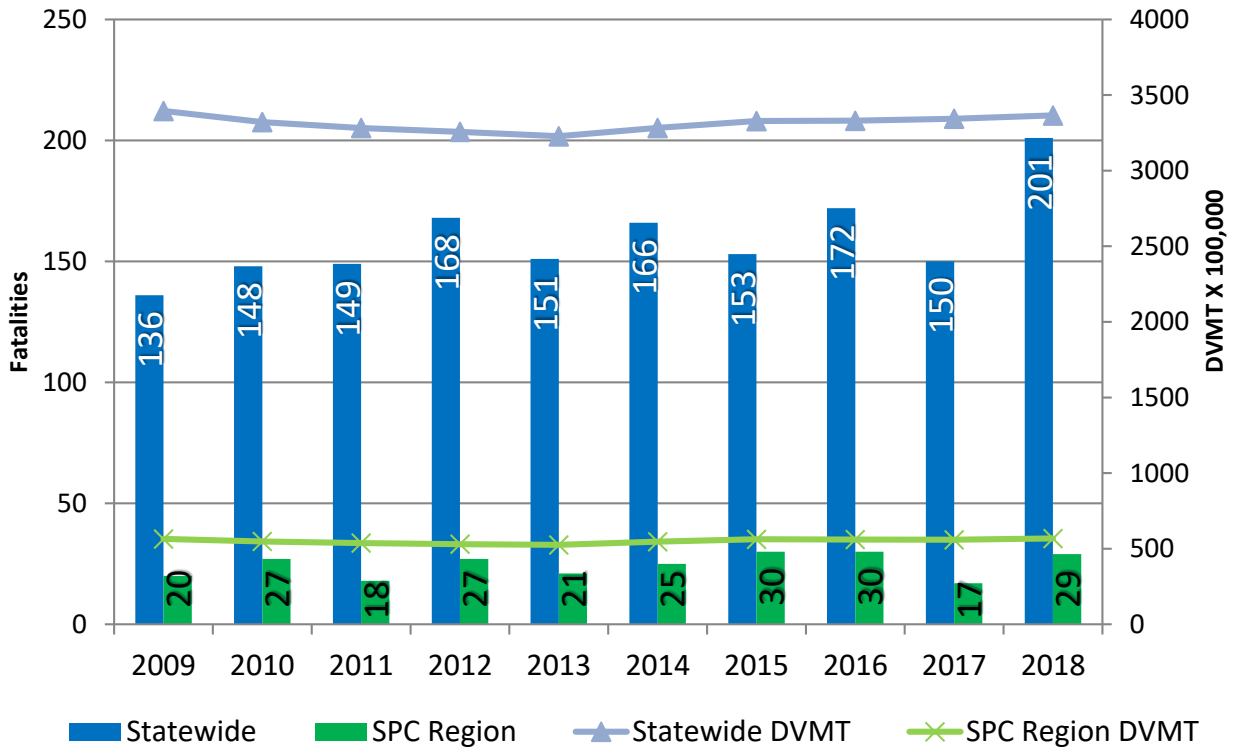
Pedestrian Crashes

Historical Crash Data



Pedestrian Fatalities

Historical Fatality Data



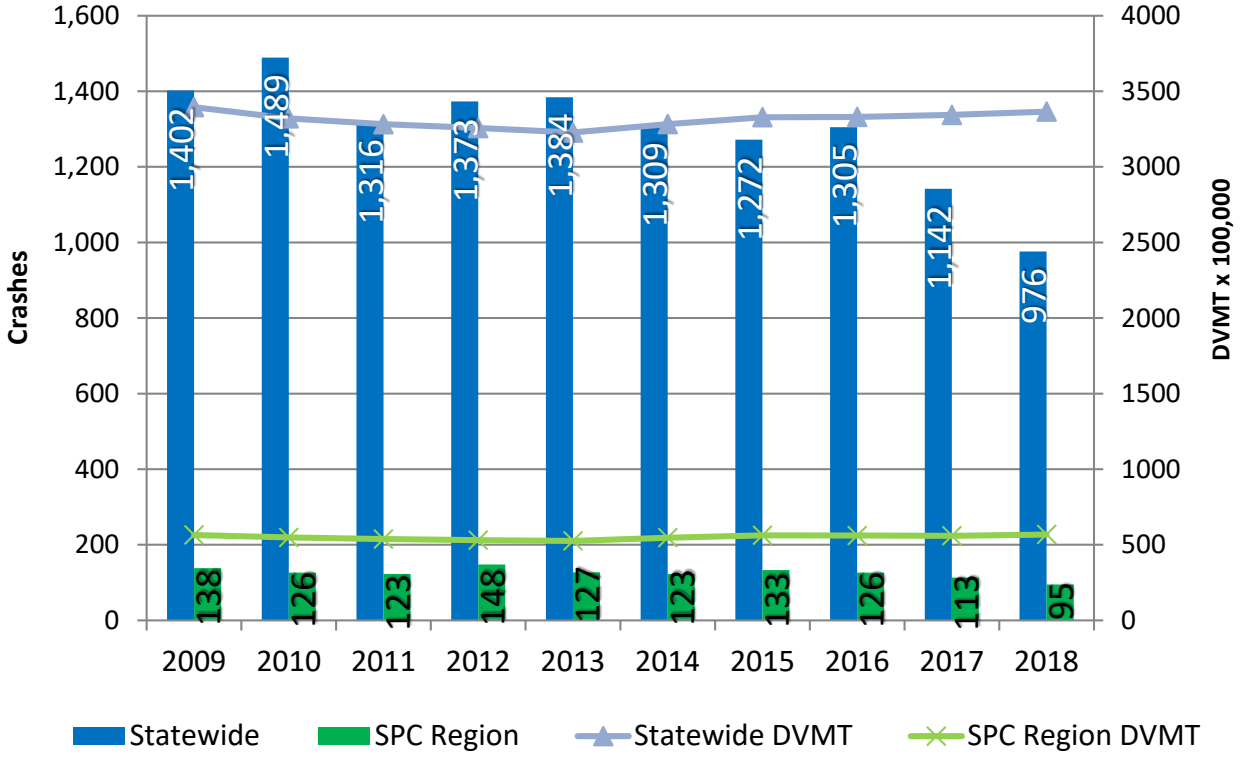
Downward Trend in Crashes

Upward Trend in Fatals

SAP 2015 Recommended Focus Area Performance

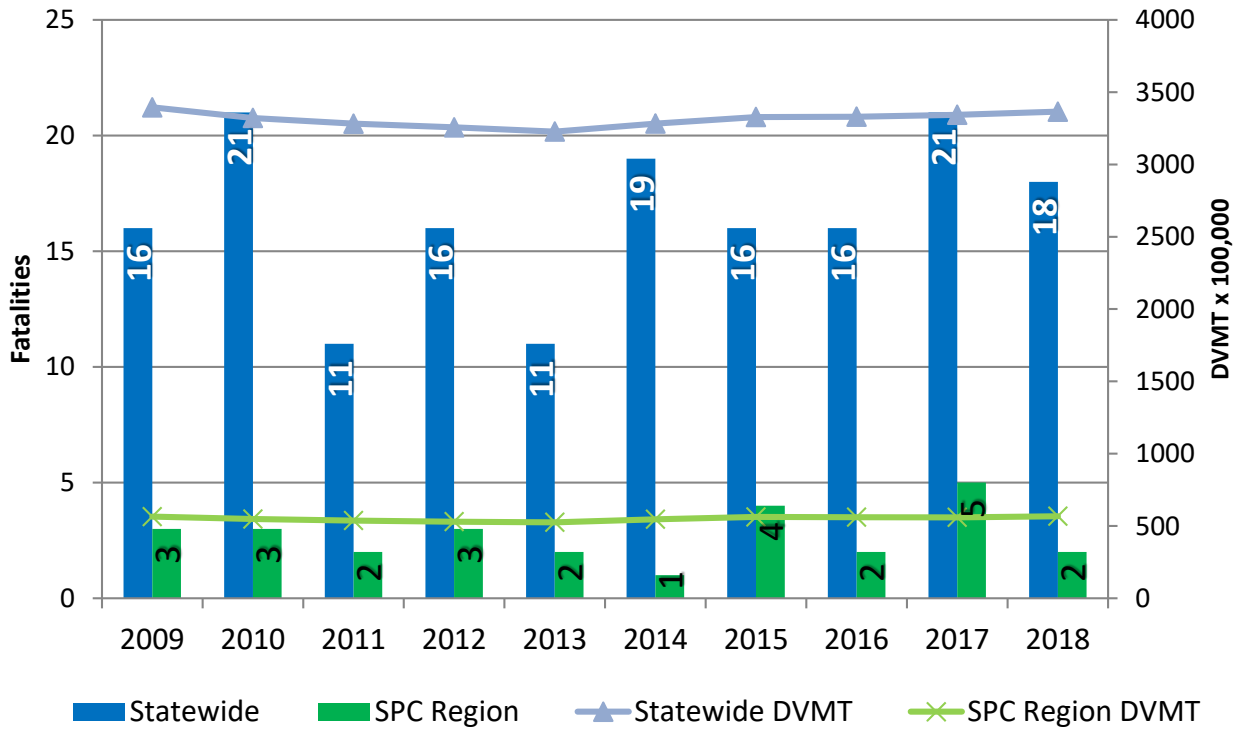
Bicycle Crashes

Historical Crash Data



Bicycle Fatalities

Historical Fatality Data



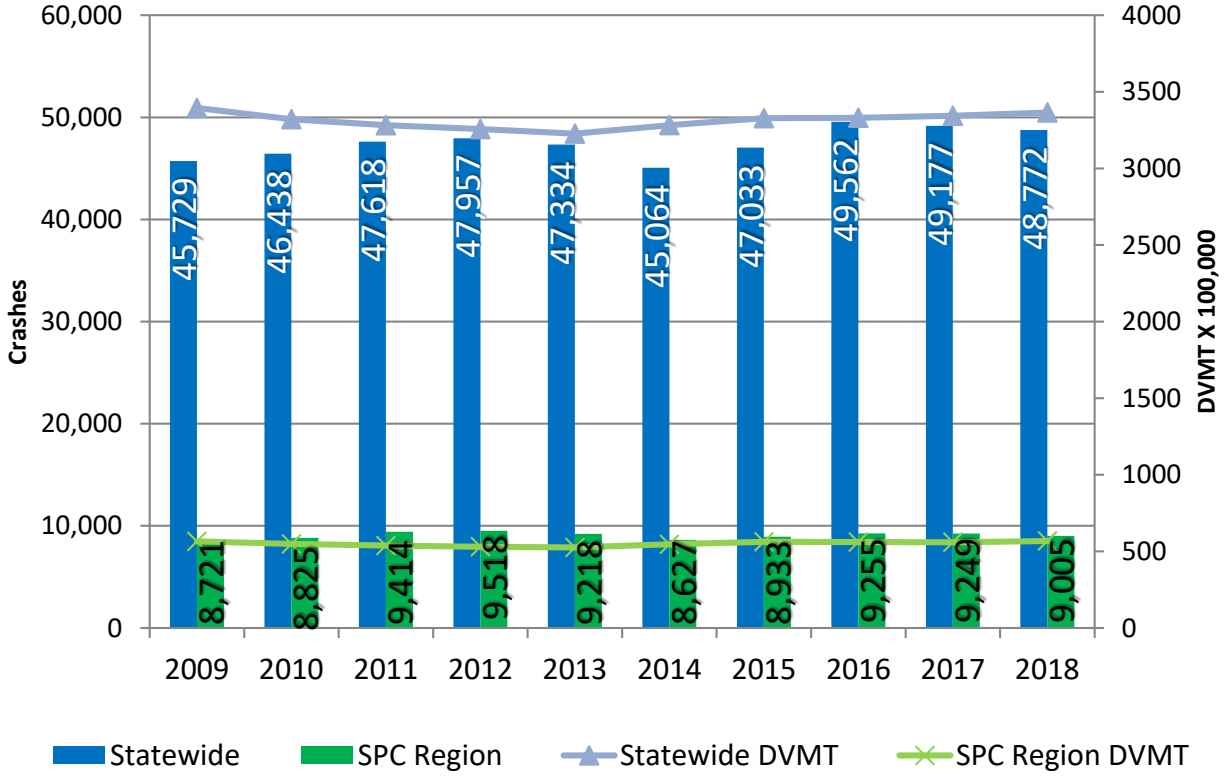
Downward Trend in Crashes

Upward Trend in Fatals

SAP 2020 Concerning Regional Crash Trends

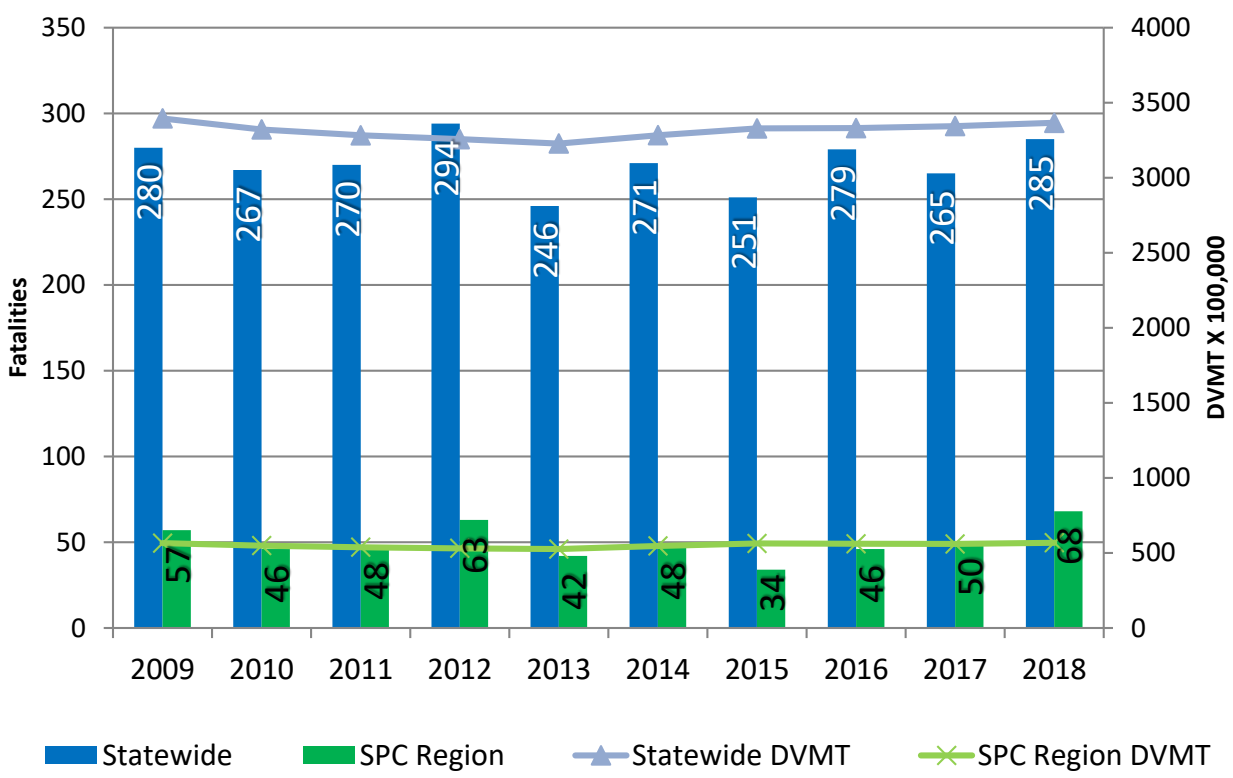
Intersection Crashes

Historical Crash Data



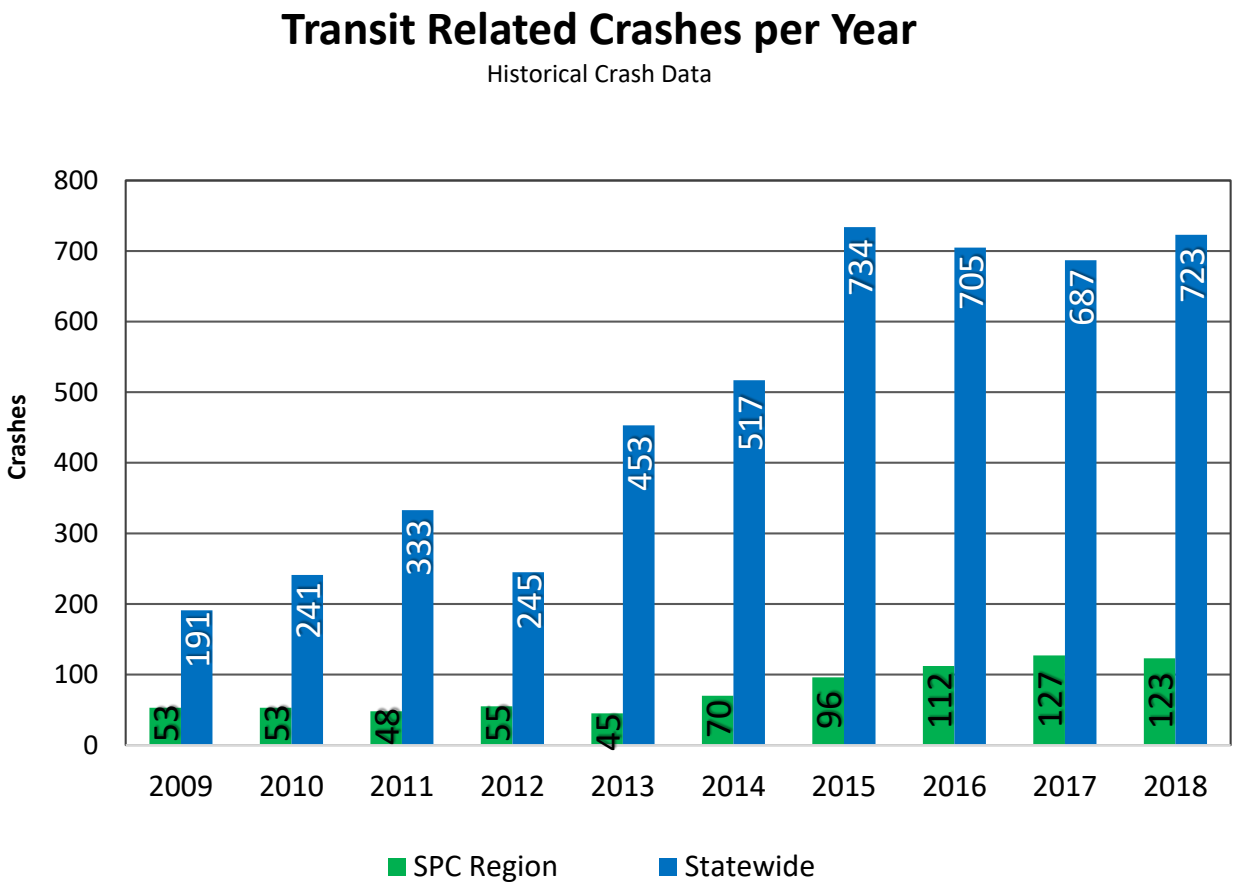
Intersection Fatalities

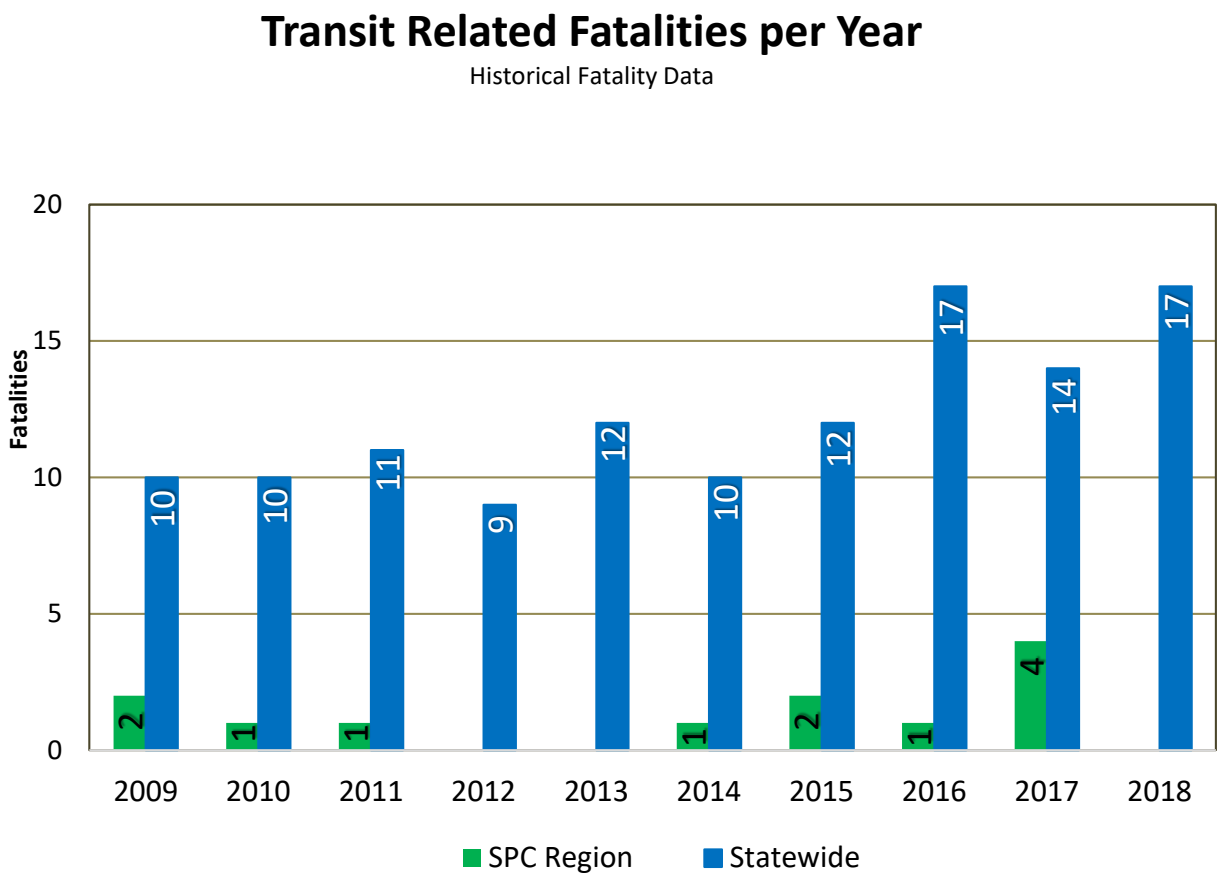
Historical Fatality Data



Upward Trend in Crashes/Fatals

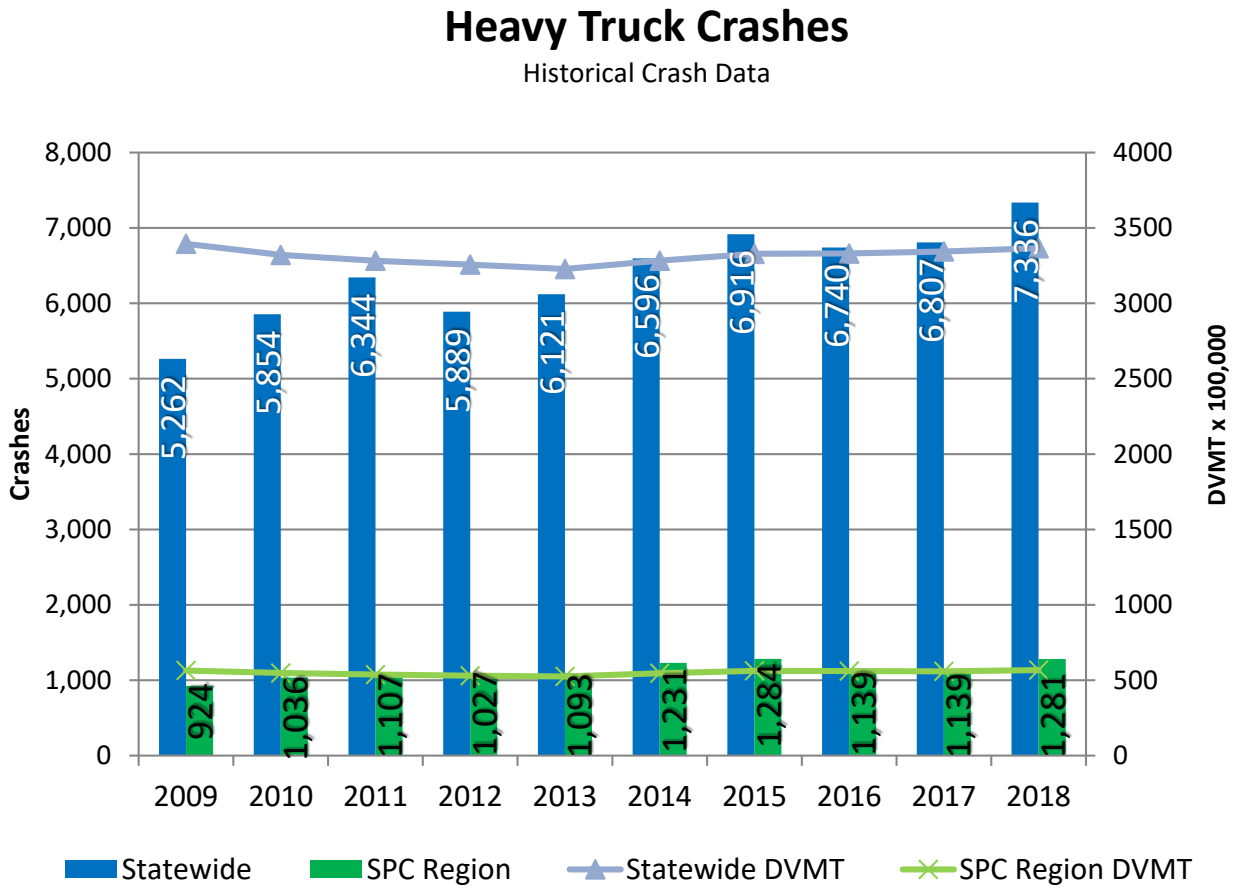
SAP 2020 Concerning Regional Crash Trends

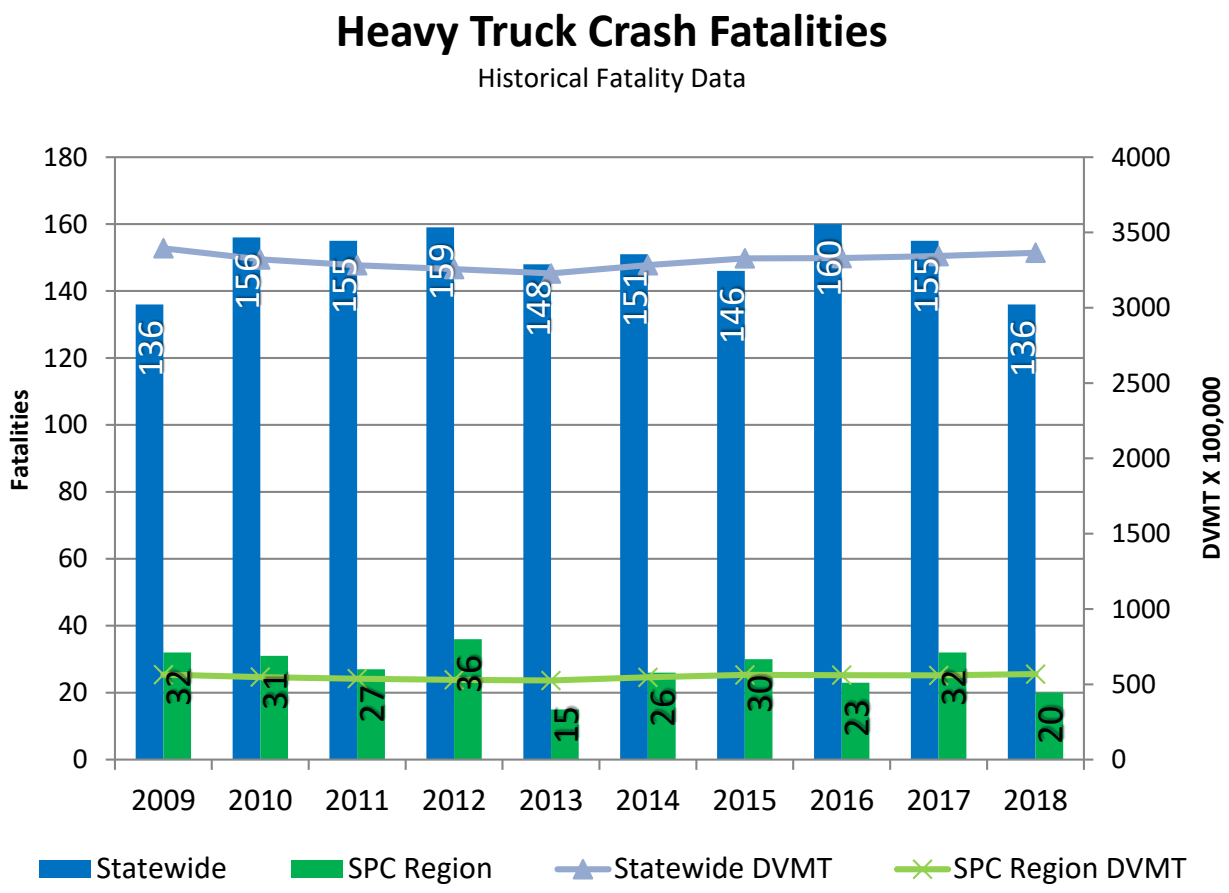




Upward Trend in Crashes/Fatals

SAP 2020 Concerning Regional Crash Trends





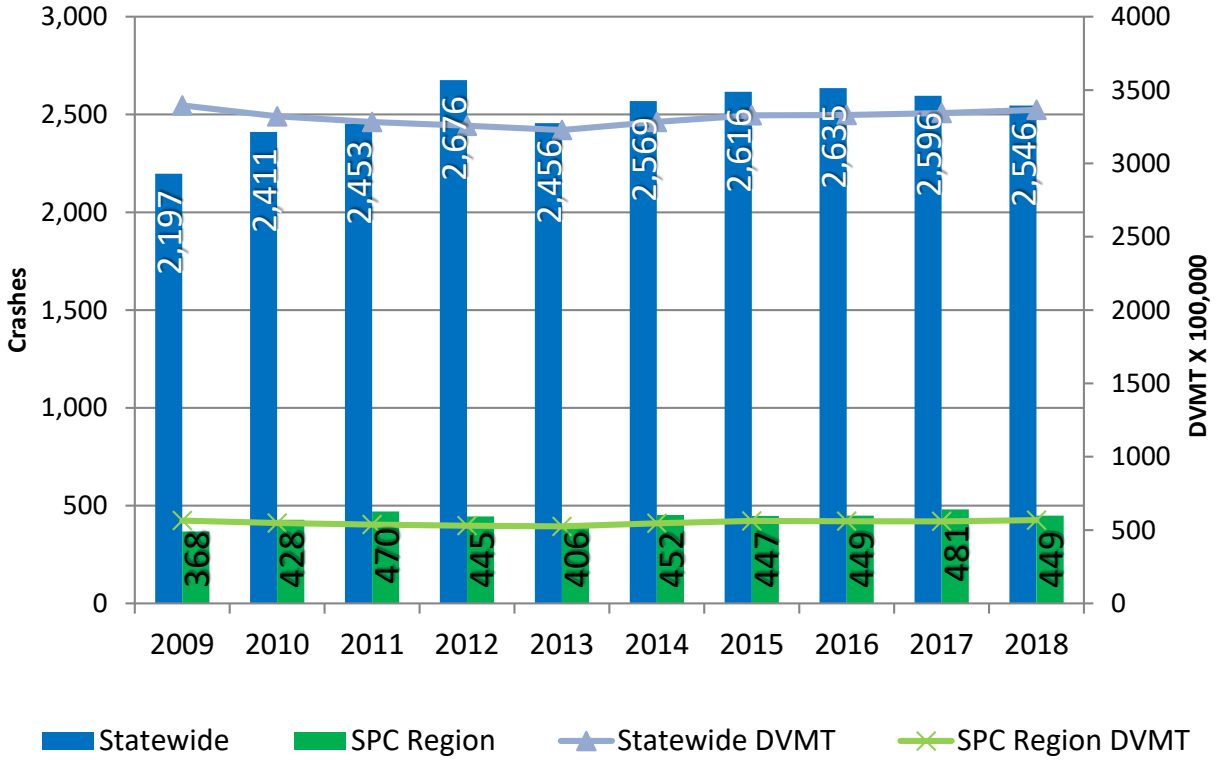
Upward Trend in Crashes

Flat Trend in Fatals

SAP 2020 Concerning Regional Crash Trends

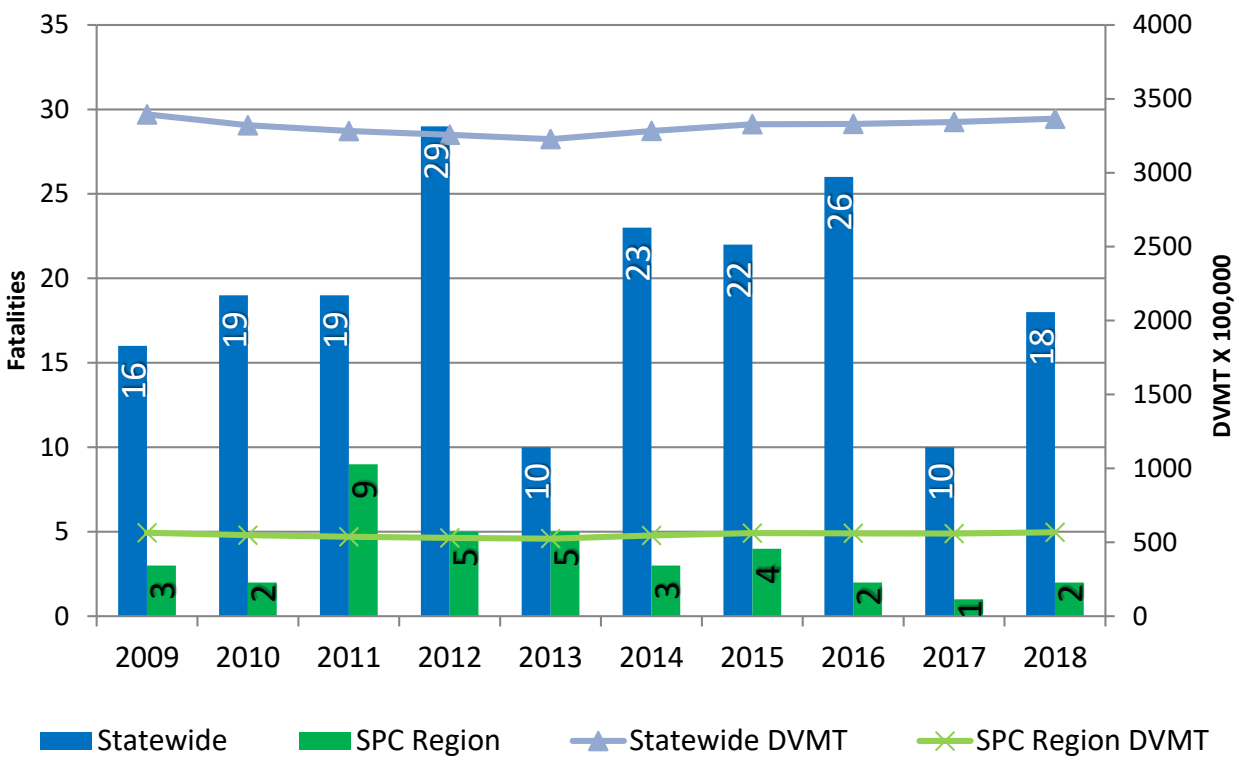
Drowsy Driver Crashes

Historical Crash Data



Drowsy Driver Fatalities

Historical Fatality Data



Flat Trend in Crashes

Downward Trend in Fatals

SAP 2020 Proposed Safety Focus Areas

Previous 2015 SAP Safety Focus Areas

- Drug related crashes
- ~~Unbelted crashes~~
- Distracted driving crashes
- Run-off-road crashes
- ~~Hit fixed object crashes~~
- Head-on crashes
- Signalized intersection crashes
- Aggressive driving crashes
- Secondary crashes
- Mature driver crashes
- Non-motorized (ped/bike) crashes

New 2020 SAP Safety Focus Areas

- Intersection crashes
- Transit-related crashes
- Heavy truck crashes
- Drowsy driver crashes

Appendix E – District Specific Safety Focus Area Trend Analysis (Stakeholder Committee Meetings 1, 2, & 3)

SPC SAFETY ACTION PLAN UPDATE

District 10-0 Stakeholder Meeting

June 23, 2020

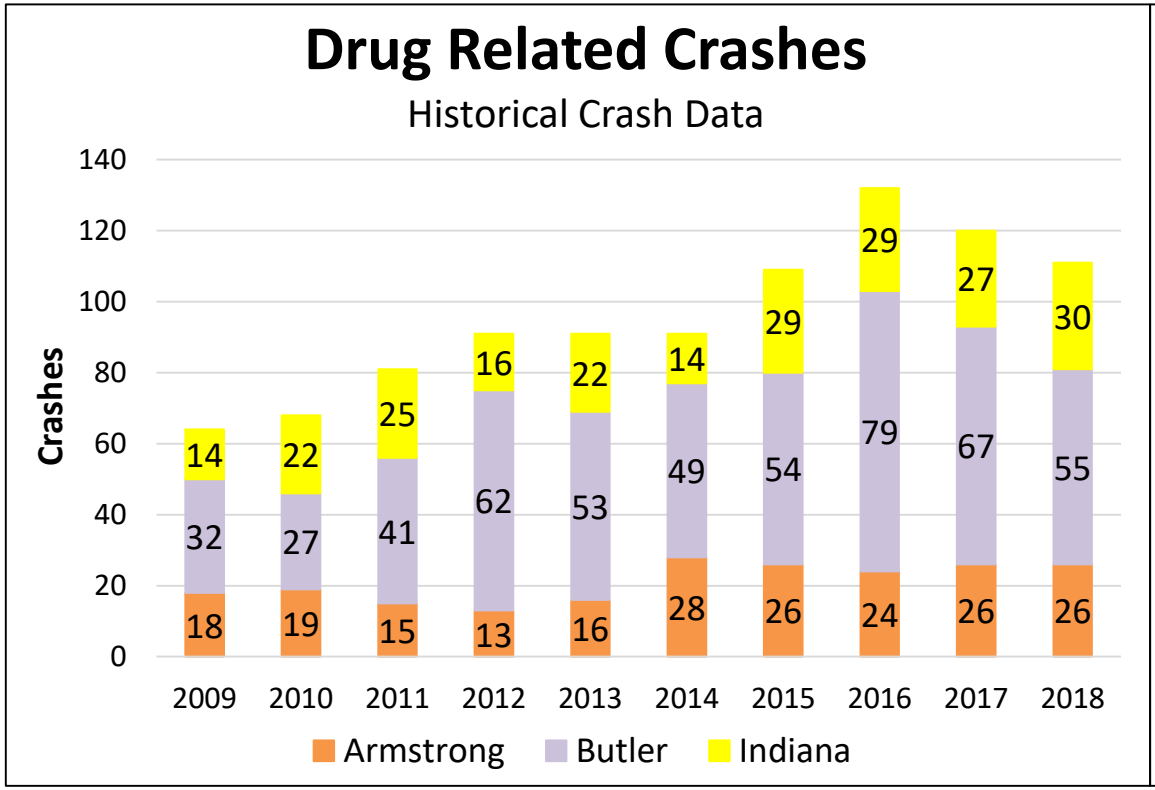
Safety Focus Area Performance

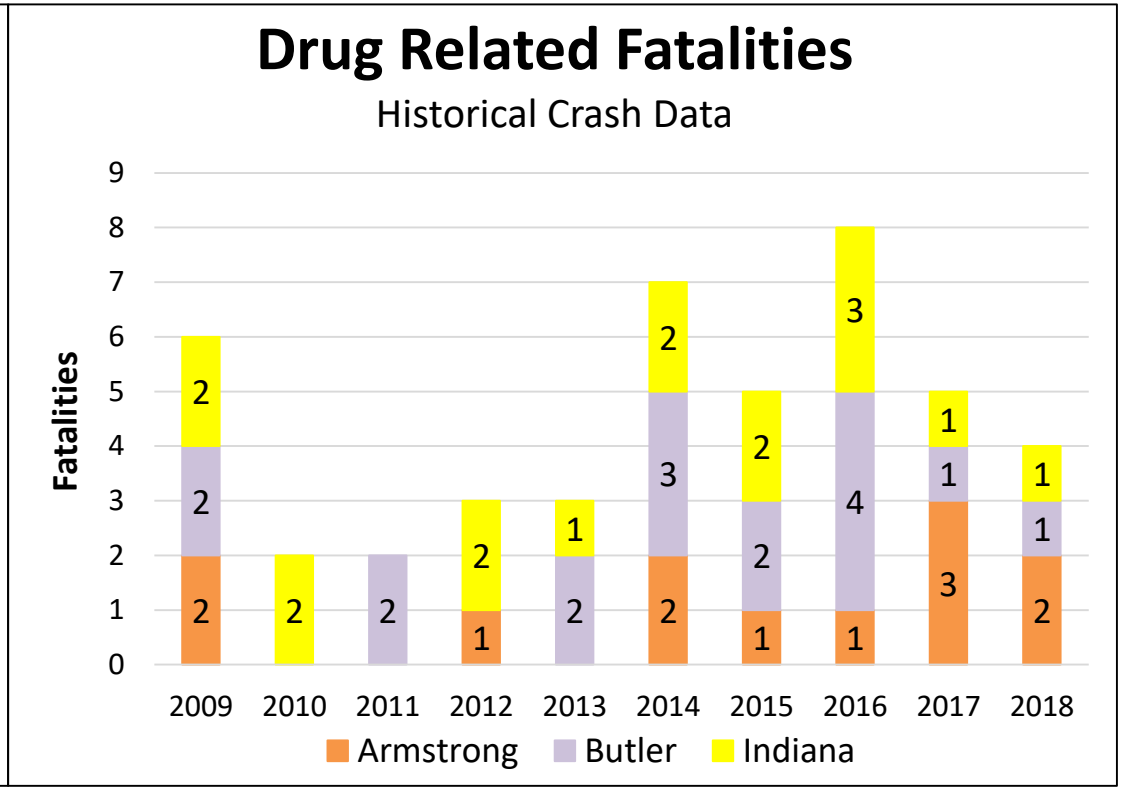
Safety Focus Areas

- 13 Safety Focus Area were identified by the Steering Committee for the 2020 SAP Update
  1) Drug related crashes
  2) Distracted driving crashes
  3) Run-off-road crashes
  4) Head-on crashes
  5) Signalized intersection crashes
  6) Aggressive driving crashes
  7) Secondary crashes
  8) Mature driver crashes
  9) Non-motorized (ped/bike) crashes
  10) Intersection crashes
  11) Transit-related crashes
  12) Heavy truck crashes
  13) Drowsy driver crashes
- Confirm District/County performance (i.e. total crashes and fatalities) in each of the 13 Safety Focus Areas

Safety Focus Area Performance

Safety Focus Area: Drug Related Crashes



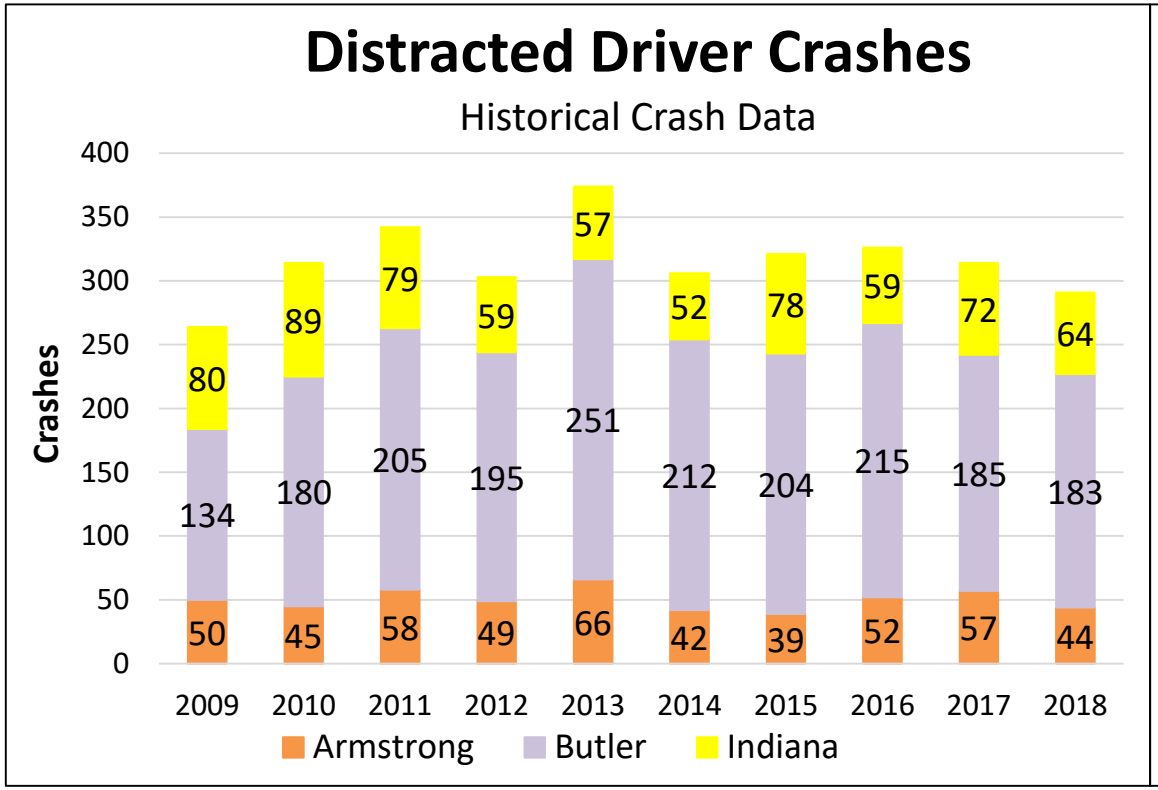


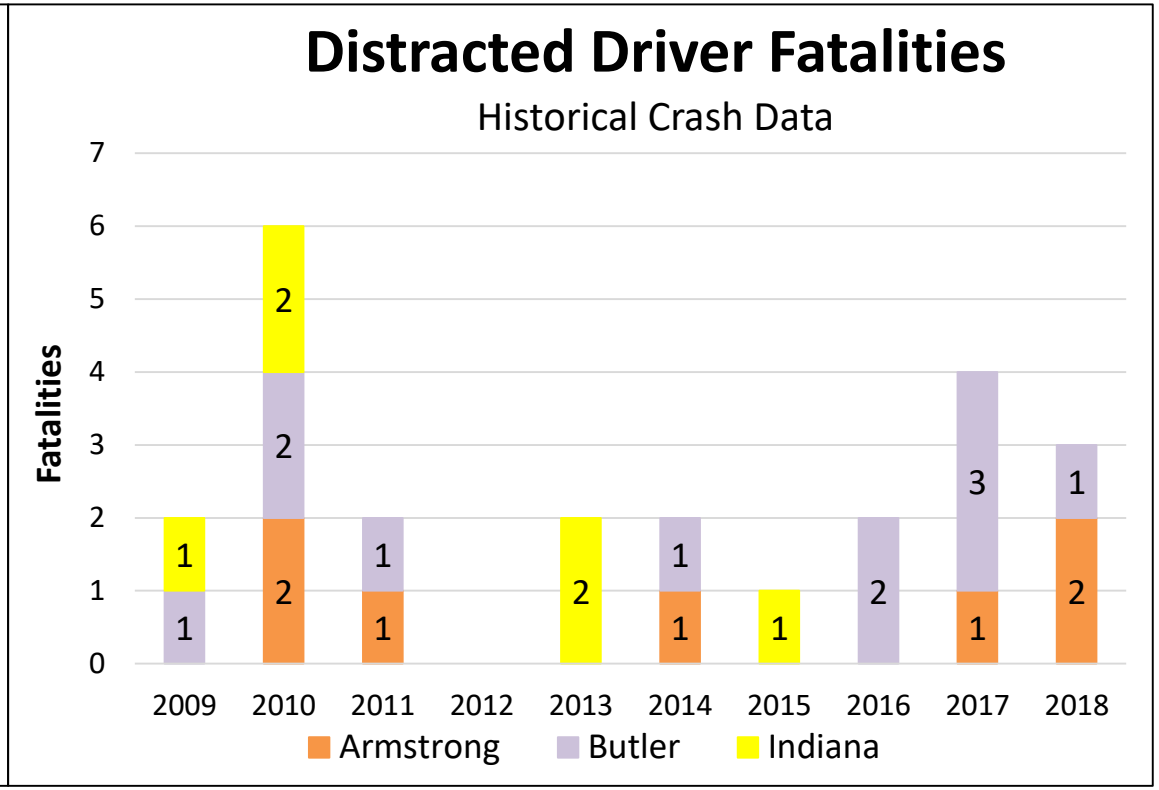
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Distracted Driving Crashes

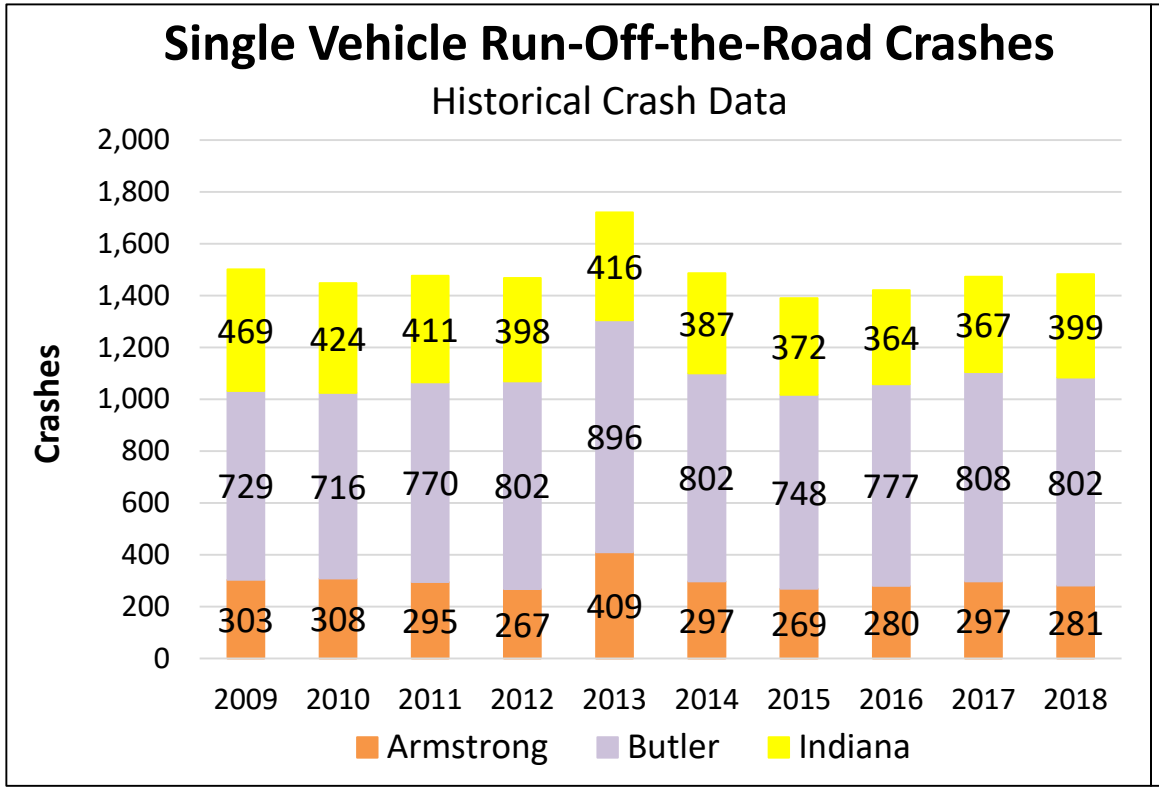


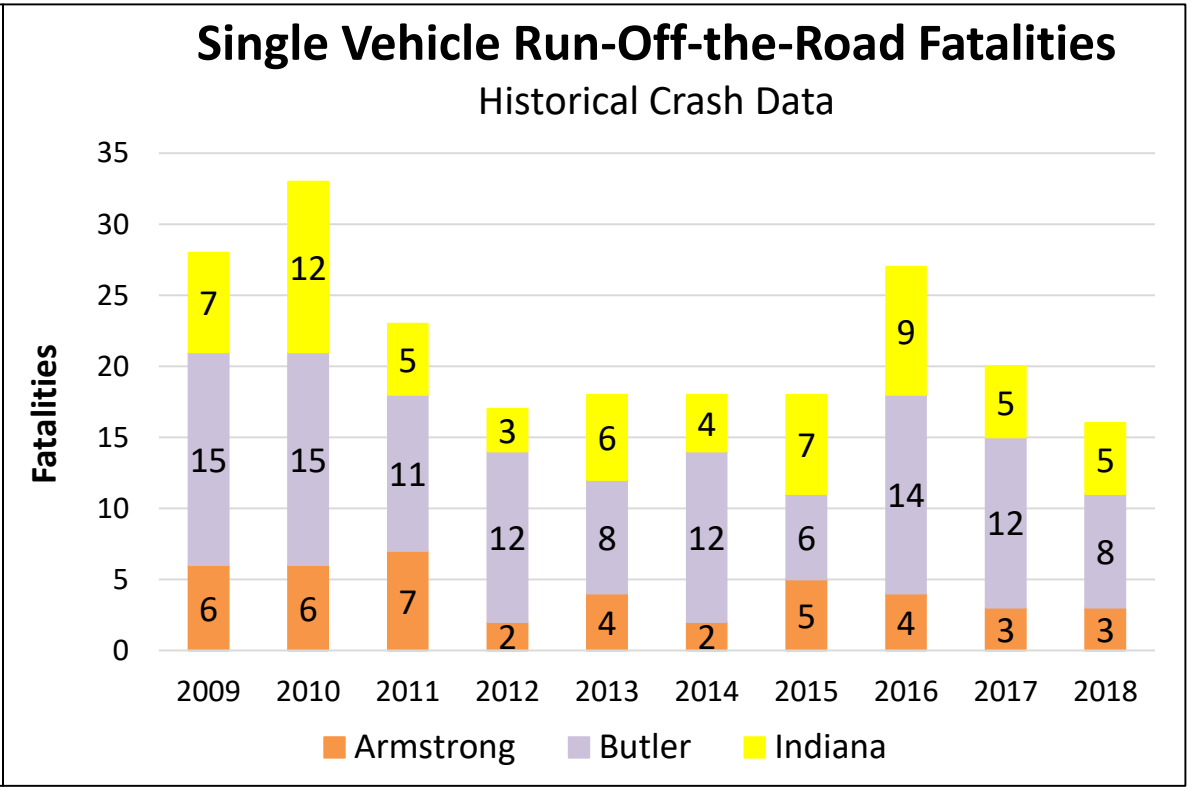


Stagnant Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Single Vehicle Run-Off-the-Road Crashes



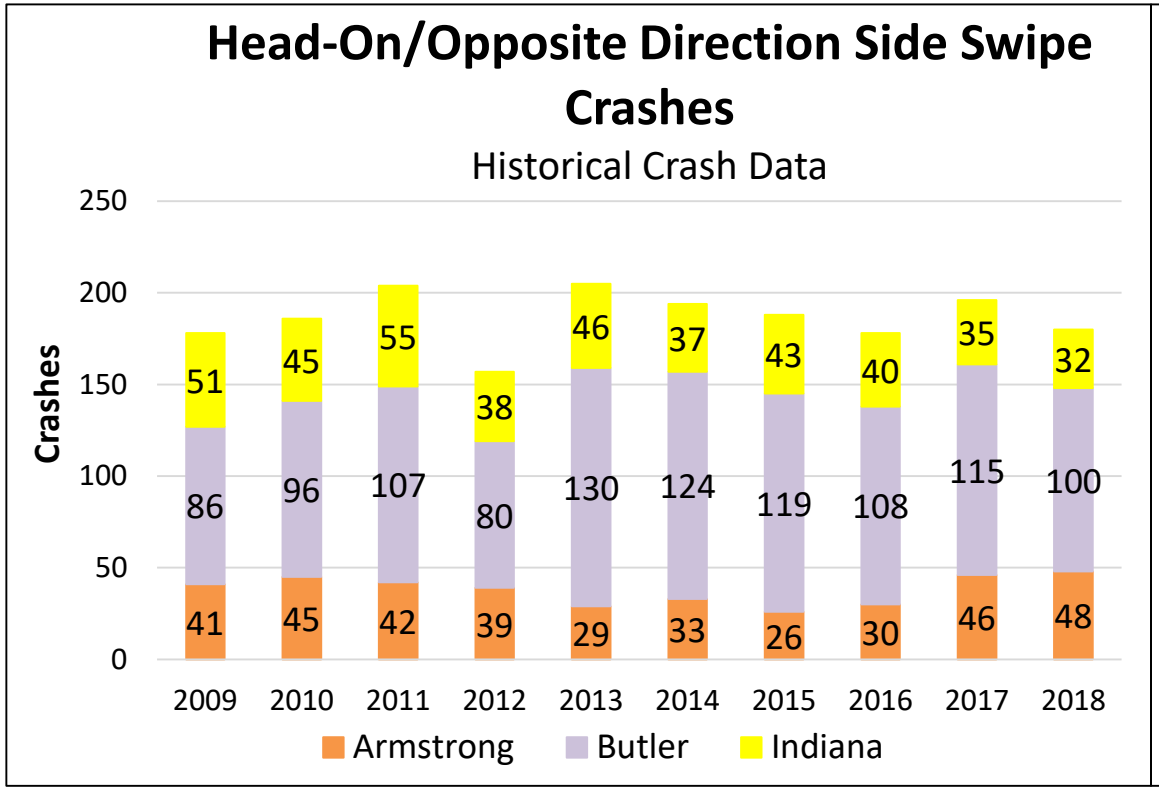


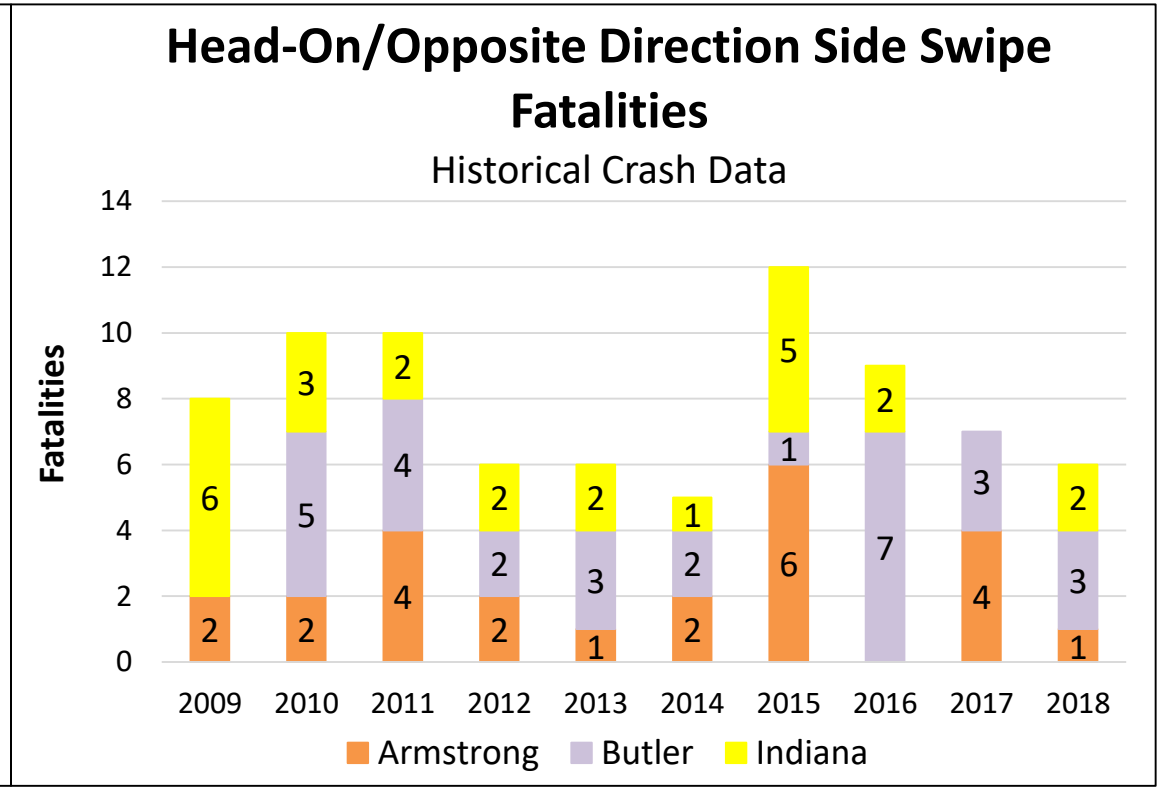
Stagnant Trend in Crashes

Downward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Head-On/ Opposite Direction Side Swipe Crashes

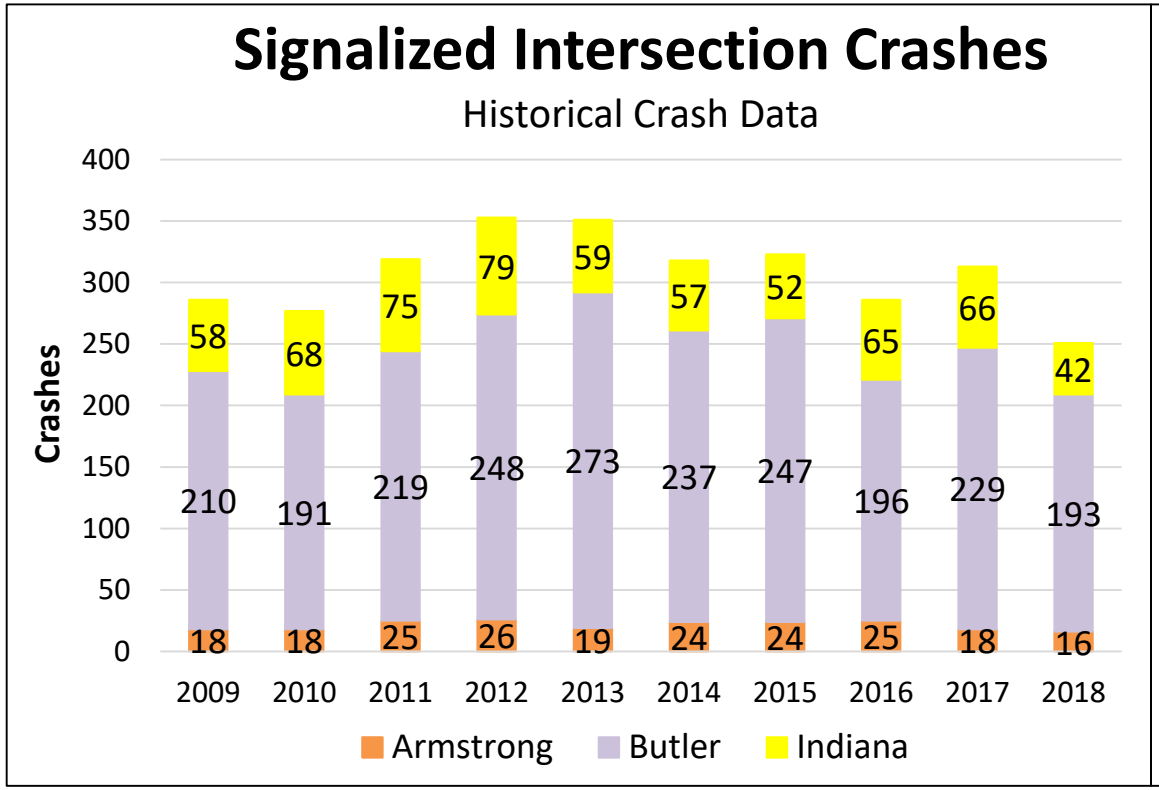


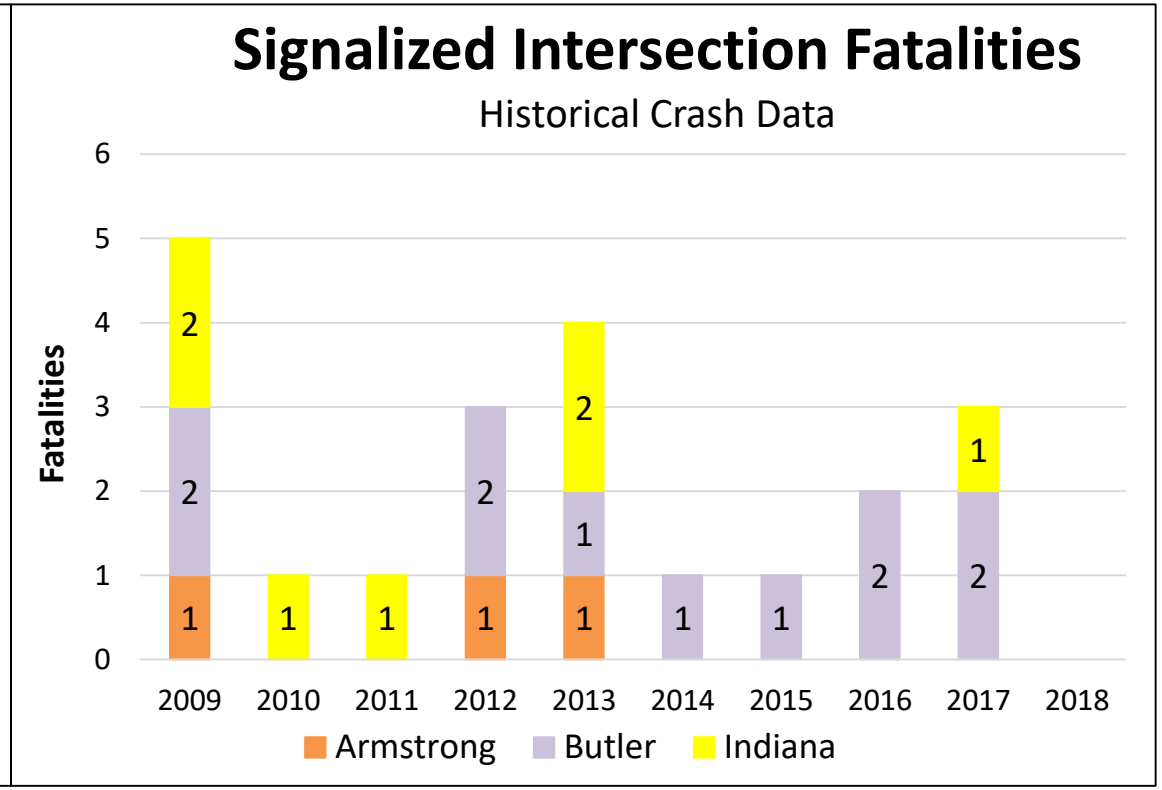


Stagnant Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Signalized Intersection Crashes



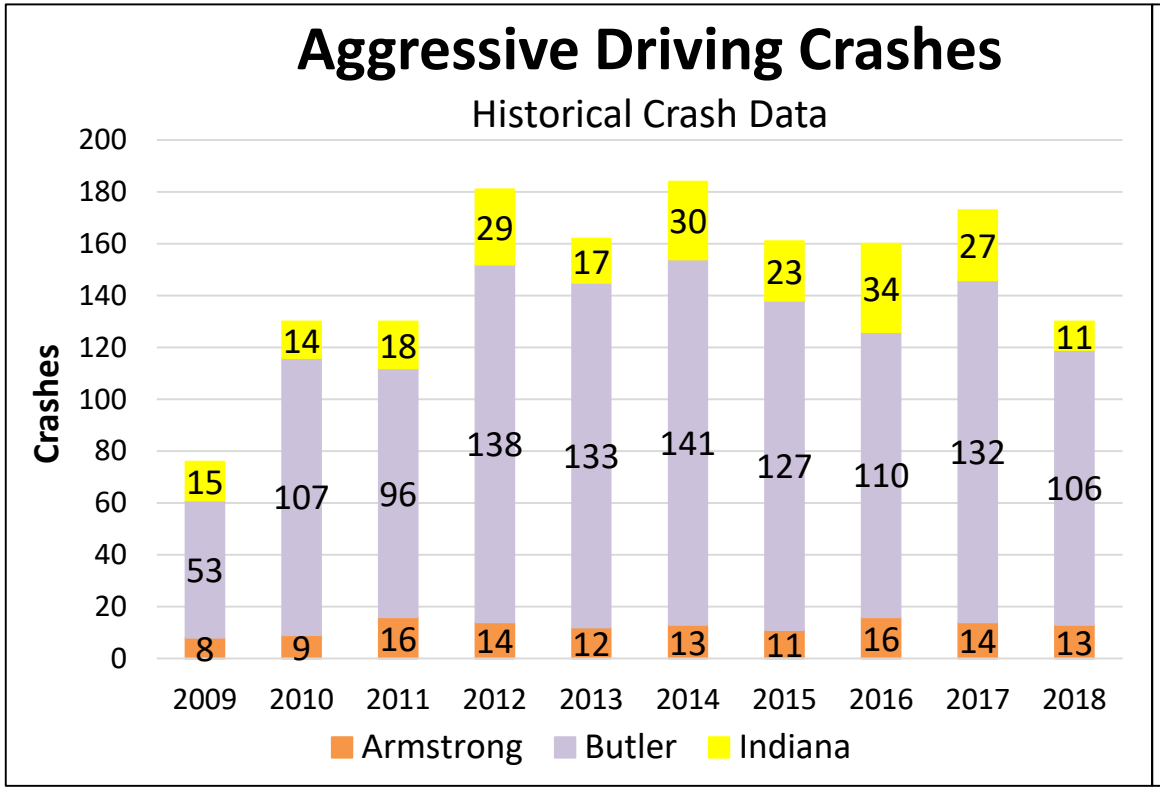


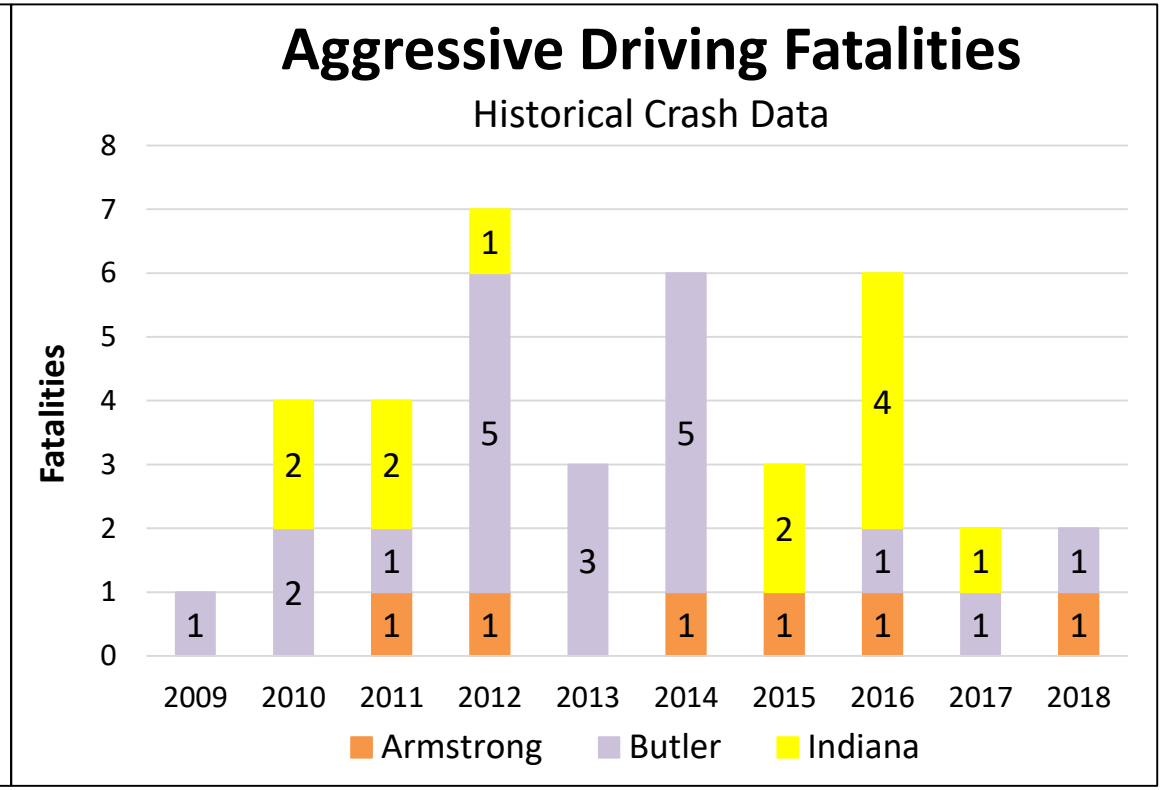
Downward Trend in Crashes

Downward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Aggressive Driving Crashes



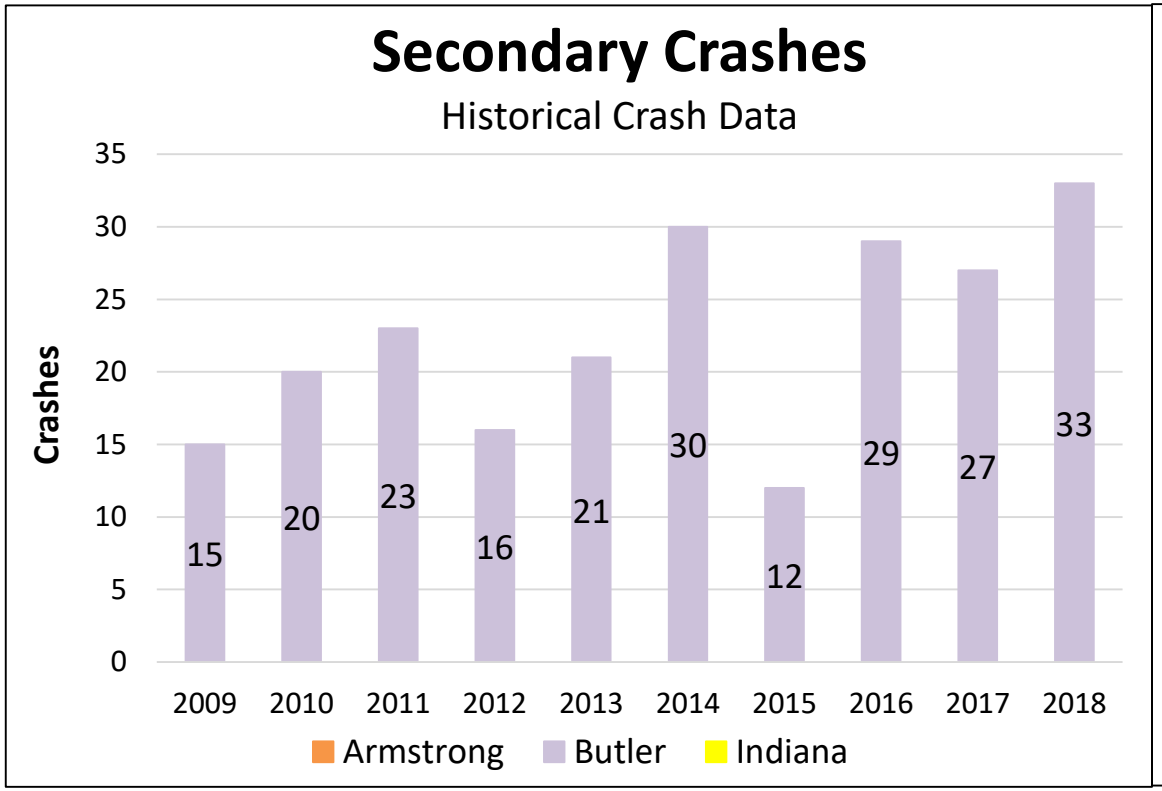


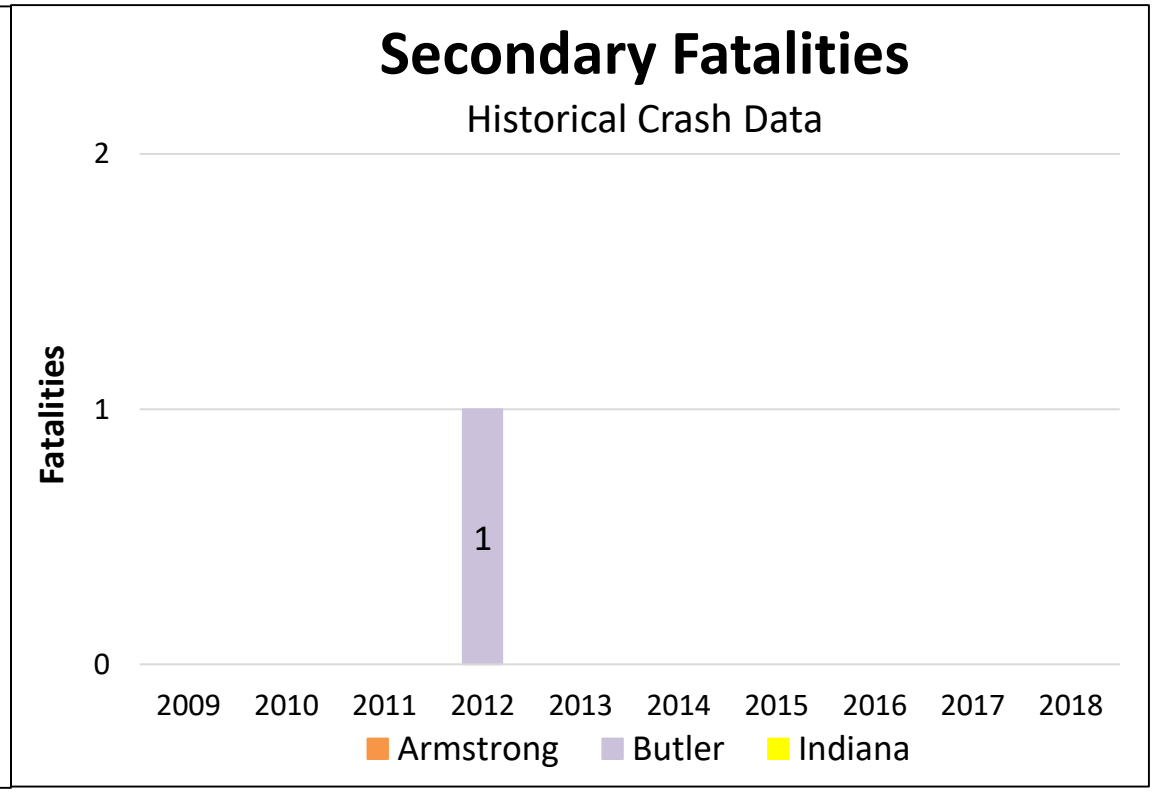
Downward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Secondary Crashes



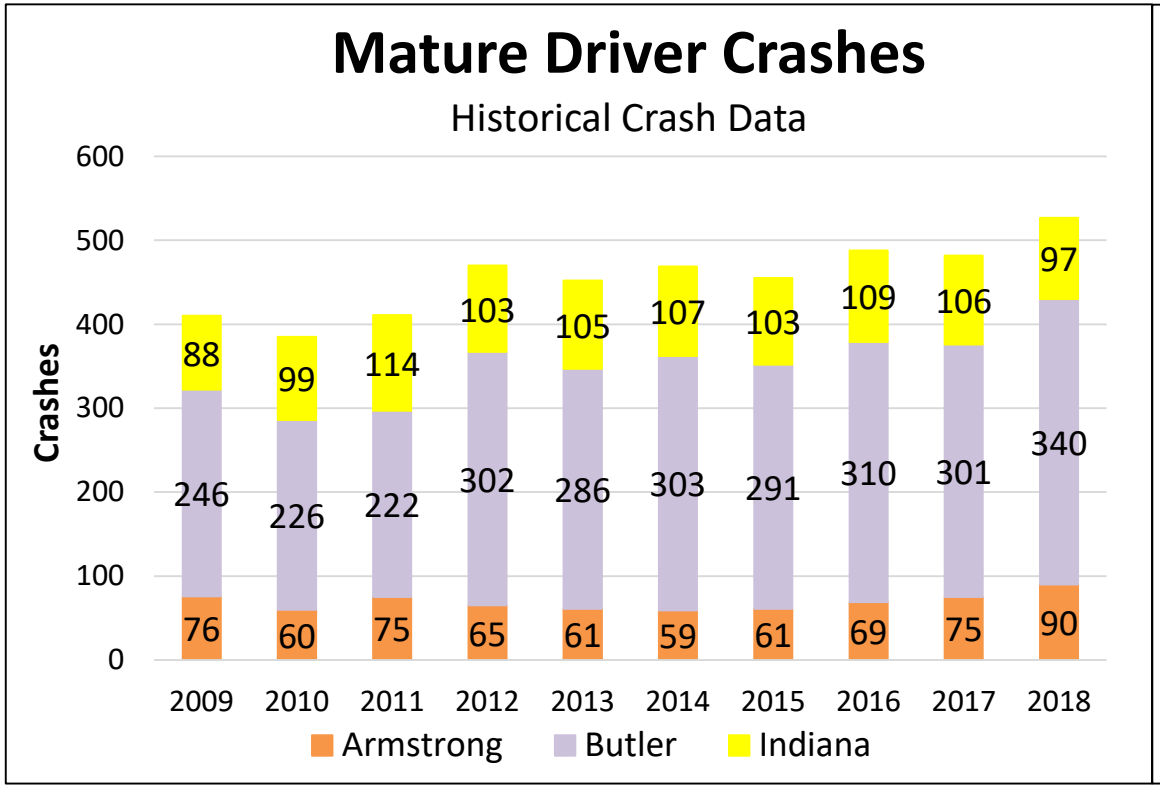


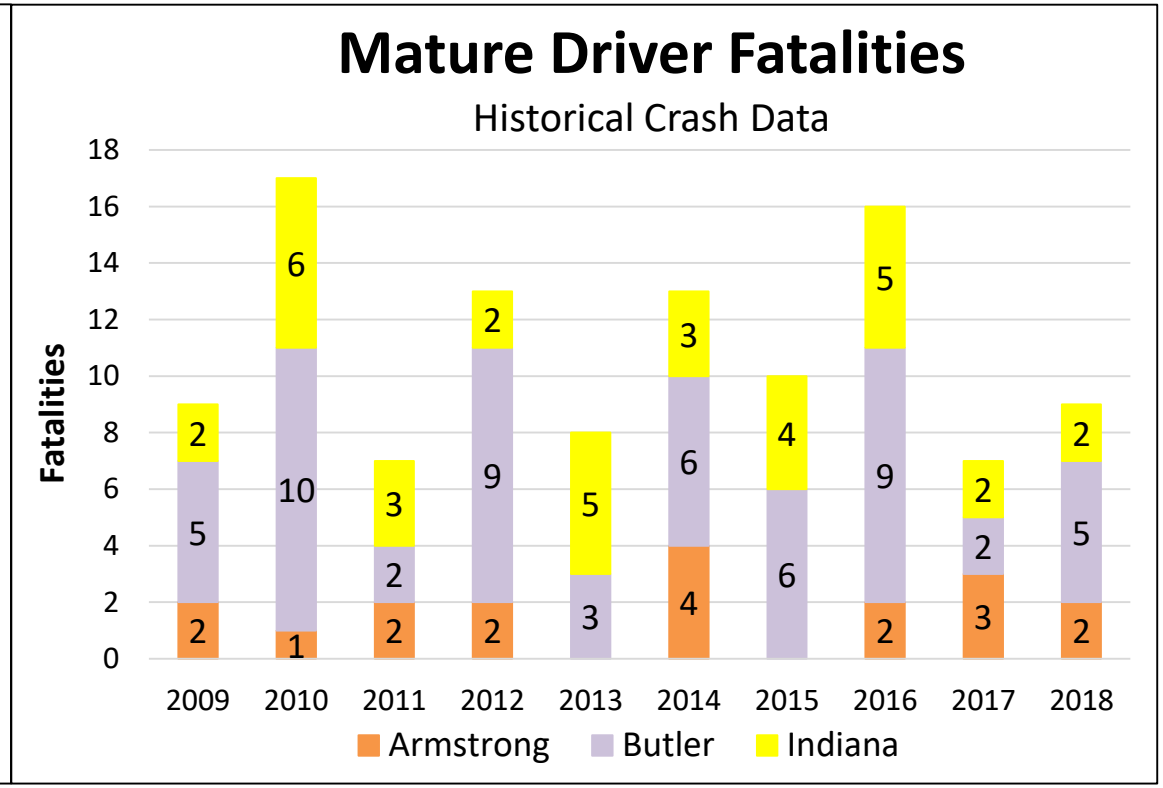
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Mature Driver Crashes



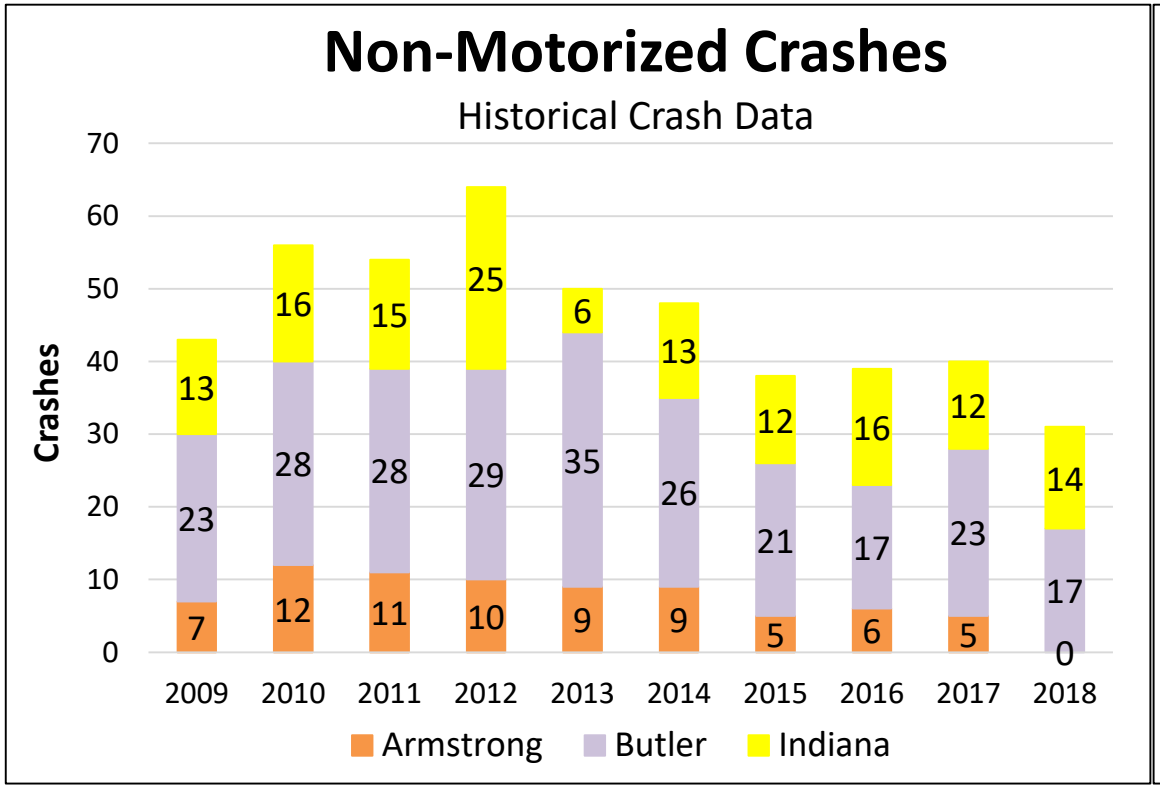


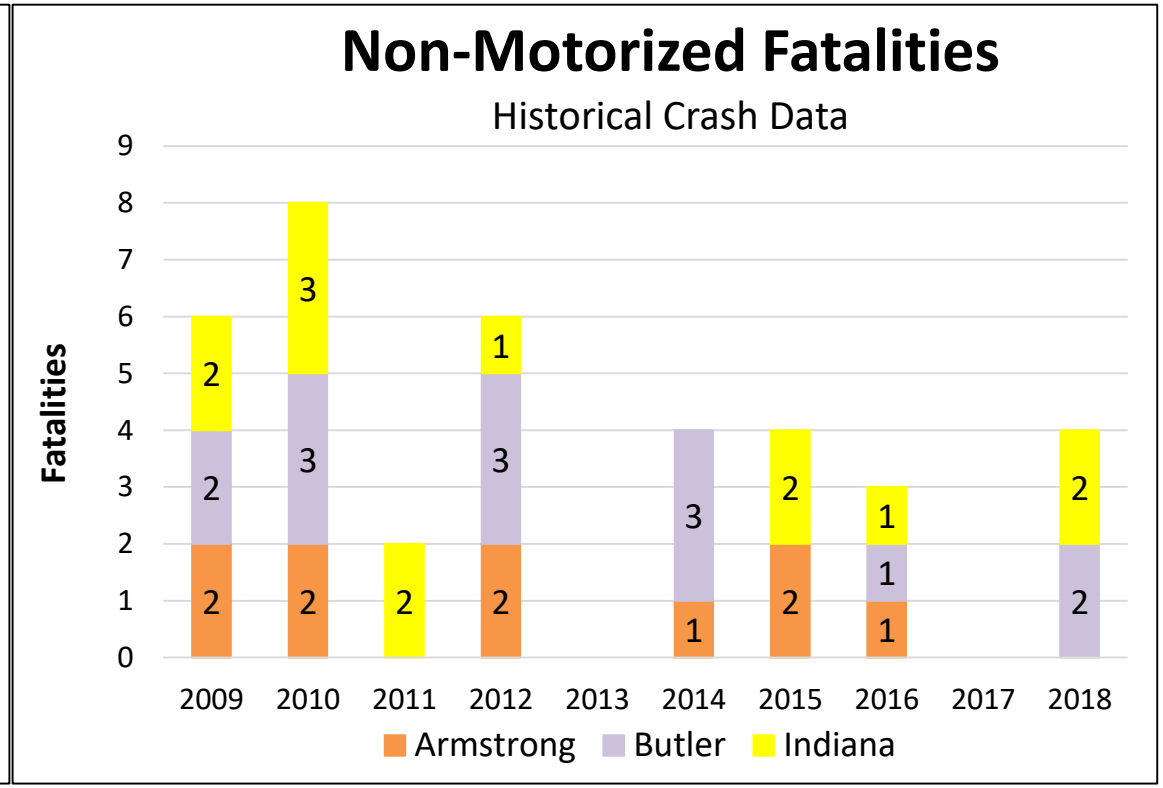
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Non-Motorized (Ped/Bike) Crashes

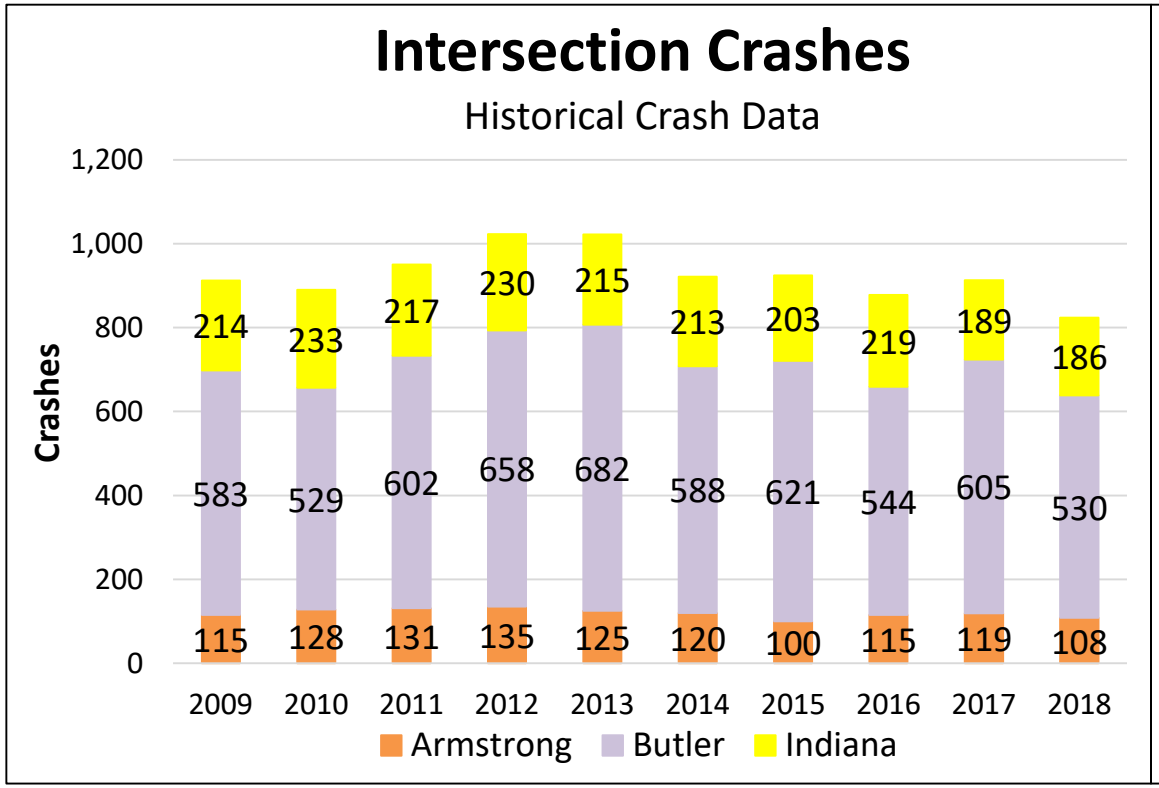


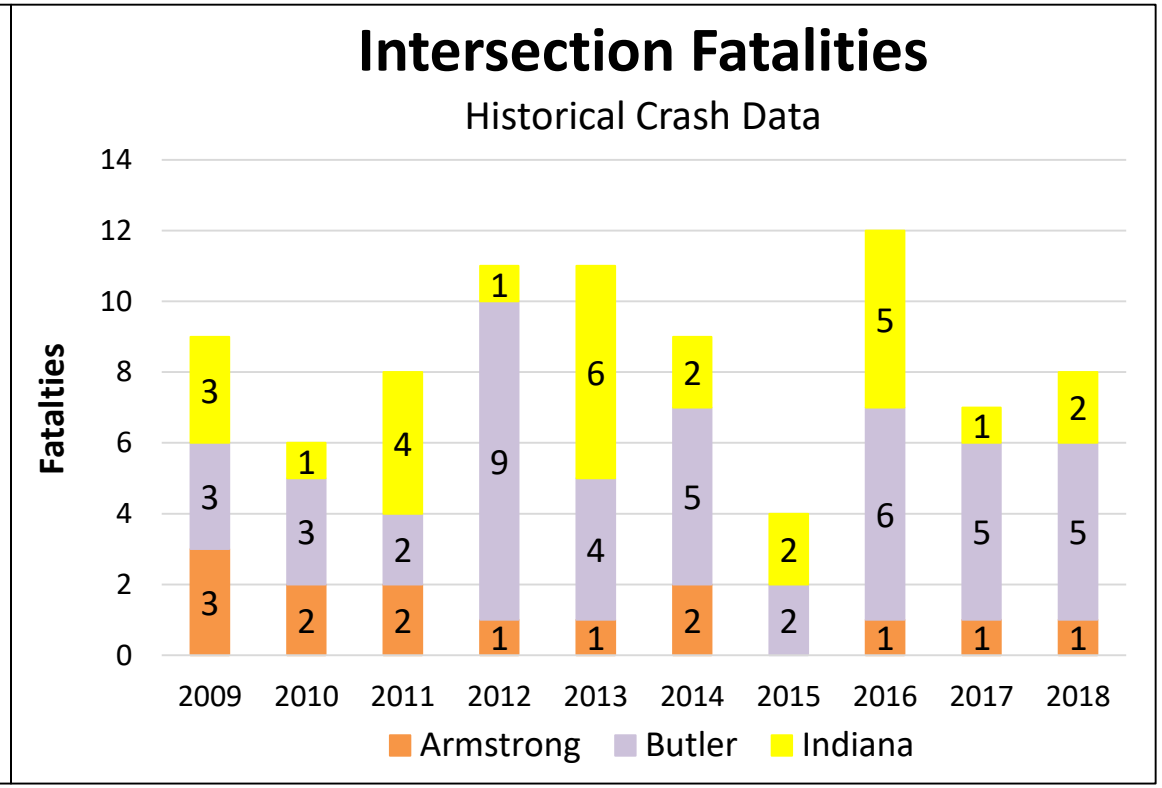


Downward Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Intersection Crashes



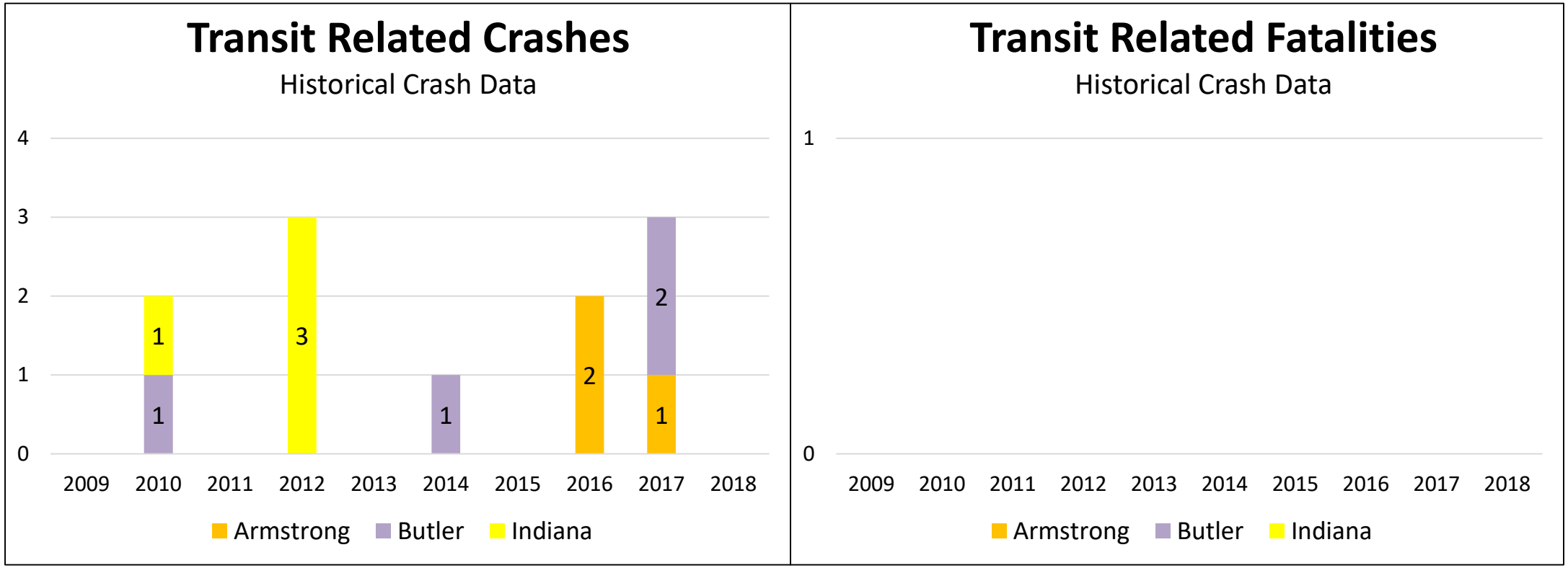


Downward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Transit Related Crashes

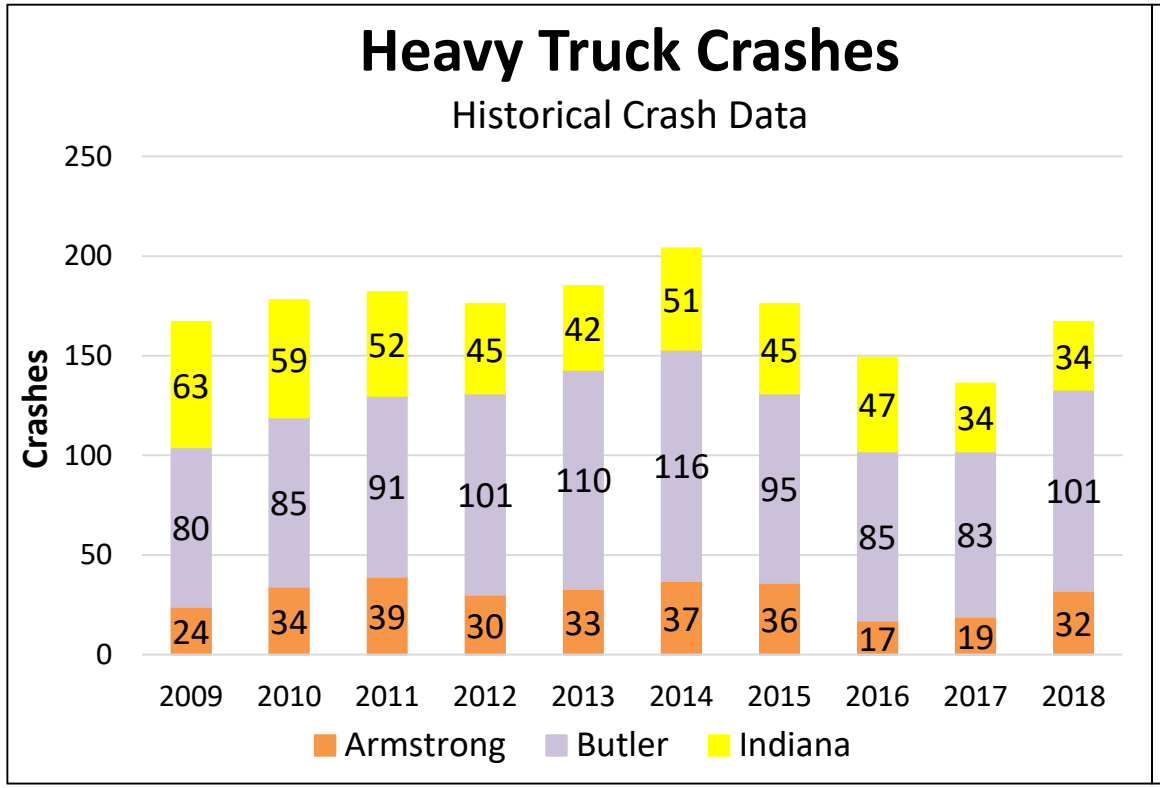


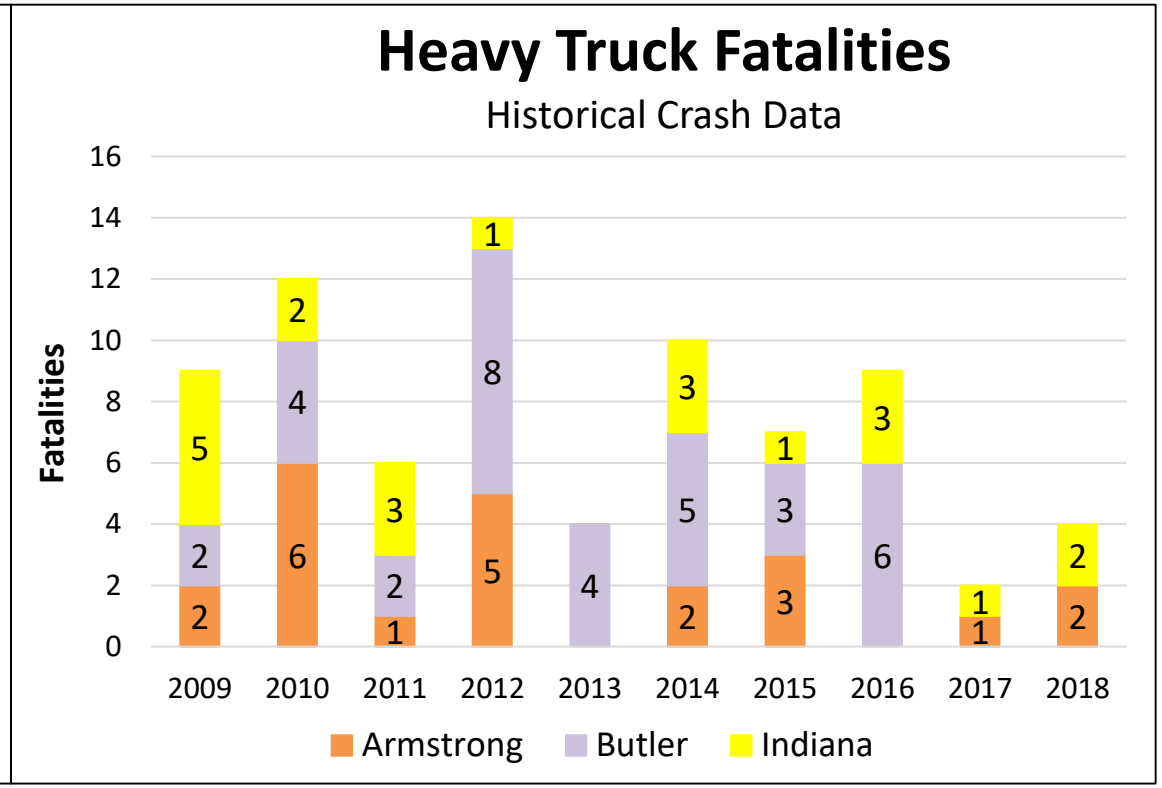
Source: Federal Transit Administration Database

Stagnant Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Heavy Truck Crashes



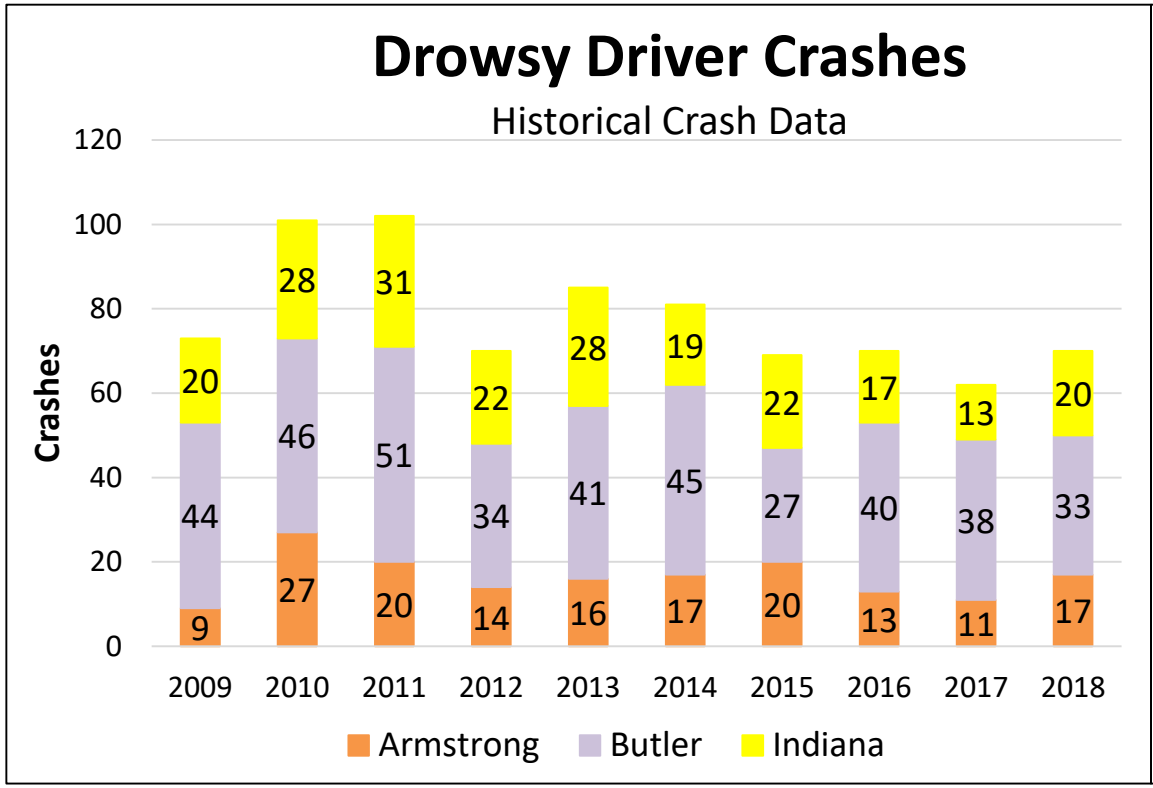


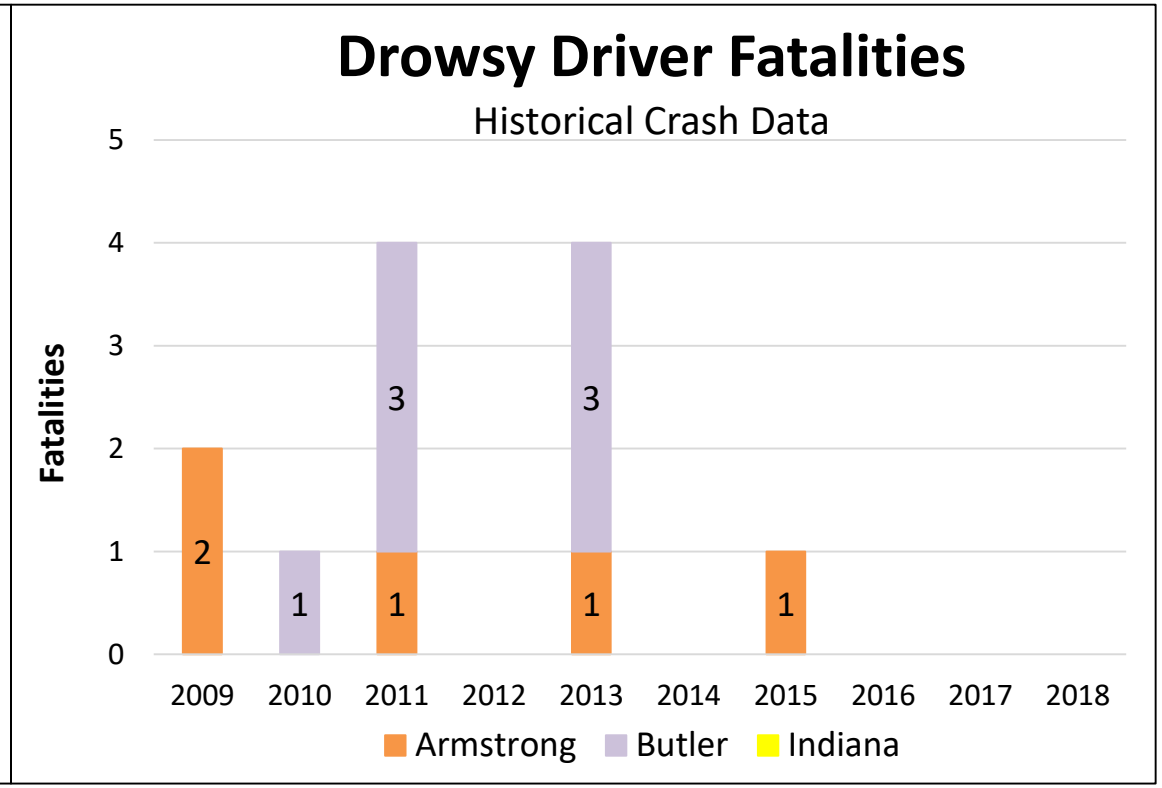
Stagnant Trend in Crashes

Downward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Drowsy Driver Crashes





Downward Trend in Crashes/Fatalities

District-Specific Safety Trends

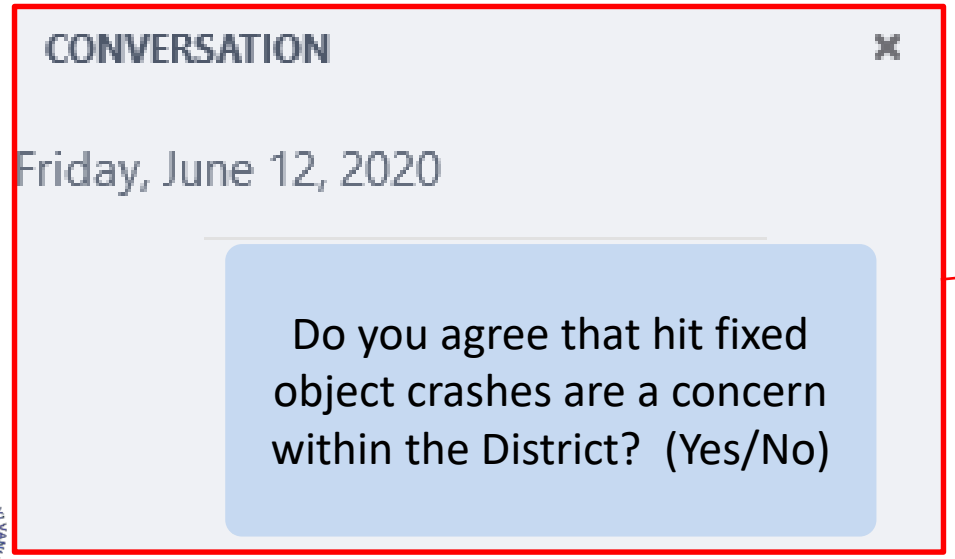
District Safety Focus Areas

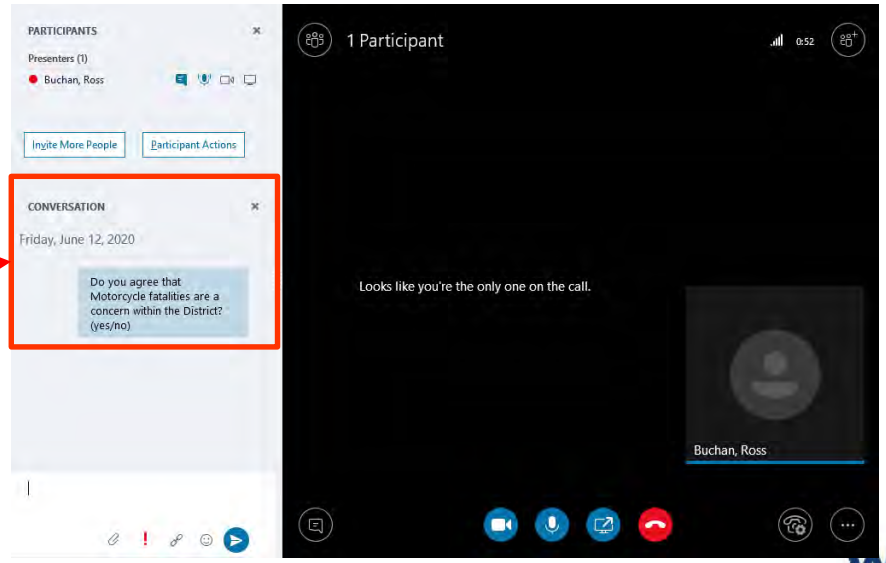
- PennDOT monitors an additional 21 crash categories in addition to the 13 Safety Focus Areas
- Investigated the other 21 categories for disconcerting trends (stagnant or increasing crash trends)
  - Only flagged crash categories where crash frequency and/or fatals are increasing comprehensively within the District (*not per County*)
- Final report will provide data for all 34 PennDOT crash categories

District-Specific Safety Trends

District Safety Focus Area Exercise

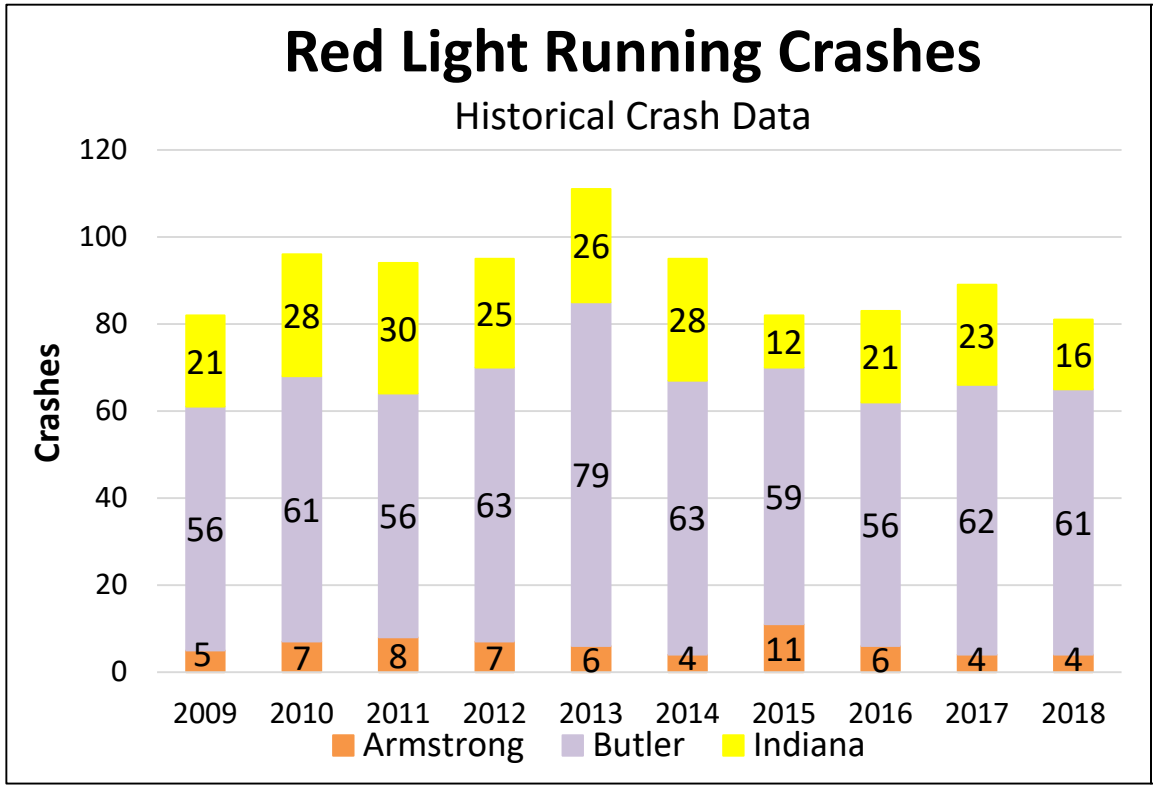
- Presenter to review stagnant or increasing Districtwide crash trends not discussed on the previous slides
- Presenter will prompt attendees to provide feedback in the Skype chat box during review of slide
  - Presenter will type question into chat box requesting “yes” or “no” response to make the crash trend a District Safety Focus Area

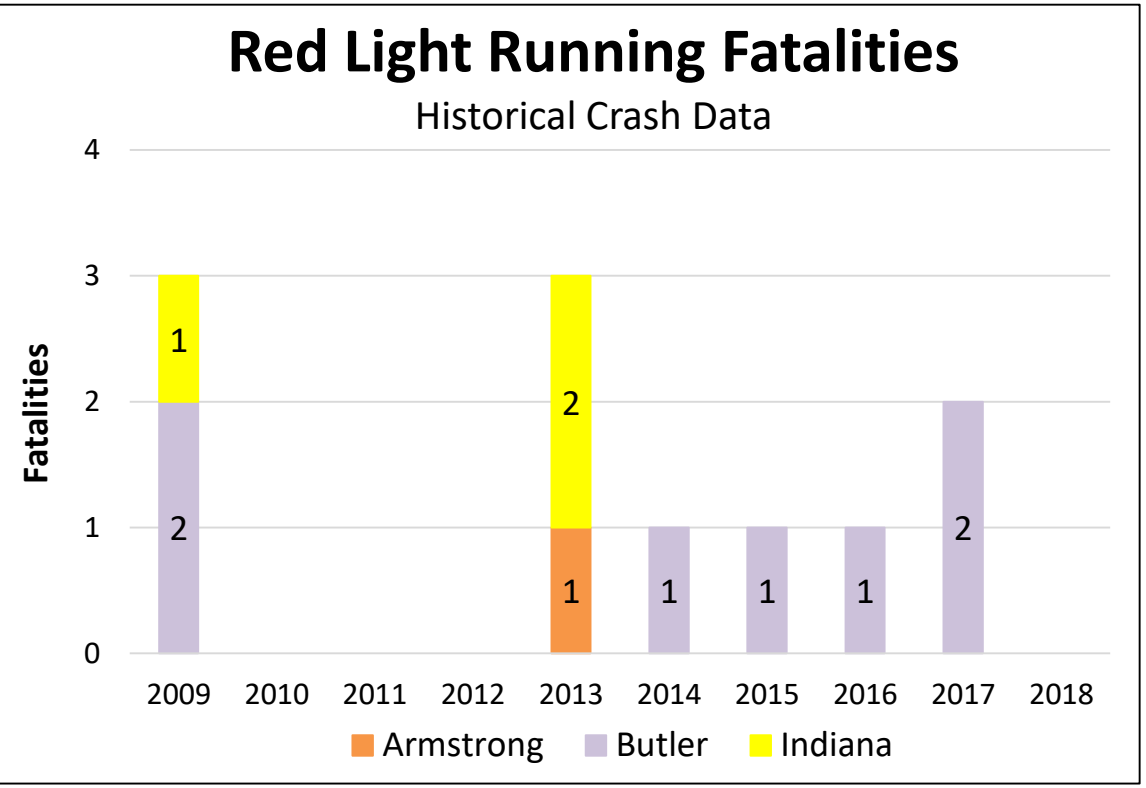




District-Specific Safety Trends

District Focus Area: Red Light Running Crashes

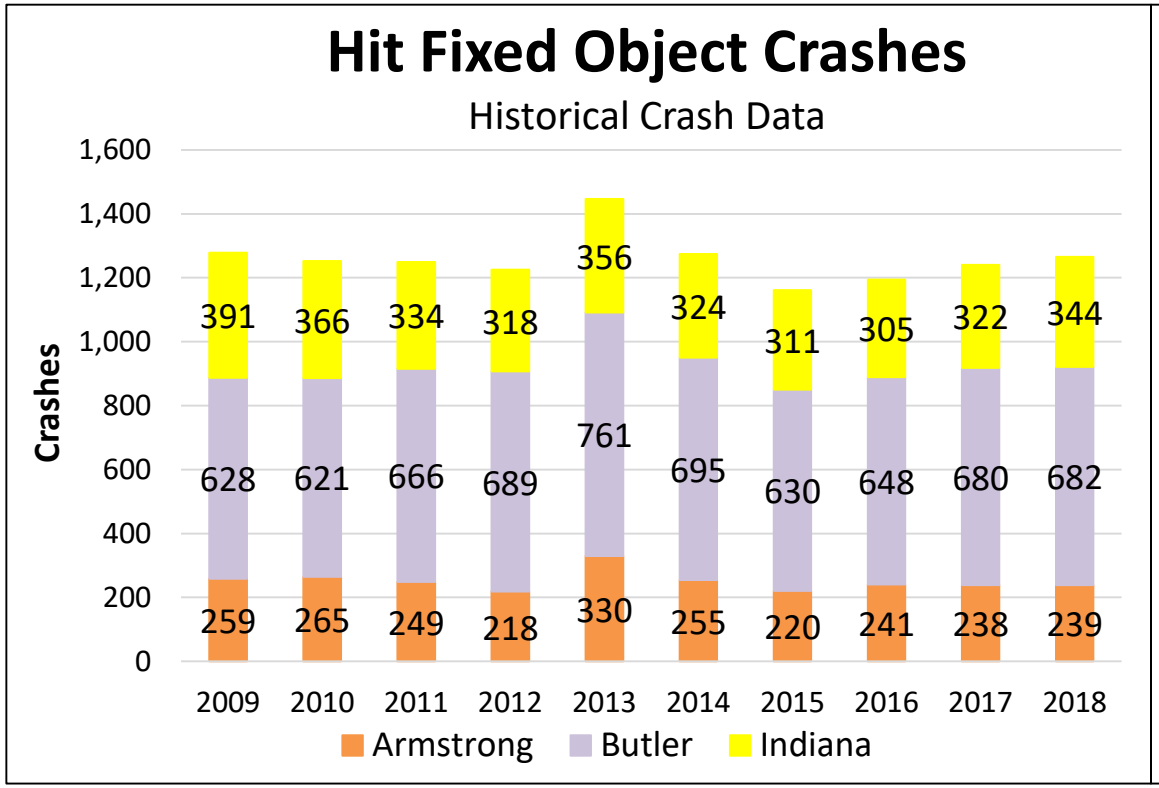


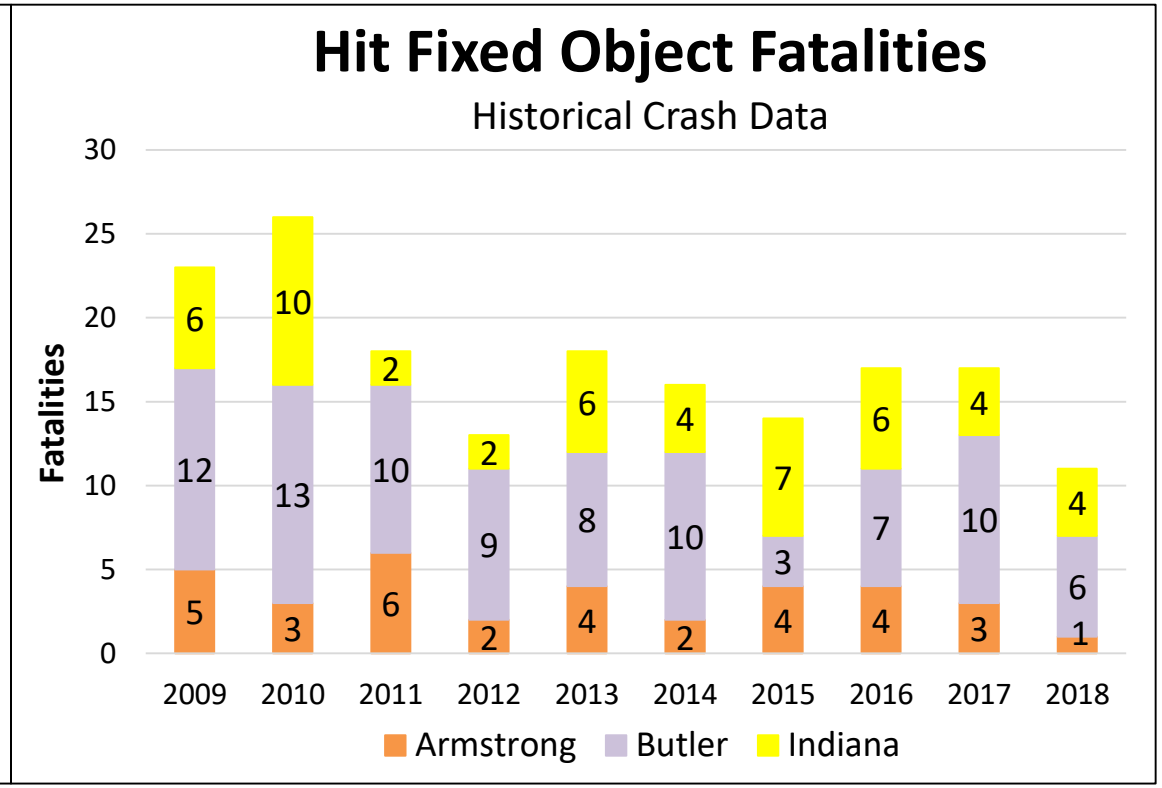


Stagnant Trend in Crashes/Fatalities

District-Specific Safety Trends

District Safety Focus Area: Hit Fixed Object Crashes



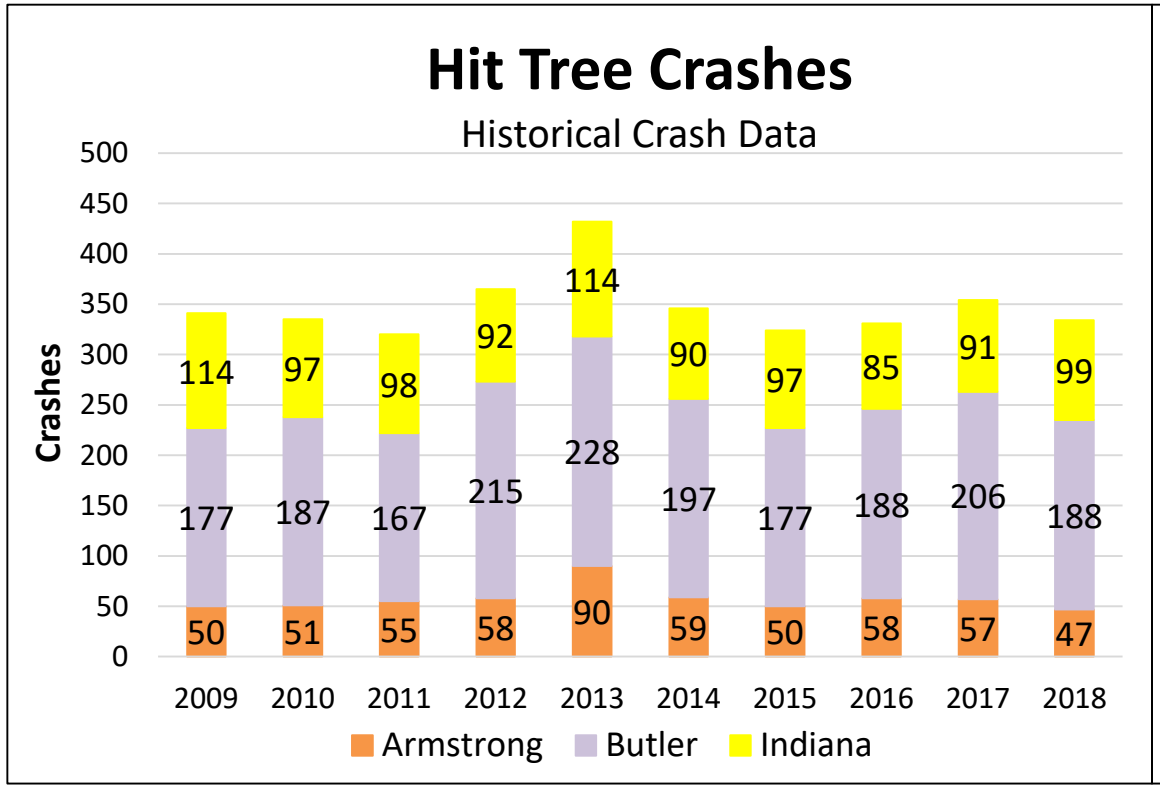


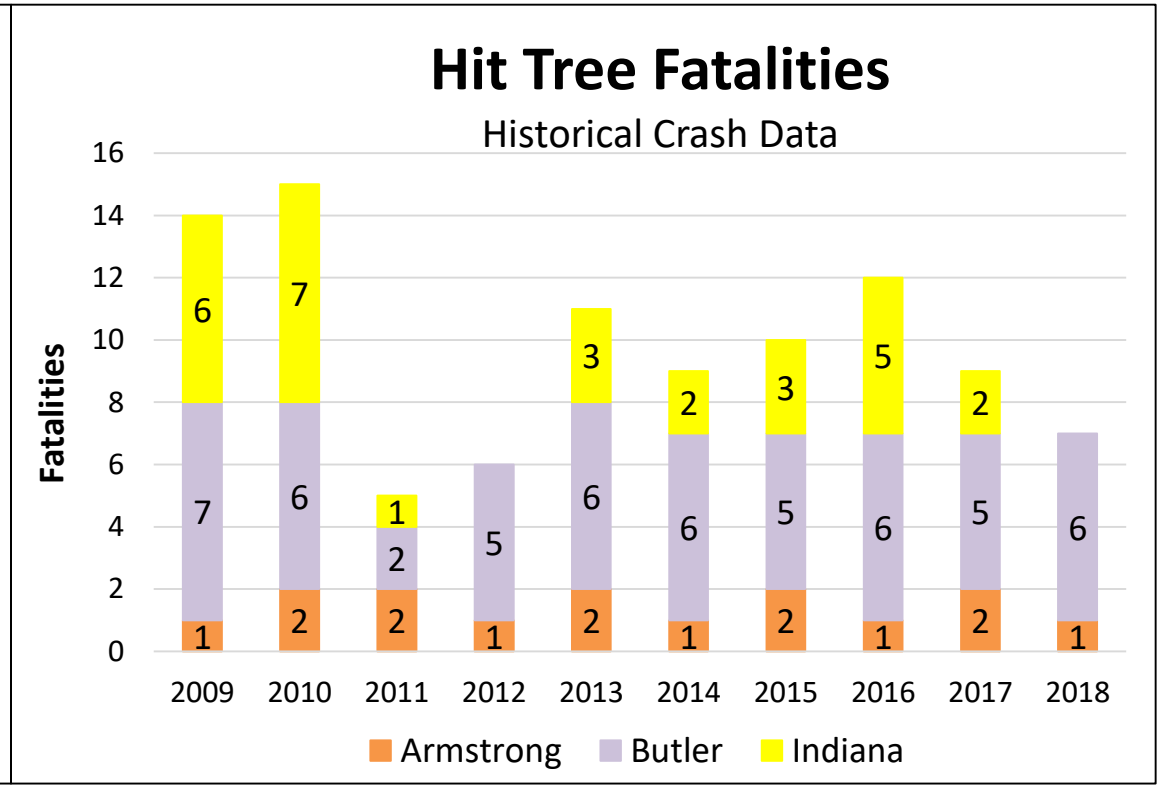
Stagnant Trend in Crashes

Downward Trend in Fatalities

District-Specific Safety Trends

District Safety Focus Area: Hit Tree Crashes



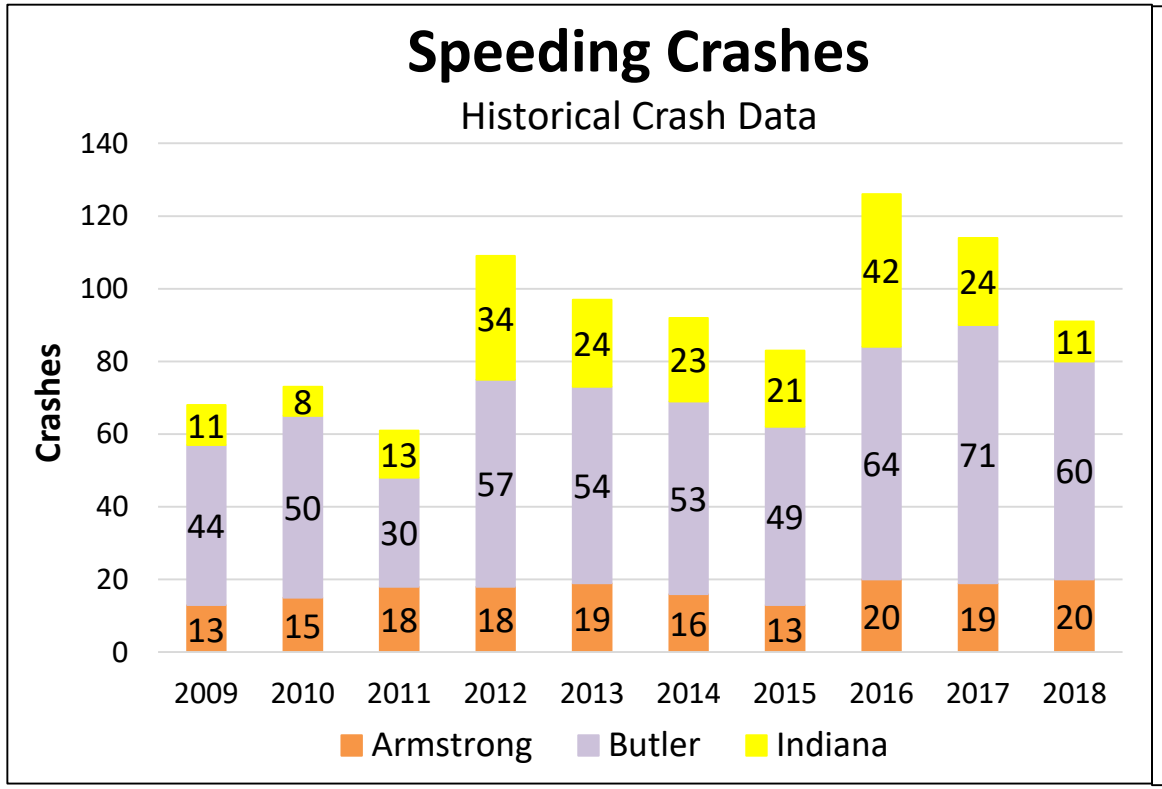


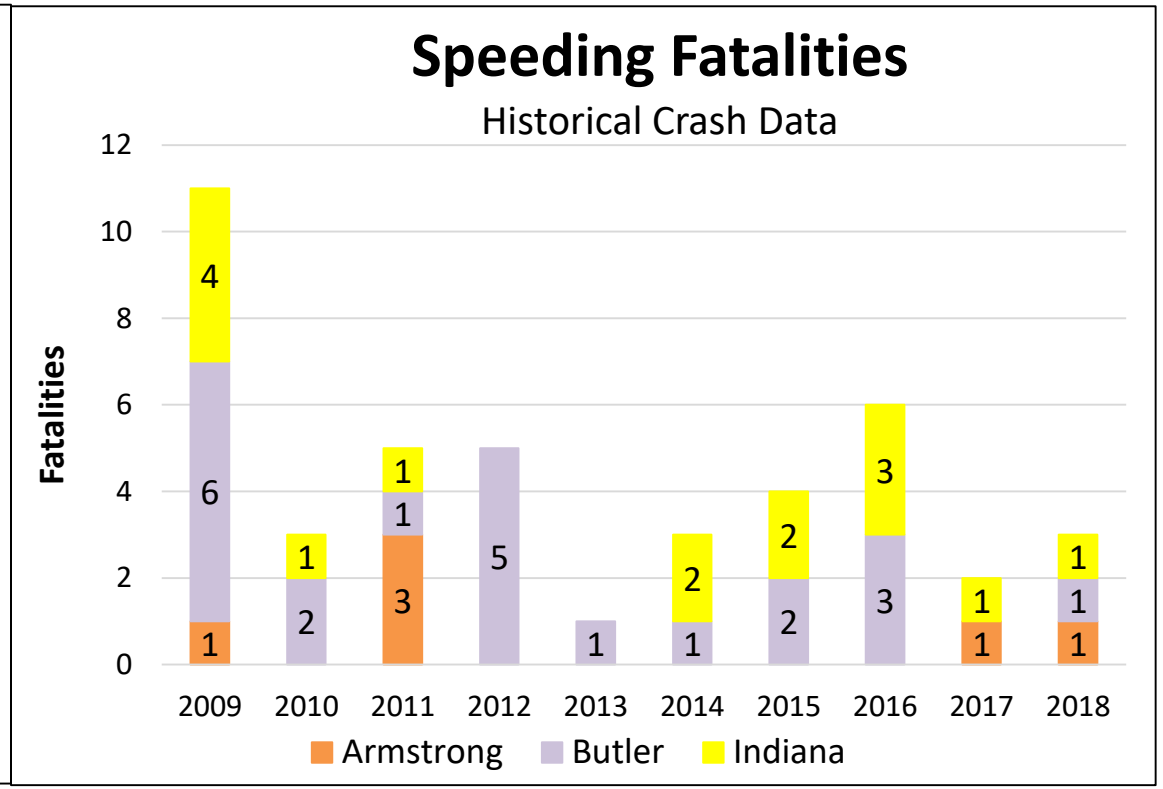
Stagnant Trend in Crashes

Downward Trend in Fatalities

District-Specific Safety Trends

District Safety Focus Area: Speeding Crashes





Stagnant Trend in Crashes/Fatalities

SPC SAFETY ACTION PLAN UPDATE

District 11-0 Stakeholder Meeting

June 22, 2020

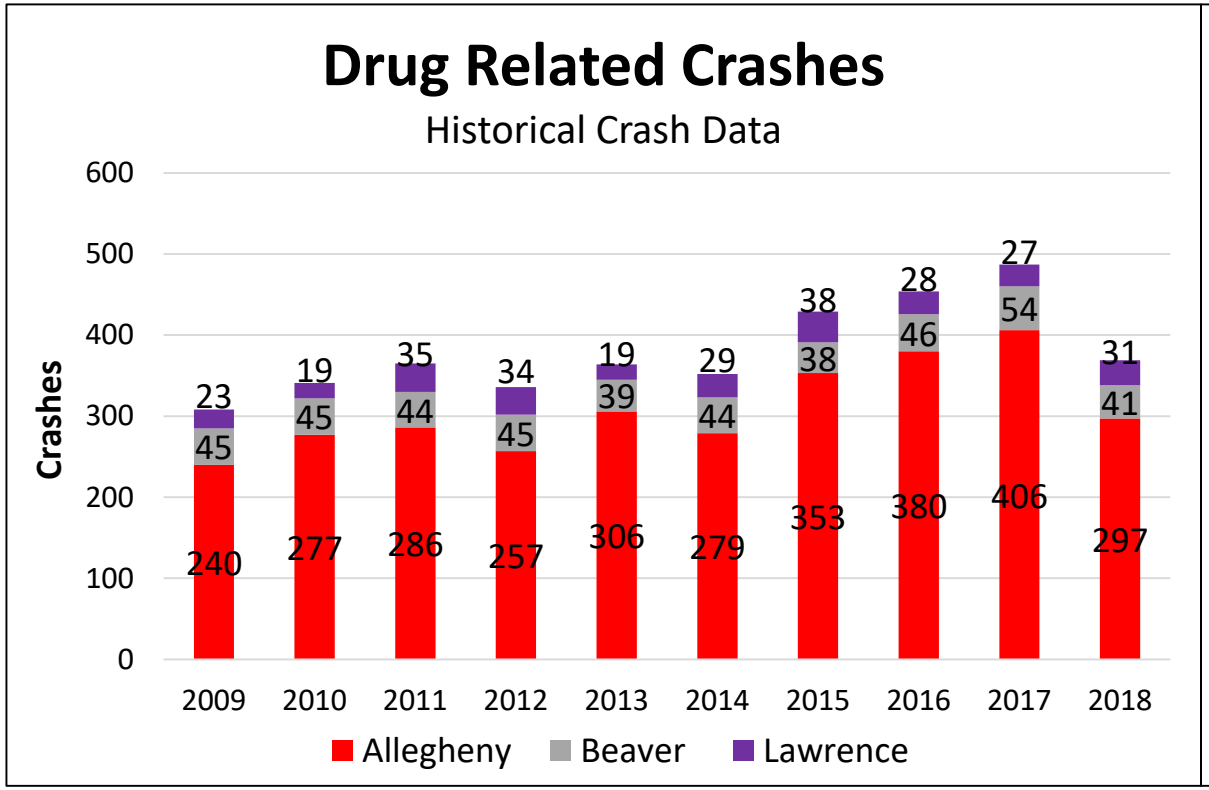
Safety Focus Area Performance

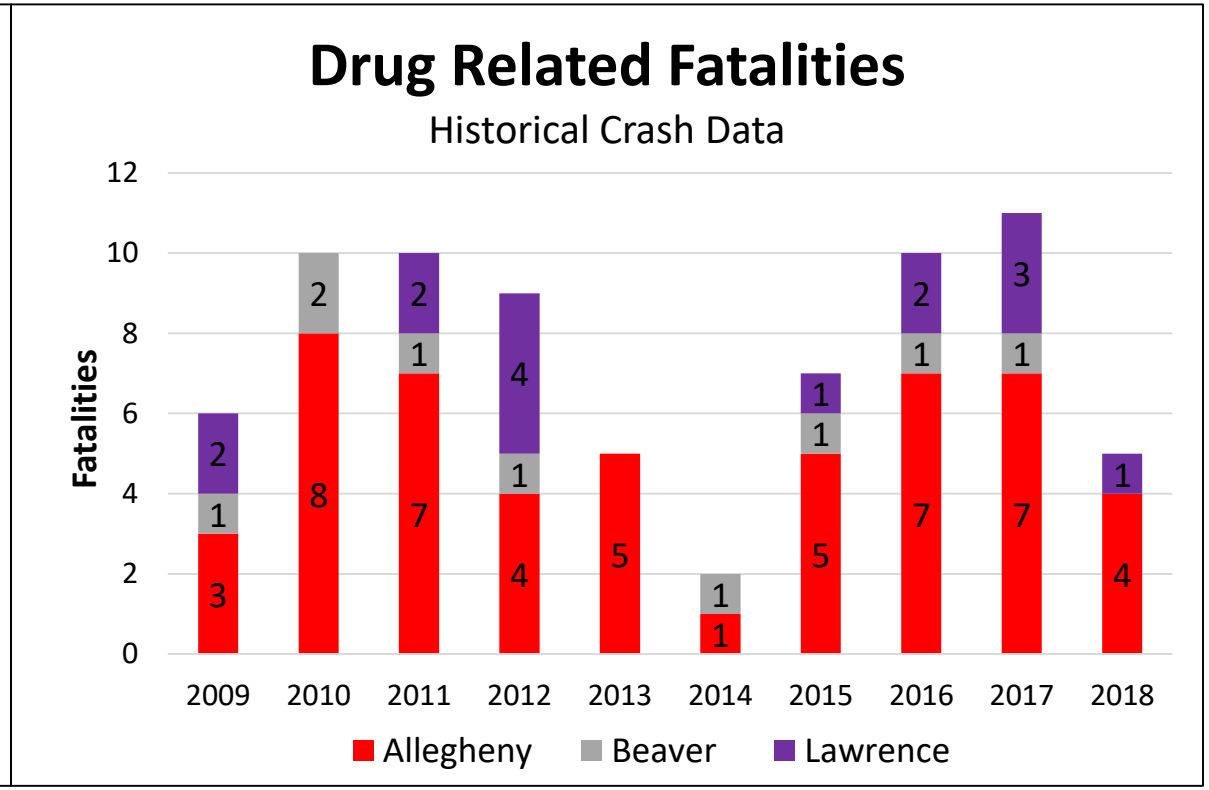
Safety Focus Areas

- 13 Safety Focus Area were identified by the Steering Committee for the 2020 SAP Update
  1) Drug related crashes
  2) Distracted driving crashes
  3) Run-off-road crashes
  4) Head-on crashes
  5) Signalized intersection crashes
  6) Aggressive driving crashes
  7) Secondary crashes
  8) Mature driver crashes
  9) Non-motorized (ped/bike) crashes
  10) Intersection crashes
  11) Transit-related crashes
  12) Heavy truck crashes
  13) Drowsy driver crashes
- Confirm District/County performance (i.e. total crashes and fatalities) in each of the 13 Safety Focus Areas

Safety Focus Area Performance

Safety Focus Area: Drug Related Crashes

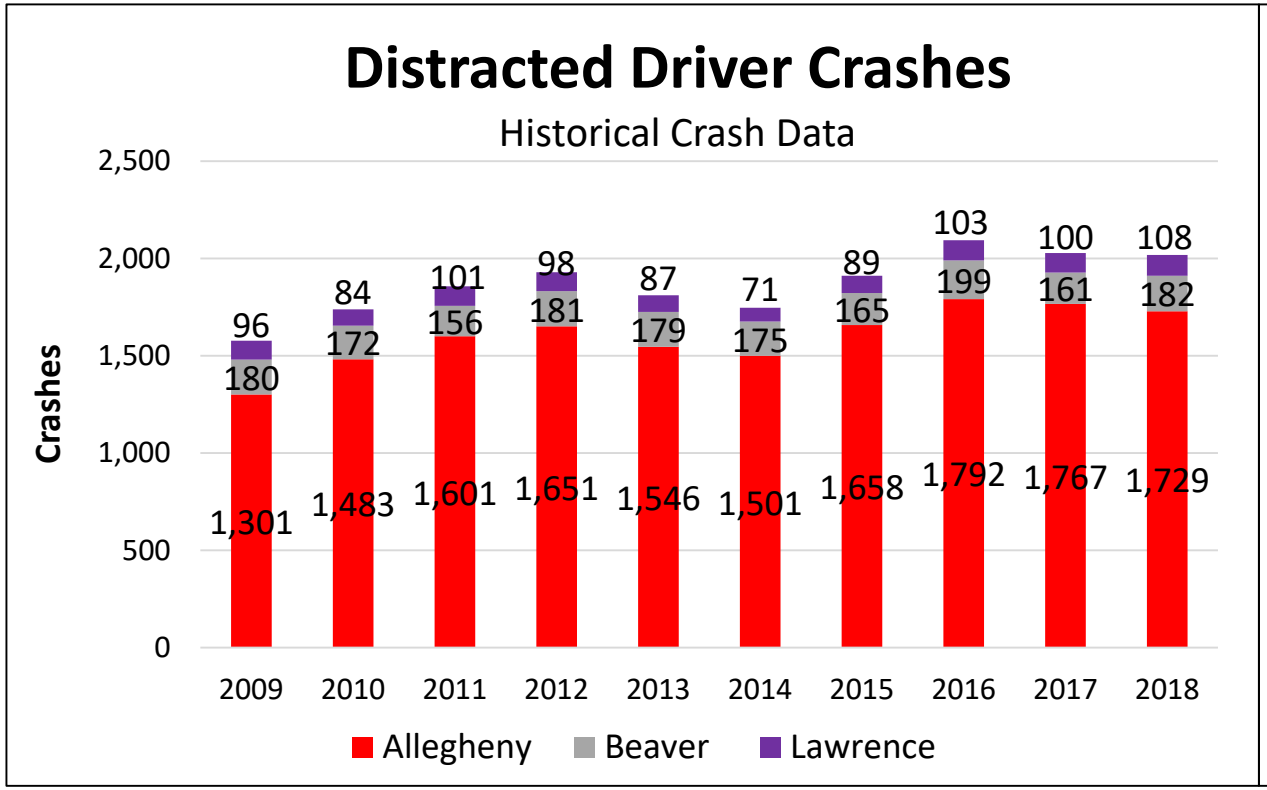


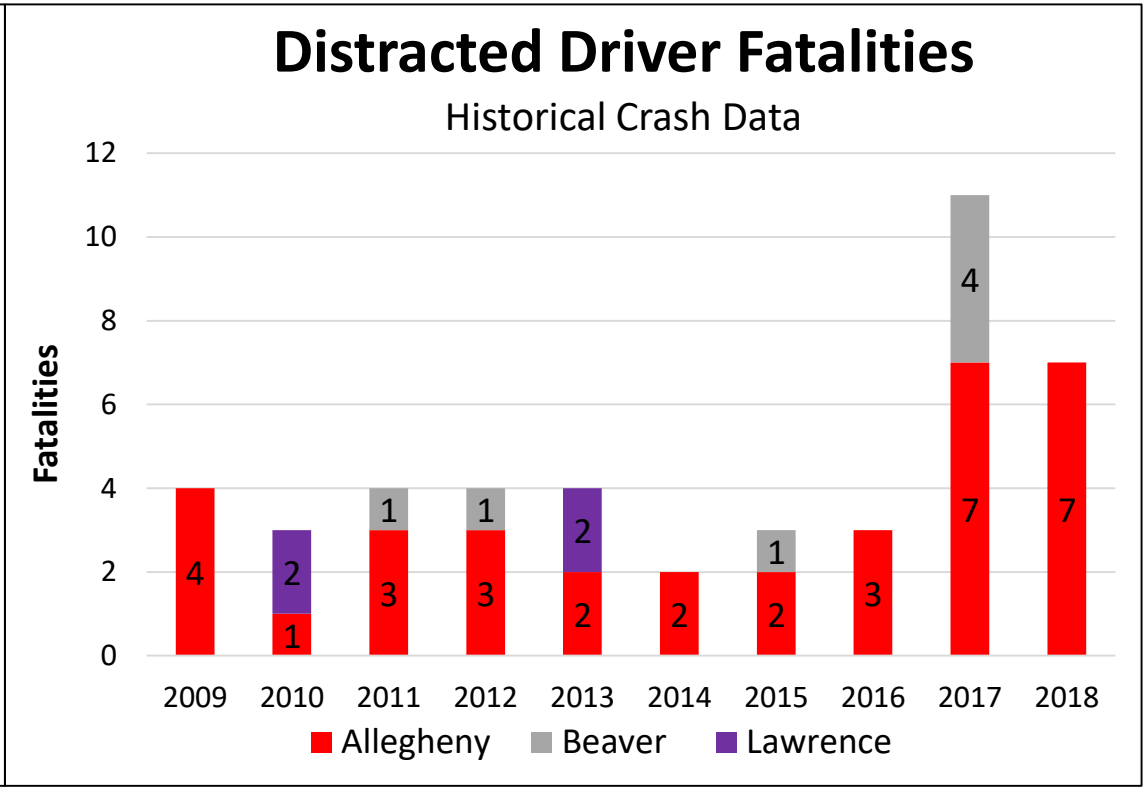


Upward Trend in Crashes/Fatals

Safety Focus Area Performance

Safety Focus Area: Distracted Driver Crashes

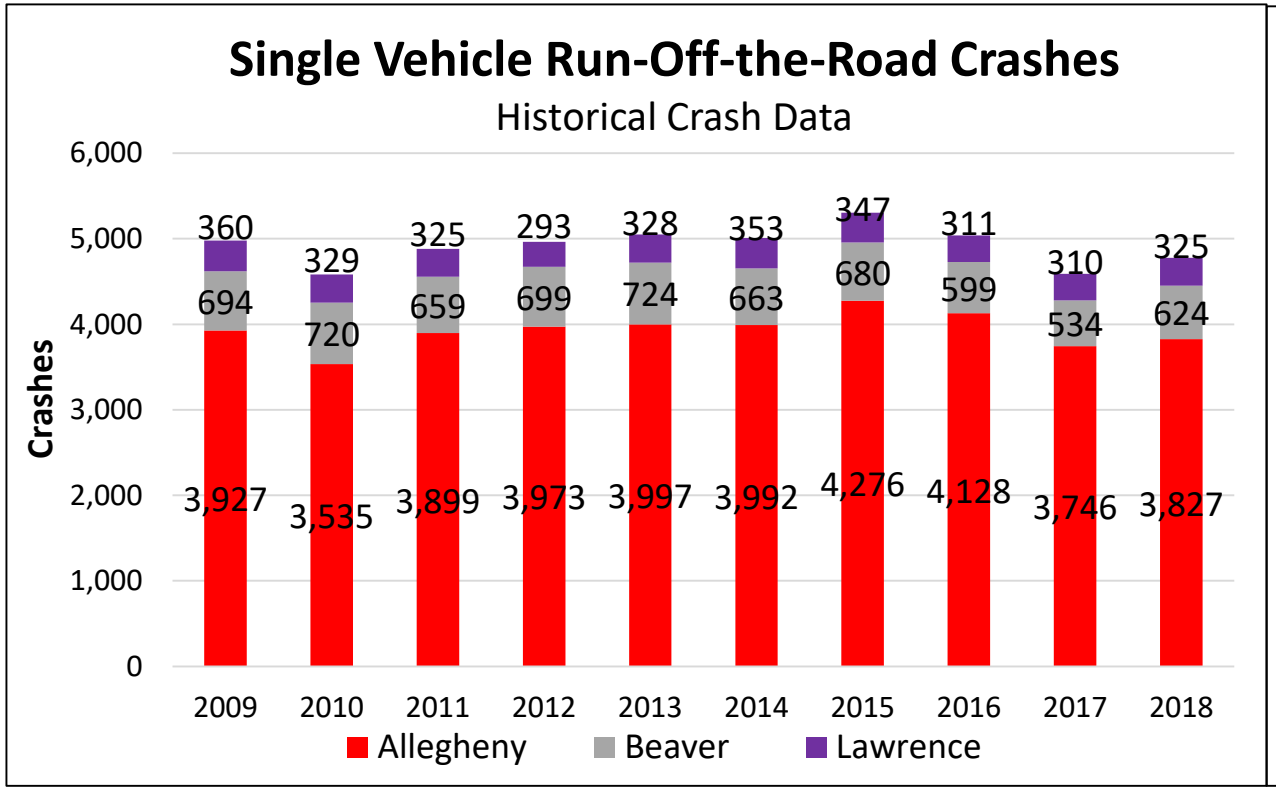


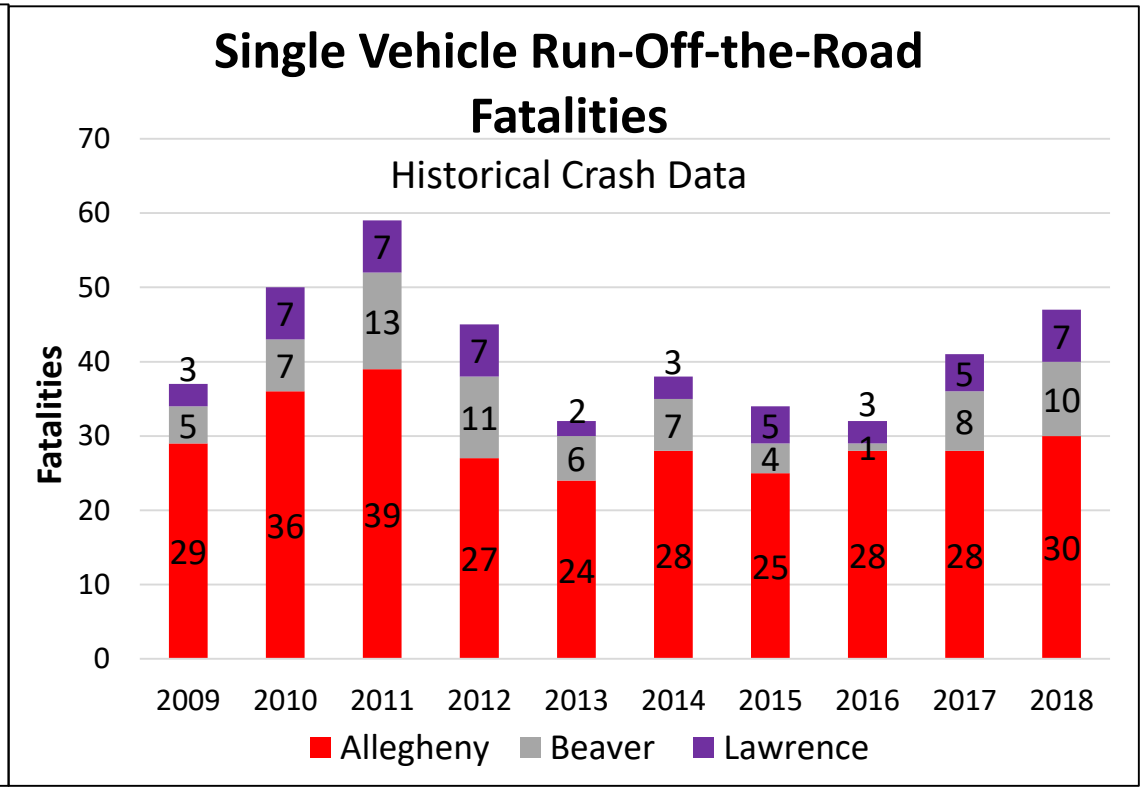


Upward Trend in Crashes/Fatals

Safety Focus Area Performance

Safety Focus Area: Single Vehicle Run-Off-The-Road Crashes



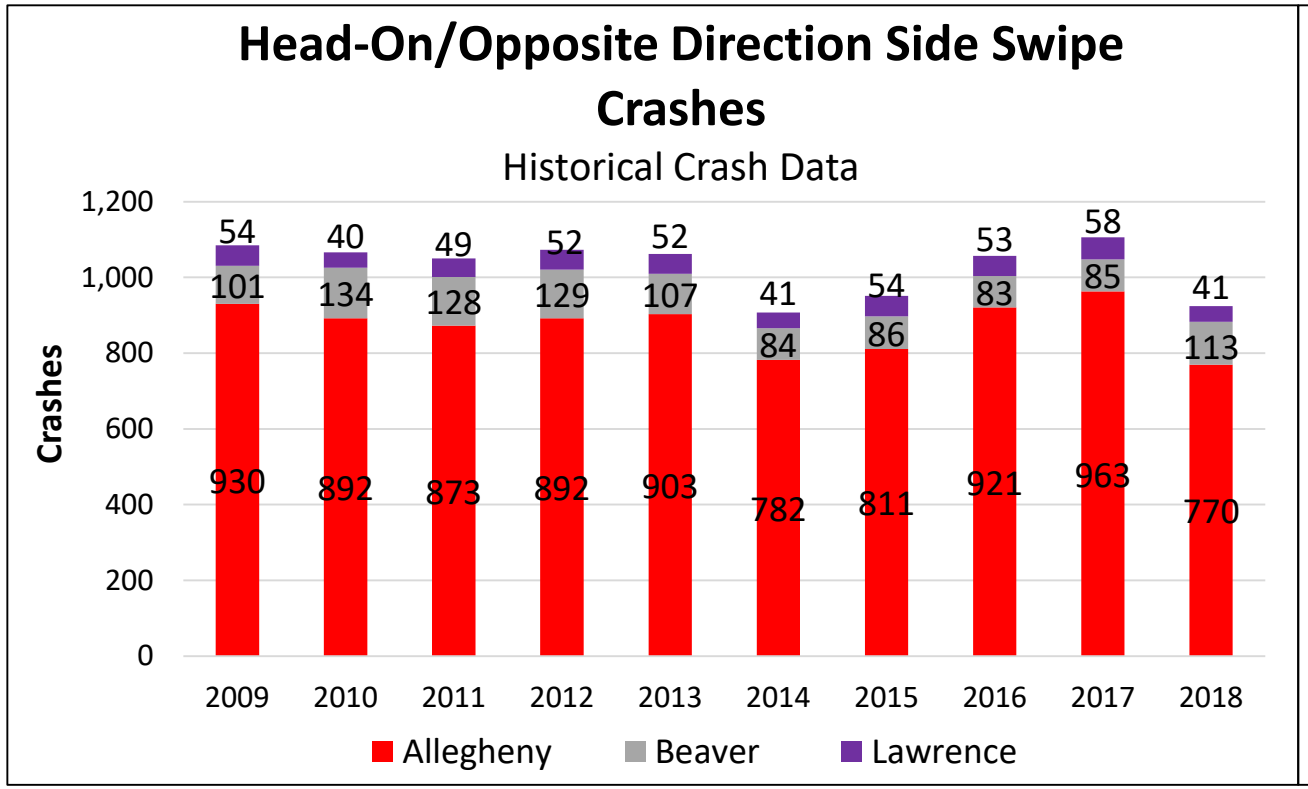


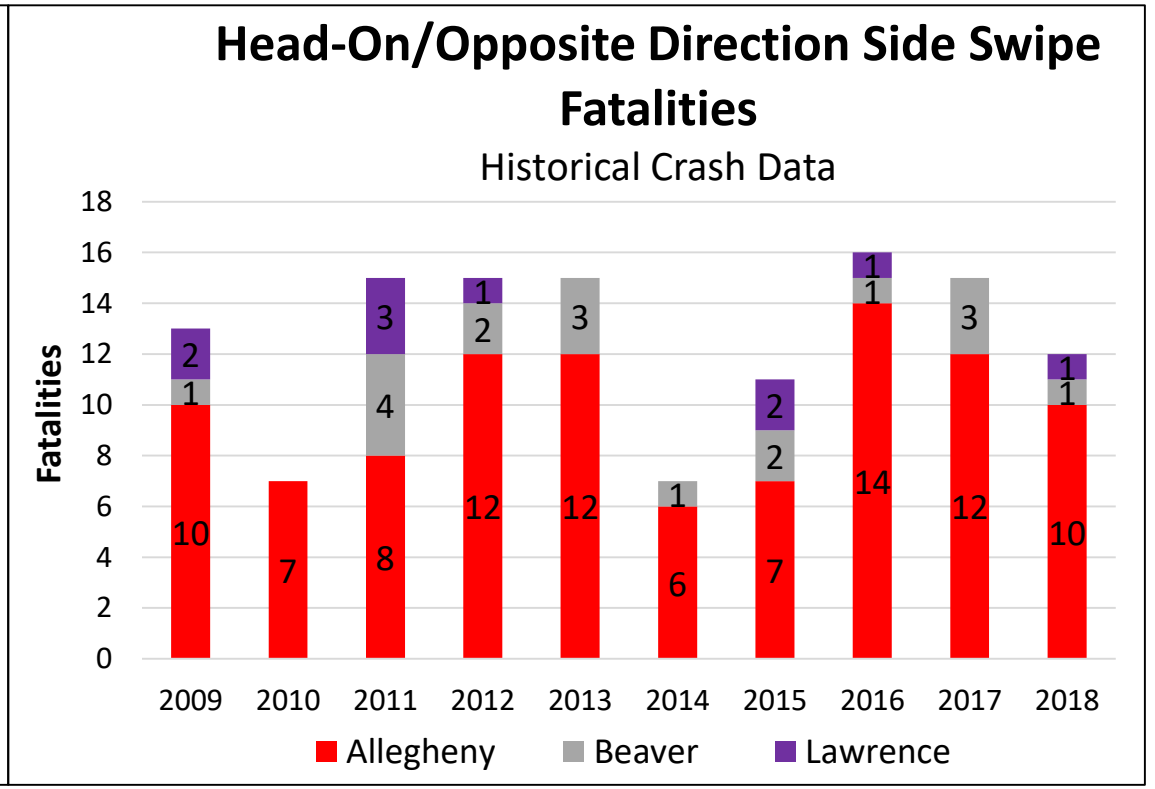
Stagnant Trend in Crashes

Upward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Head-On/Opposite Direction Side Swipe Crashes

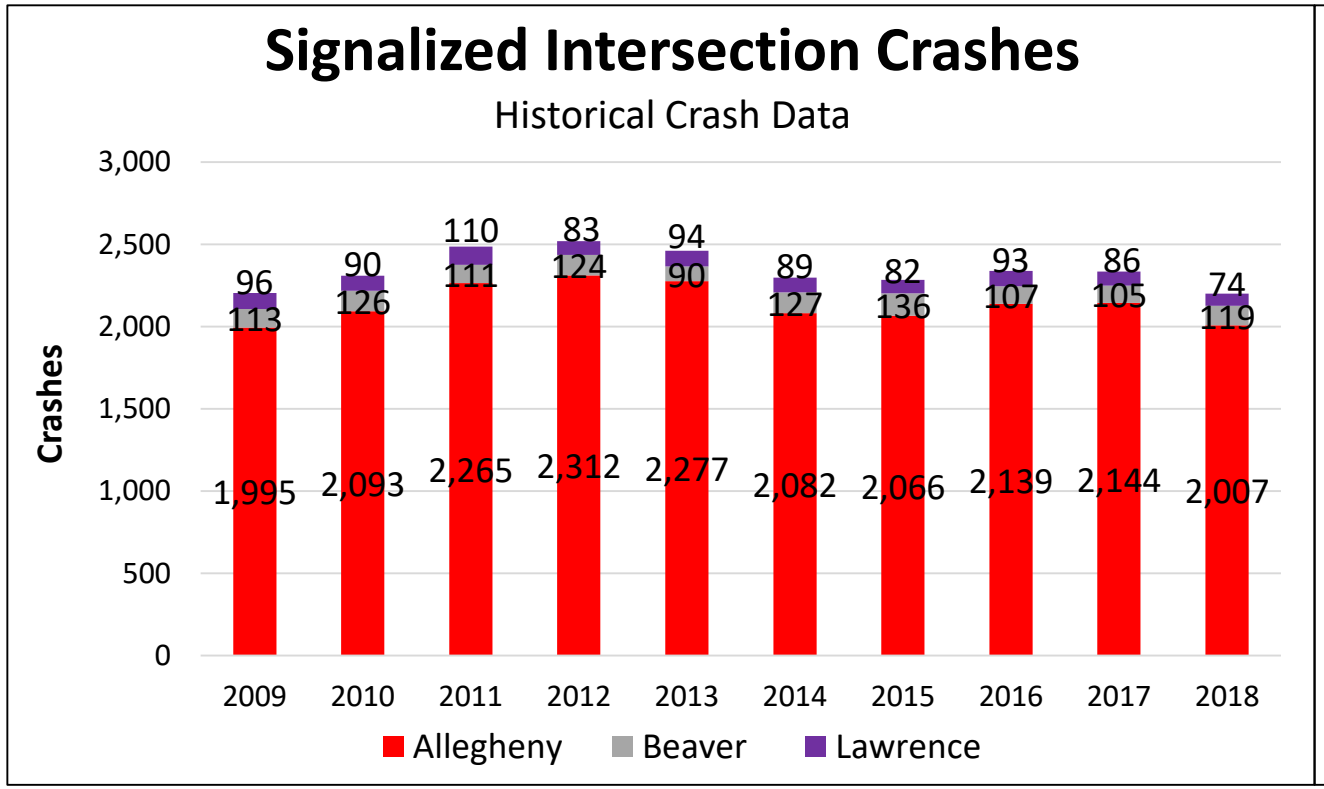


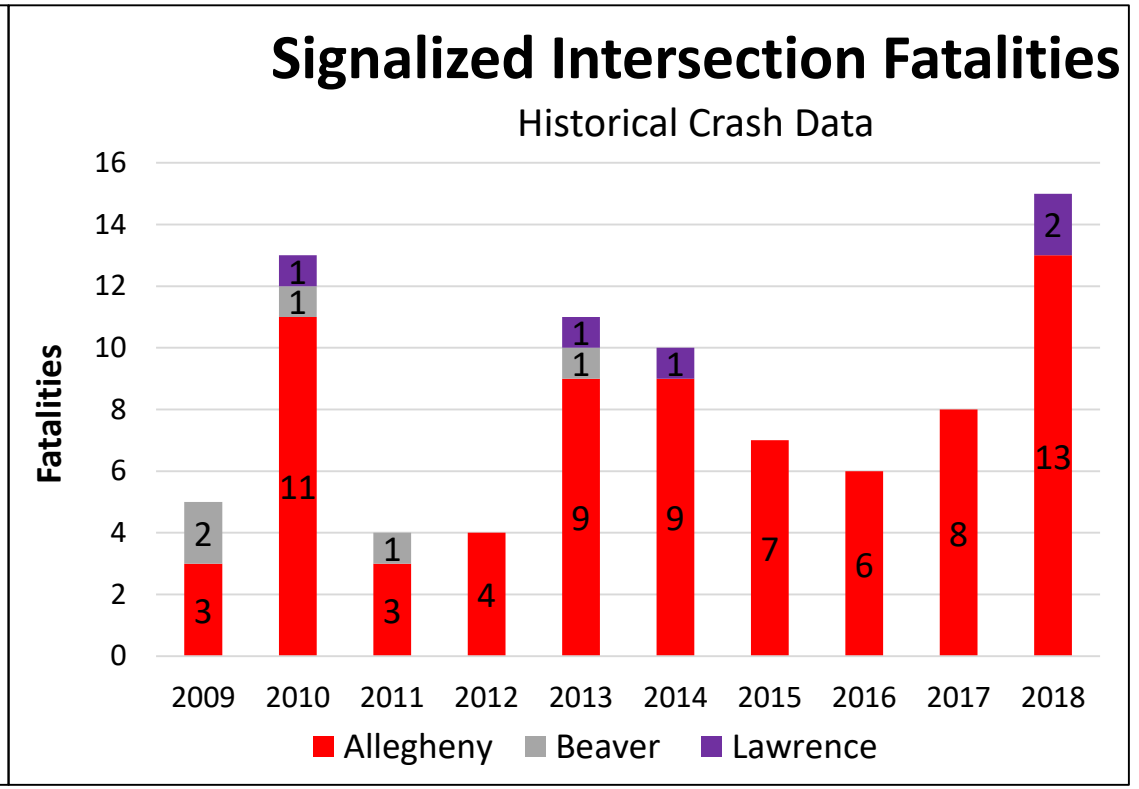


Stagnant Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Signalized Intersection Crashes



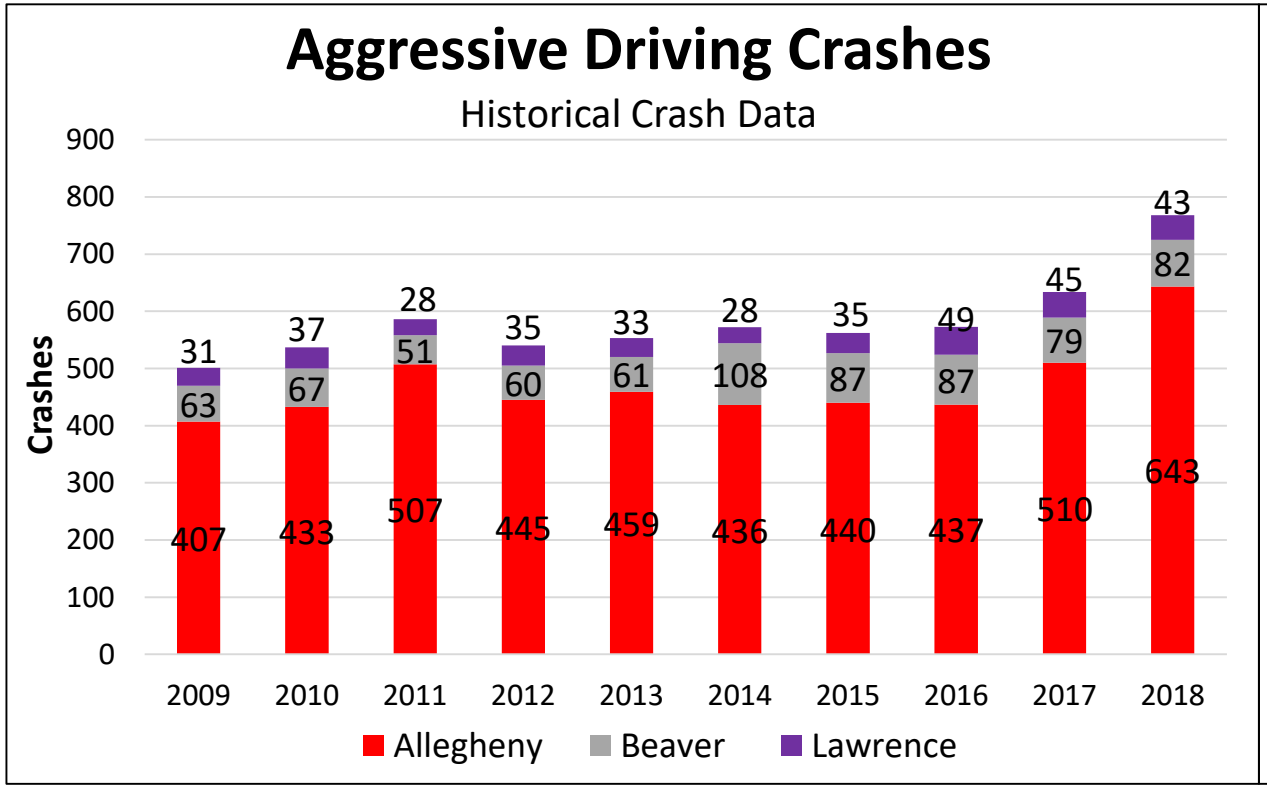


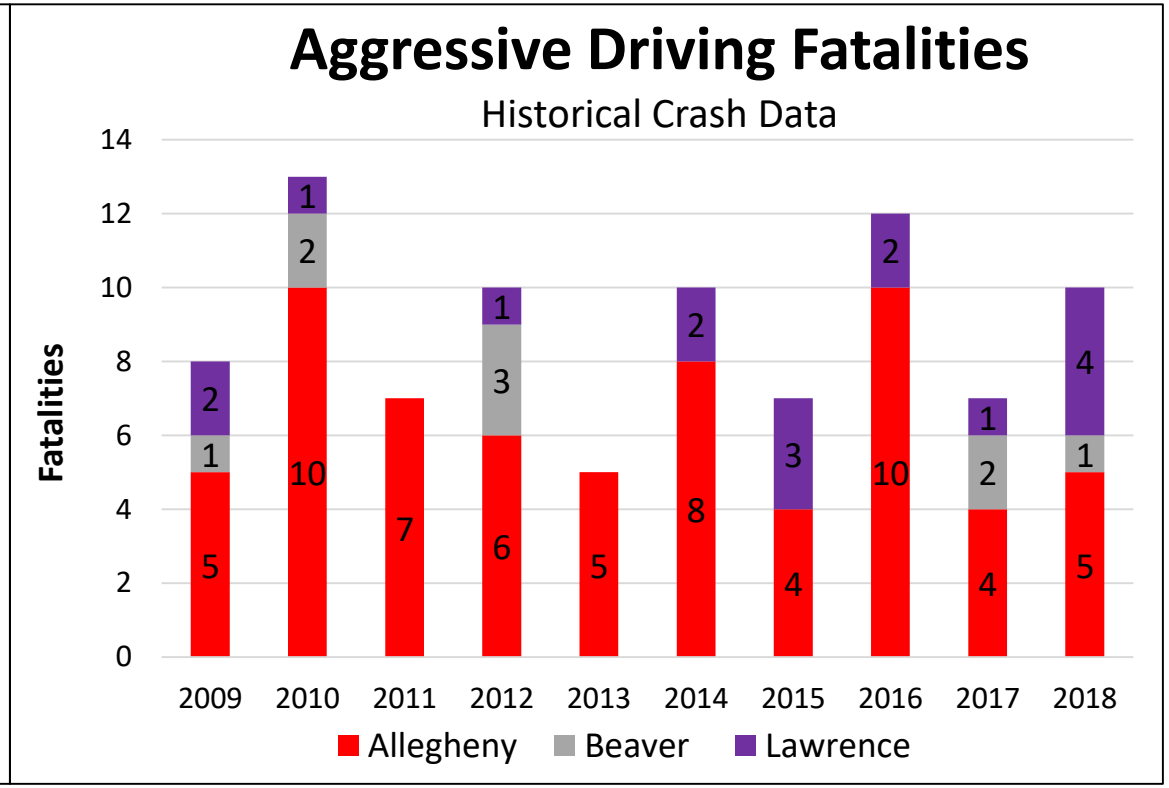
Stagnant Trend in Crashes

Upward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Aggressive Driving Crashes



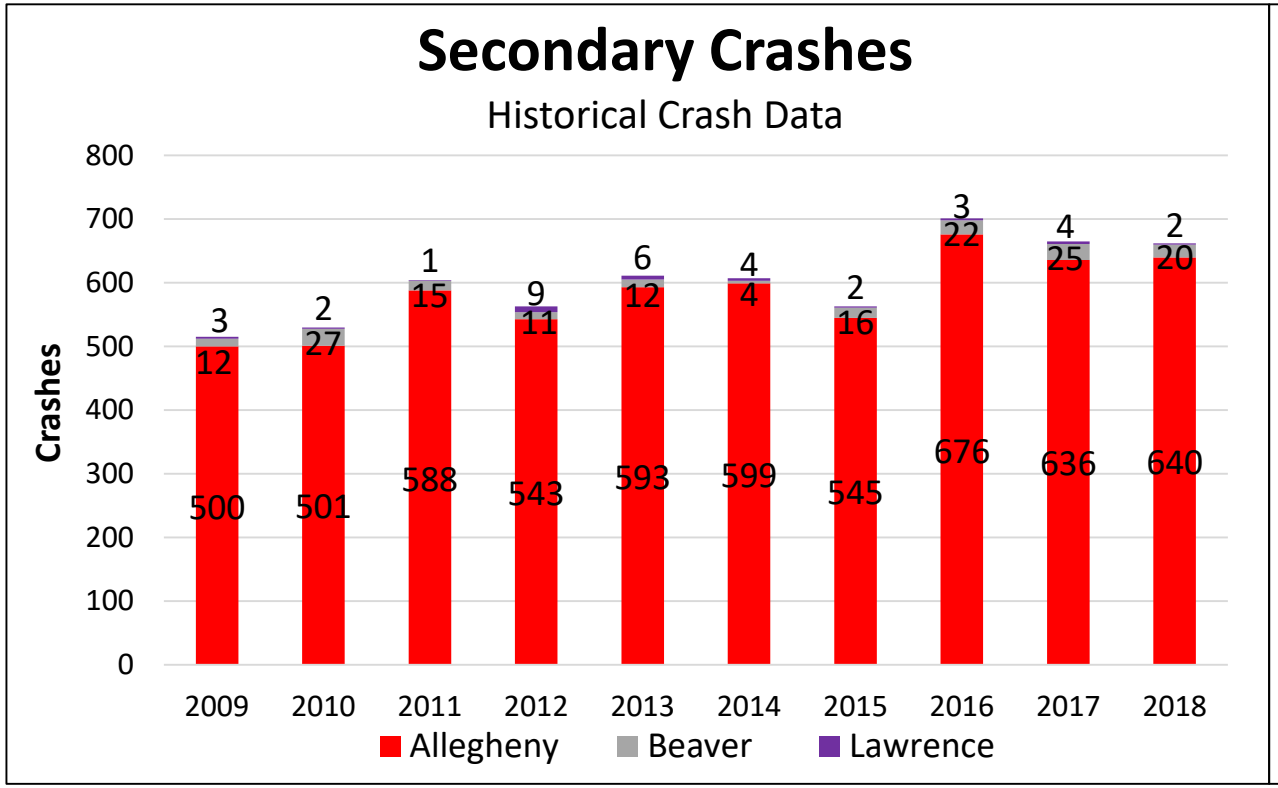


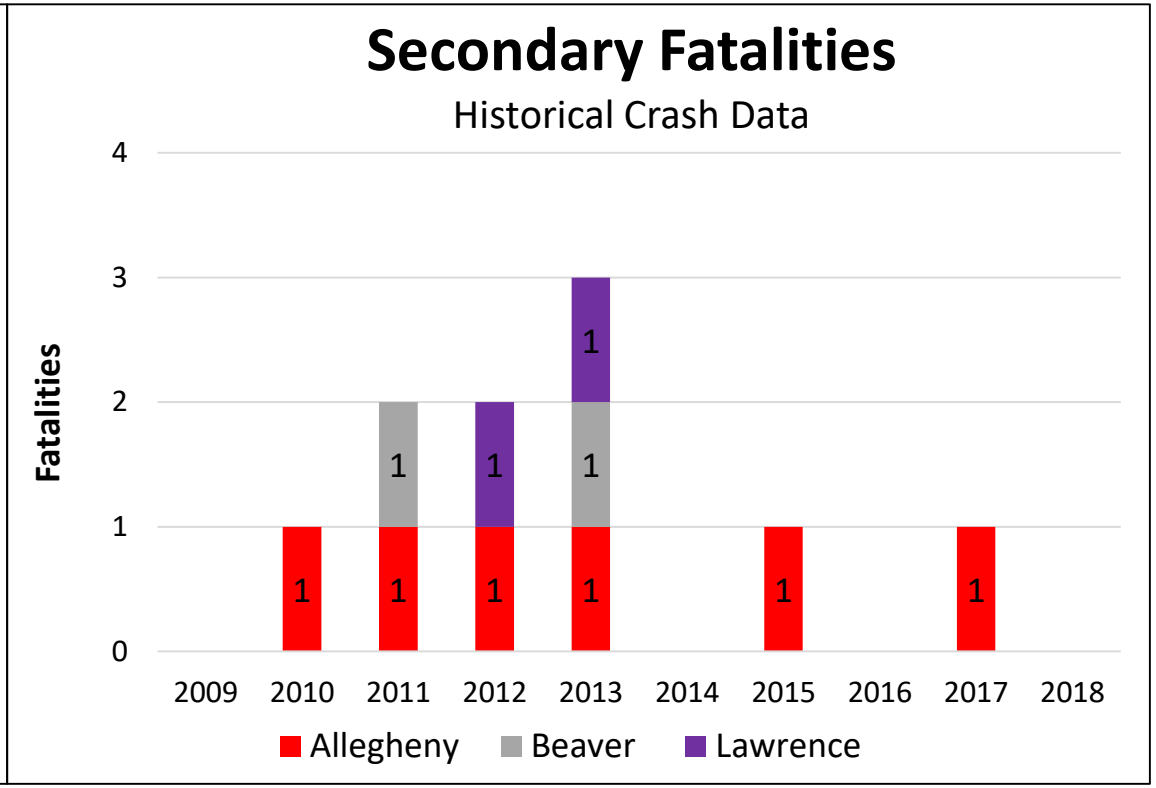
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Secondary Crashes



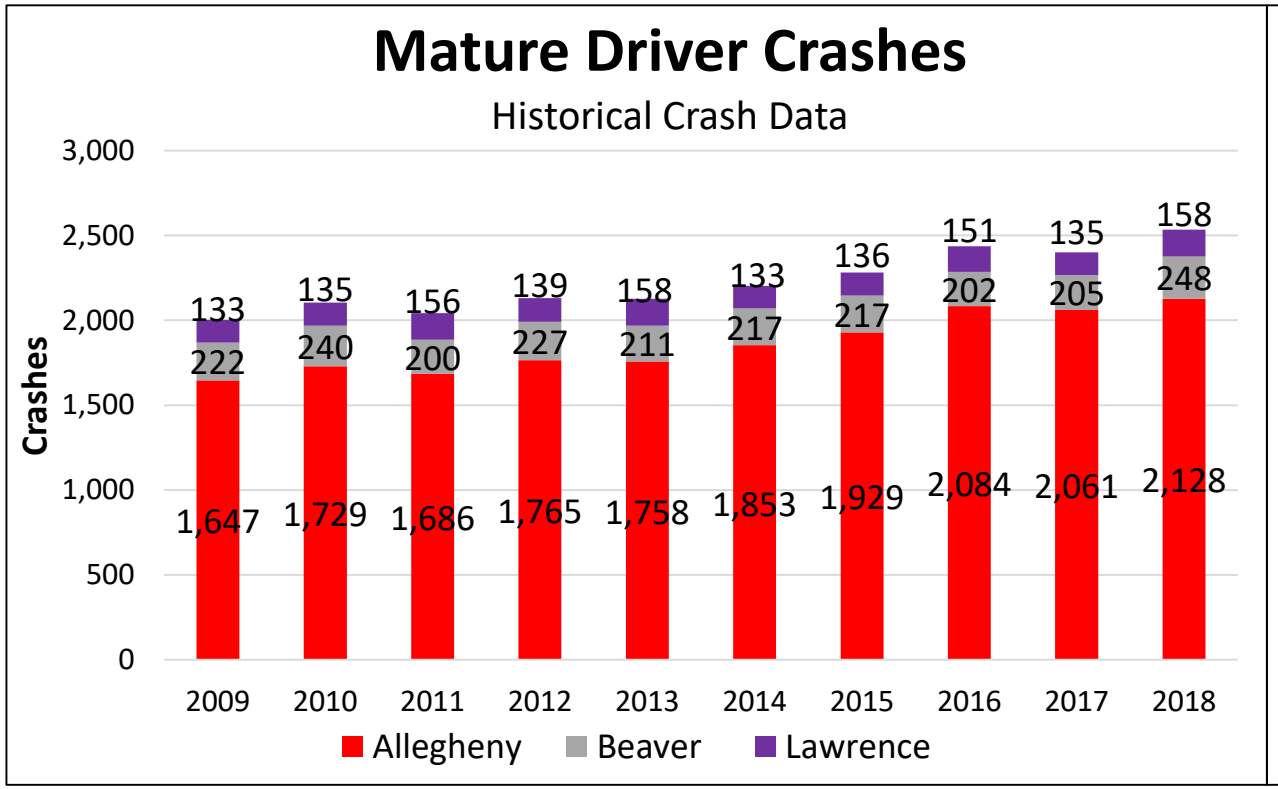


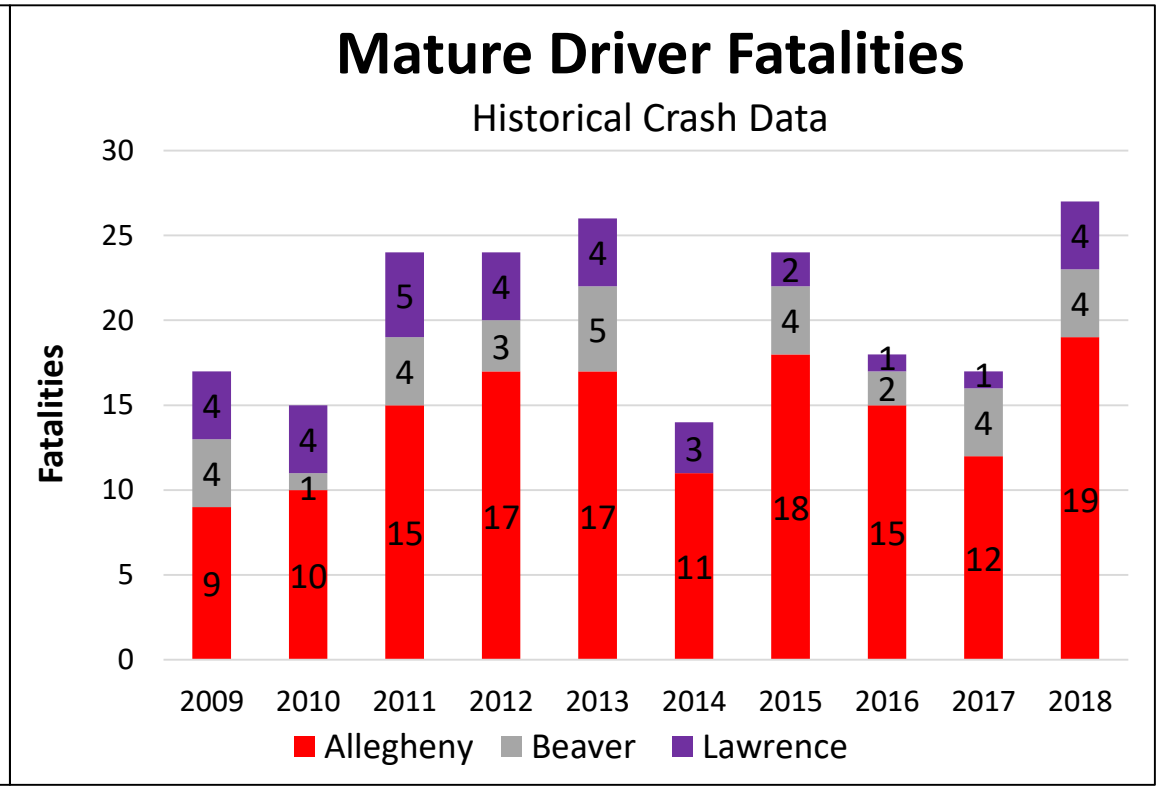
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Mature Driver Crashes



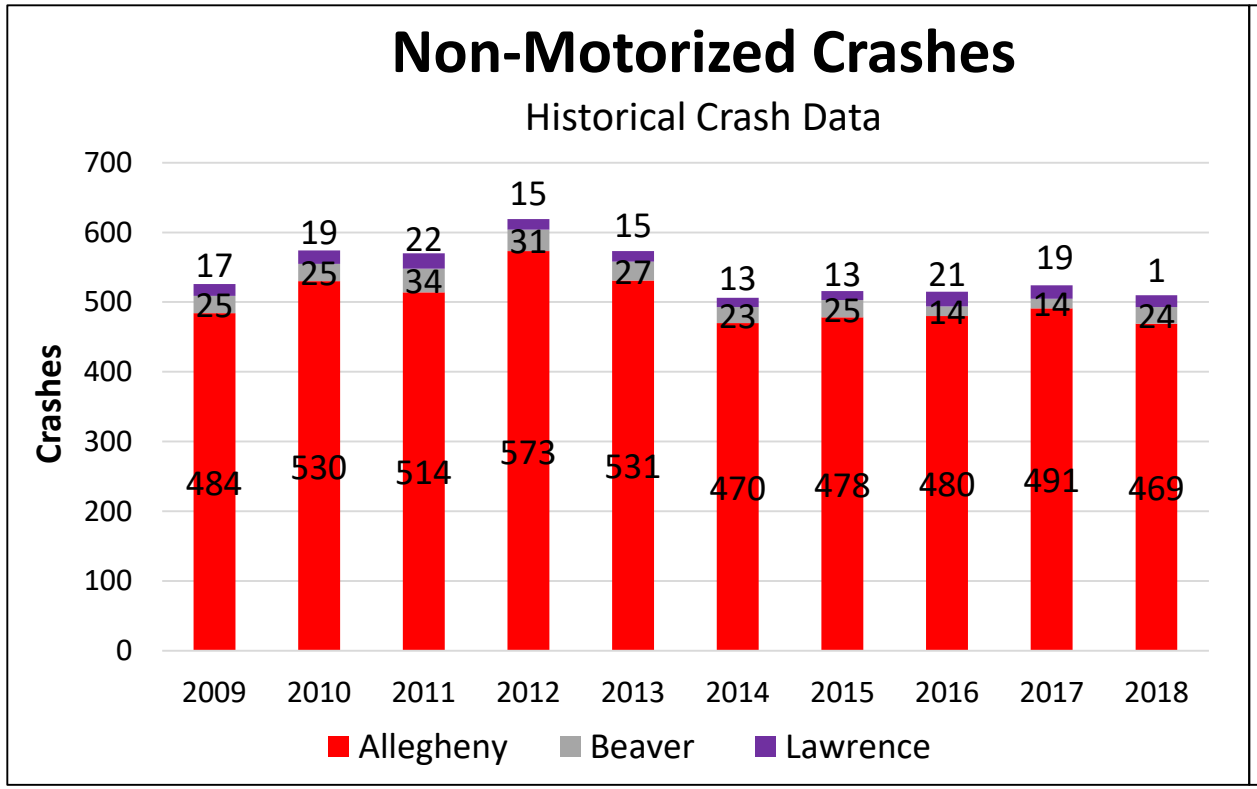


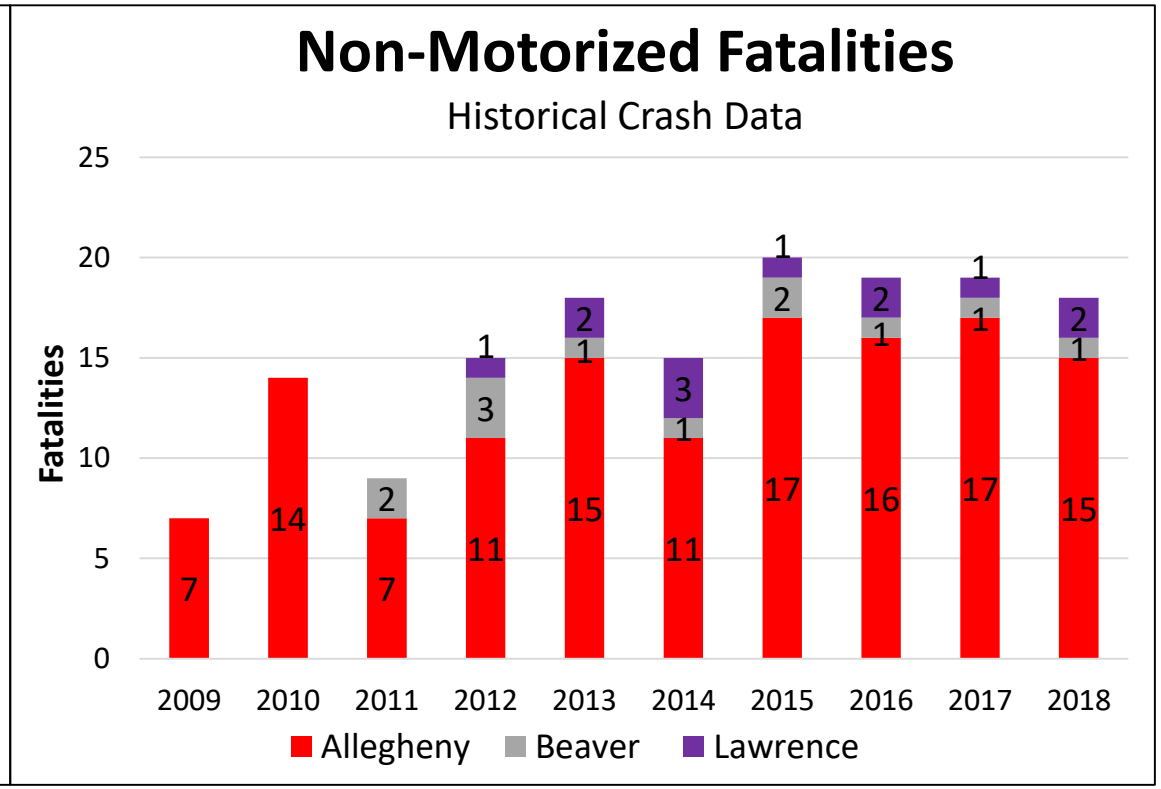
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Non-Motorized Crashes



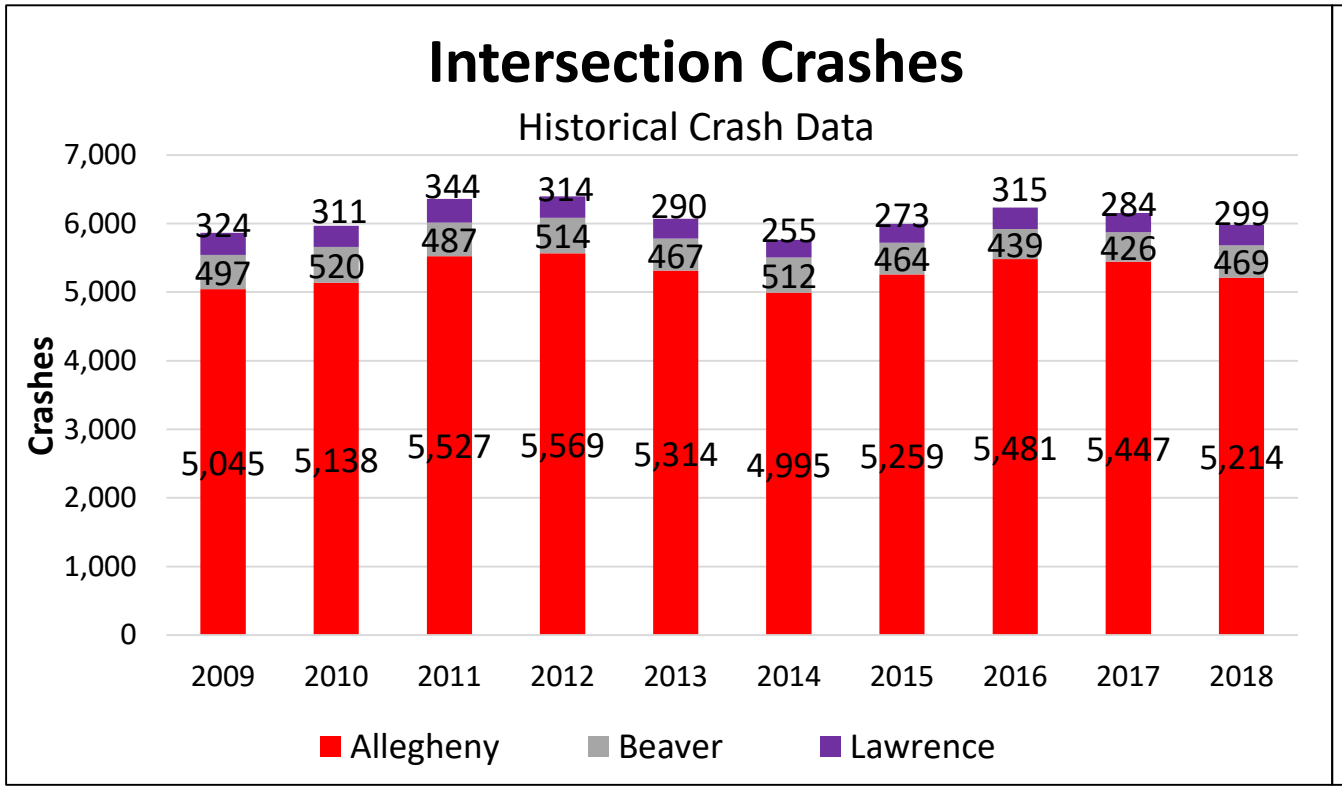


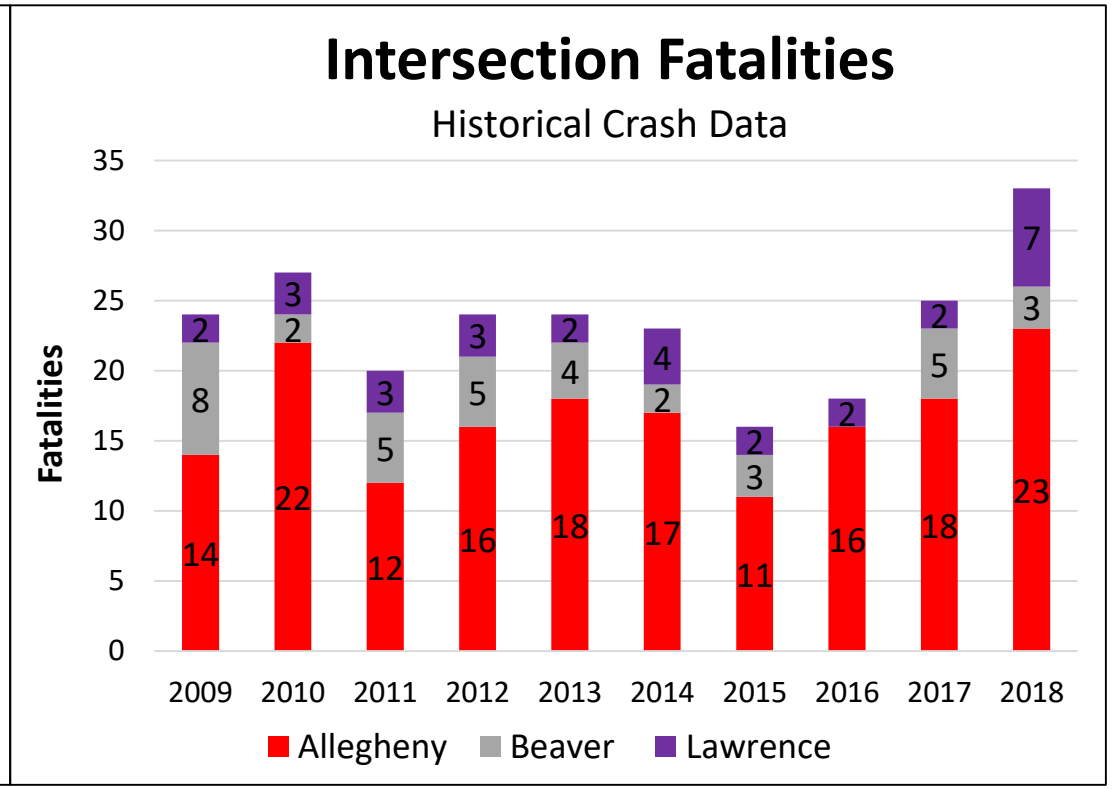
Stagnant Trend in Crashes

Upward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Intersection Crashes



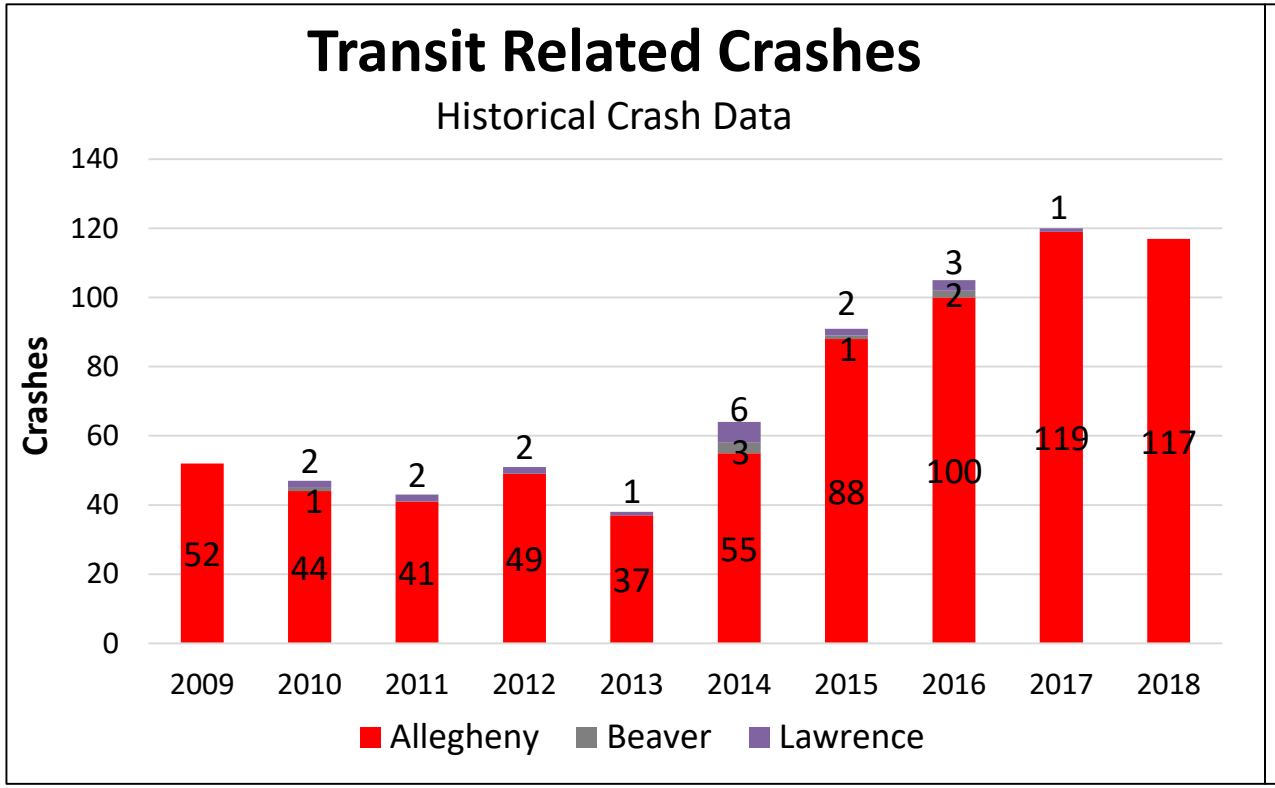


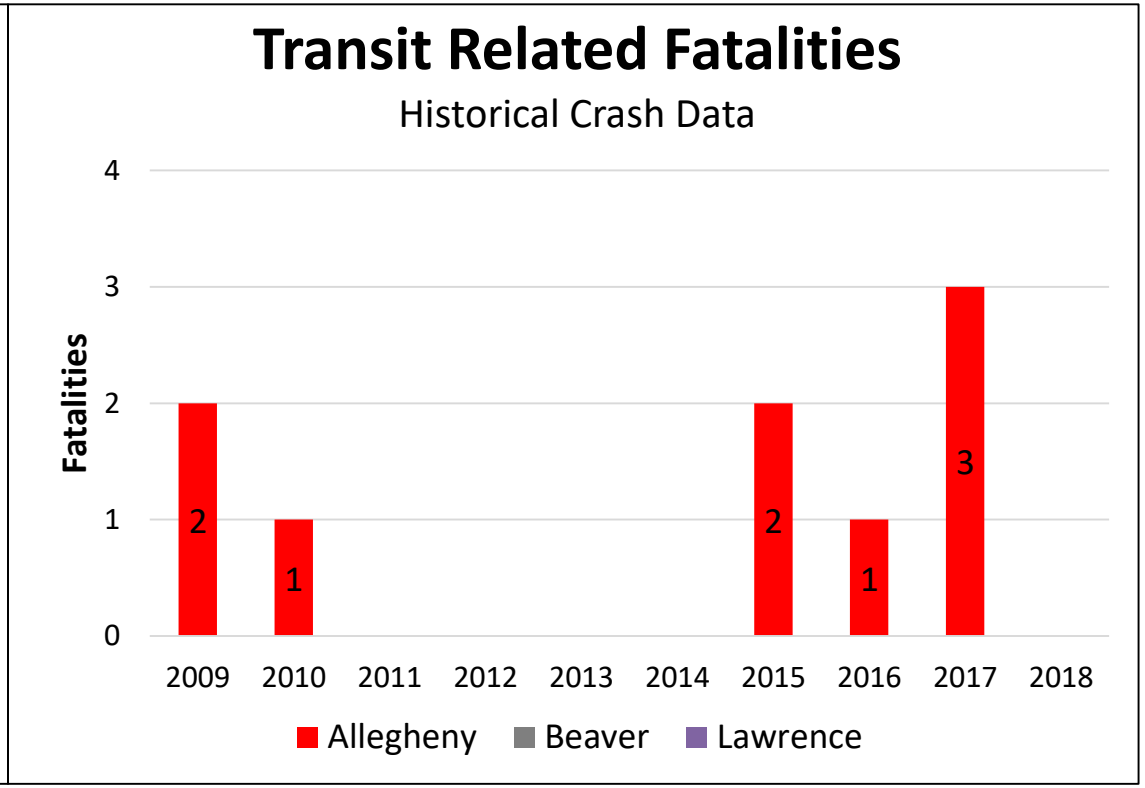
Stagnant Trend in Crashes

Upward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Transit Related Crashes



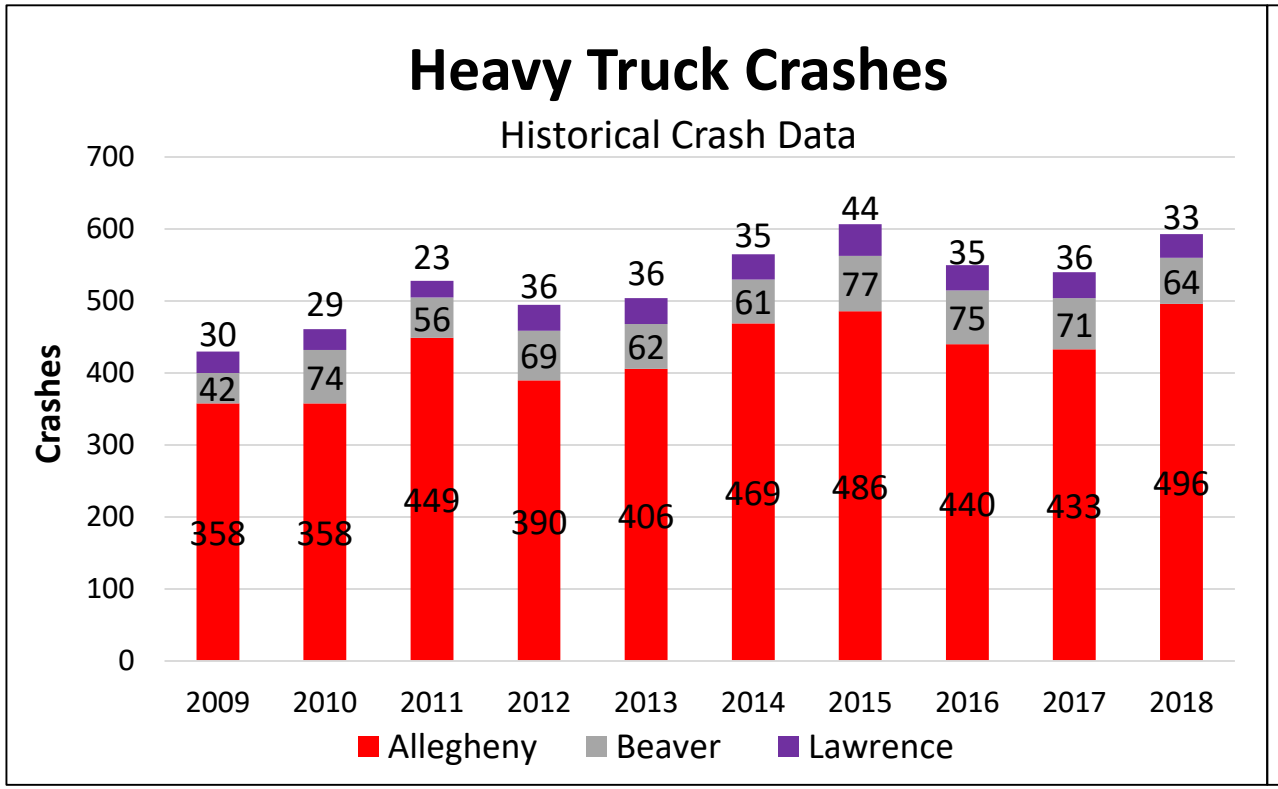


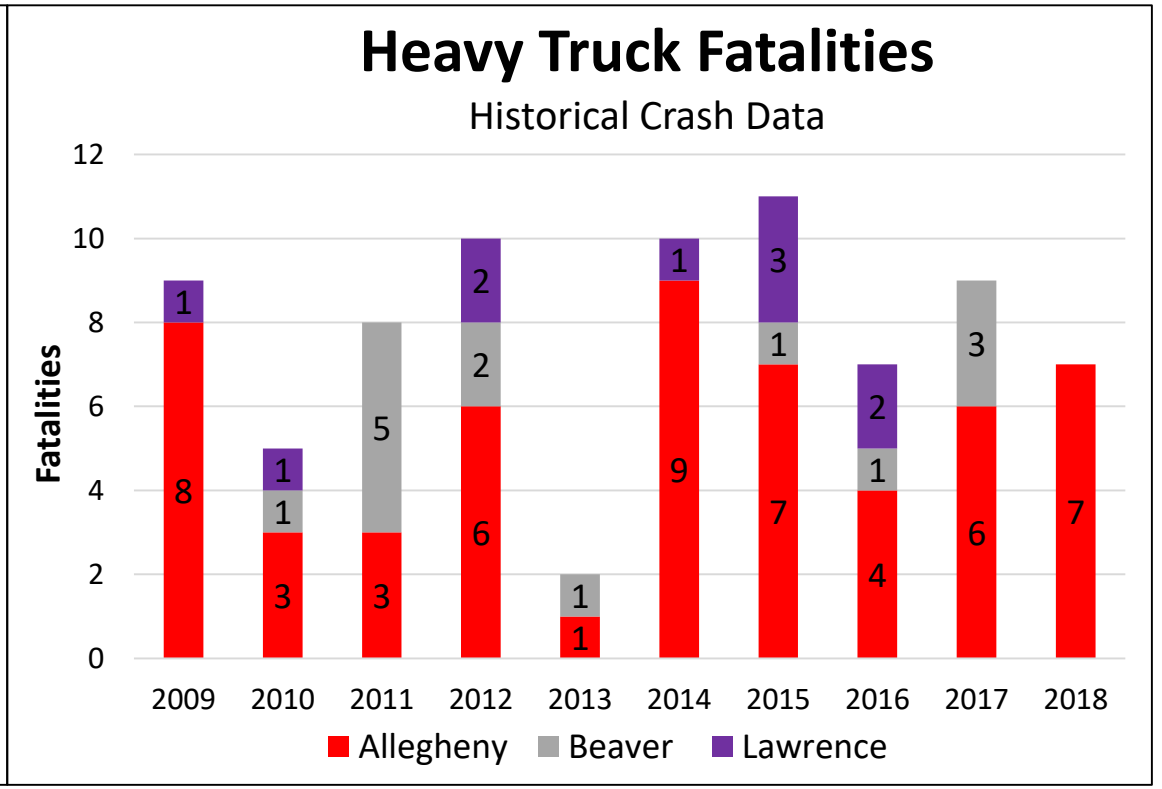
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Heavy Truck Crashes



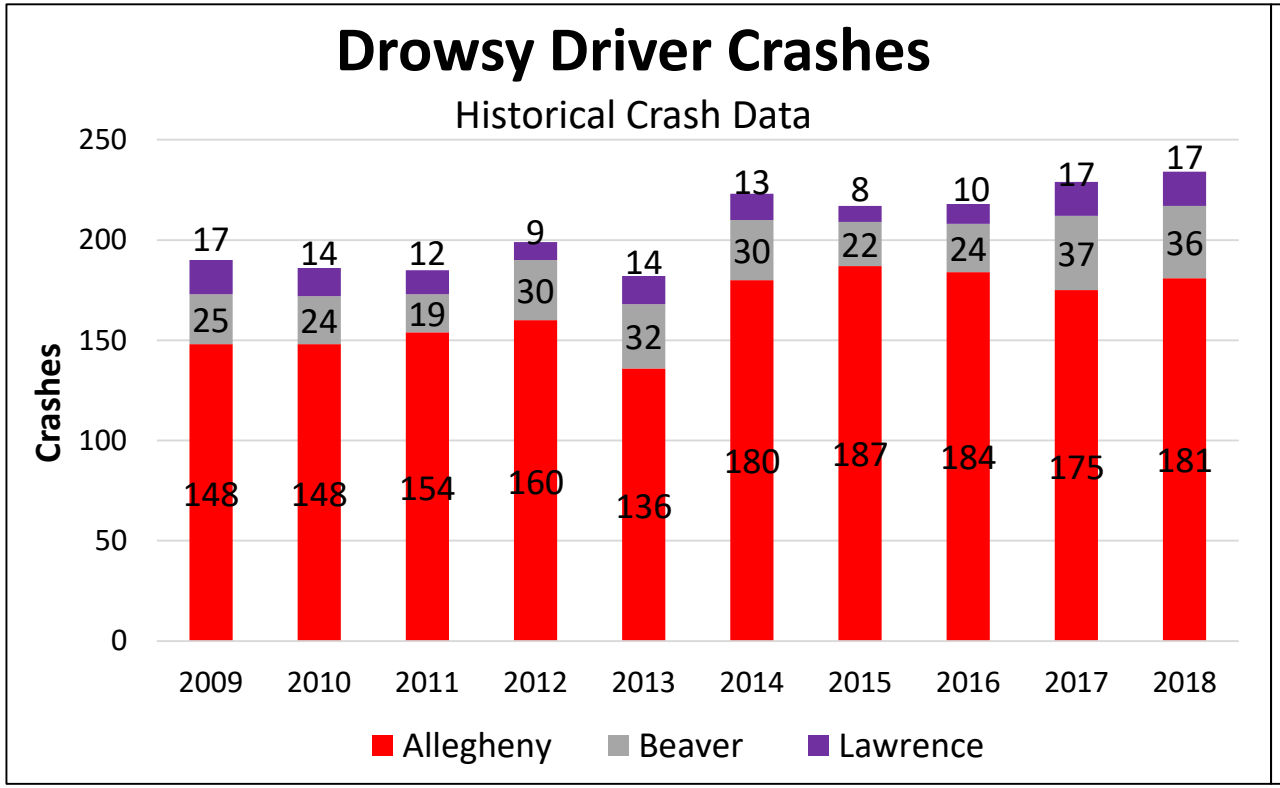


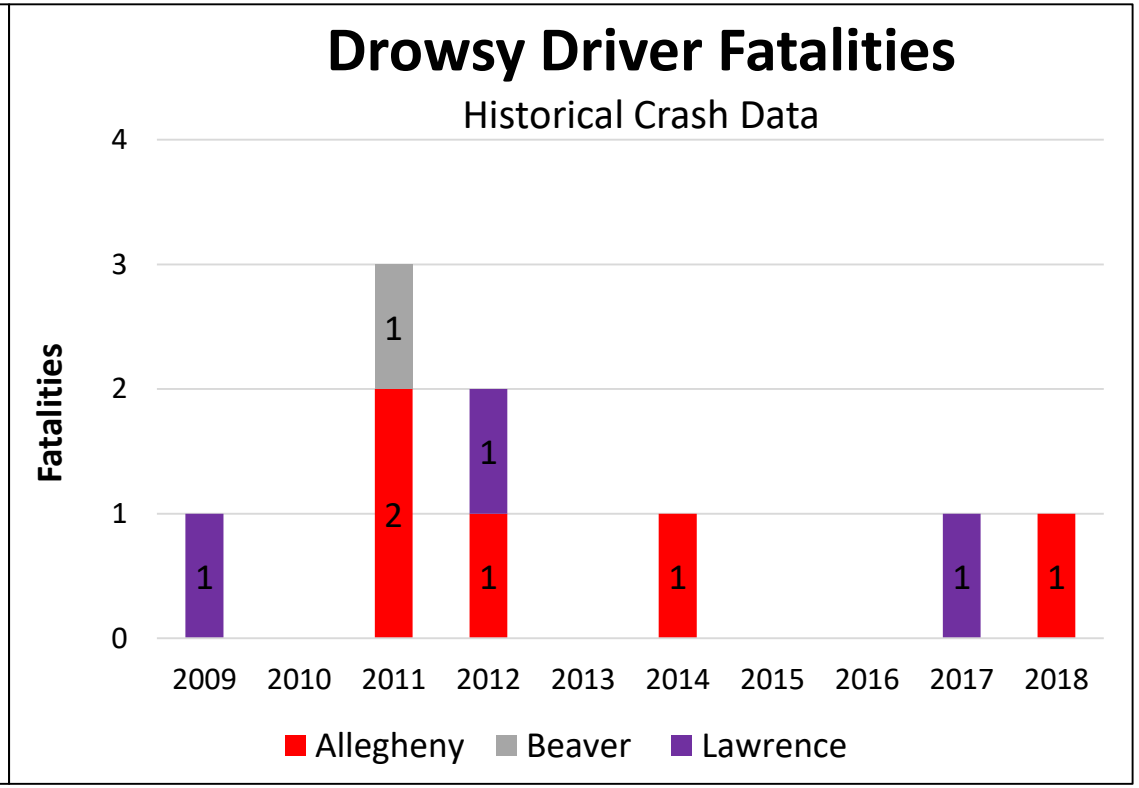
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Drowsy Driver Crashes





Upward Trend in Crashes

Stagnant Trend in Fatalities

District-Specific Safety Trends

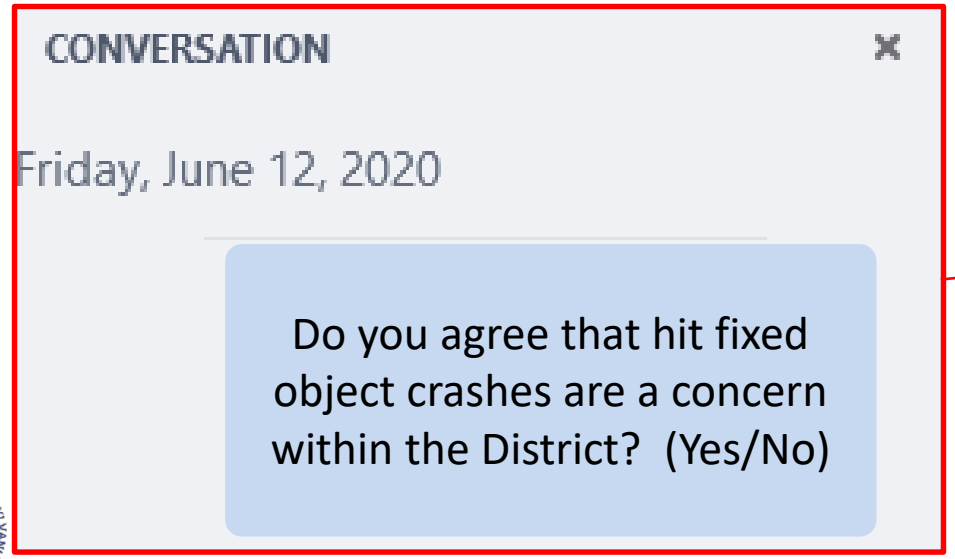
District Safety Focus Areas

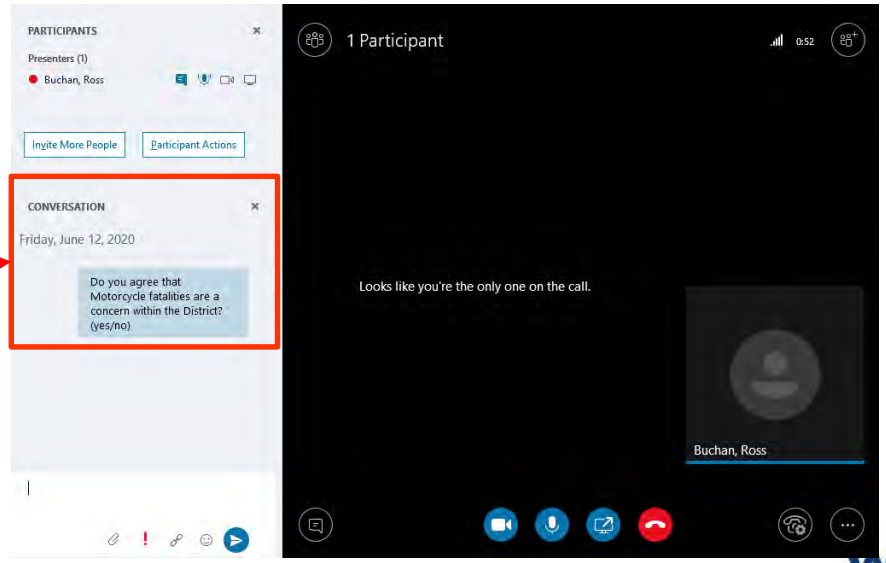
- PennDOT monitors an additional 21 crash categories in addition to the 13 Safety Focus Areas
- Investigated the other 21 categories for disconcerting trends (stagnant or increasing crash trends)
  - Only flagged crash categories where crash frequency and/or fatals are increasing comprehensively within the District (*not per County*)
- Final report will provide data for all 34 PennDOT crash categories

District-Specific Safety Trends

District Safety Focus Area Exercise

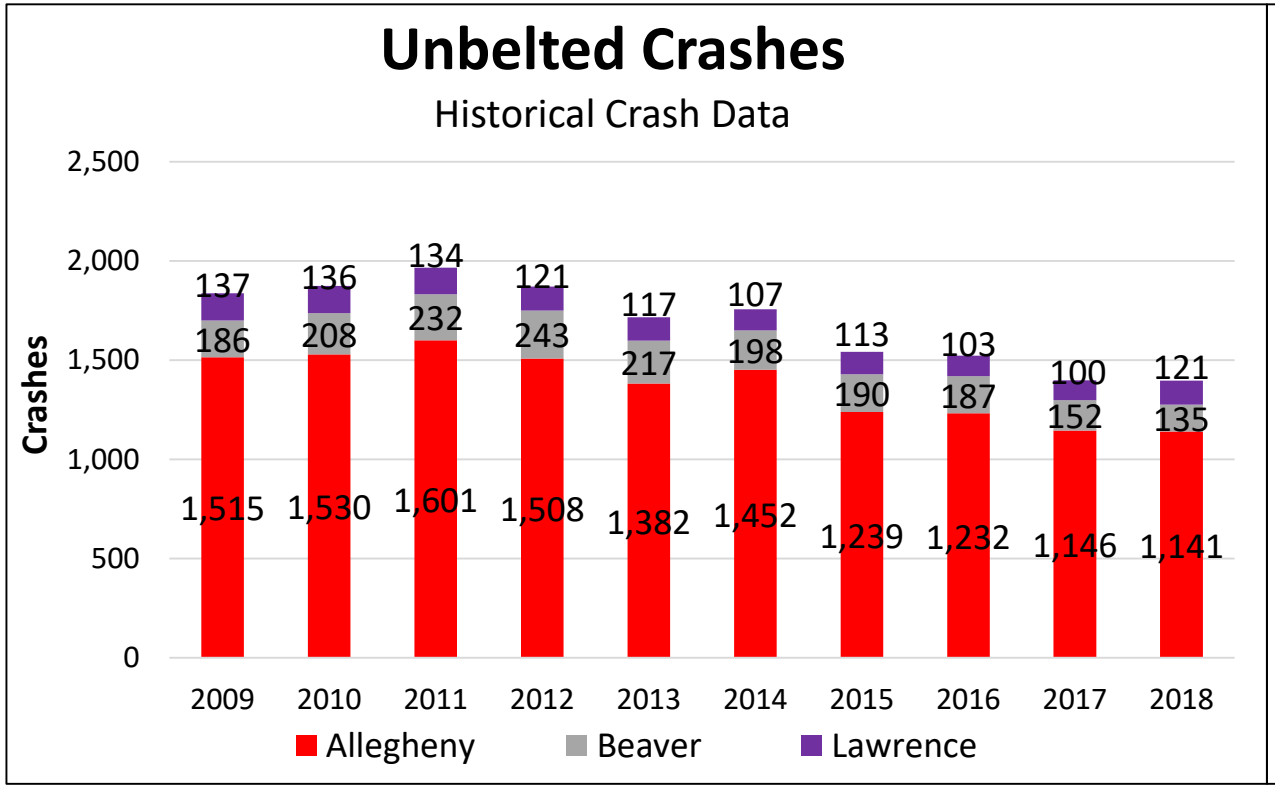
- Presenter to review stagnant or increasing Districtwide crash trends not discussed on the previous slides
- Presenter will prompt attendees to provide feedback in the Skype chat box during review of slide
  - Presenter will type question into chat box requesting “yes” or “no” response to make the crash trend a District Safety Focus Area

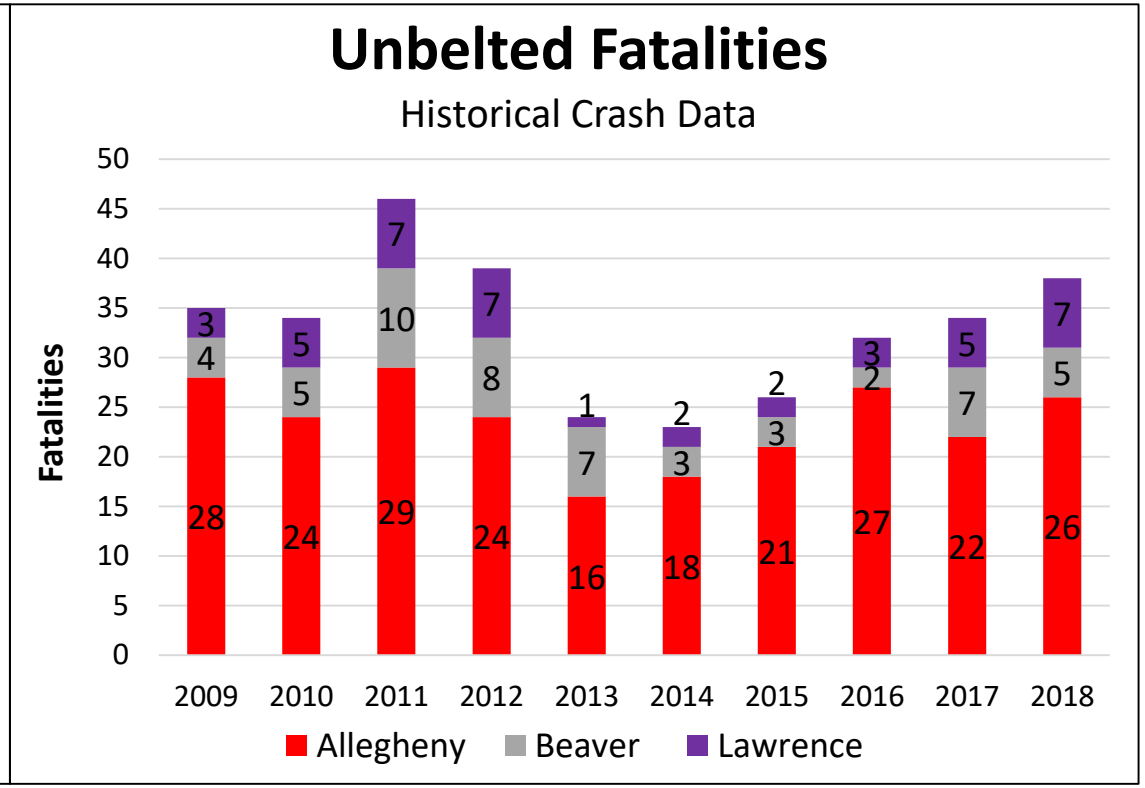




District-Specific Safety Trends

District Safety Focus Area: Unbelted Crashes



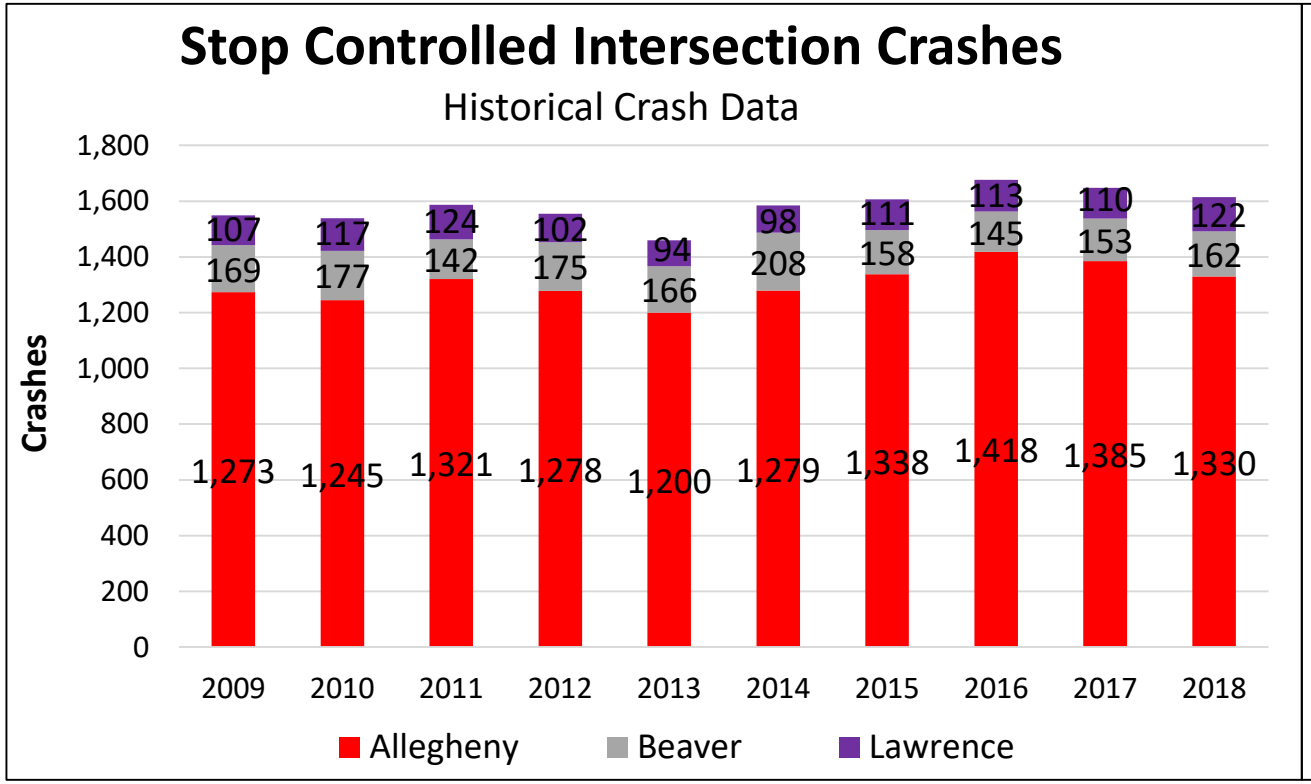


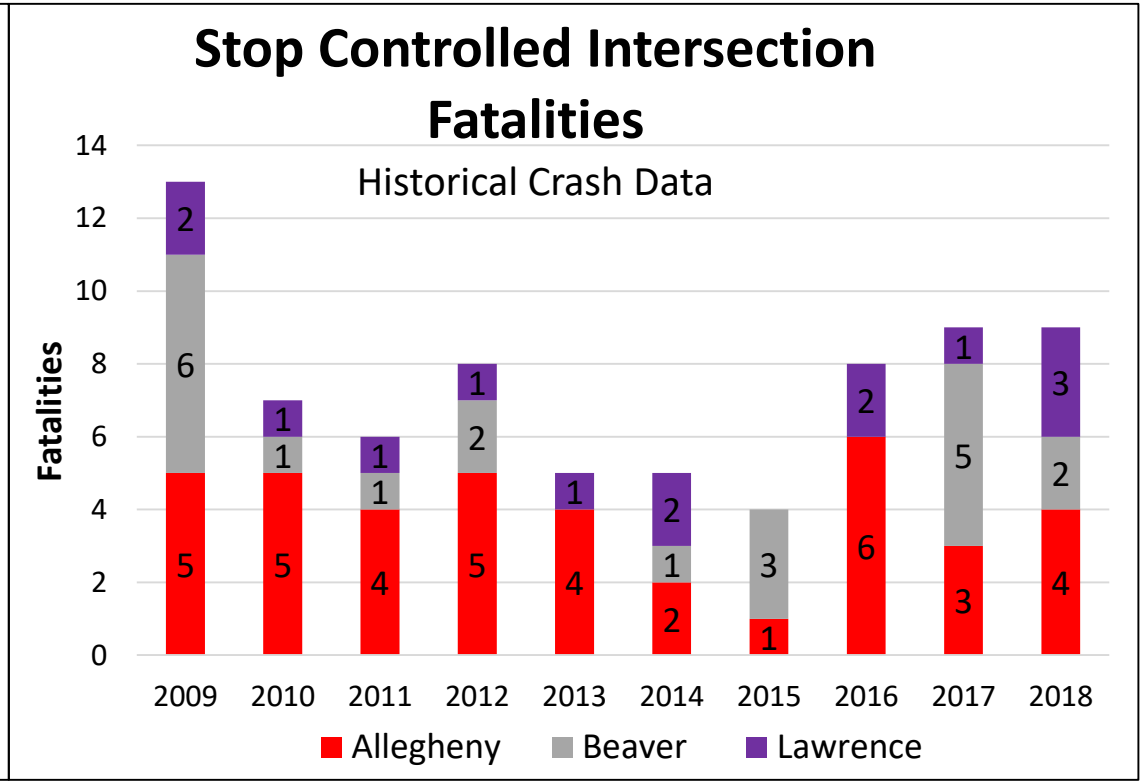
Downward Trend in Crashes

Upward Trend in Fatalities

District-Specific Safety Trends

District Safety Focus Area: Stop Controlled Intersection Crashes



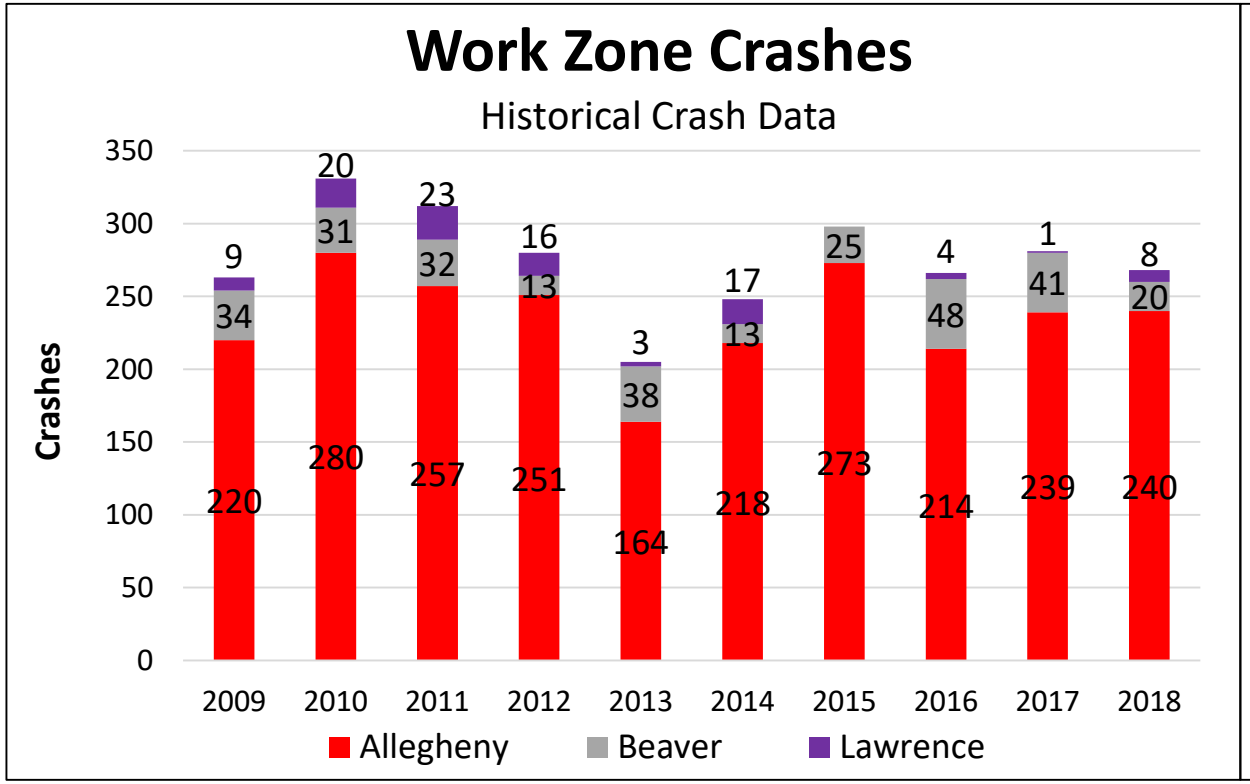


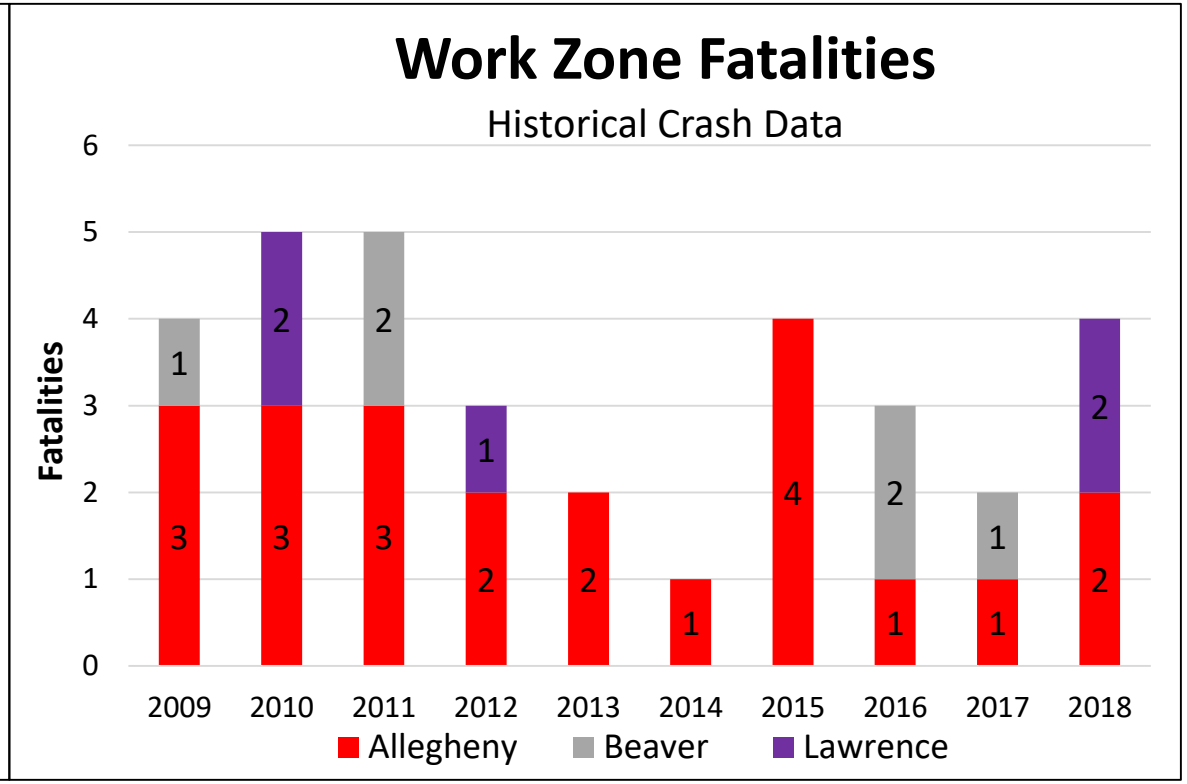
Upward Trend in Crashes

Stagnant Trend in Fatalities

District-Specific Safety Trends

District Safety Focus Area: Work Zone Crashes





Stagnant Trend in Crashes/Fatalities

SPC SAFETY ACTION PLAN UPDATE

District 12-0 Stakeholder Meeting

June 22, 2020

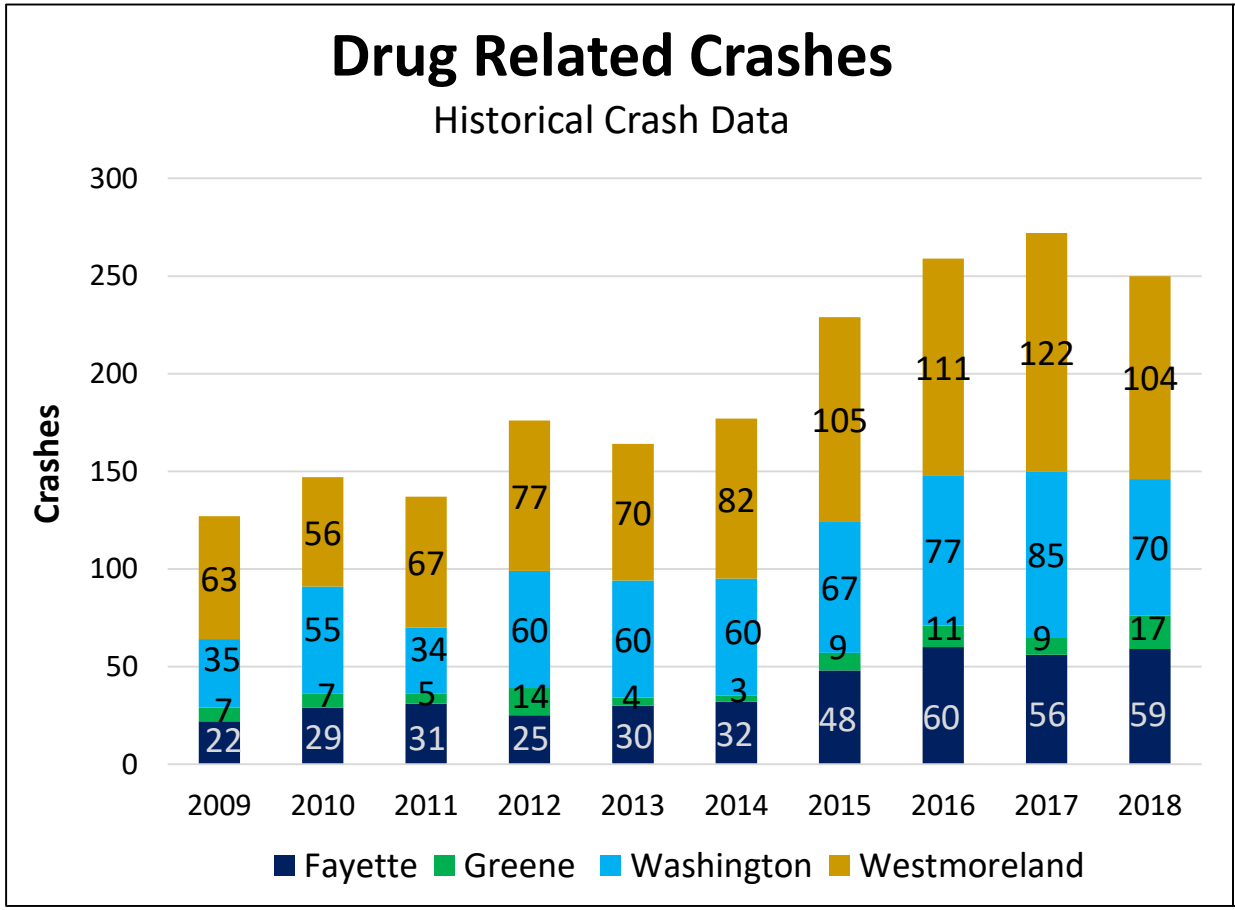
Safety Focus Area Performance

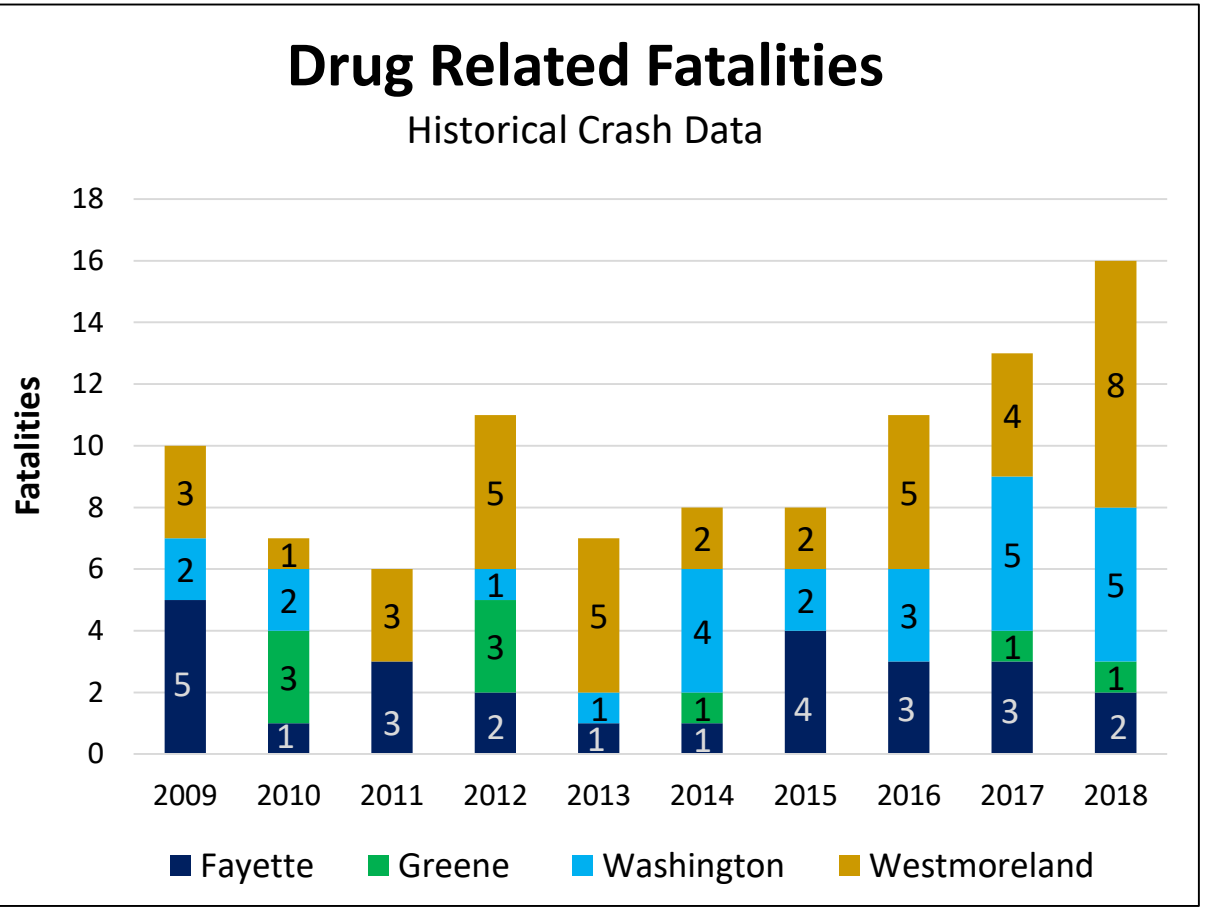
Safety Focus Areas

- 13 Safety Focus Area were identified by the Steering Committee for the 2020 SAP Update
  1) Drug related crashes
  2) Distracted driving crashes
  3) Run-off-road crashes
  4) Head-on crashes
  5) Signalized intersection crashes
  6) Aggressive driving crashes
  7) Secondary crashes
  8) Mature driver crashes
  9) Non-motorized (ped/bike) crashes
  10) Intersection crashes
  11) Transit-related crashes
  12) Heavy truck crashes
  13) Drowsy driver crashes
- Confirm District/County performance (i.e. total crashes and fatalities) in each of the 13 Safety Focus Areas

Safety Focus Area Performance

Safety Focus Area: Drug Related Crashes

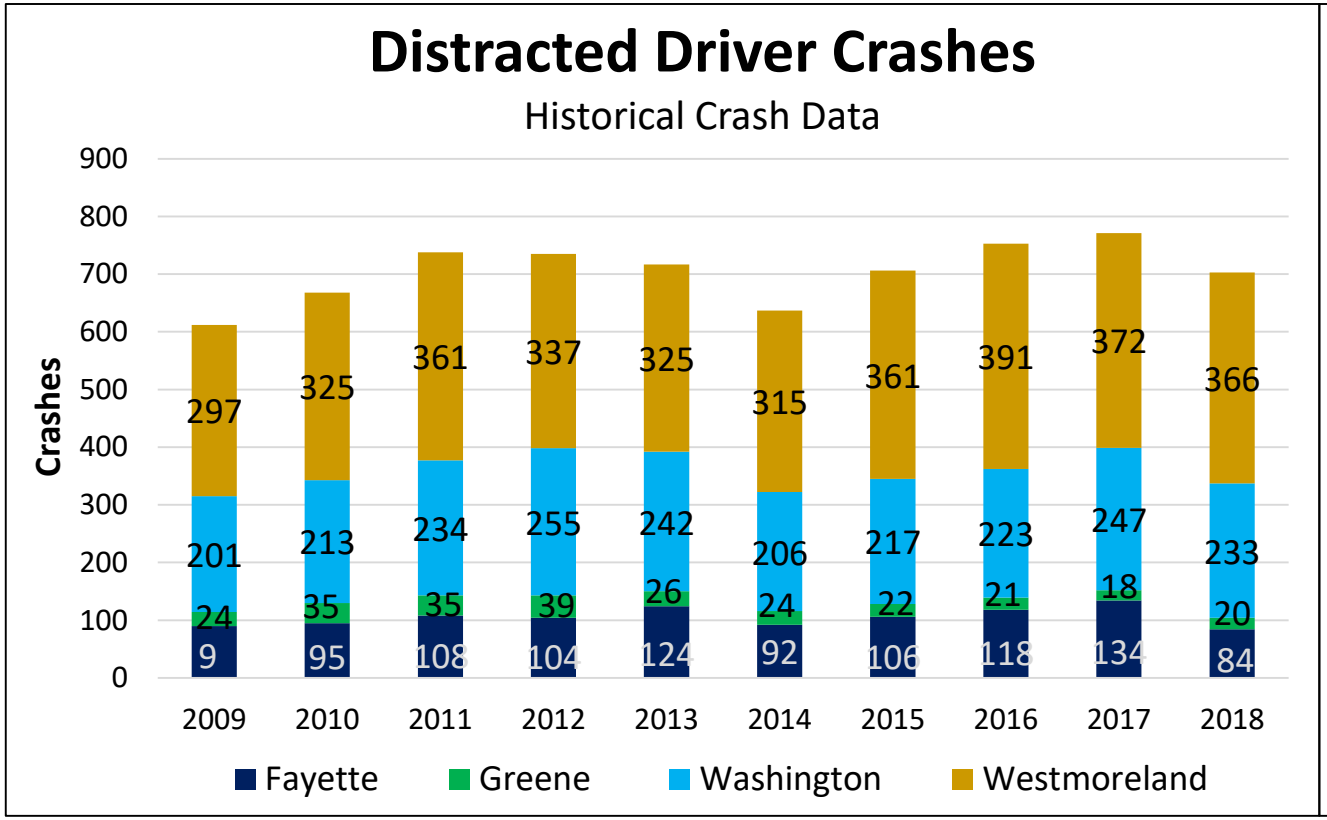


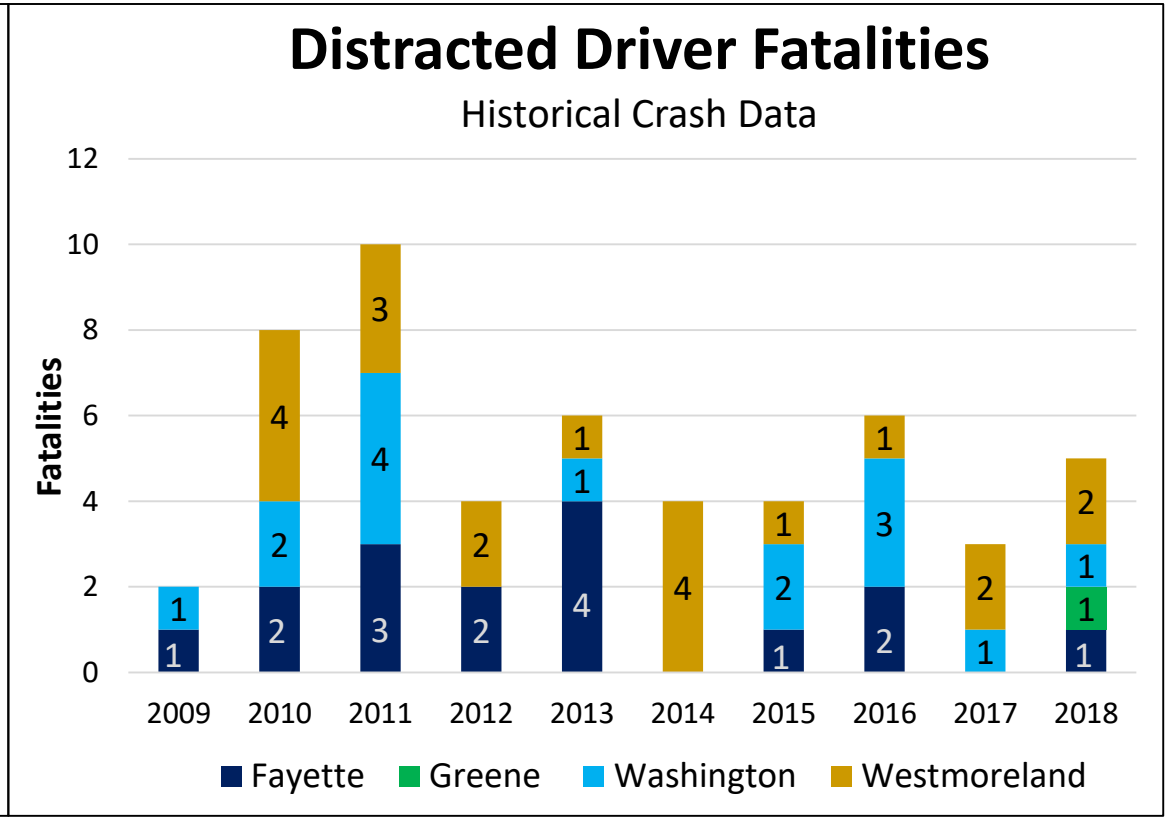


Upward Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Distracted Driver Crashes



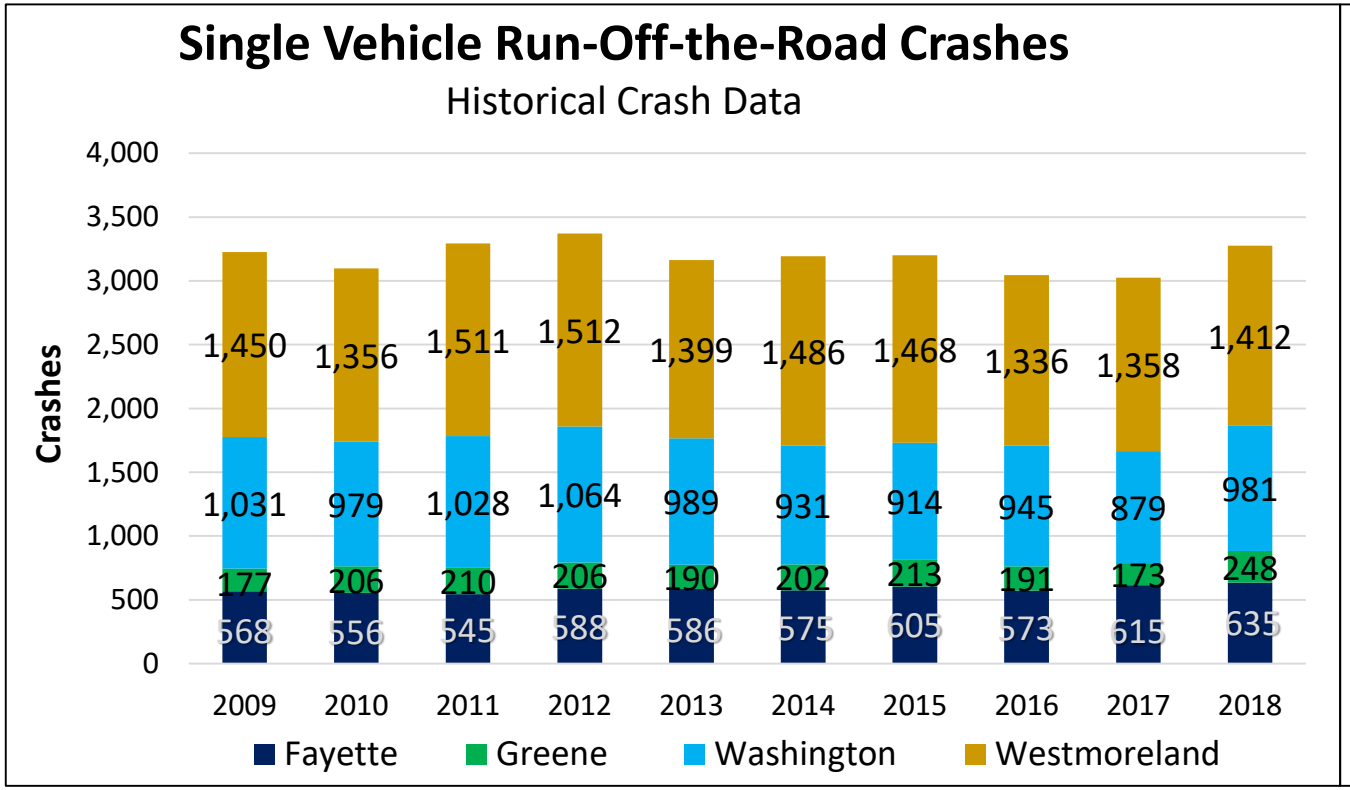


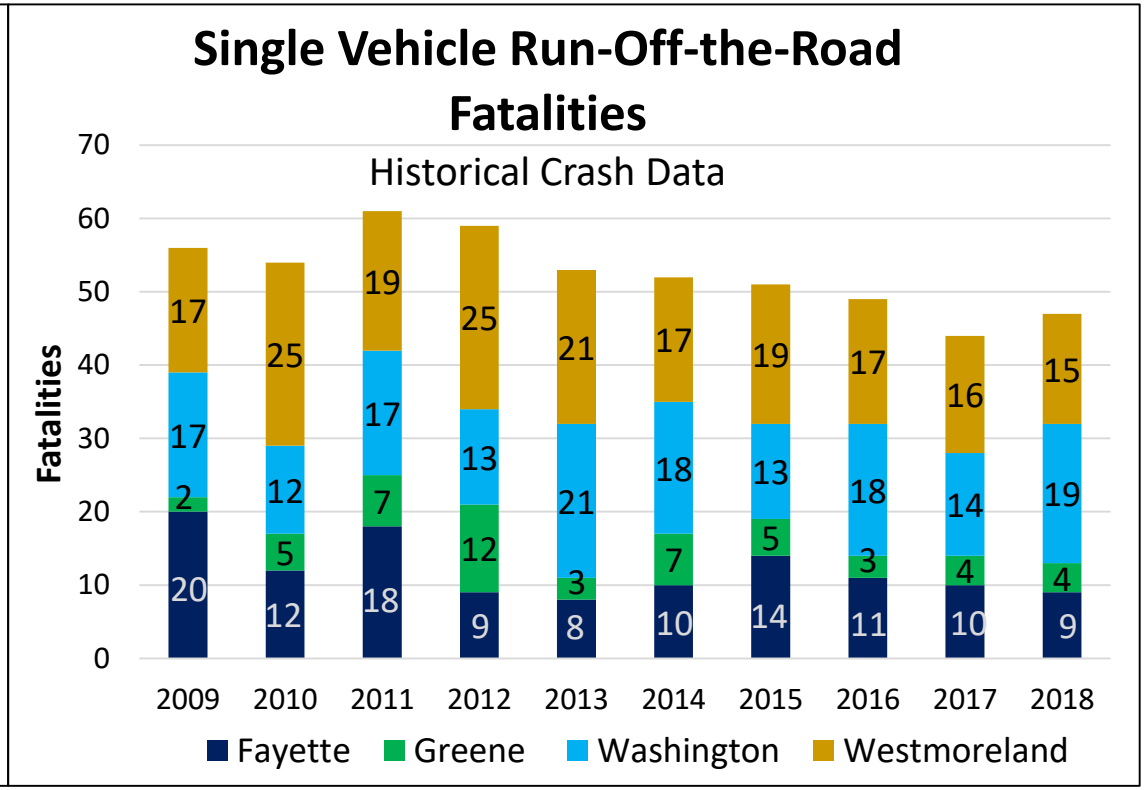
Upward Trend in Crashes

Downward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Single Vehicle Run-Off-The-Road Crashes



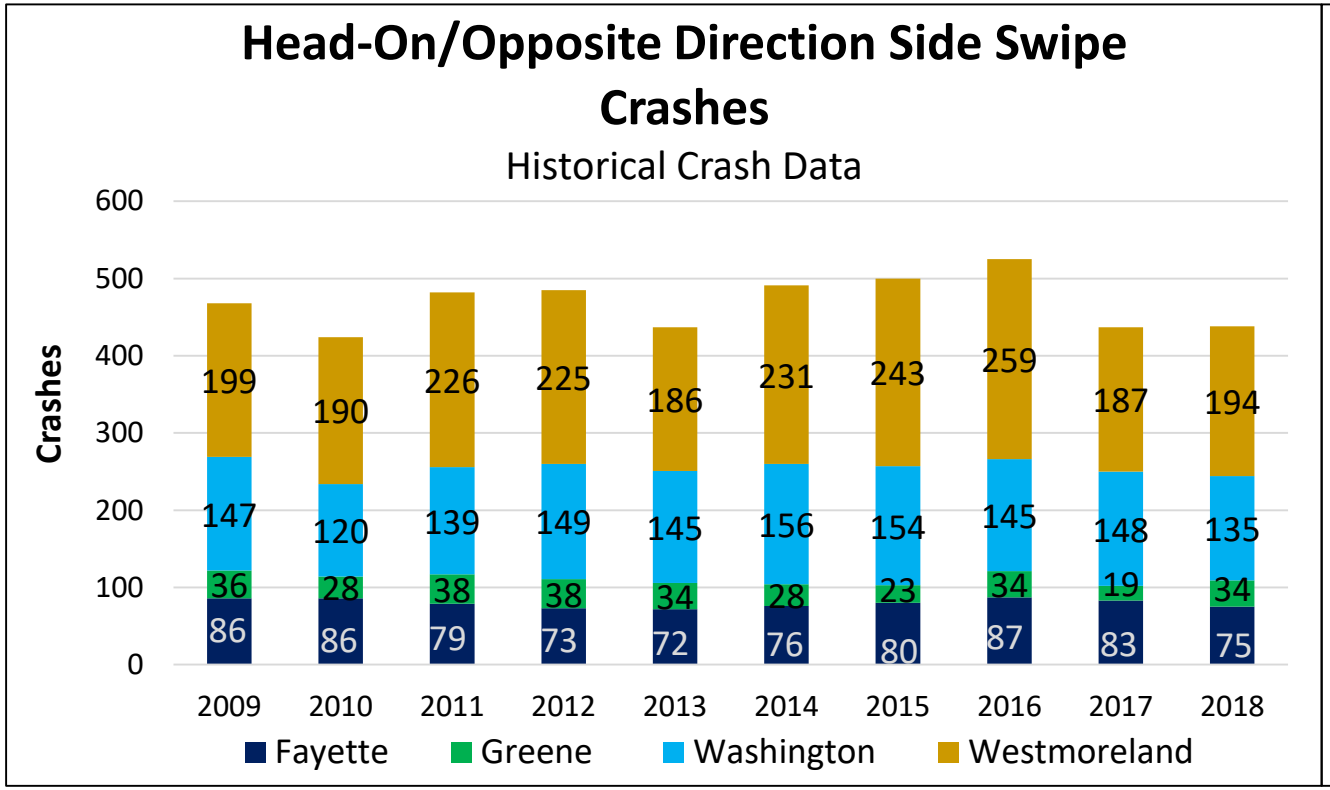


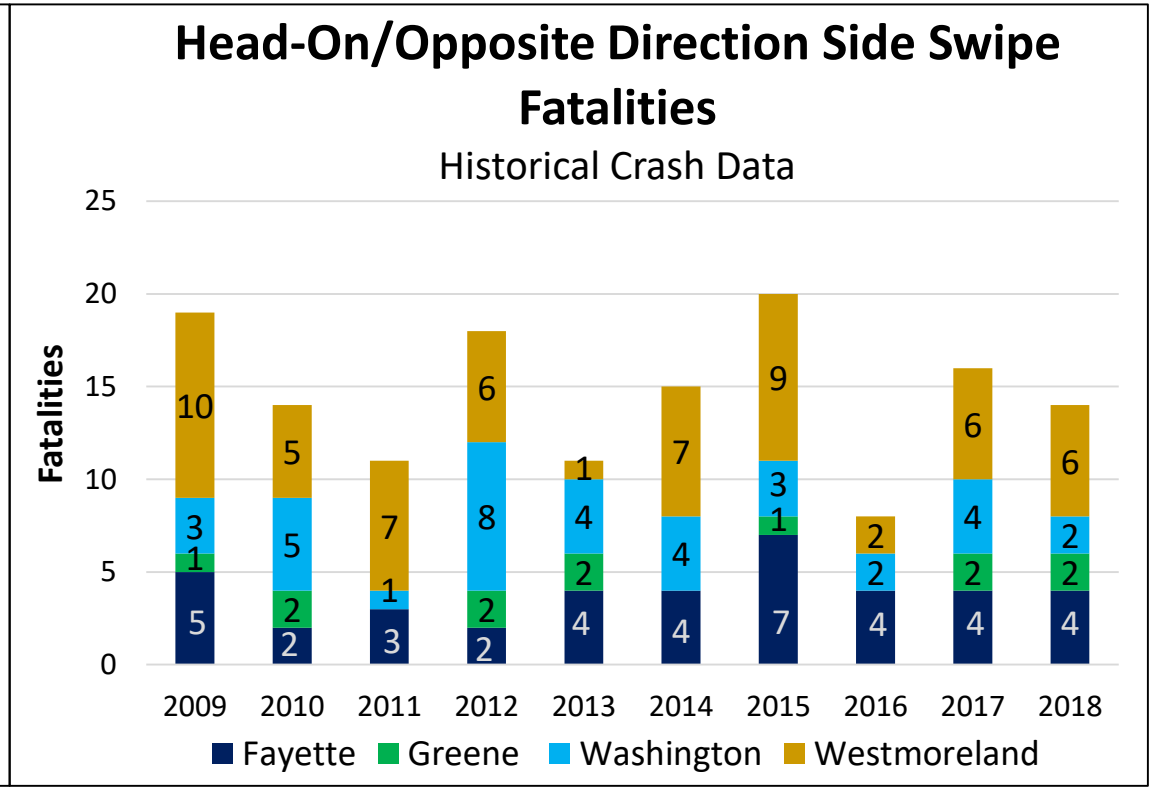
Stagnant Trend in Crashes

Downward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Head-On/Opposite Direction Side Swipe Crashes

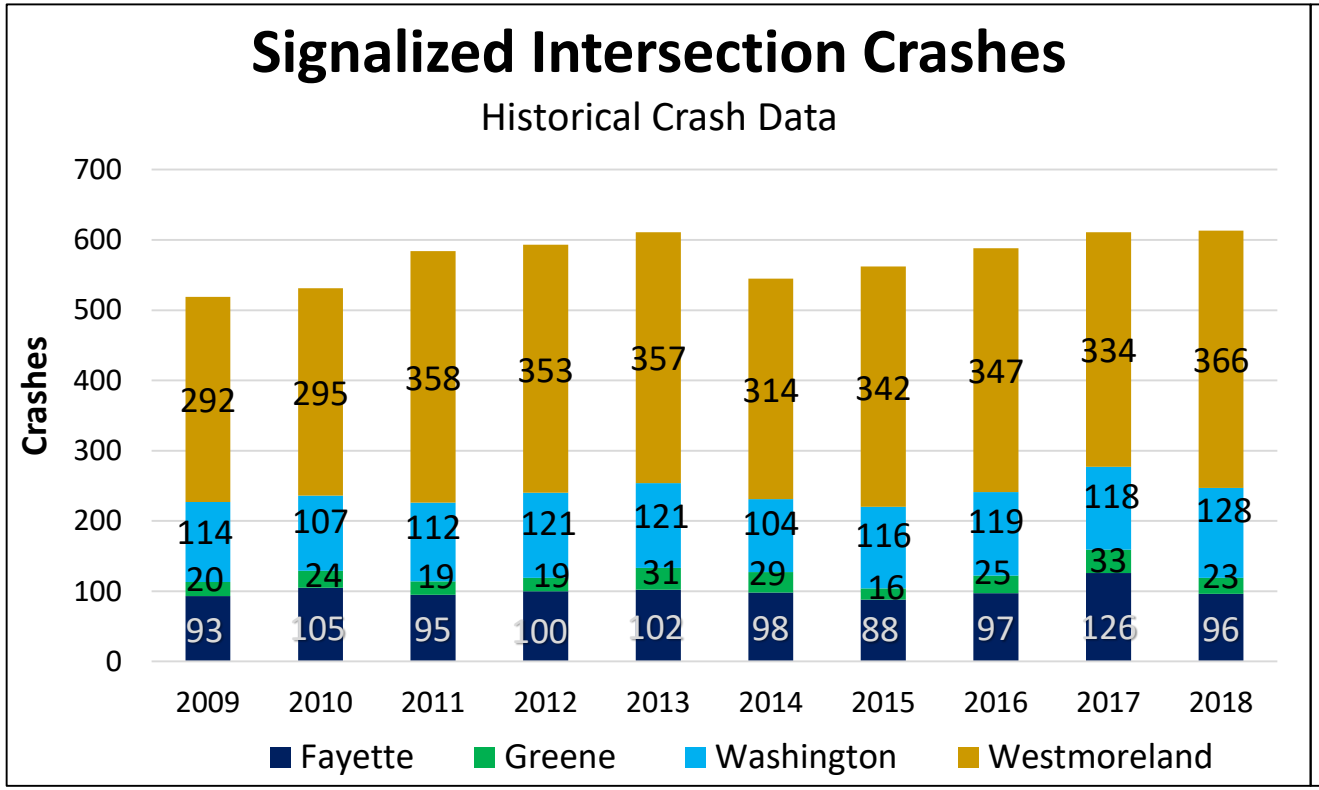


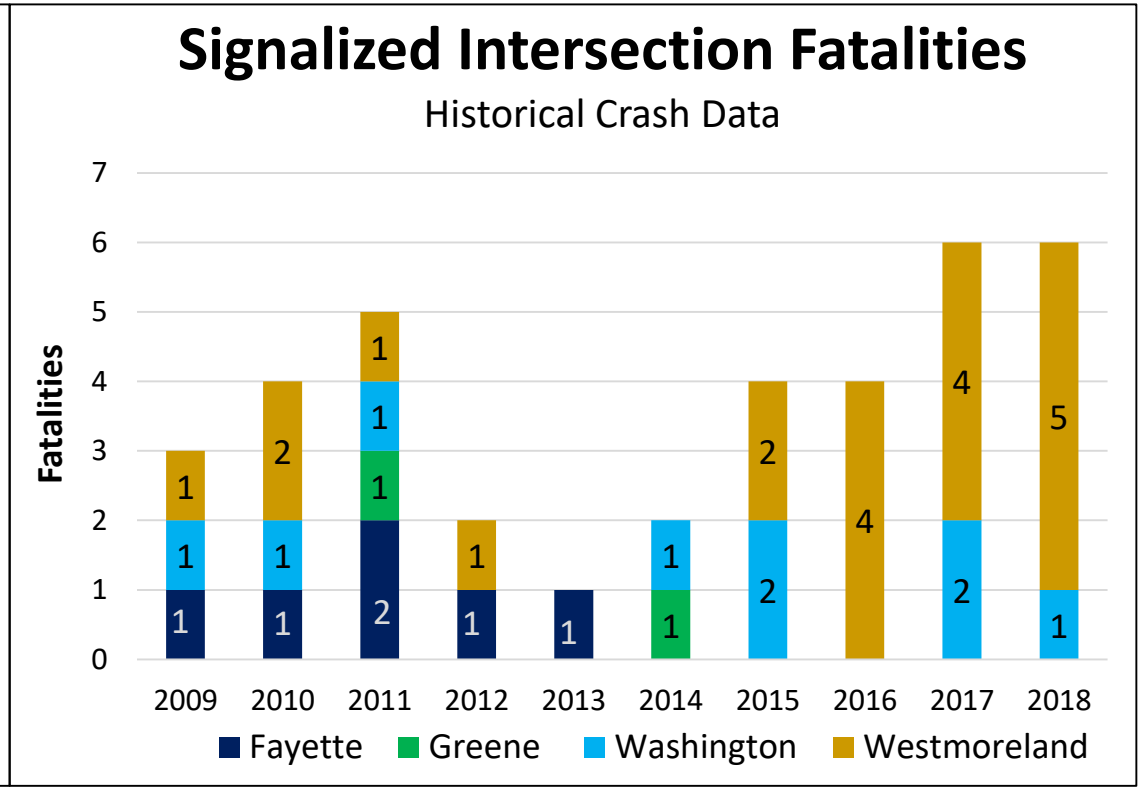


Stagnant Trend in Crashes\Fatalities

Safety Focus Area Performance

Safety Focus Area: Signalized Intersection Crashes

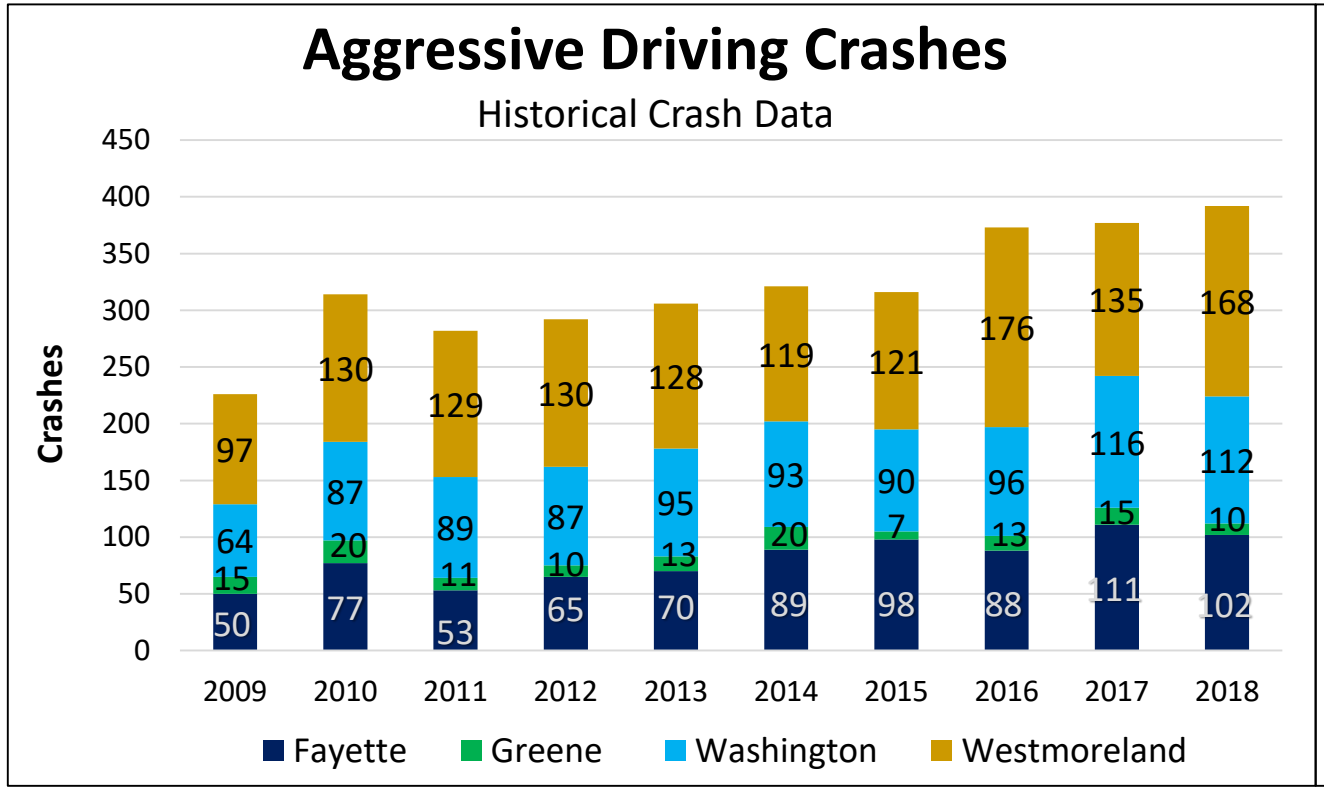


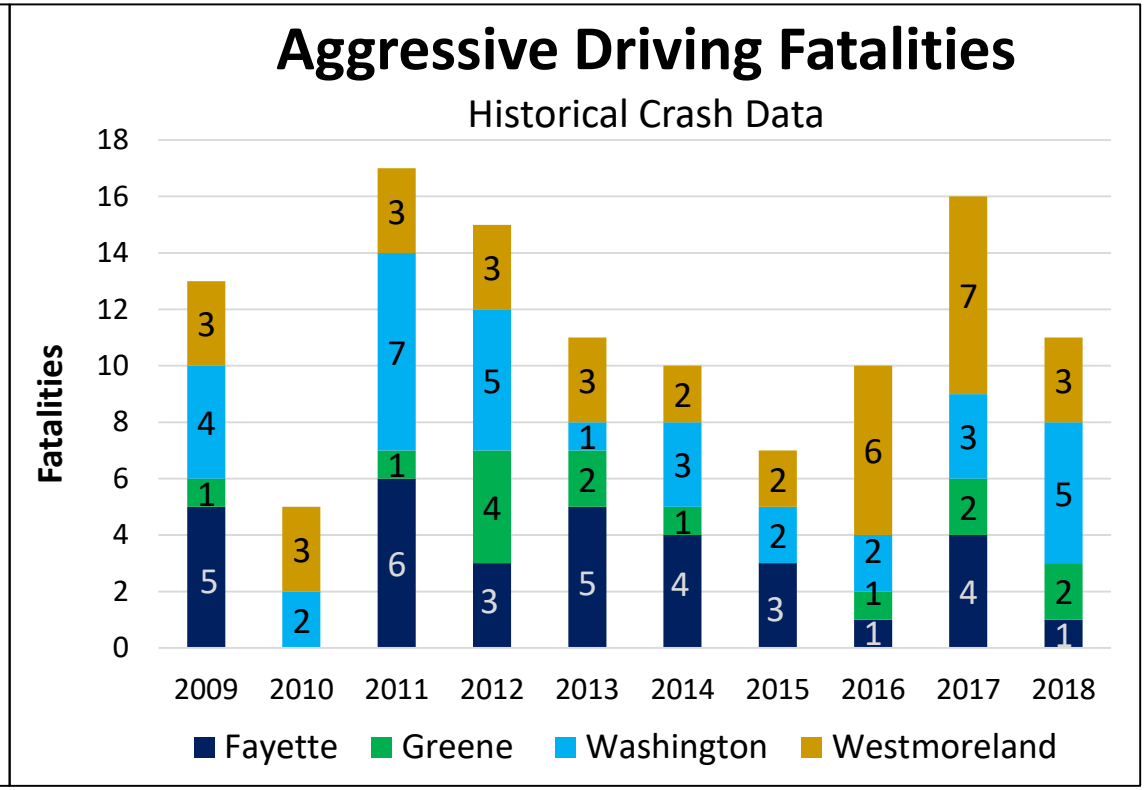


Upward Trend in Crashes/Fatals

Safety Focus Area Performance

Safety Focus Area: Aggressive Driving Crashes



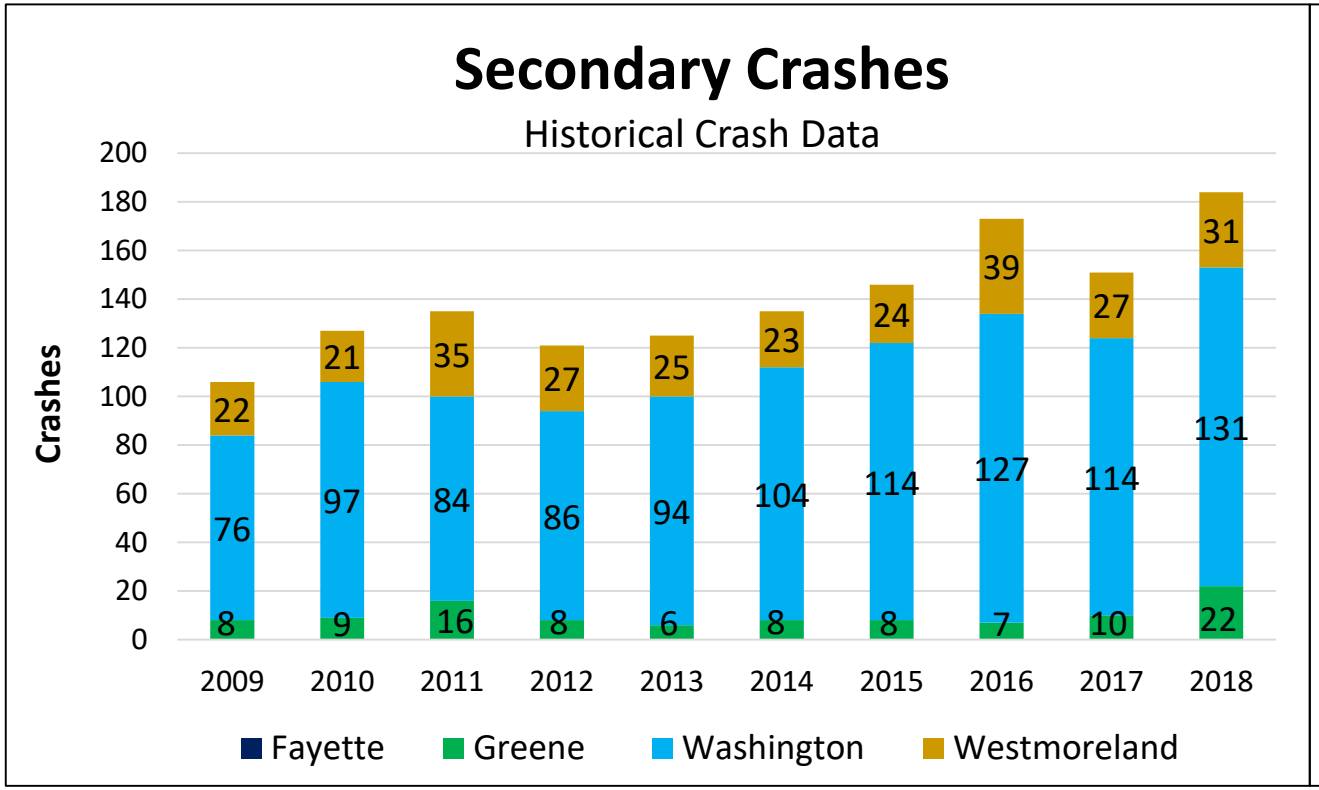


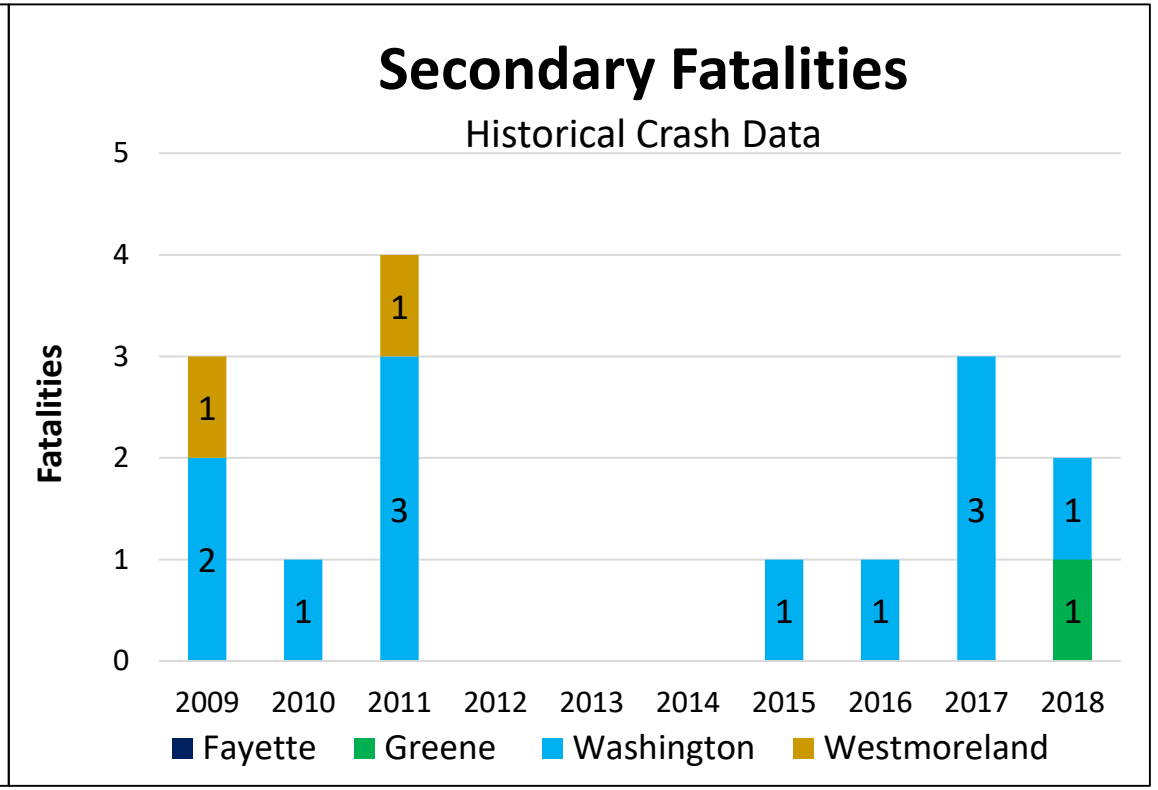
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Secondary Crashes



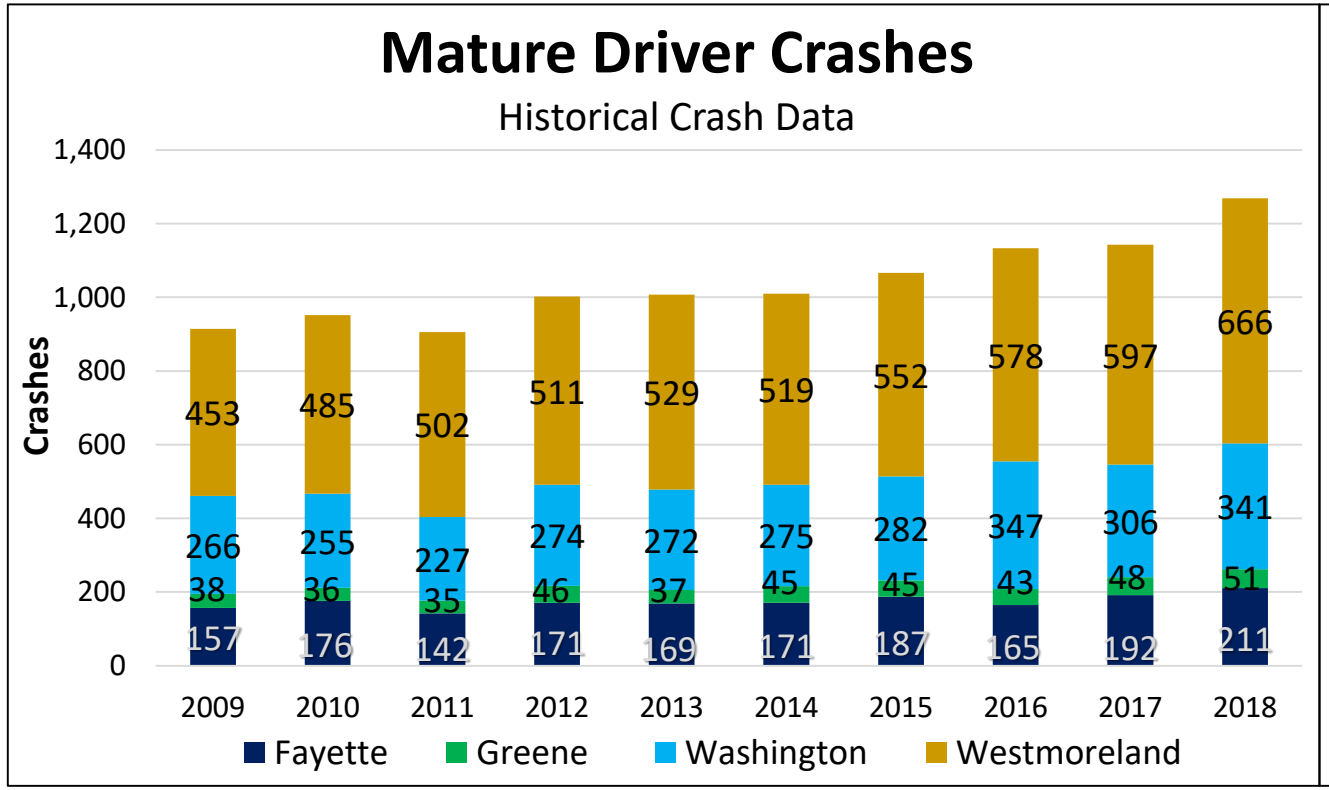


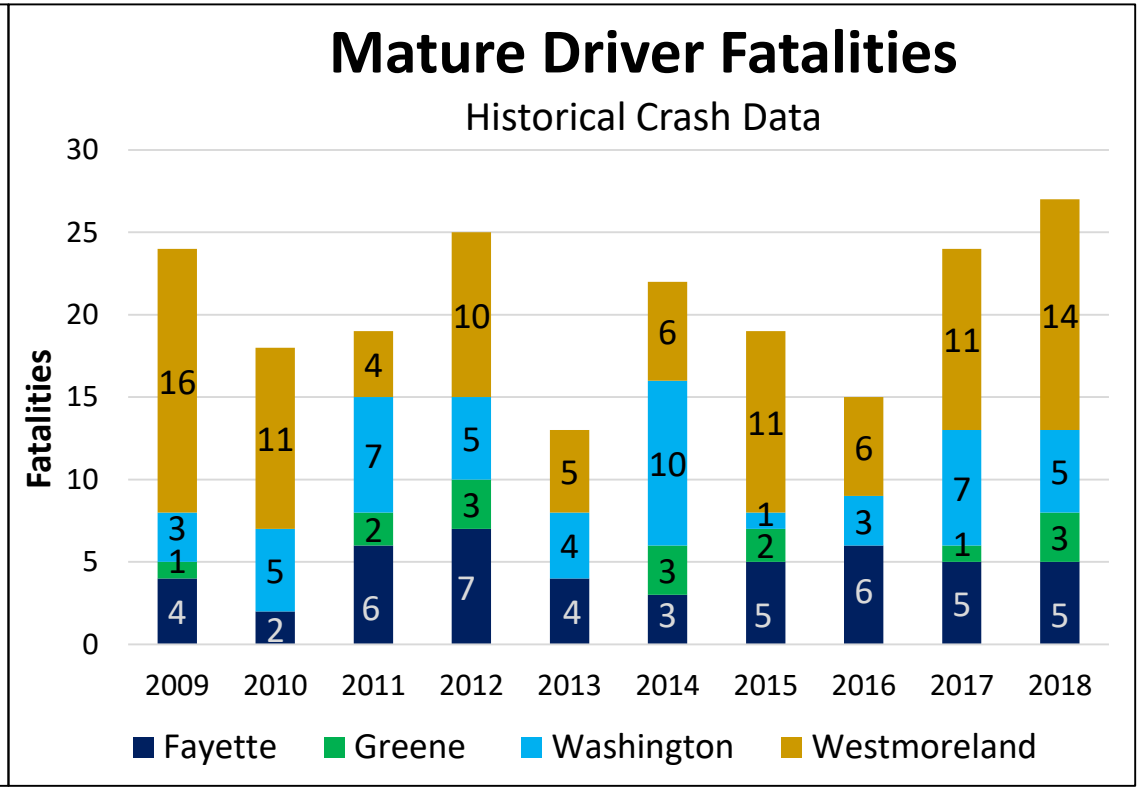
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Mature Driver Crashes

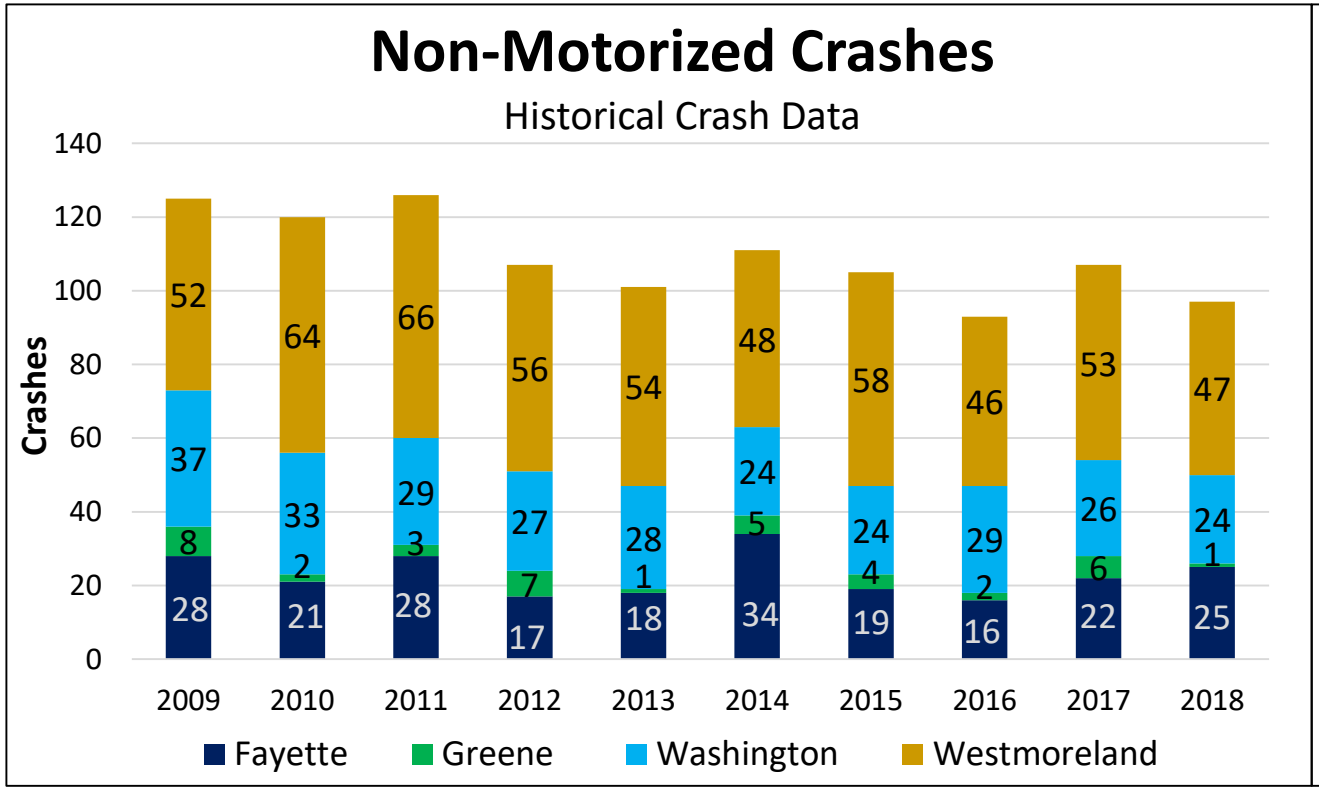


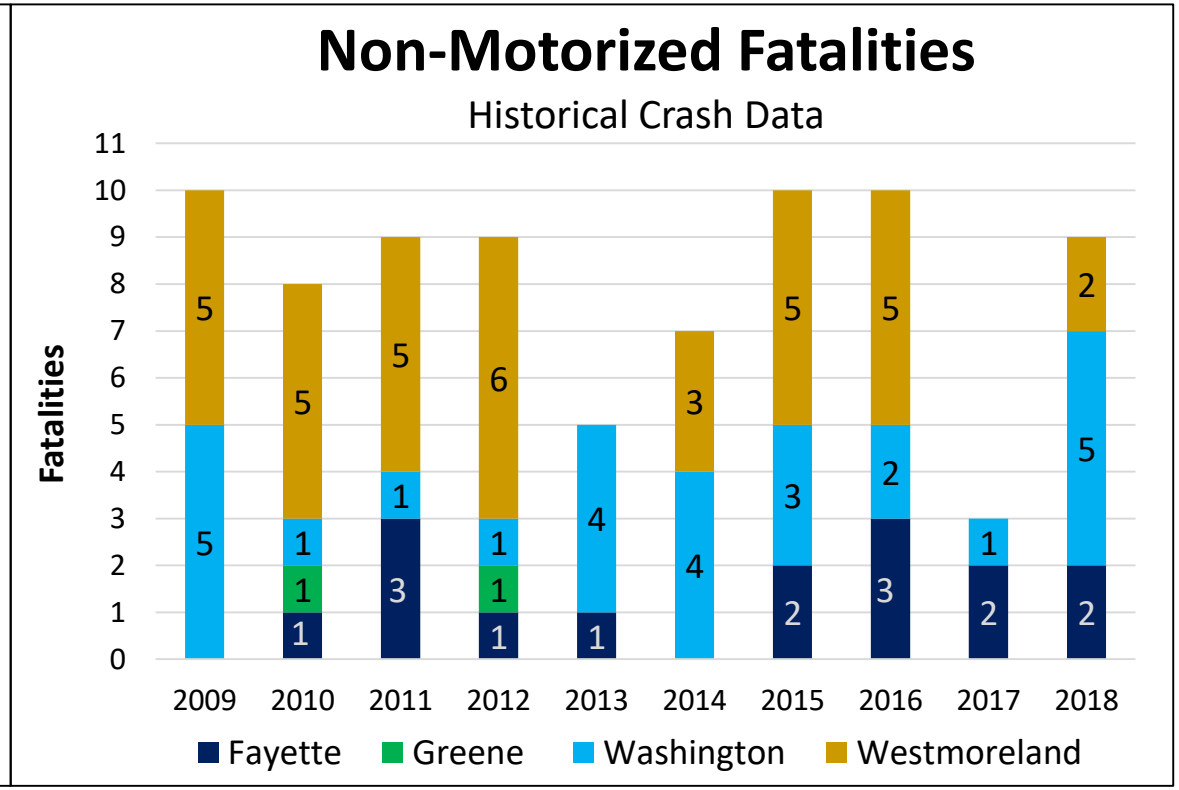


Upward Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Non-Motorized (Ped/Bike) Crashes



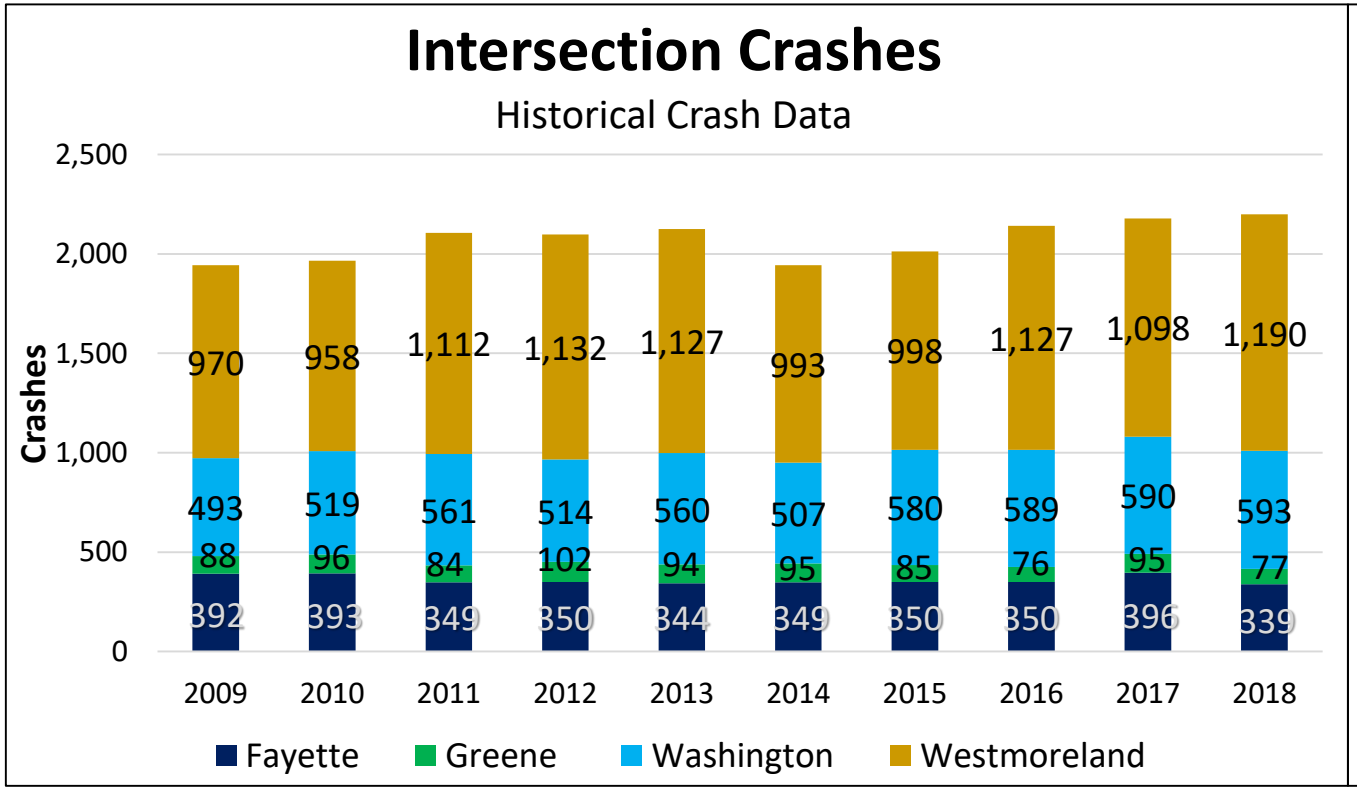


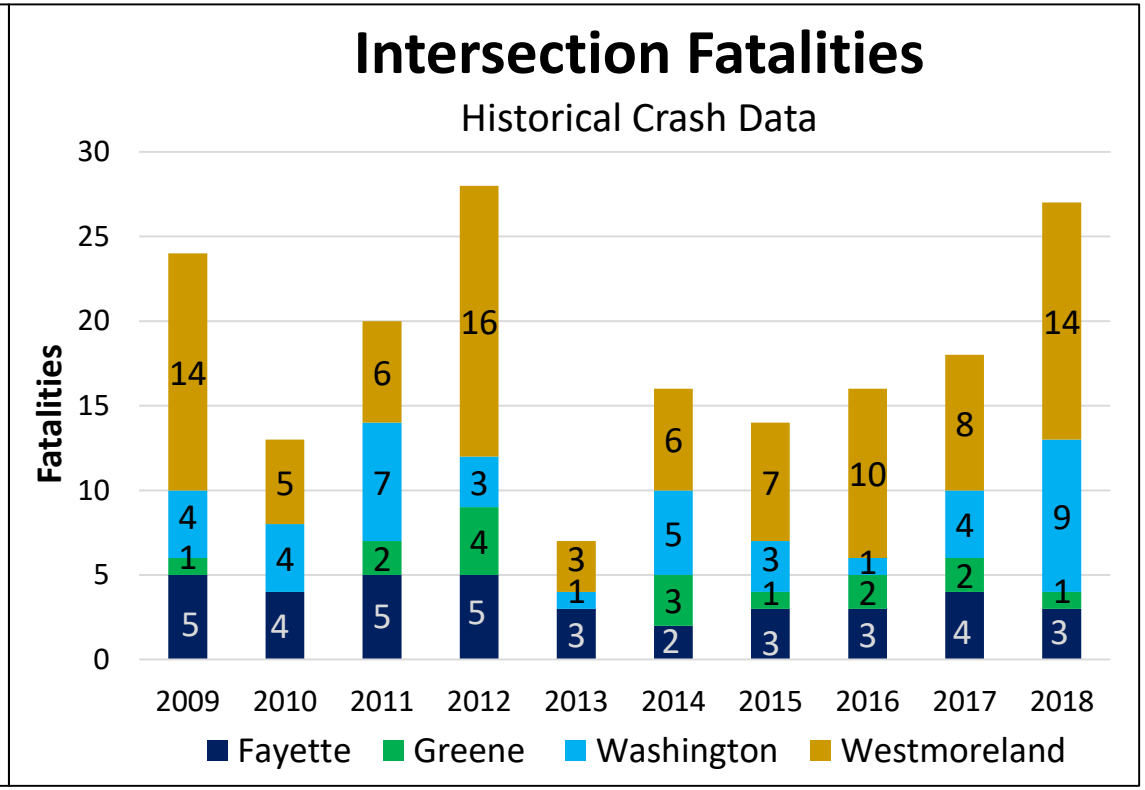
Downward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Intersection Crashes



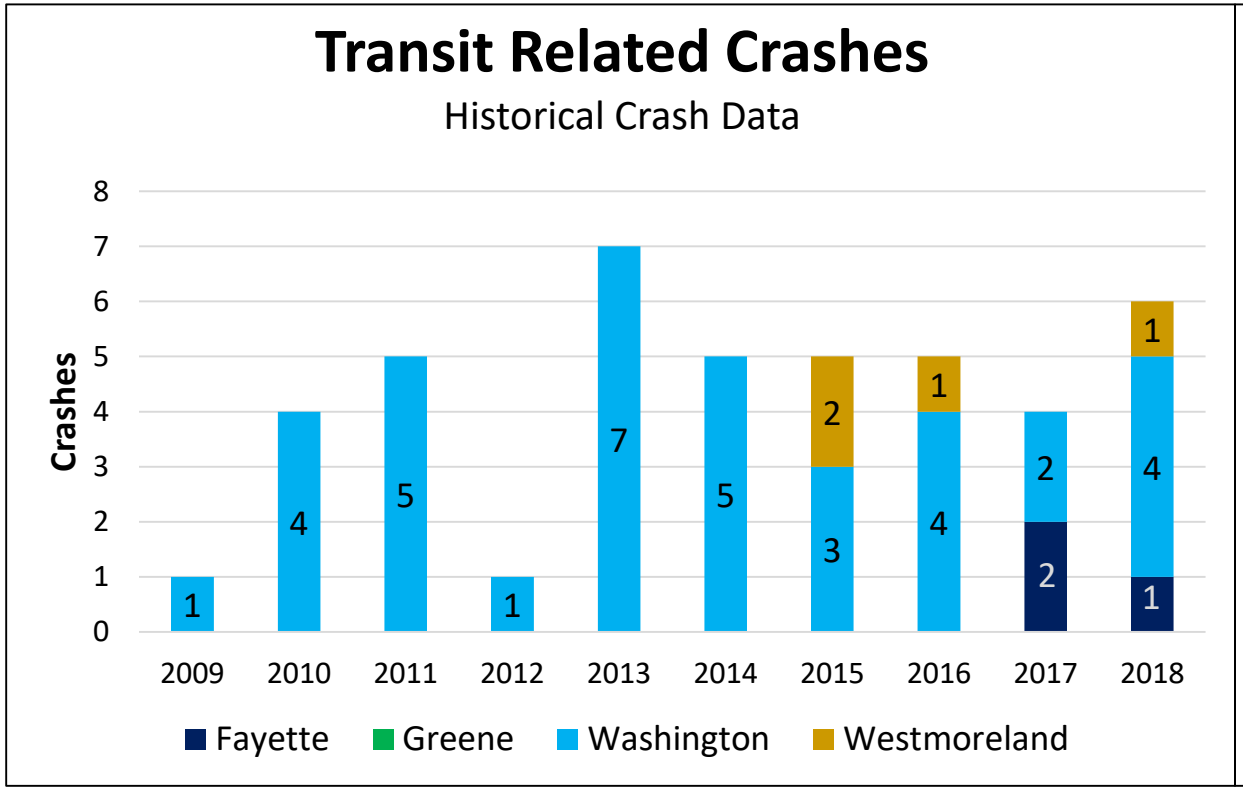


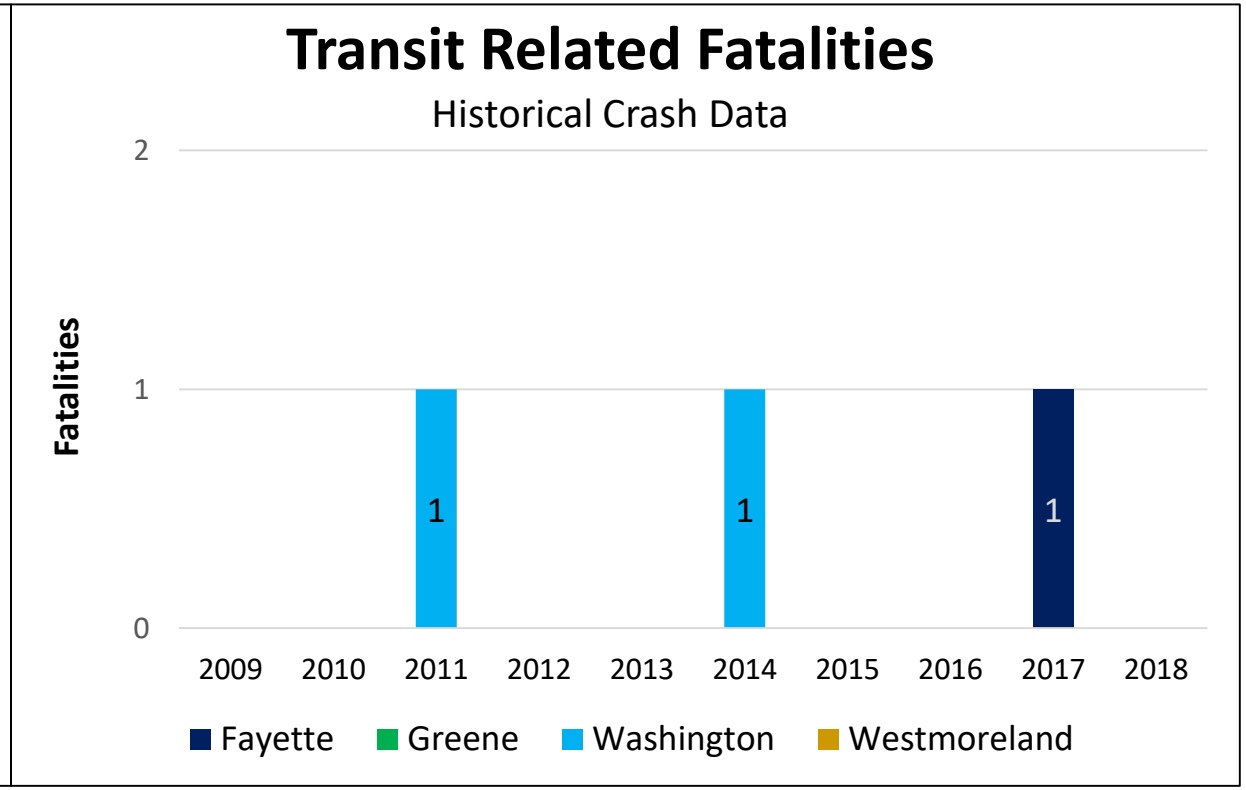
Upward Trend in Crashes

Upward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Transit Related Crashes



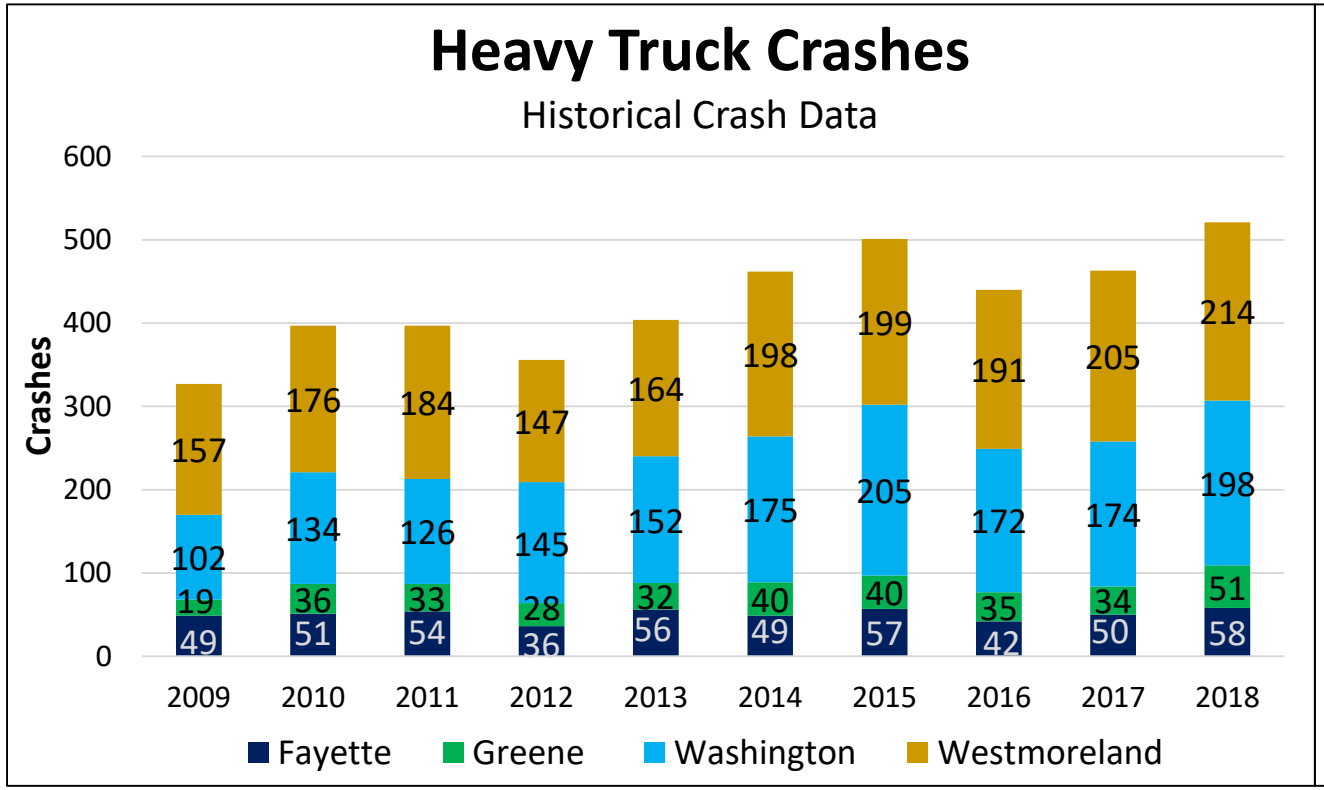


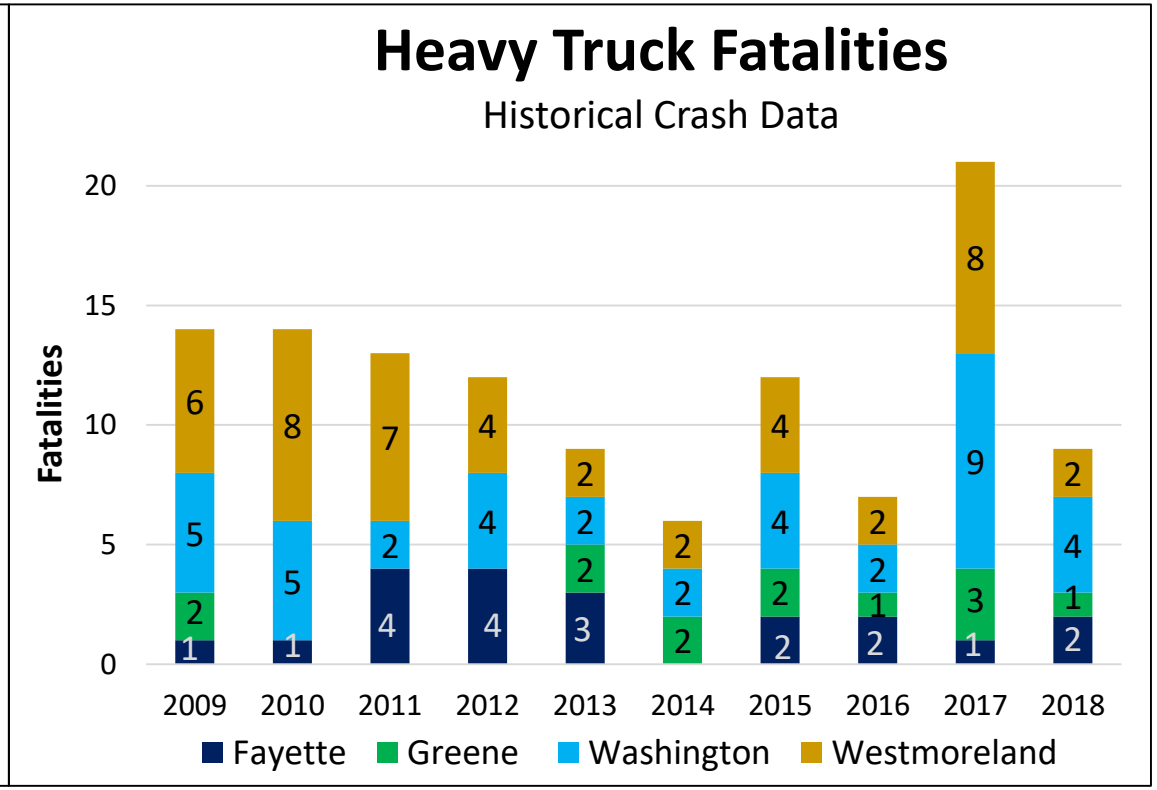
Source: Federal Transit Administration Database

Stagnant Trend in Crashes\Fatalities

Safety Focus Area Performance

Safety Focus Area: Heavy Truck Crashes



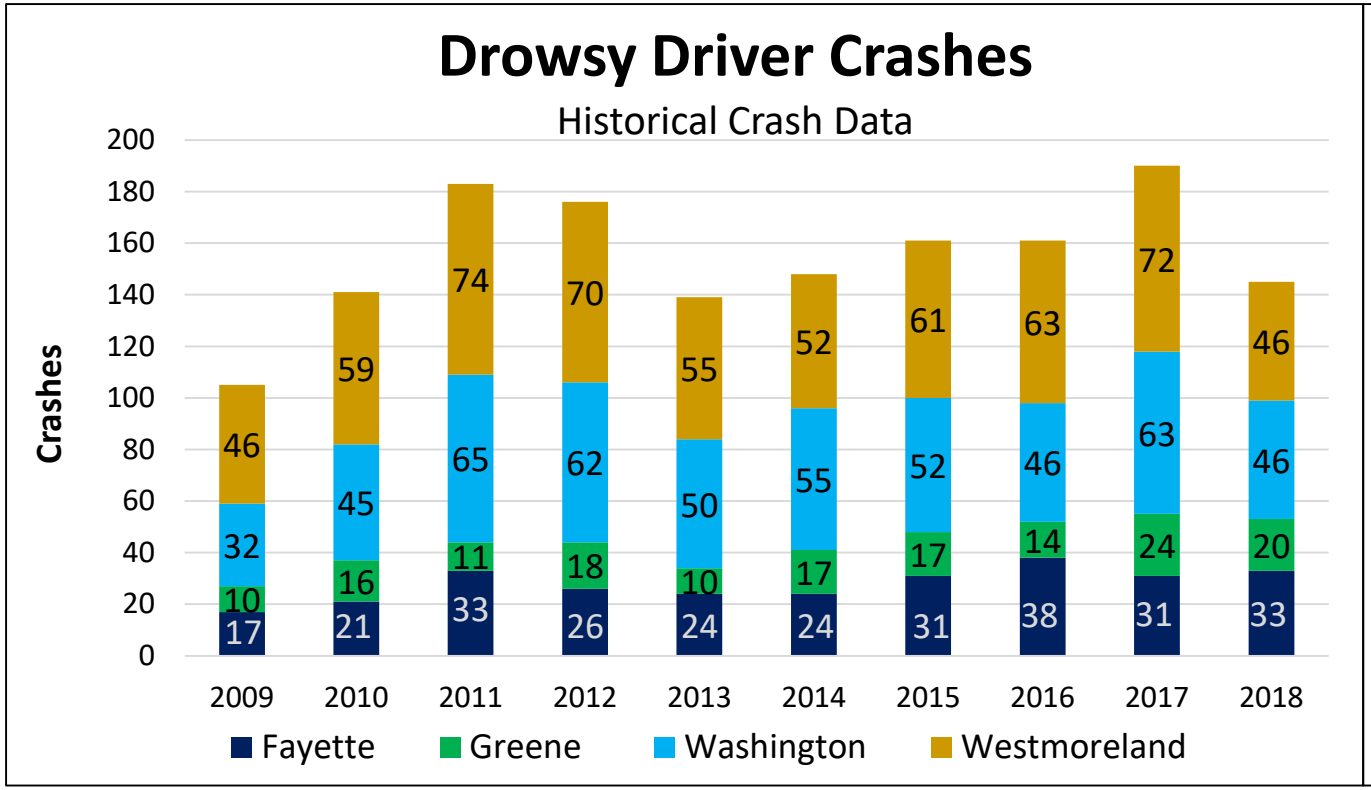


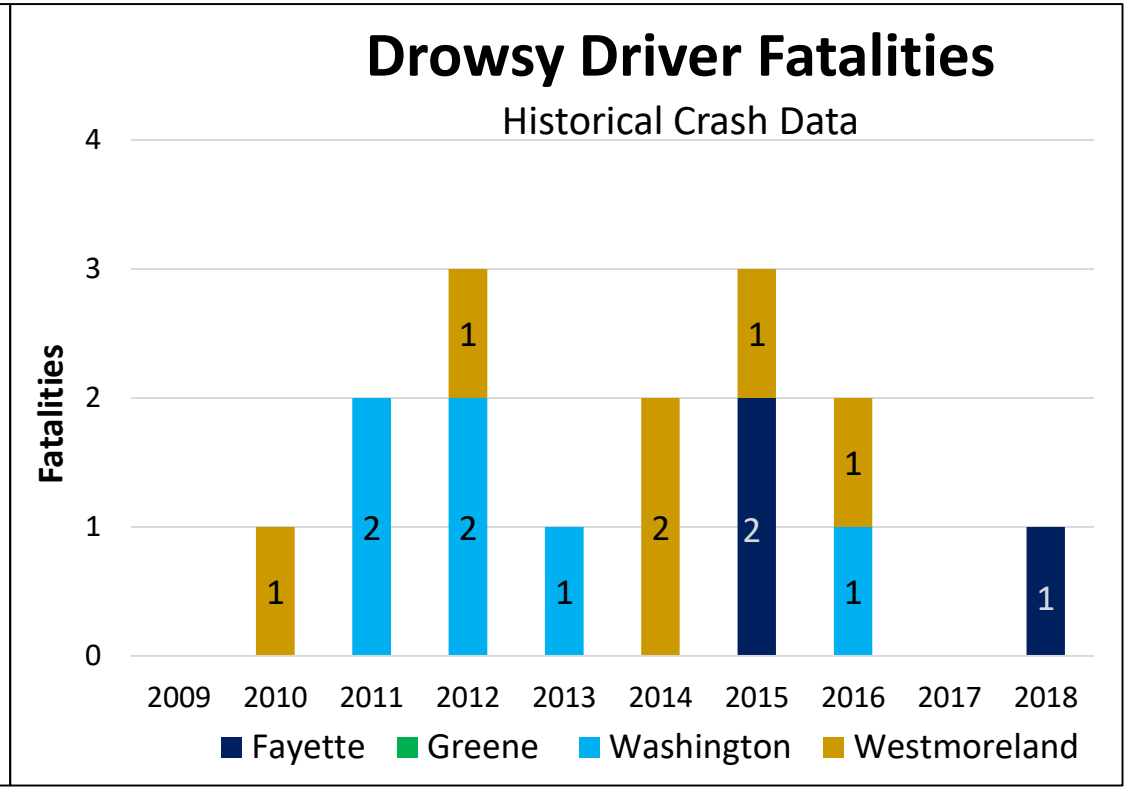
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Drowsy Driver Crashes





Upward Trend in Crashes

Stagnant Trend in Fatalities

District-Specific Safety Trends

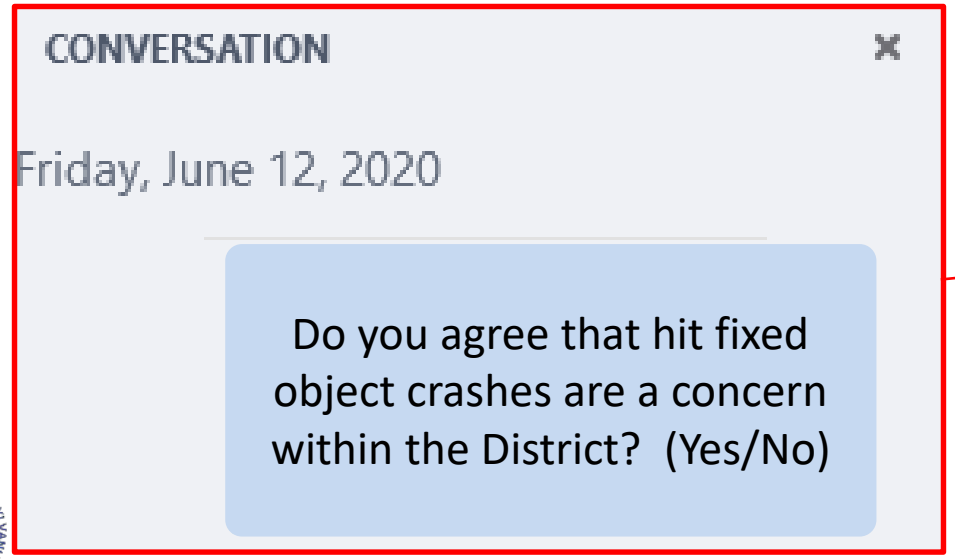
District Safety Focus Areas

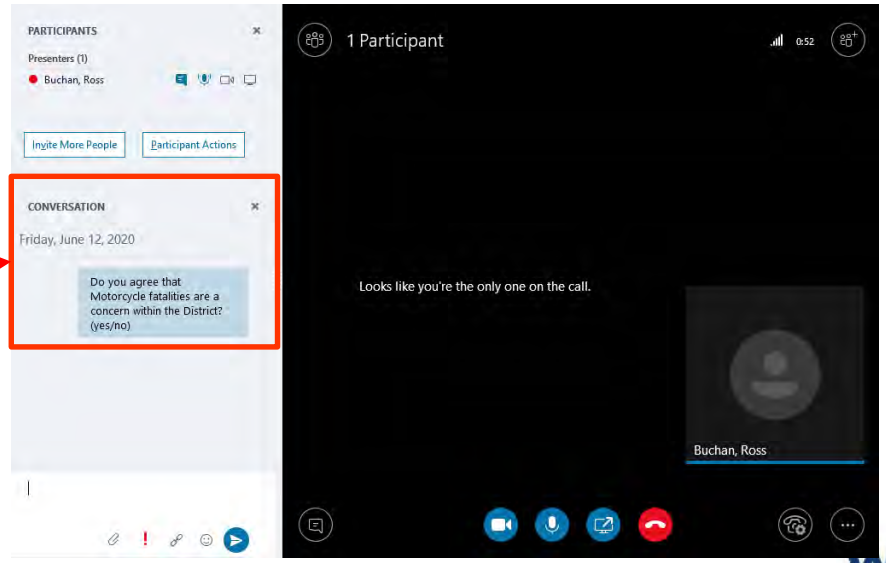
- PennDOT monitors an additional 21 crash categories in addition to the 13 Safety Focus Areas
- Investigated the other 21 categories for disconcerting trends (stagnant or increasing crash trends)
  - Only flagged crash categories where crash frequency and/or fatals are increasing comprehensively within the District (*not per County*)
- Final report will provide data for all 34 PennDOT crash categories

District-Specific Safety Trends

District Safety Focus Area Exercise

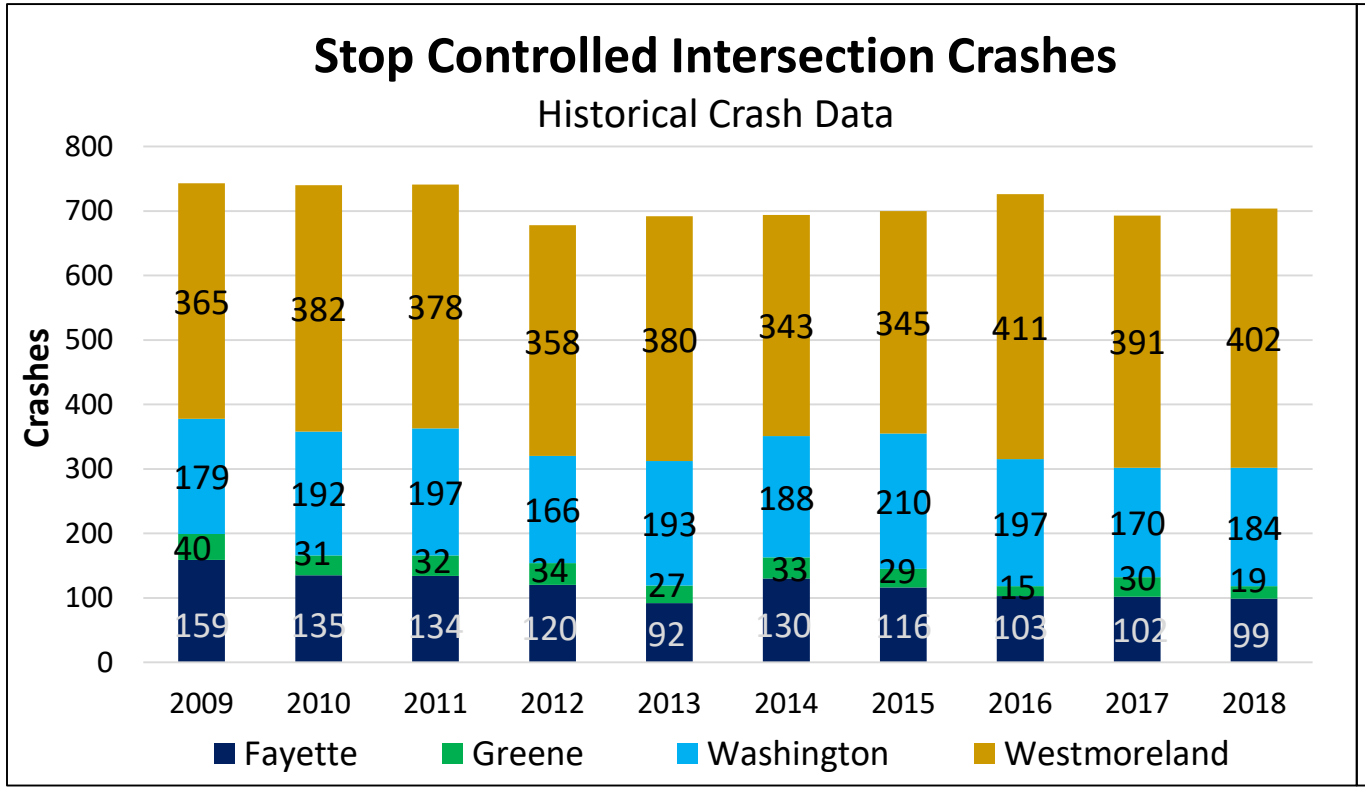
- Presenter to review stagnant or increasing Districtwide crash trends not discussed on the previous slides
- Presenter will prompt attendees to provide feedback in the Skype chat box during review of slide
  - Presenter will type question into chat box requesting “yes” or “no” response to make the crash trend a District Safety Focus Area

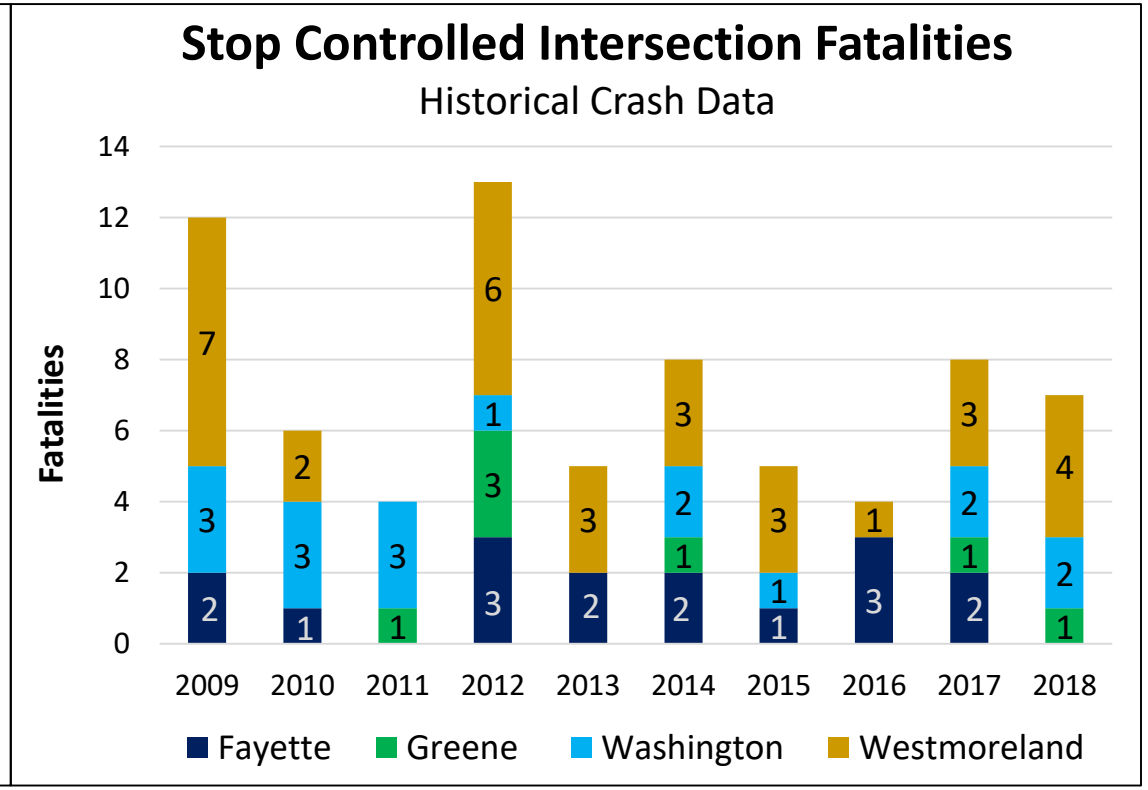




District-Specific Safety Trends

District Safety Focus Area: Stop Controlled Intersection Crashes

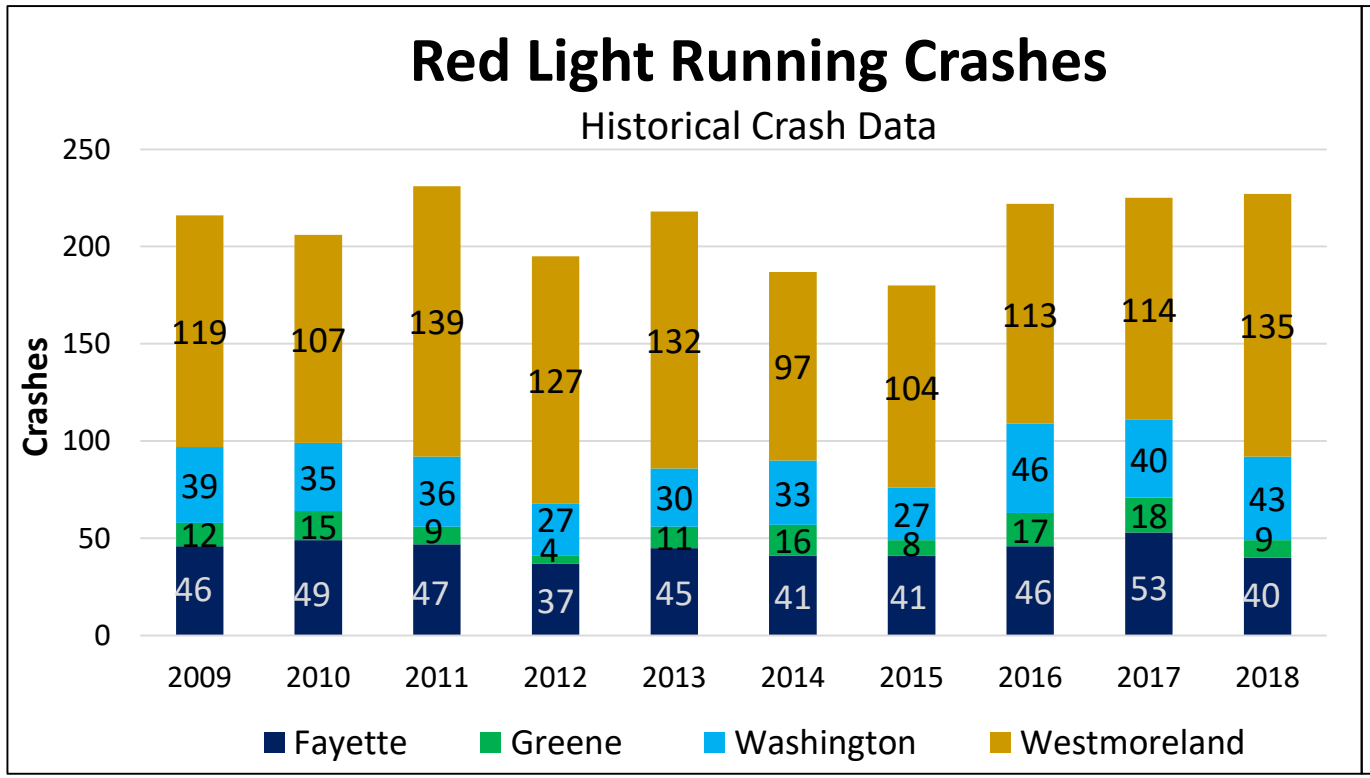


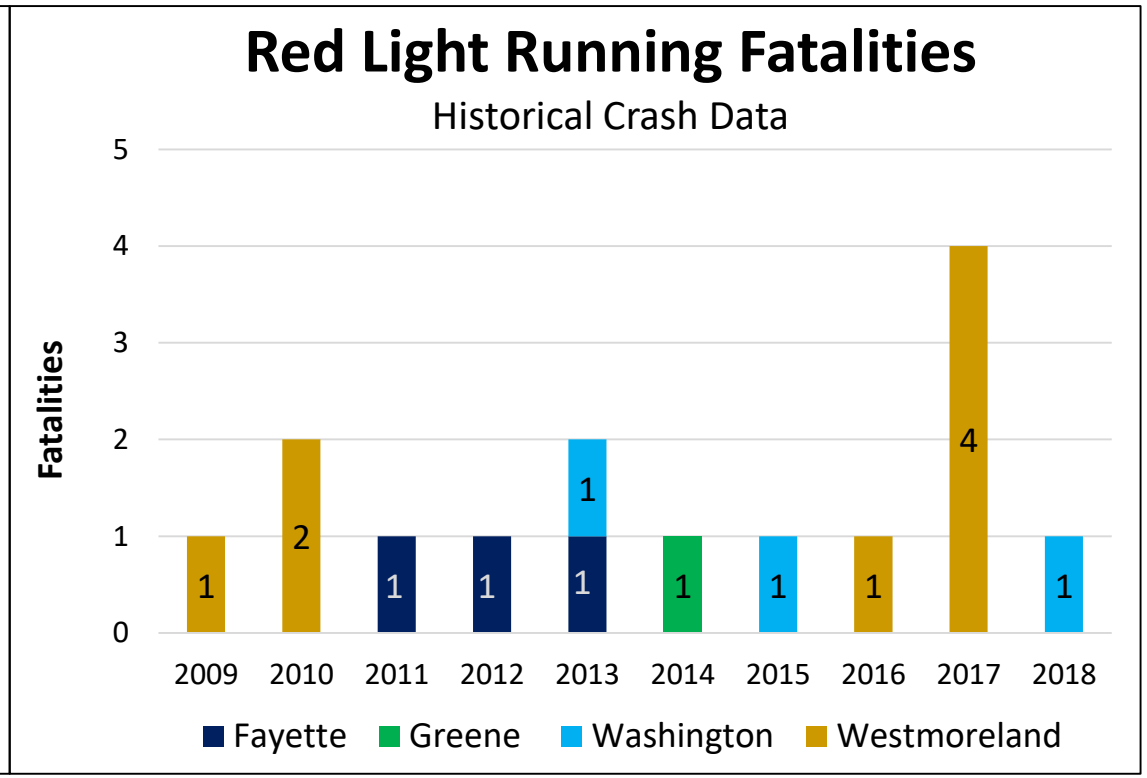


Stagnant Trend in Crashes\Fatalities

District-Specific Safety Trends

District Safety Focus Area: Red Light Running Crashes



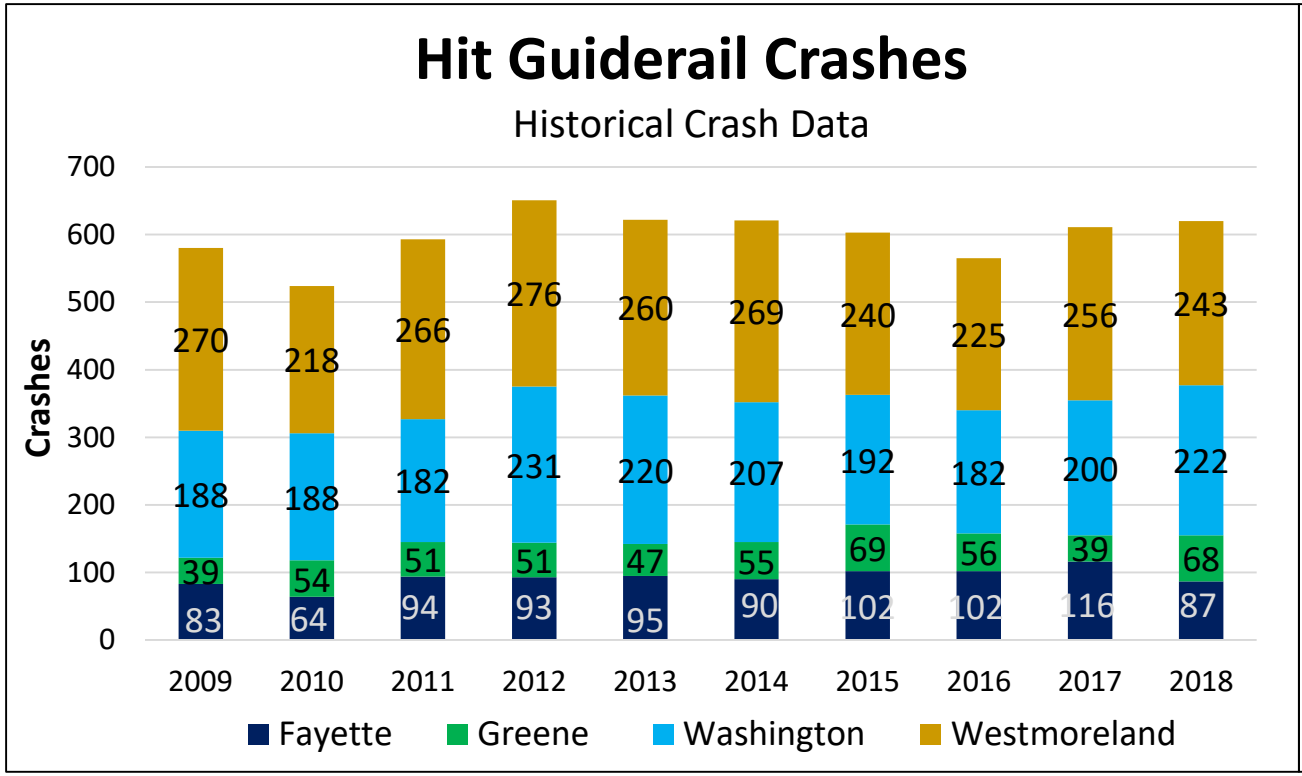


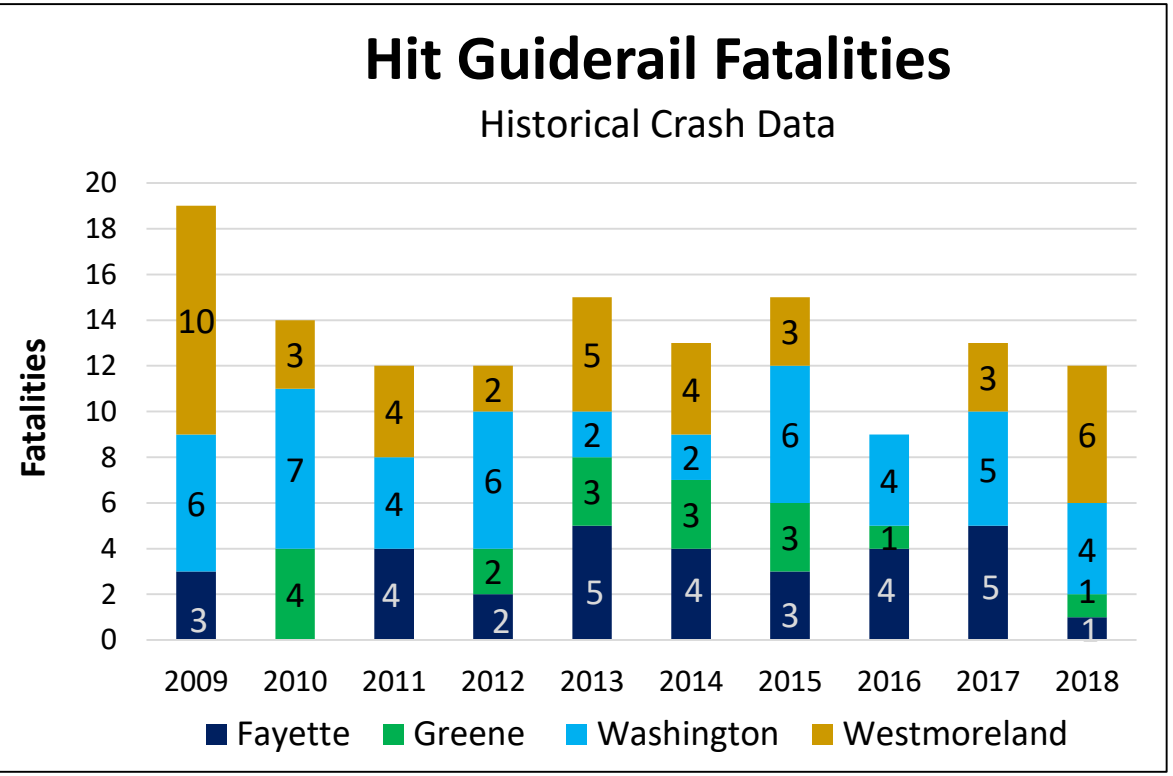
Upward Trend in Crashes

Stagnant Trend in Fatalities

District-Specific Safety Trends

District Safety Focus Area: Hit Guiderail Crashes



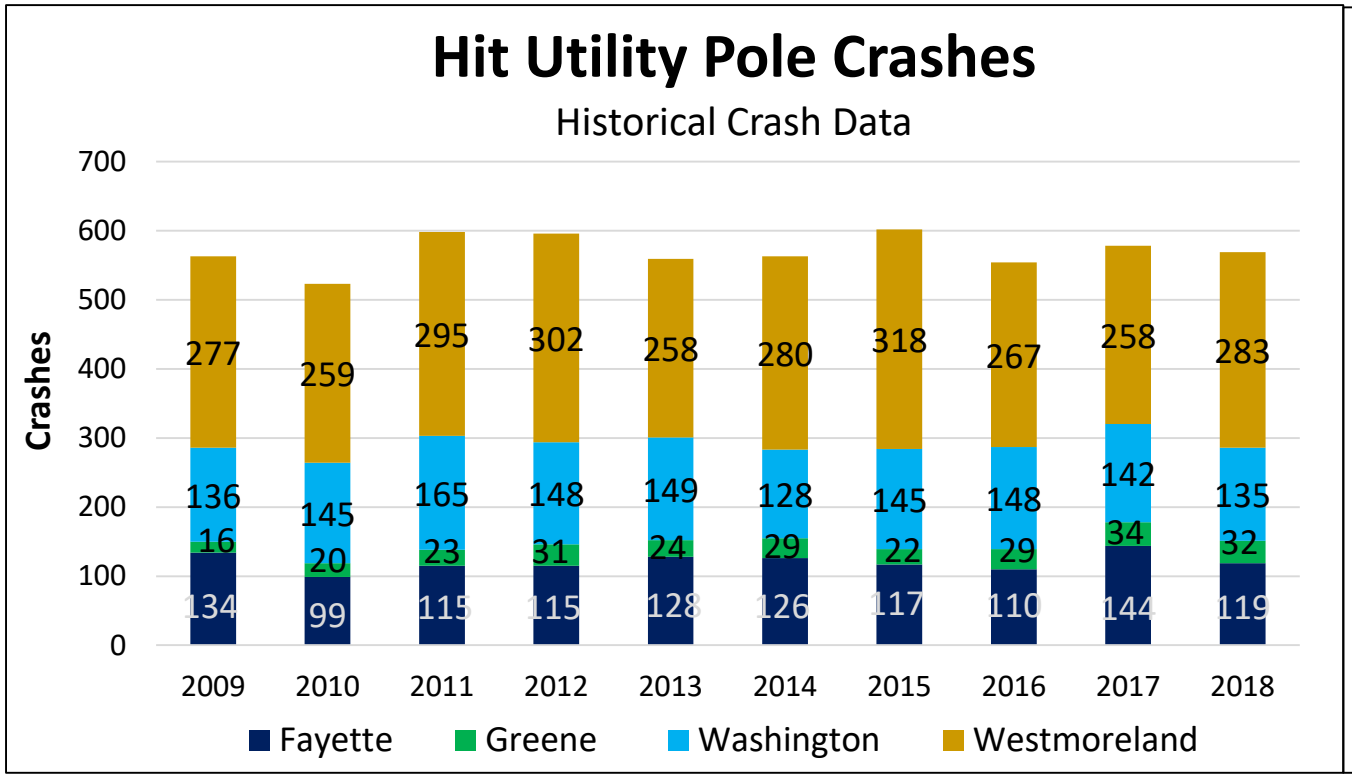


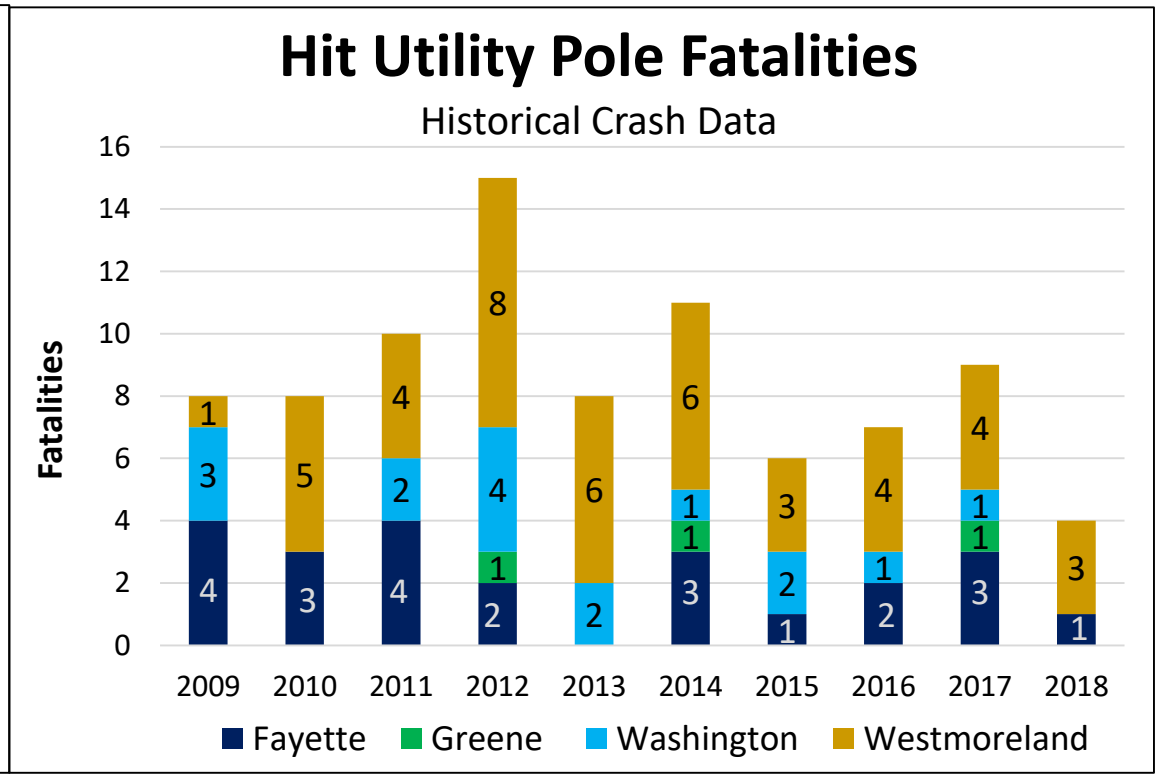
Stagnant Trend in Crashes

Downward Trend in Fatalities

District-Specific Safety Trends

District Safety Focus Area: Hit Utility Pole Crashes

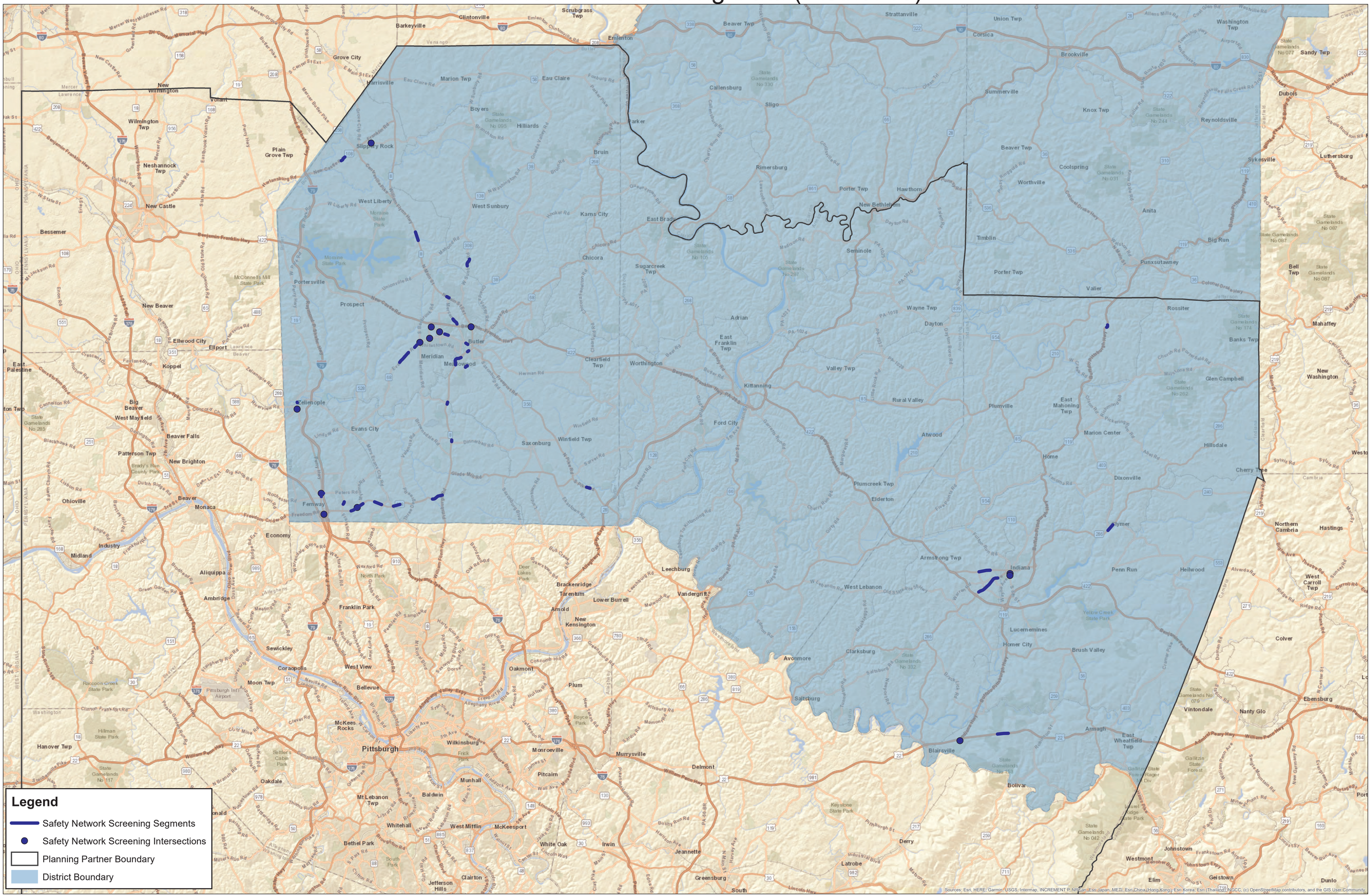




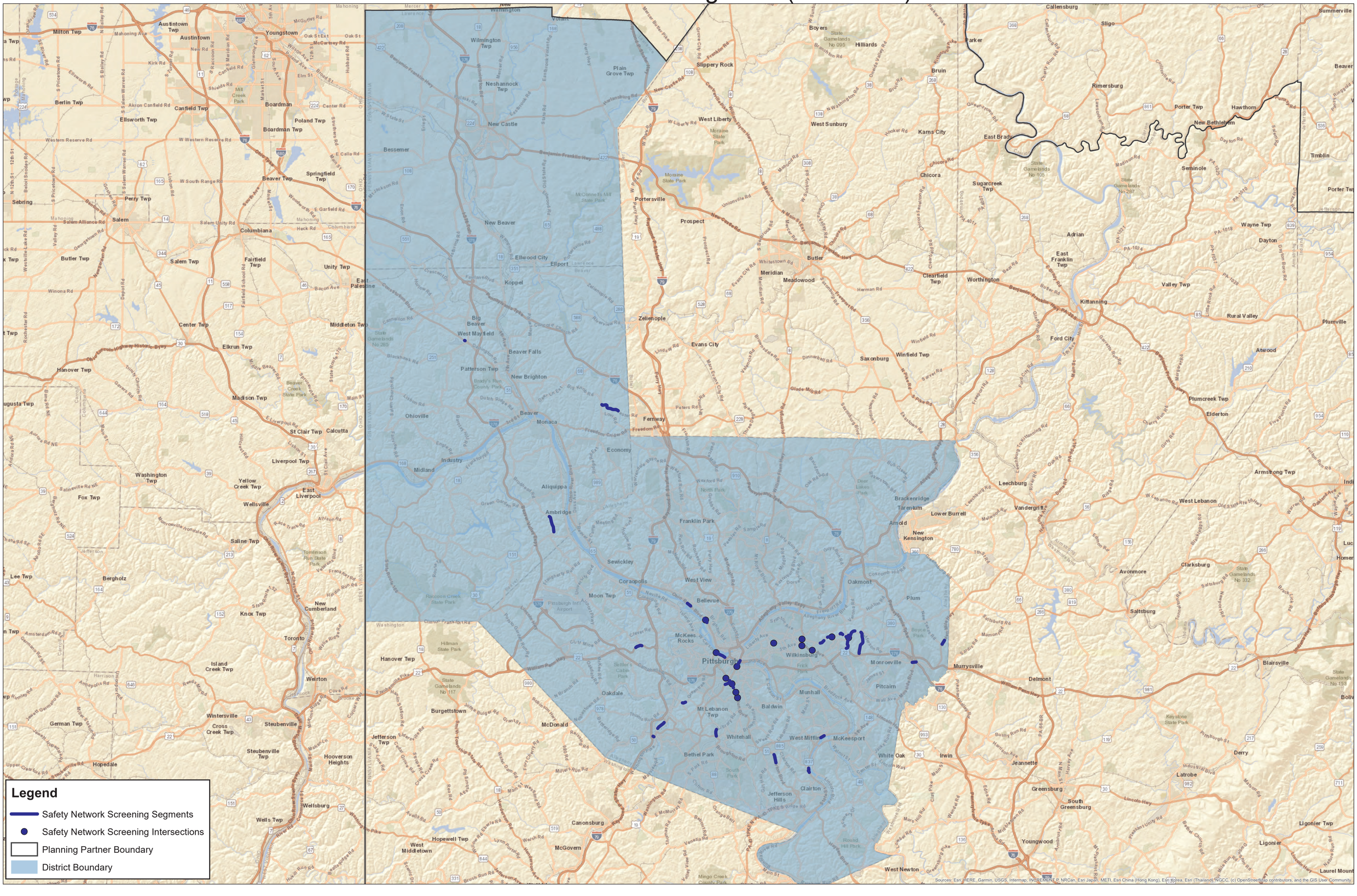
Stagnant Trend in Crashes\Fatalities

Appendix F – HSM Network Screened and Crash Cluster Top-40 District Location Maps

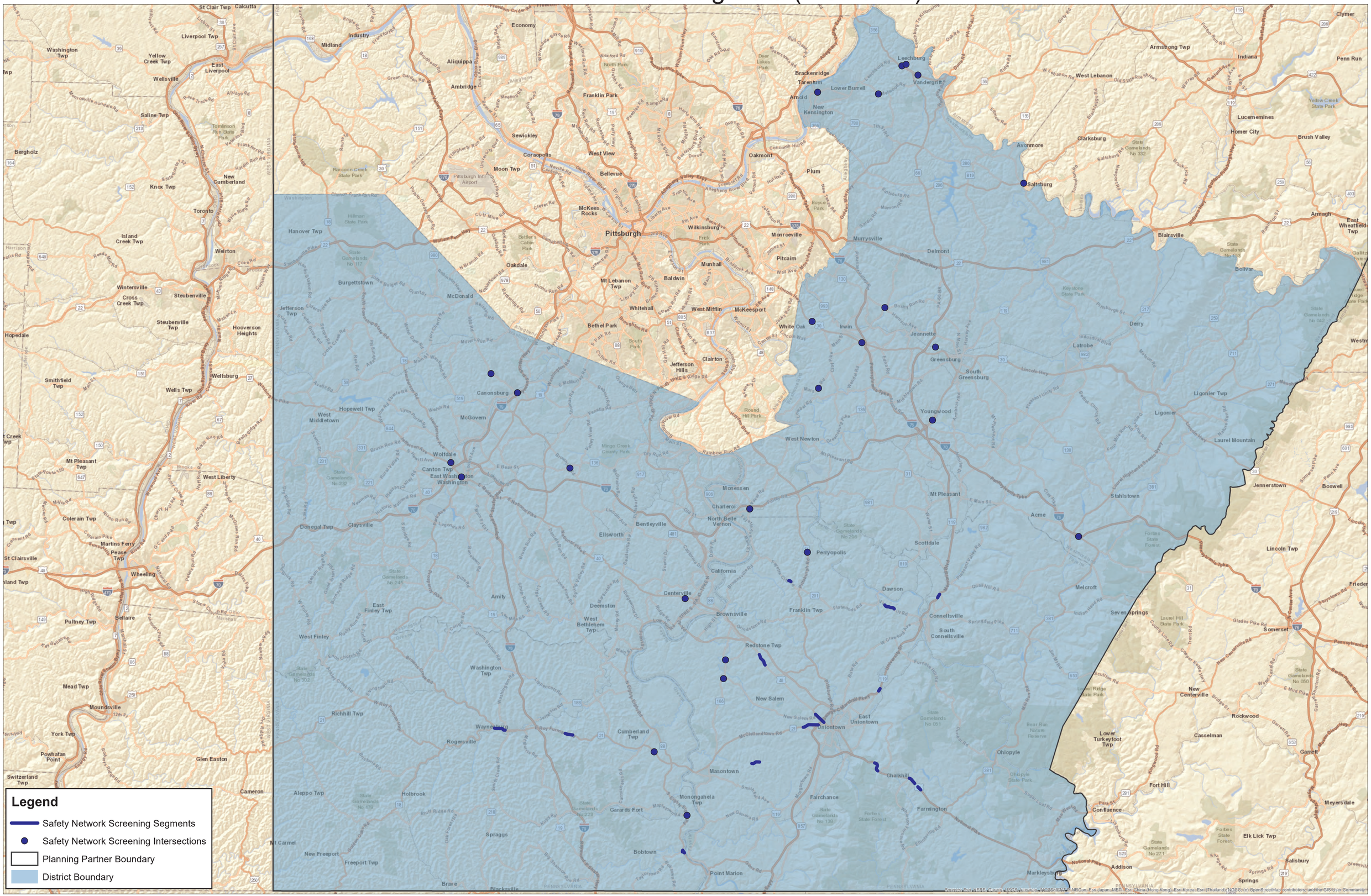
HSM Network Screening Data (District 10)



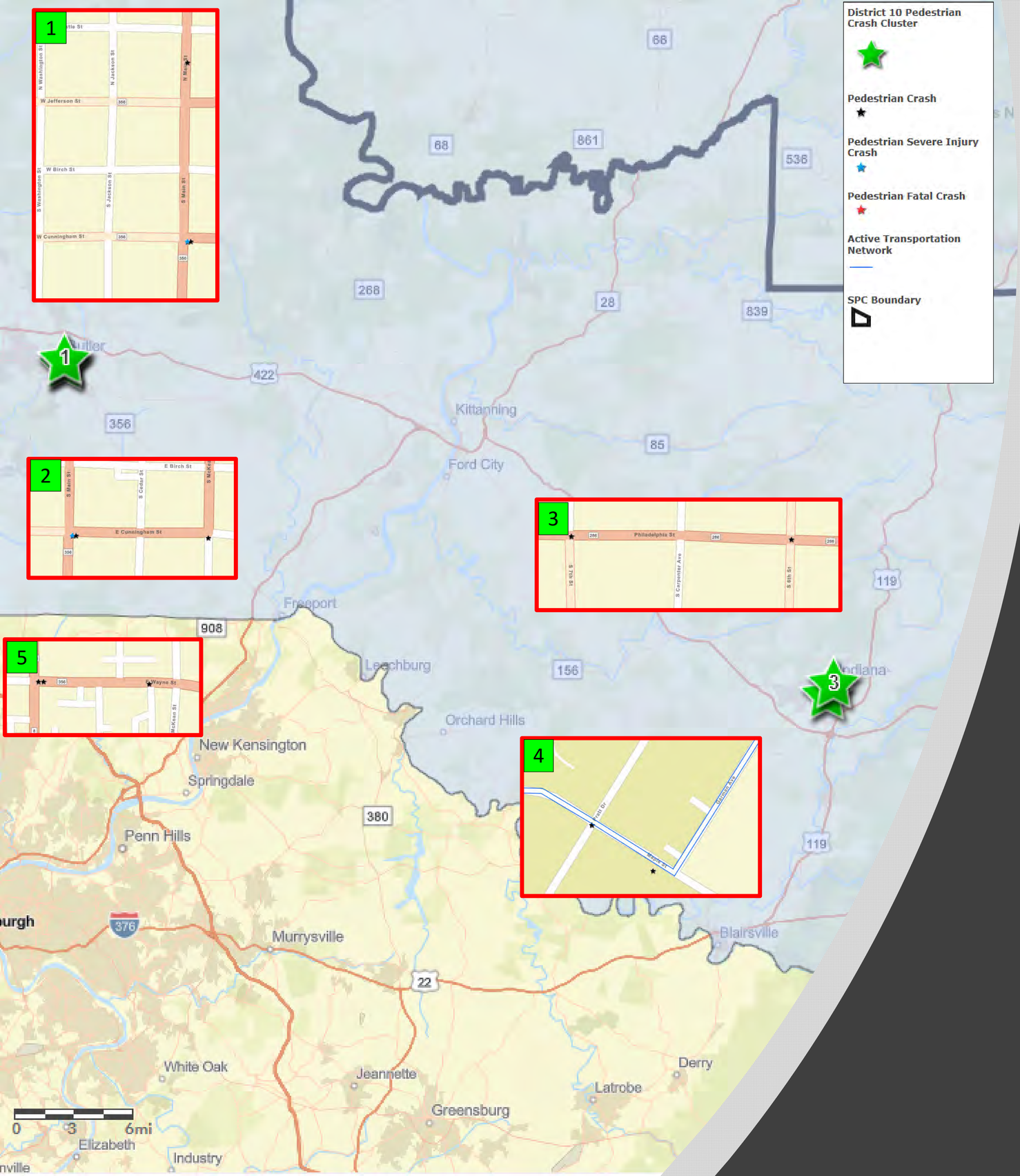
HSM Network Screening Data (District 11)



HSM Network Screening Data (District 12)



Appendix G – Bicycle and Pedestrian Safety Hot Spot Maps



D10 Pedestrian Crash Priority Locations

2014-2018 Crash Data

Location 1: Main Street from New Castle St to Cunningham St, Butler

Total Crashes	3	Severe Injury	1	Fatal	0

Location 2: Cunningham St from Main St to McKean St, Butler

Total Crashes	3	Severe Injury	1	Fatal	0

Location 3: Philadelphia St from 7th St to 6th St, Indiana

Total Crashes	3	Severe Injury	0	Fatal	0

Location 4: Maple St from Pratt Dr to Garman Ave, Indiana

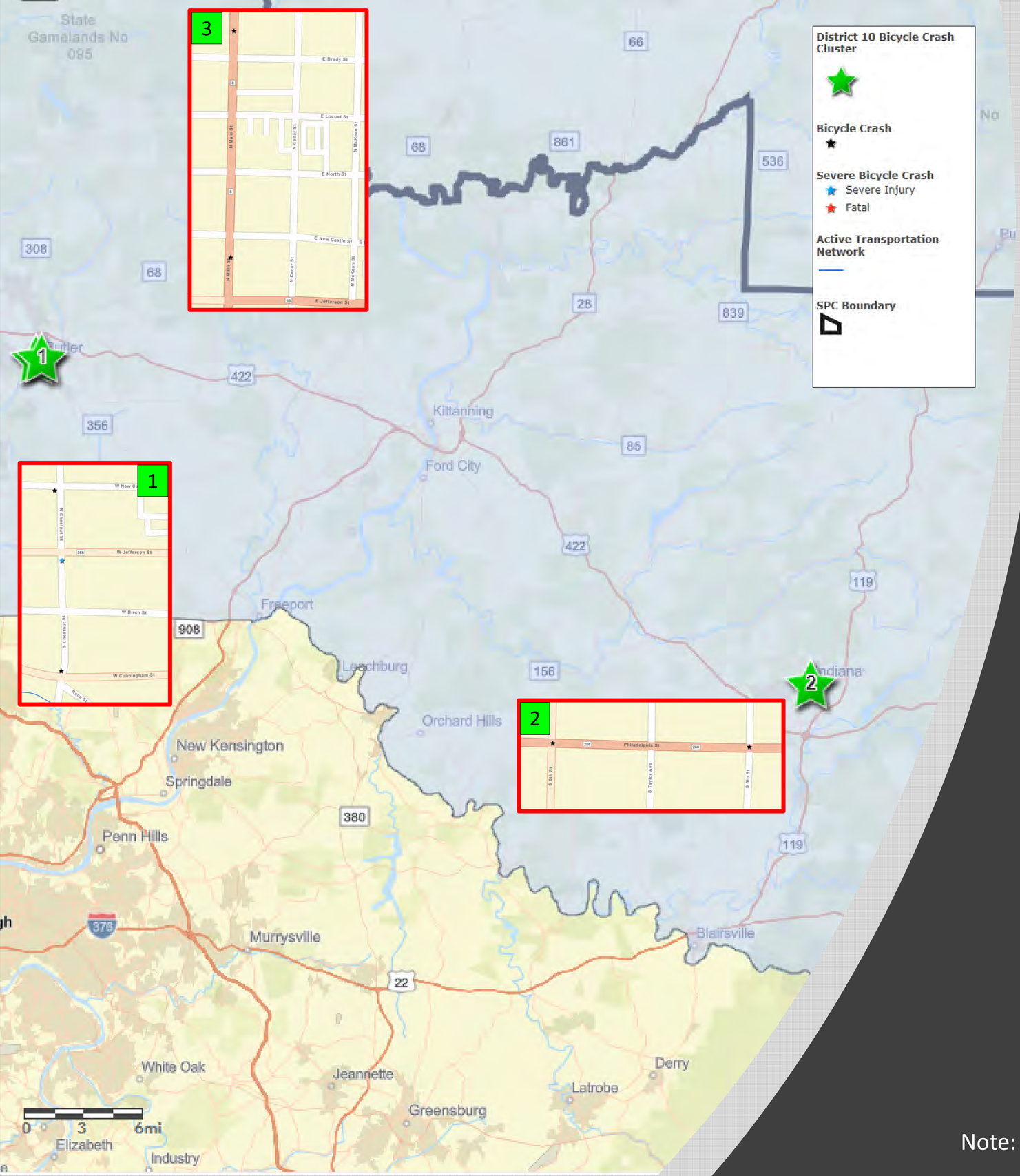
Total Crashes	3	Severe Injury	0	Fatal	0

Location 5: Wayne St from Main St to McKean St, Butler

Total Crashes	3	Severe Injury	0	Fatal	0

D10 Bicycle Crash Priority Locations

2014-2018 Crash Data



Location 1: Chestnut St from New Castle St to Cunningham St, Butler

Total Crashes	3	Severe Injury	1	Fatal	0

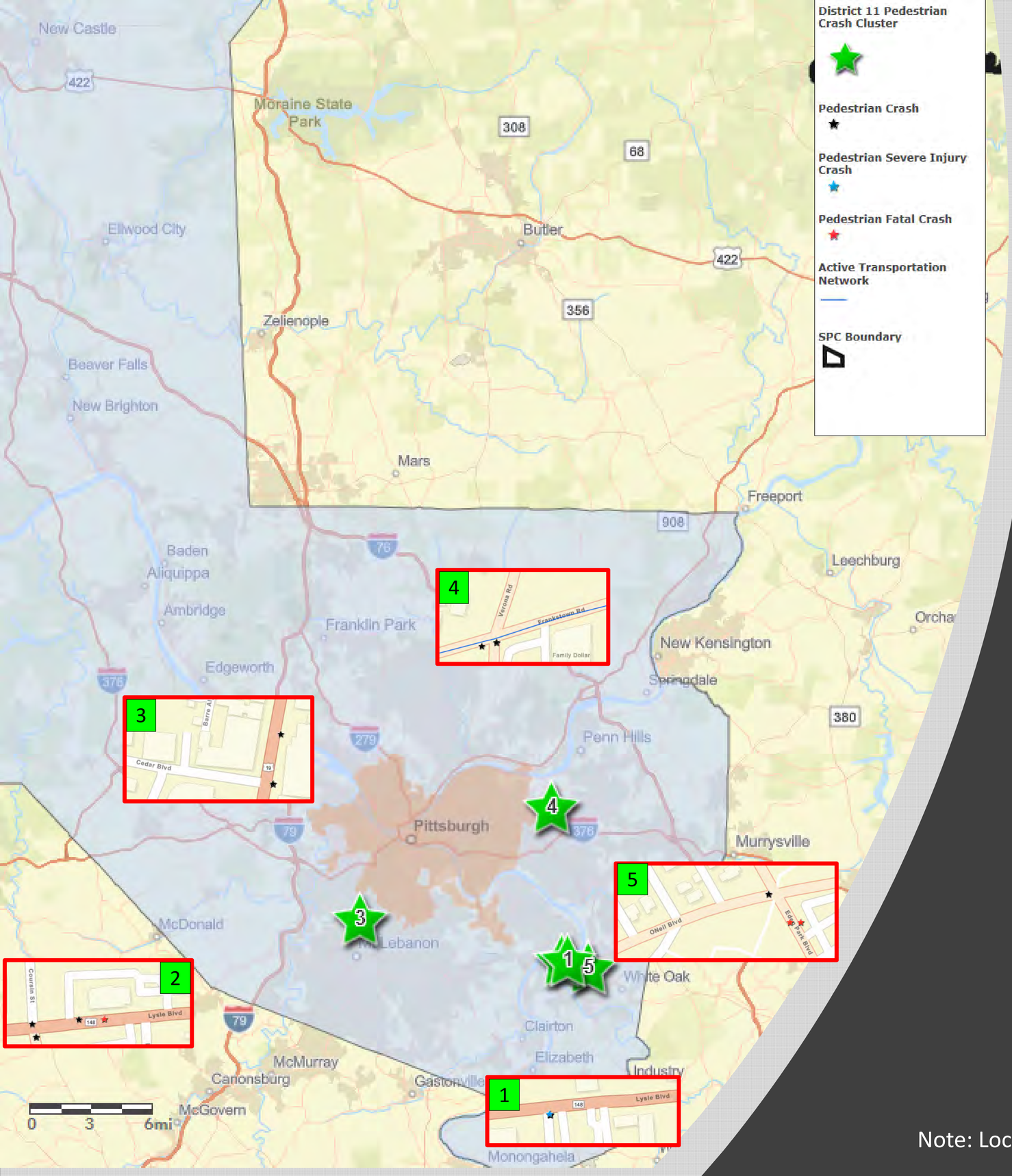
Location 2: Philadelphia St from 6th to 5th St, Indiana

Total Crashes	2	Severe Injury	0	Fatal	0

Location 3: Main St from Brady St to New Castle St, Butler

Total Crashes	2	Severe Injury	0	Fatal	0

Note: For Locations 2 and 3, the distances between the crashes are over 700 ft.



D11 Pedestrian Crash Priority Locations

2014-2018 Crash Data

Location 1: Lysle Blvd @ Evans St, McKeesport

Total Crashes	7	Severe Injury	3	Fatal	0

Location 2: Lysle Blvd @ Coursin St, McKeesport

Total Crashes	6	Severe Injury	0	Fatal	1

Location 3: Washington Road @ Cedar Blvd, Mount Lebanon

Total Crashes	5	Severe Injury	0	Fatal	0

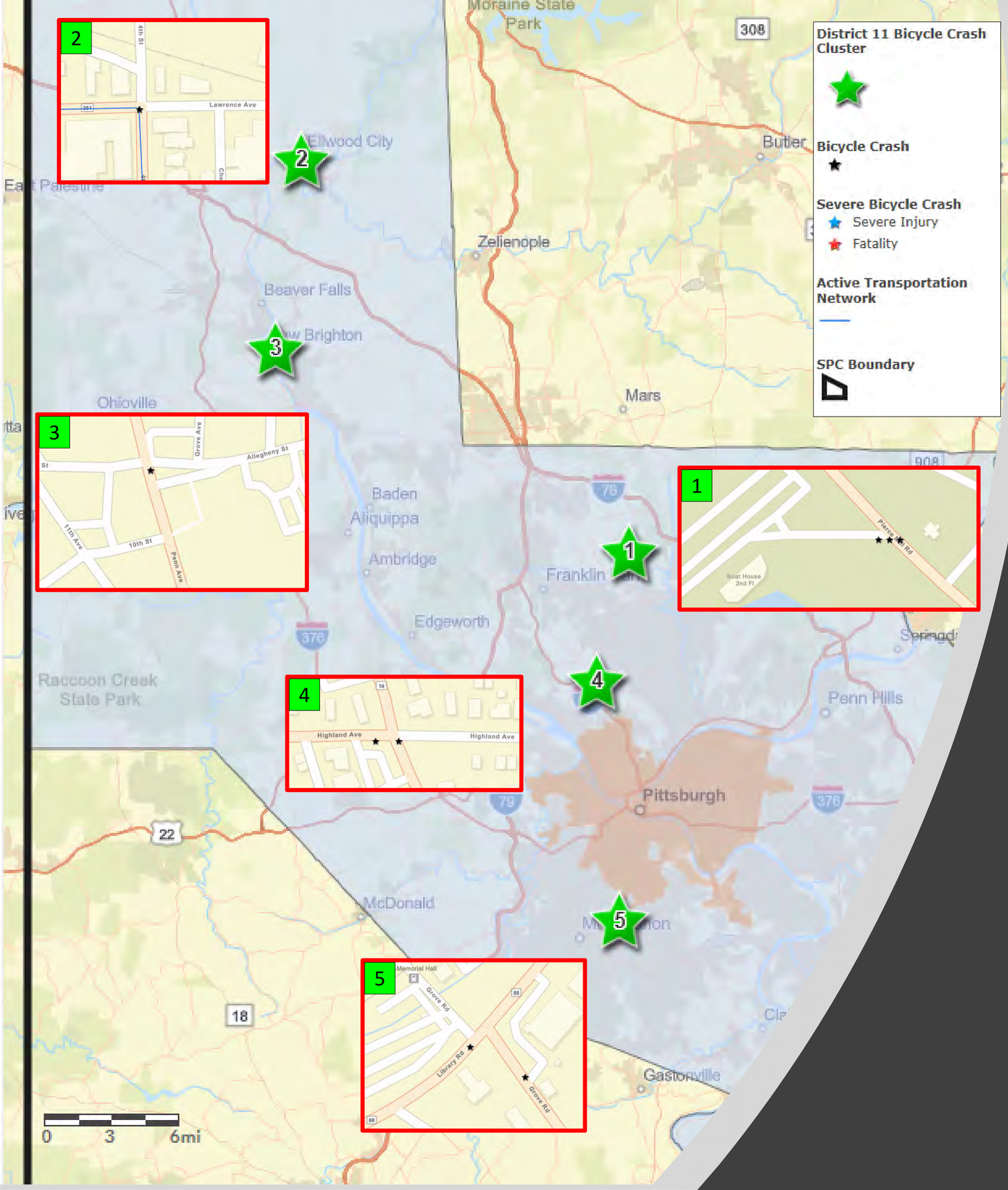
Location 4: Frankstown Rd @ Verona Rd, Penn Hills

Total Crashes	5	Severe Injury	0	Fatal	0

Location 5: Eden Park Blvd @ O'Neil Blvd, McKeesport

Total Crashes	4	Severe Injury	0	Fatal	2

Note: Locations are based on the number of crashes within a 200 ft. cluster length.



D11 Bicycle Crash Priority Locations

2014-2018 Crash Data

Location 1: Pearce Mill Rd @ Tennis Court Rd, McCandless Twp.

Total Crashes	4	Severe Injury Crashes	0

Location 2: Lawrence Ave @ 4th St, Ellwood City

Total Crashes	2	Severe Injury Crashes	0

Location 3: Allegheny St @ New Brighton Middle School, New Brighton

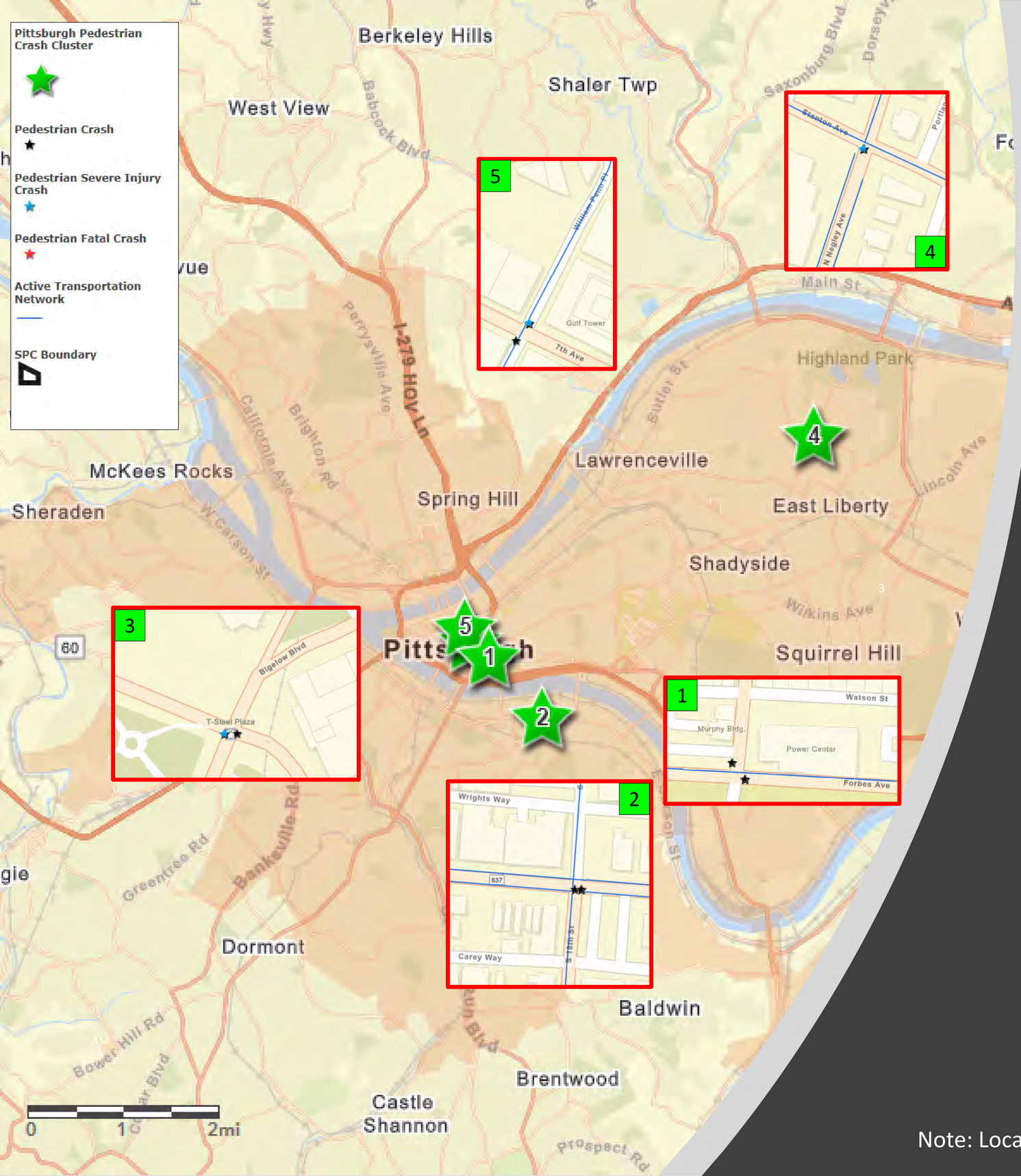
Total Crashes	2	Severe Injury Crashes	0

Location 4: Highland Ave @ Perry Hwy, West View Borough

Total Crashes	2	Severe Injury Crashes	0

Location 5: Library Road @ Grove Road, Castle Shannon

Total Crashes	2	Severe Injury Crashes	0



Pittsburgh Pedestrian Crash Priority Locations

2014-2018 Crash Data

Location 1: Forbes Ave @ Chatham Square, Bluff

Total Crashes	10	Severe Injury	0	Fatal	0

Location 2: Carson St @ 18th St, South Side Flats

Total Crashes	9	Severe Injury	0	Fatal	0

Location 3: 6th Ave @ Bigelow Blvd, Downtown

Total Crashes	8	Severe Injury	1	Fatal	0

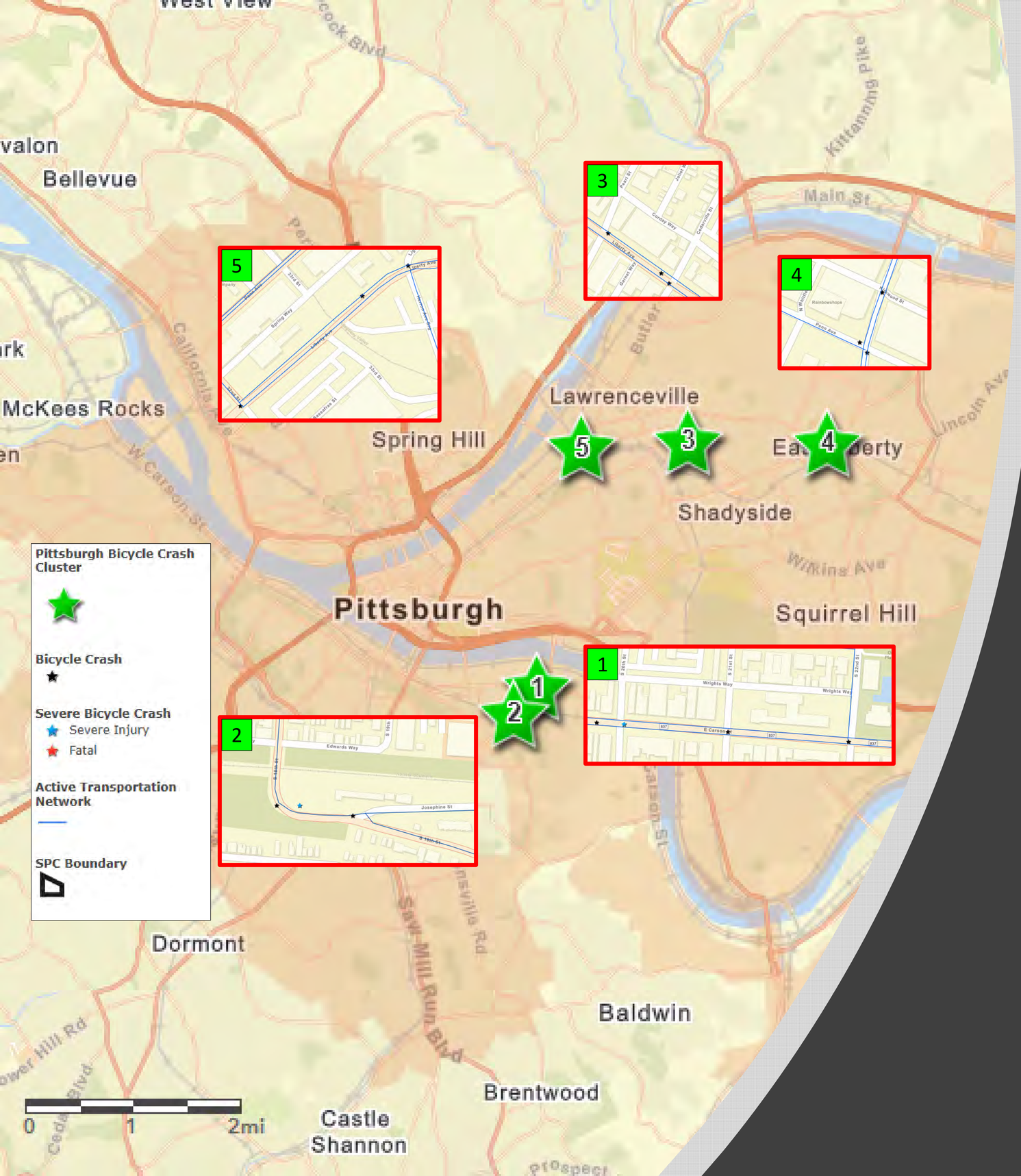
Location 4: Stanton Ave @ Negley Ave, Highland Park

Total Crashes	7	Severe Injury	2	Fatal	0

Location 5: William Penn Place @ 7th Ave, Downtown

Total Crashes	7	Severe Injury	1	Fatal	0

Note: Locations are based on the number of crashes within a 100 ft. cluster length.



Pittsburgh Bicycle Crash Priority Locations

2014-2018 Crash Data

Location 1: Carson St, 20th St to 22nd St, South Side Flats

Total Crashes	4	Severe Injury Crashes	1

Location 2: 18th St near Josephine St, South Side Slopes

Total Crashes	3	Severe Injury Crashes	1

Location 3: Liberty Ave, Pearl St to Cedarville St, Bloomfield

Total Crashes	3	Severe Injury Crashes	0

Location 4: Highland Ave at Penn Ave/ Kirkwood St, East Liberty

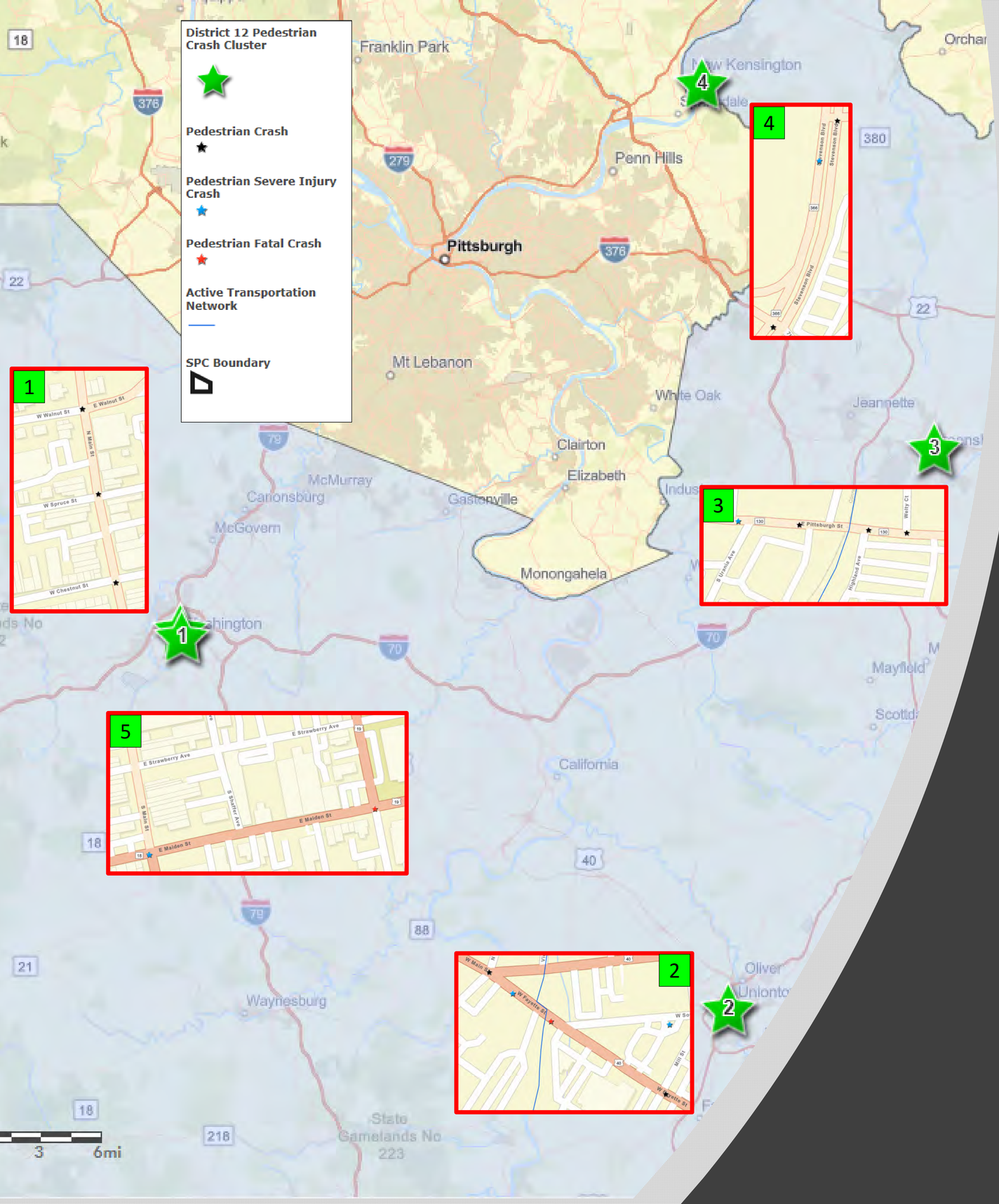
Total Crashes	3	Severe Injury Crashes	0

Location 5: Liberty Ave, 32nd St to Herron Ave Bridge, Strip District

Total Crashes	3	Severe Injury Crashes	0

D12 Pedestrian Crash Priority Locations

2014-2018 Crash Data



Location 1: Main St from Chestnut St to Walnut St, Washington

Total Crashes	5	Severe Injury	0	Fatal	0

Location 2: Fayette St from Mount Vernon Ave to Mill St, Uniontown

Total Crashes	4	Severe Injury	1	Fatal	1

Location 3: Pittsburgh St from Urania Ave to Welty Ct, Greensburg

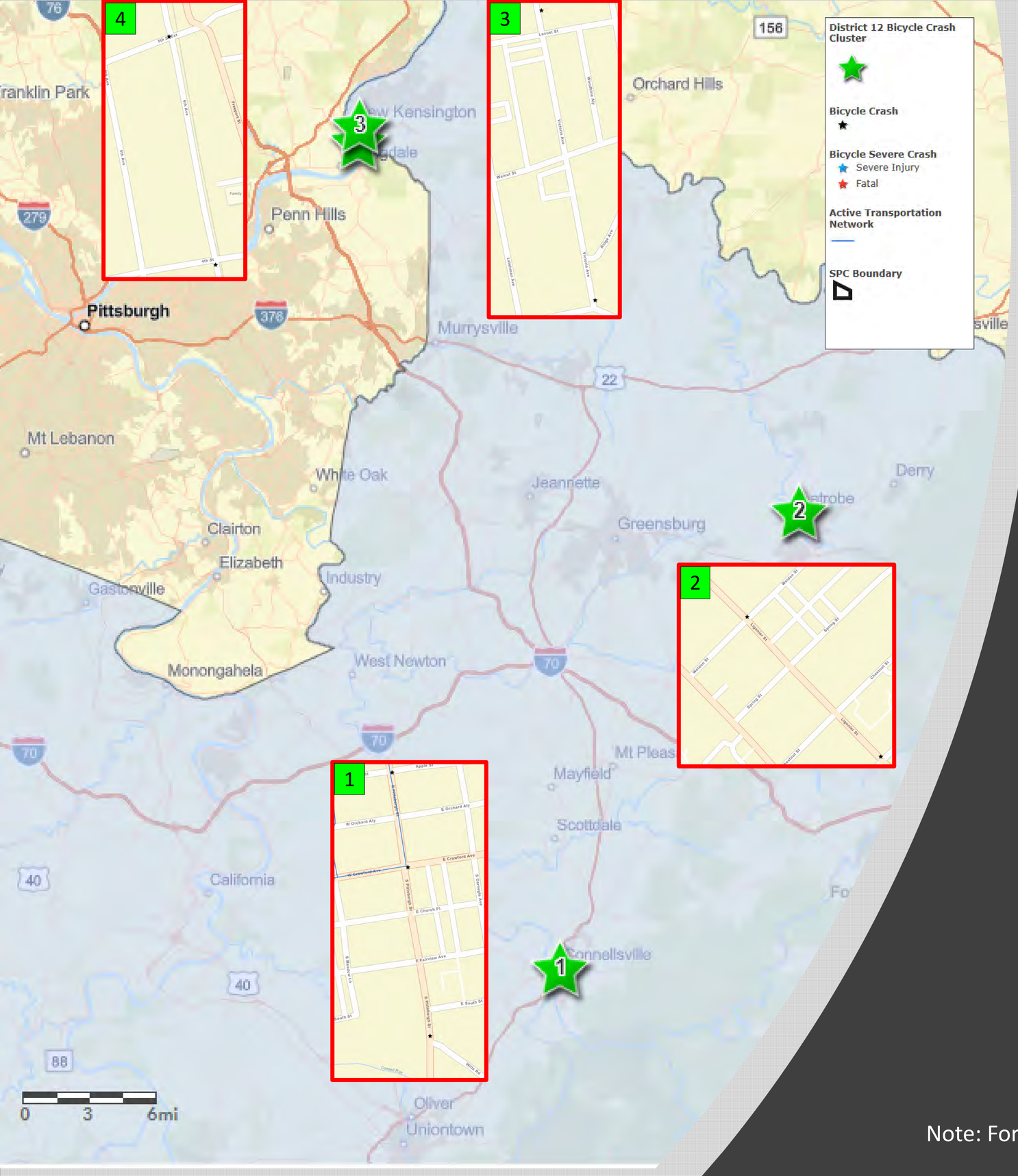
Total Crashes	4	Severe Injury	1	Fatal	0

Location 4: SR 366 from SR 56 to SR 780, New Kensington

Total Crashes	4	Severe Injury	1	Fatal	0

Location 5: Maiden Street from Main Street to College Street, Washington

Total Crashes	3	Severe Injury	1	Fatal	1



D12 Bicycle Crash Priority Locations

2014-2018 Crash Data

Location 1: Pittsburgh St from Apple St to Wills Rd, Connellsville

Total Crashes	3	Severe Injury	0	Fatal	0

Location 2: Ligonier St from Weldon St to Walnut St, Latrobe

Total Crashes	2	Severe Injury	0	Fatal	0

Location 3: Victoria Ave from Locust St to McCargo St, New Kensington

Total Crashes	2	Severe Injury	0	Fatal	0

Location 4: 6th Ave from 5th St Ext to 4th St, New Kensington

Total Crashes	2	Severe Injury	0	Fatal	0

Note: For Locations 2, 3, and 4, the distances between the crashes are over 700 ft.

Appendix H – Non-motorized Connectivity and Infrastructure Projects

Location	Scale	Crash History (Pedestrian & Bike)	Suggested Improvement
City of Pittsburgh			
Chateau Trail, Northside of Pittsburgh	1-2 miles	0 crashes	Trail is falling into the river and needs repaired.
Perrysville Avenue from Lafayette Ave to Bascom Ave	2.5 miles	10 total crashes (2 severe injuries)	Need bicycle accommodations. Important connector for bicyclists north of the city.
North Shore Trail Millvale/Etna	2 miles	0 crashes	Need trail connection to Etna. *Project is under design.*
Butler St from Stanton Ave to Allegheny River Blvd	3 miles	12 total crashes	Poor conditions for bikes and pedestrians. Need a connection to the zoo and highland park along Butler St.
Butler St, Lawrenceville and Morningside	3 miles	44 total crashes (2 severe injuries) (1 fatal)	Unsafe conditions for biking and walking. Need better connection between Lawrenceville and zoo.
Hamilton Ave from Liberty Blvd to Oakwood St	1.75 miles	11 total crashes	Hamilton Ave is an excellent corridor for bicycling (wide and flat).
Ellsworth Ave from Newville St to Shady Ave	1.6 miles	16 total crashes (1 severe injury)	High volumes of bicycling but no accommodations. Needs better bike infrastructure.
Morewood Ave from Baum Blvd to Forbes Ave	0.8 miles	9 total crashes (1 severe injuries) (1 fatal)	Morewood is major bicycle connector to/from CMU and needs additional bicycle infrastructure to improve safety.
Hazelwood Trail (near Hot Metal Bridge)	0.25 mile	0 crashes	Trail is in poor condition and needs repaired. Extend to the Hot Metal Bridge.
Duck Hollow Trail (Glenwood)	0.5 mile	0 crashes	Trail has collapsed and needs repaired.
Hazelwood Trailhead	1 mile	0 crashes	Trail should be extended to Hazelwood or Glenwood Bridge
West Carson St from Smithfield Bridge to West End Circle	1.4 miles	10 total crashes (2 severe injuries) (1 fatal)	Dangerous for bicyclist. Need safer connection to west.
West End Circle	0.1 miles	1 fatal crash	Need a safer connection for bicyclists across the West End Bridge
District 12			
Route 0030 (E. Pittsburgh St) from Greensburg Line to Georges Station Rd	1.5 miles	5 total crashes (1 severe injury)	Need sidewalks along US 30 from Greensburg Line to Georges Station Rd.
Route 0030 (Lincoln Highway) between St Vincent Dr and Theatre St	3.5 sq. miles	3 total crashes	Need pedestrian accessibility/ connection between Airport/Walmart/ Lowes at Colony Lane/St Vincent College and into City of Latrobe.
Breeburn Road At Garvers Ferry Rd	Intersection	0 crashes	Need pedestrian access to Kotecki Park.

Appendix I – Steering and Stakeholder Committee Meeting Presentation Materials and Summaries

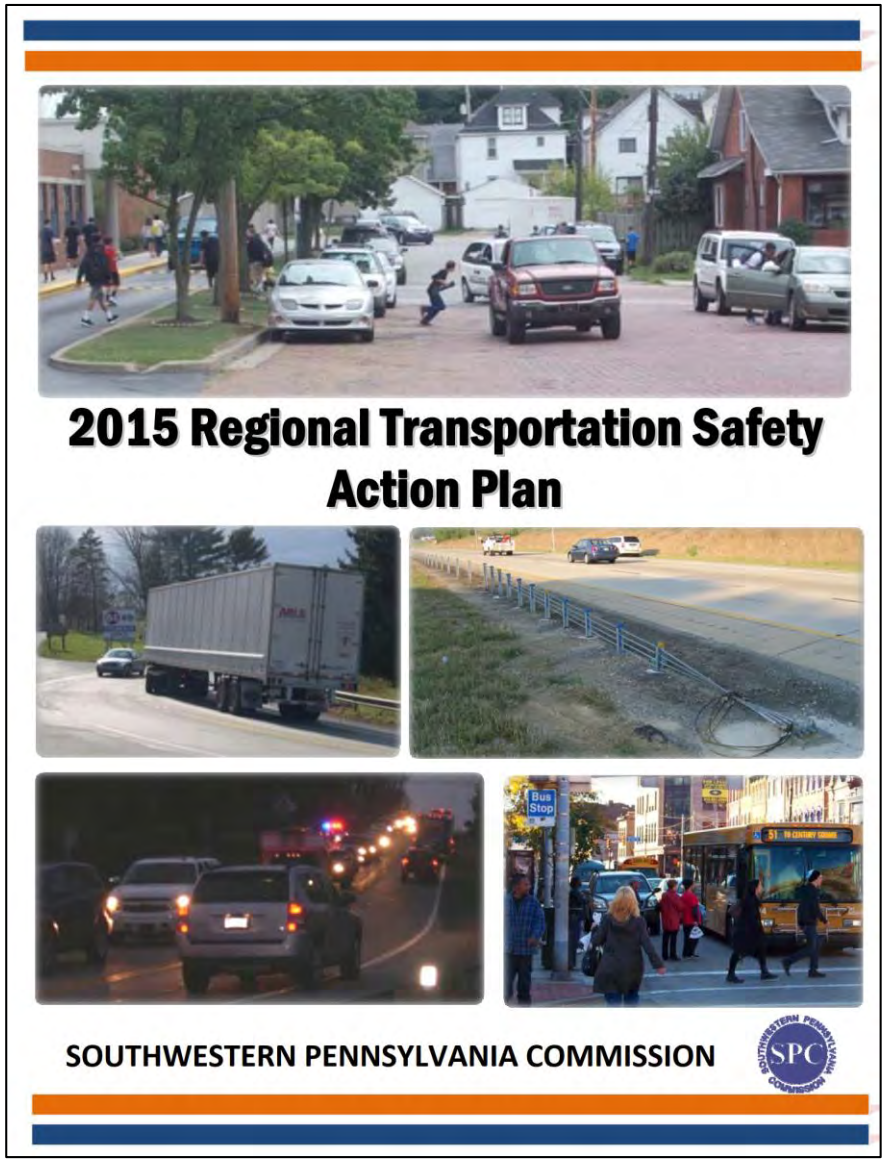
SPC SAFETY ACTION PLAN UPDATE

Steering Committee Meeting 1
Stakeholder Group Meeting 1

April 21, 2020

Agenda

- Introductions
- Meeting Objectives
- Safety Action Plan (SAP)
  - Background
  - Purpose
- Scope for the 2020 SAP Update
  - Schedule
  - Stakeholder Roles & Responsibilities
  - Project Team
  - Vision, Mission & Goals
- SPC Region Crash Statistics
  - Federal Performance Measures 2014-2018
  - Review of 2015 SAP Recommendations
  - Regional crash trends 2014-2018



Meeting Objectives

- Importance of the SAP
- Stakeholder roles and collaboration responsibilities
- Goals and objectives for 2020 SAP
- Federal Safety Performance Measure regional update
- 2015 SAP performance summary
- 2020 SAP concerning crash trends
- Proposed safety focus areas for 2020 SAP Update

What is the Safety Action Plan?

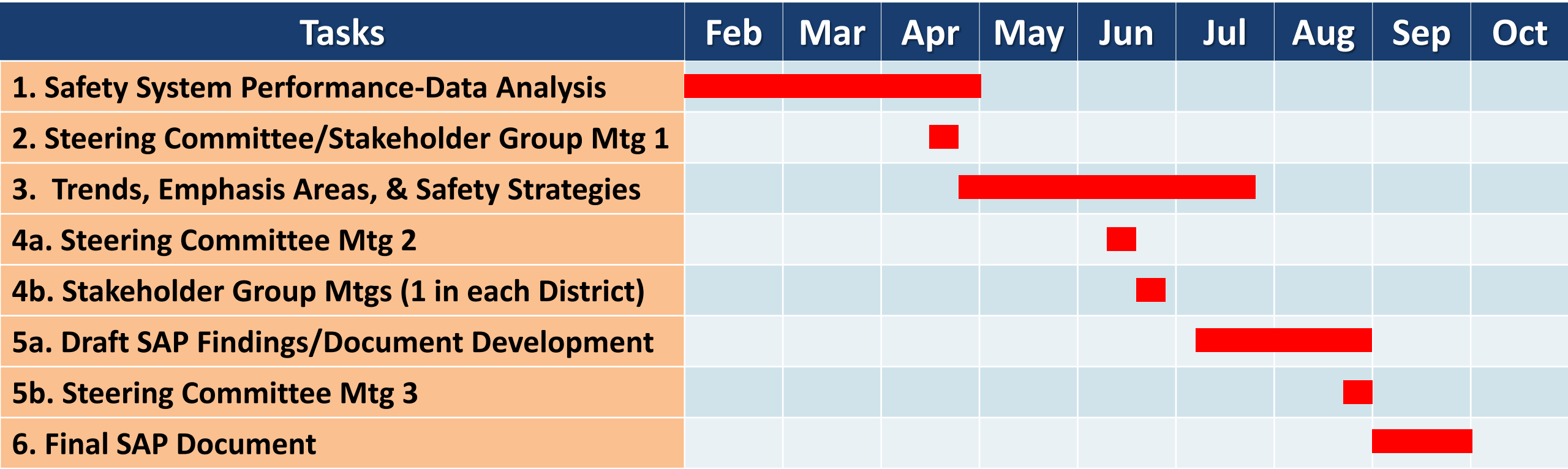
- Provides an overview of transportation safety for the region
- Integrates statewide planning for transportation safety
- Ensures regional collaboration
- Establishes regional….
  - Safety Goals & Objectives
  - Safety Performance Measures
  - Safety Focus Areas
  - Safety Projects & Program

2020 Safety Action Plan Update

- SPC's Long Range Plan, *SmartMoves for a Changing Region* includes the regional goal of having a "world class, **safe**, and well maintained integrated transportation system that provides mobility for all"
- This plan also emphasizes that the region must continue to focus on a Vision Zero safety goal for transportation users
- SPC's SAP is used to inform the region on how to achieve the safety goals set forth in the Long Range Plan

2020 Safety Action Plan Update

SAP schedule



Tasks	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
1. Safety System Performance-Data Analysis									
2. Steering Committee/Stakeholder Group Mtg 1									
3. Trends, Emphasis Areas, & Safety Strategies									
4a. Steering Committee Mtg 2									
4b. Stakeholder Group Mtgs (1 in each District)									
5a. Draft SAP Findings/Document Development									
5b. Steering Committee Mtg 3									
6. Final SAP Document									

2020 Safety Action Plan Update

Steering Committee and Stakeholder Groups

- Steering Committee
  - 3-4 Meetings via WebEx or in person
  - Provide advice, support, guidance, and oversight of the SAP development
  - Also invited and encouraged to attend Stakeholder Group meetings
- Stakeholder Group
  - 2-3 Meeting via WebEx or in person
  - Provide expertise, projects, and ideas for the plan

2020 Safety Action Plan Update

Project Team

SPC Management
Project Manager:
Joshua Spano
Sr. Transportation Planner
jspano@spcregion.org

Technical Advisor:
Domenic D'Andrea, PE, PTOE
Mgr. Operations & Safety Programs
ddandrea@spcregion.org

Crash Analytics Specialist:
Evan Schoss
Transportation Planner
eschoss@spcregion.org

Consultant Management
Project Manager:
Ross Buchan, PE
Sr. Project Engineer
WRA
rbuchan@wrallp.com

Safety Analyst:
Jim French, PhD, PE, ENV SP
Project Manager
French Engineering
jfrench@frenchengr.com

2020 SAP Goals & Objectives

Goals:

- Regularly attain the 5 Federal Safety Performance Measure targets for the region
- Enhance, maintain, and support soft-side programs to improve transportation safety
- Identify safety improvement projects to be incorporated in the TIP and LRTP using an objective data-driven process
- Improve safety on the local road network

Objectives:

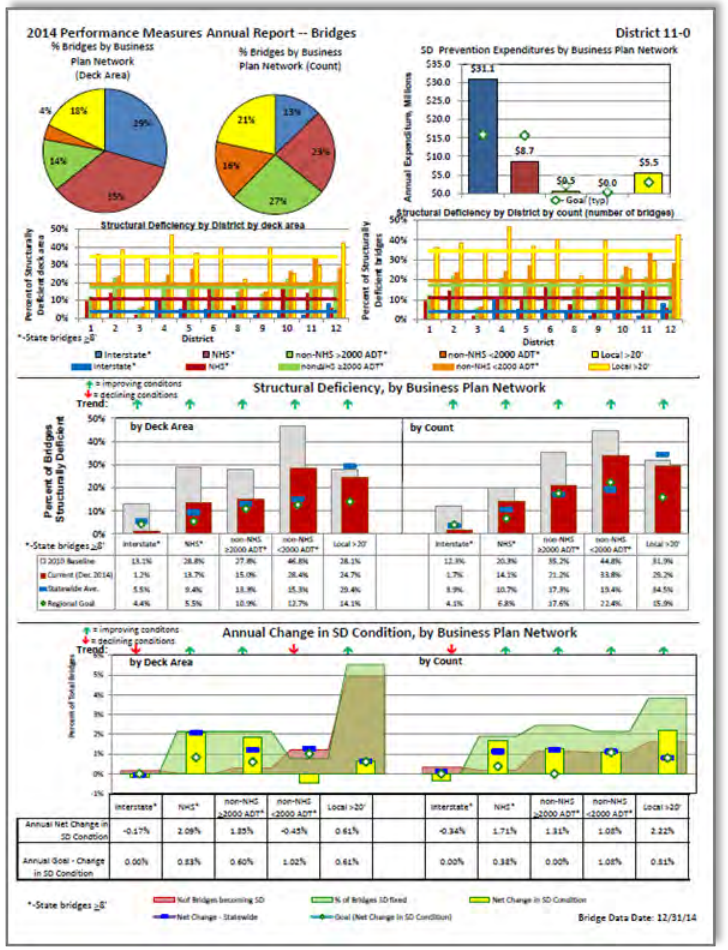
- Reduce the number and rate of fatalities on all public roads
- Reduce the number and rate of serious injuries on all public roads
- Reduce the number of non-motorized fatalities and non-motorized serious injuries on all public roads
- Identify and reduce crashes in all SAP safety focus areas on an annual basis

Federal Safety Performance Measures

There are 5 Federal Safety Performance Measures that every DOT and MPO must monitor on an annual basis.

1. Number of Fatalities (all public roads)
2. Rate of Fatalities (all public roads-per 100 MVMT)
3. Number of Serious Injuries (all public roads)
4. Rate of Serious Injuries (all public roads-per 100 MVMT)
5. Number of non-motorized fatalities and non-motorized serious injuries (all public roads)

The measures shall be monitored using 5-year rolling averages.



Federal Safety Performance Measures

MPOs have two options to establish performance measure targets

- MPOs can agree to support the State DOT target

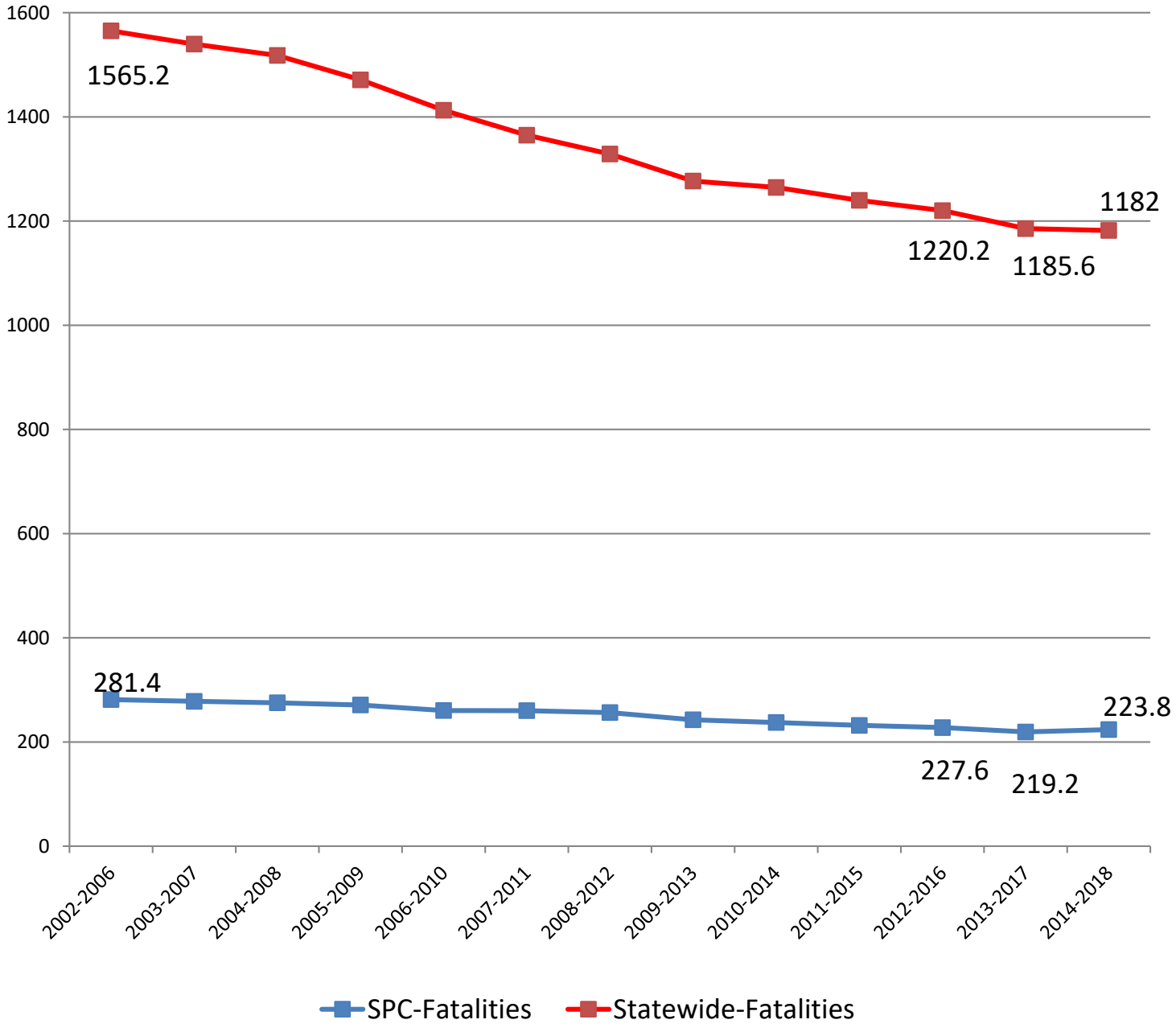
OR

- MPOs can establish a numerical target specific to the MPO planning area for each of the 5 measures (*must be completed within 180 days of State DOT target*)

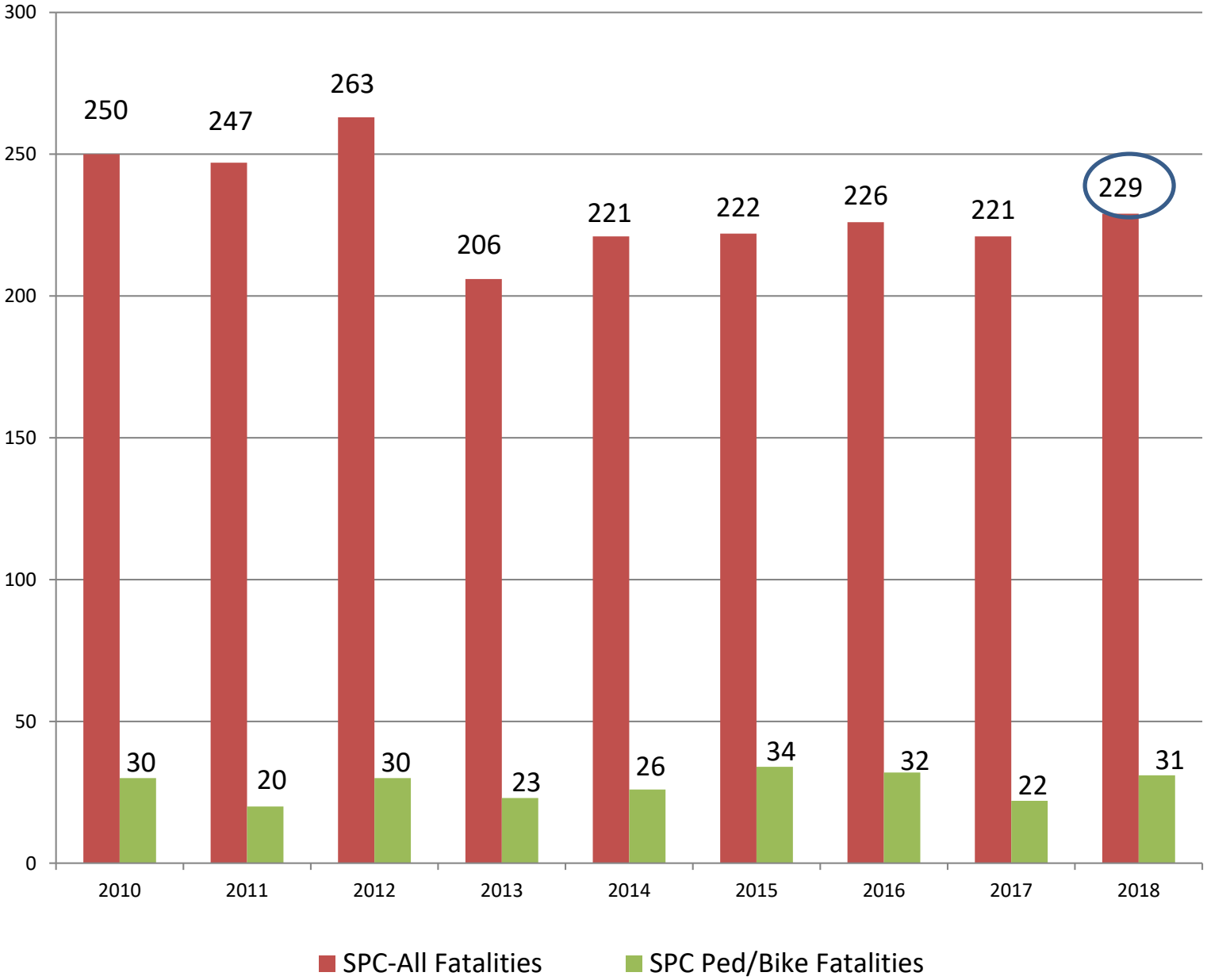
Target Establishment/Updates

FHWA allows State DOTs to determine when targets for the Federal Safety Performance Measures should be adjusted.

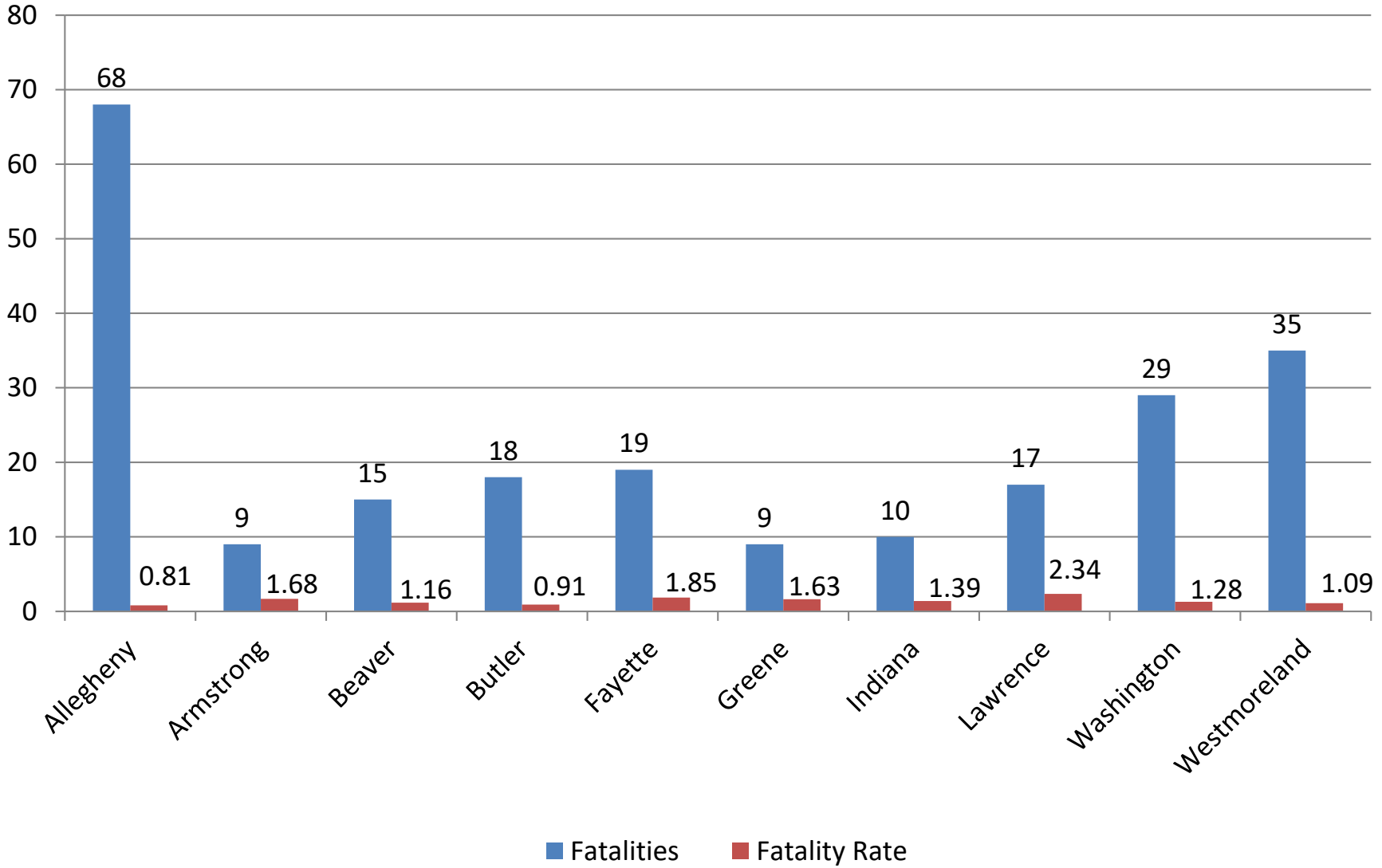
Statewide/Region Comparison-Fatalities



SPC Region's Fatalities by Year 2010-2018



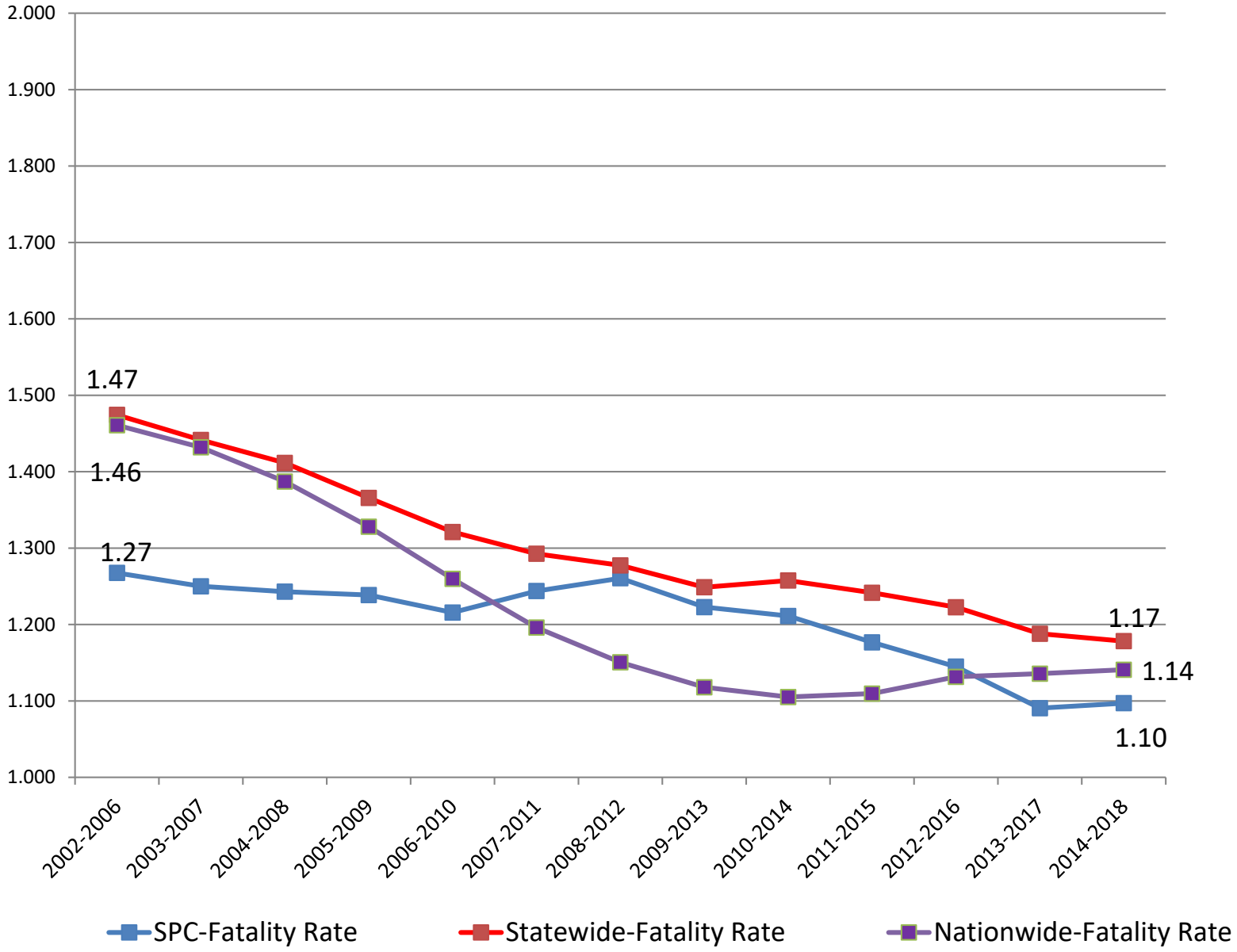
SPC 2018 FATALITIES AND FATALITY RATE BY COUNTY



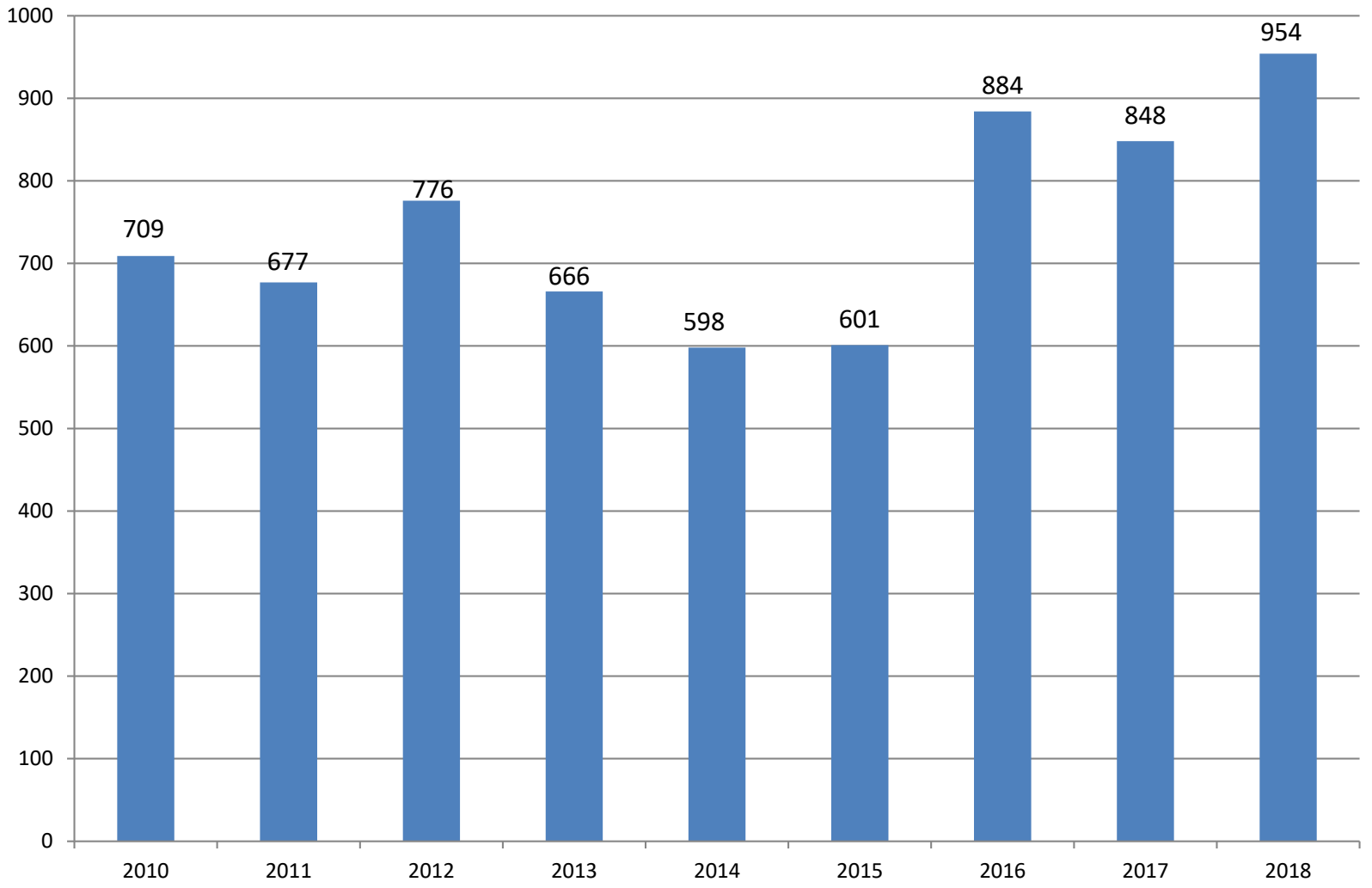
SPC 2018 FATALITIES: 229

SPC 2018 FATALITY RATE : 1.11

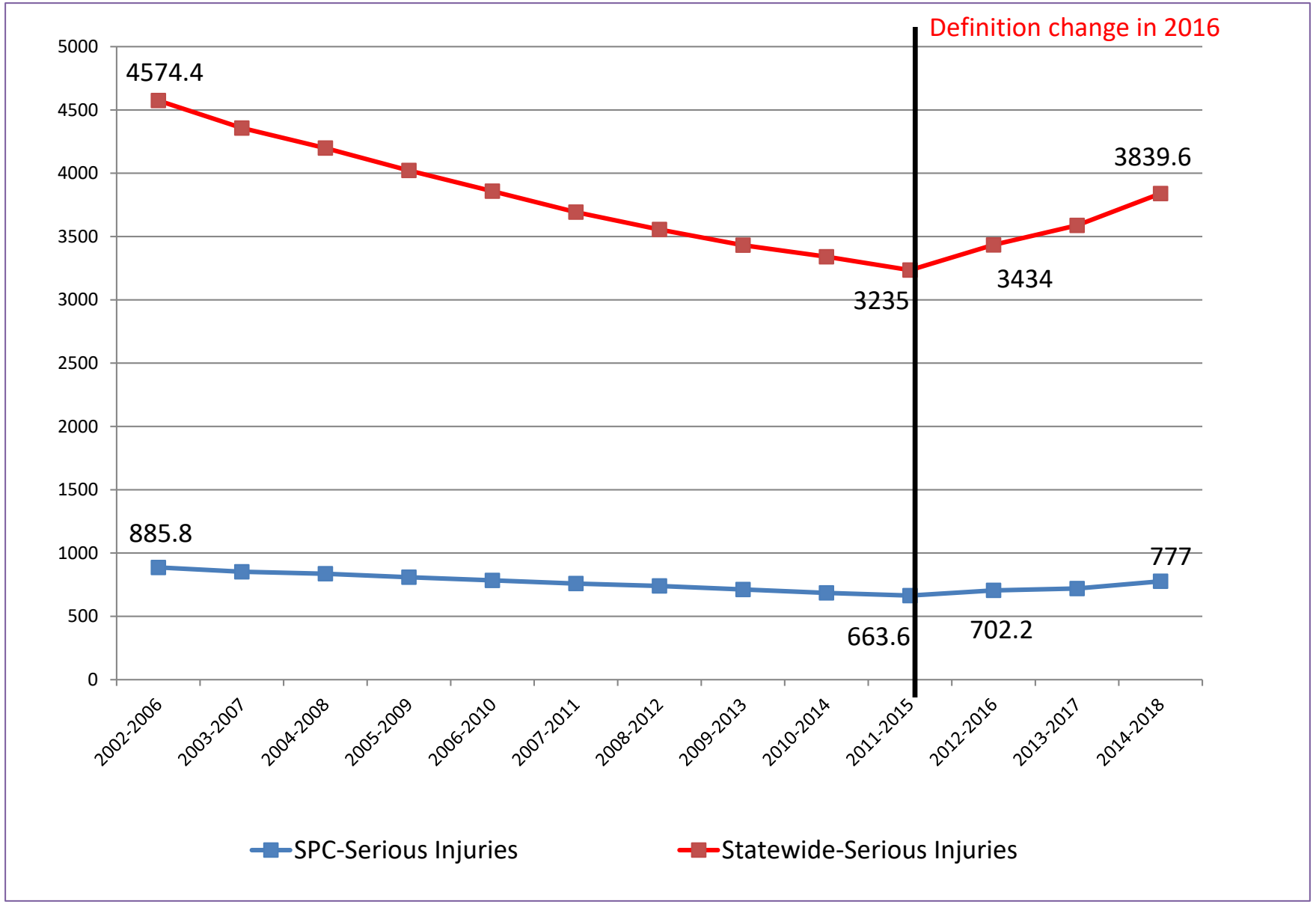
Comparison of Fatality Rates per 100M VMT



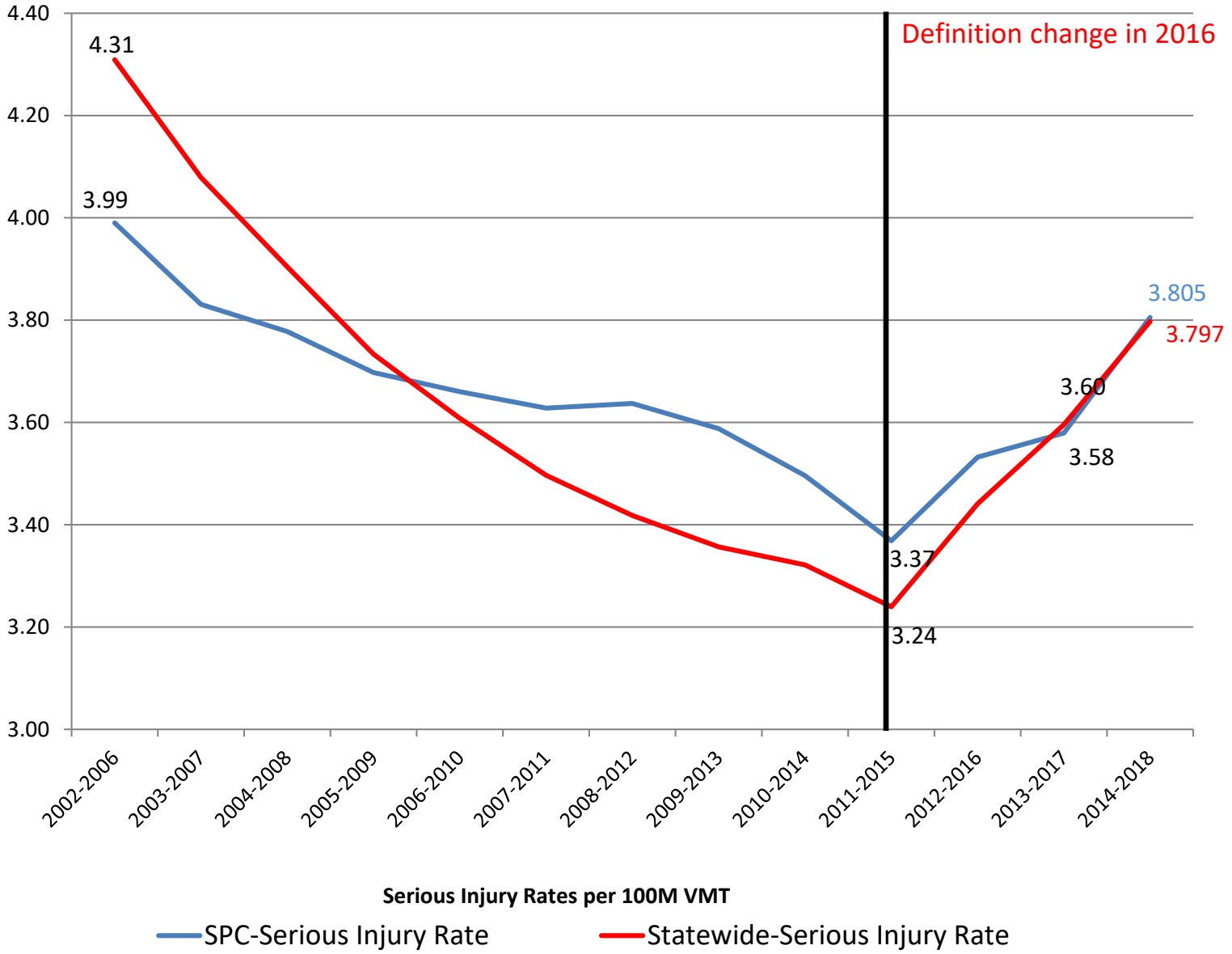
SPC Region's Serious Injuries by Year 2010-2018



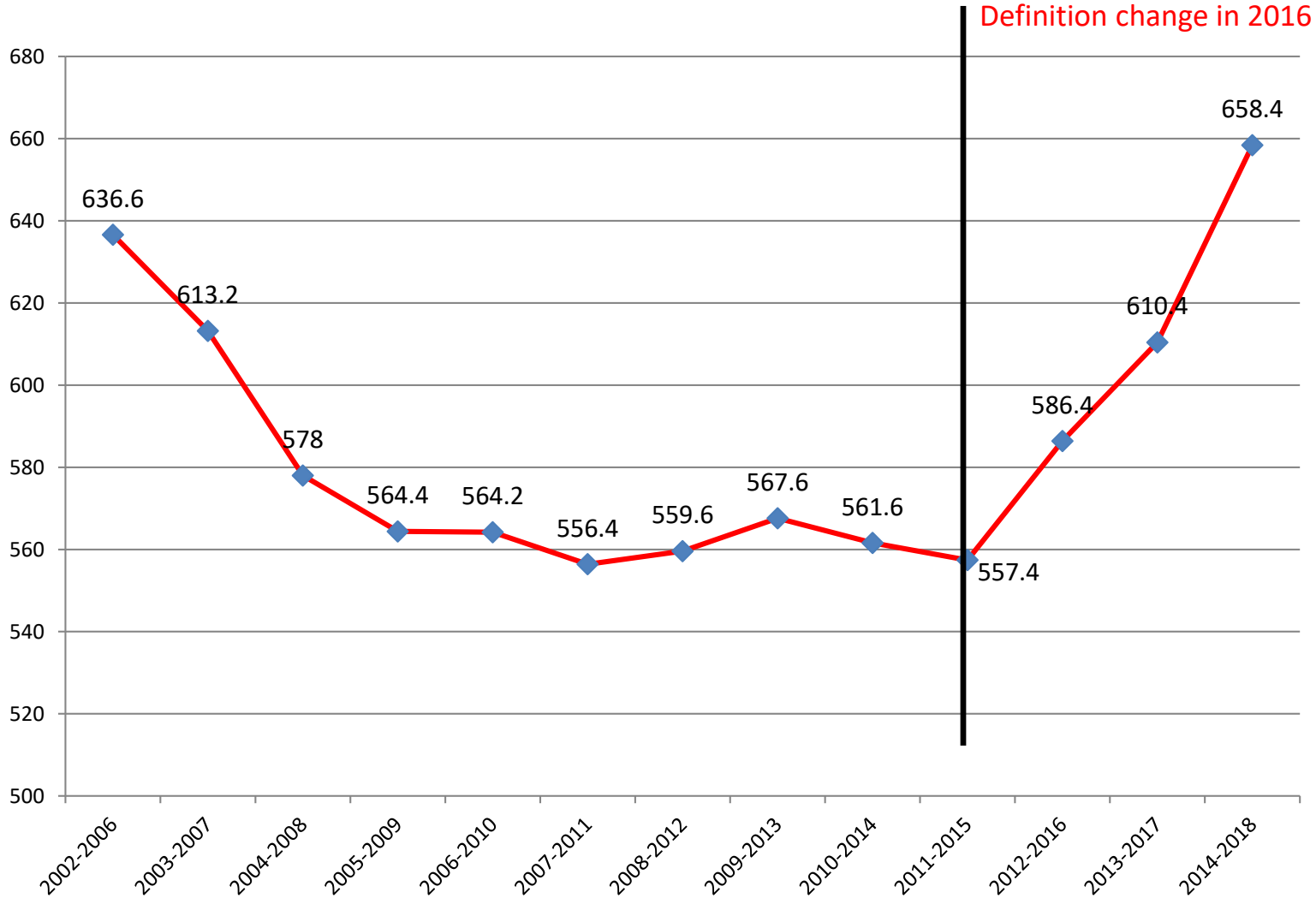
Statewide Comparison-Serious Injuries



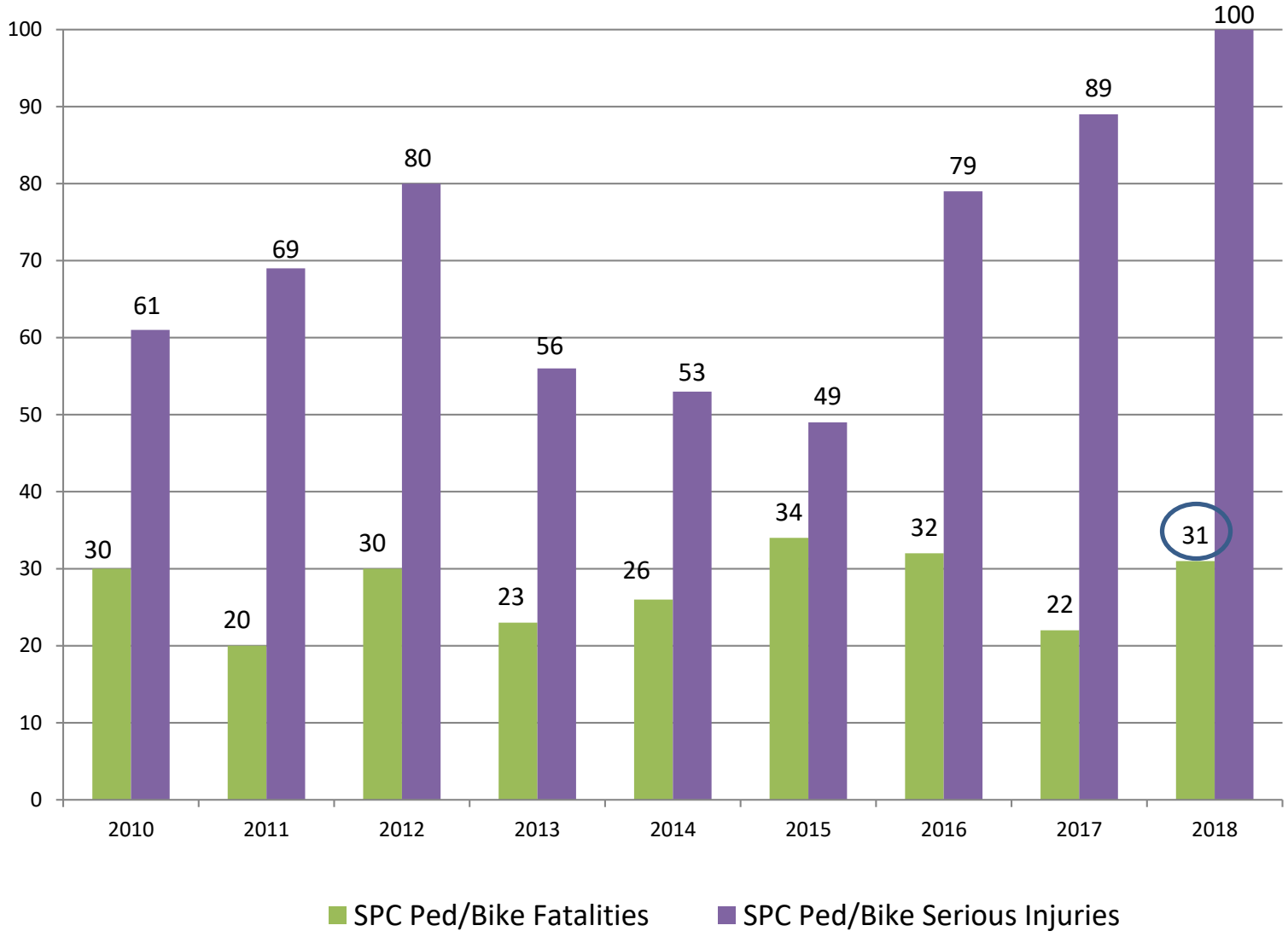
Statewide Comparison-Serious Injury Rate



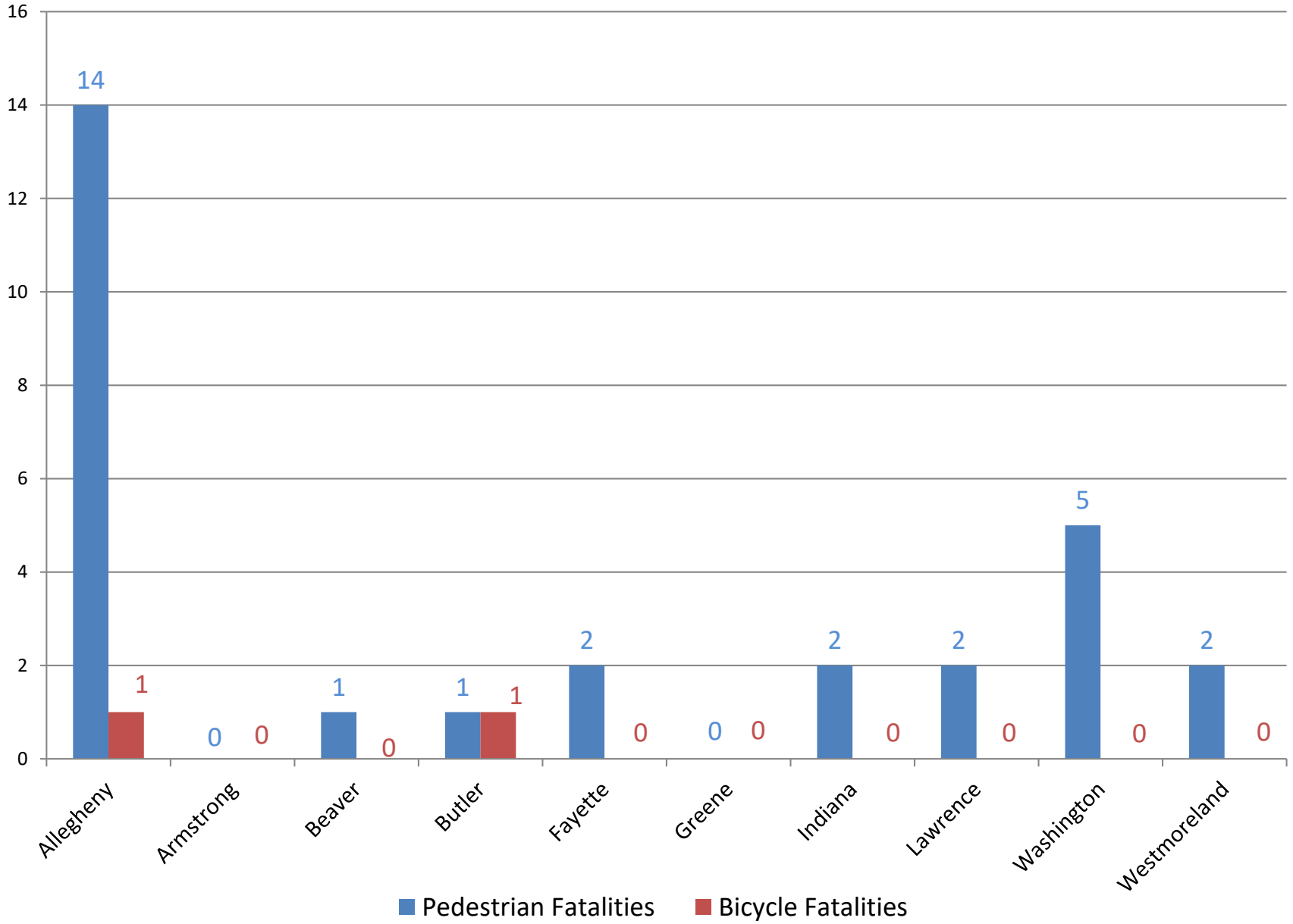
Statewide-Non-motorized Fatalities/Serious Injuries



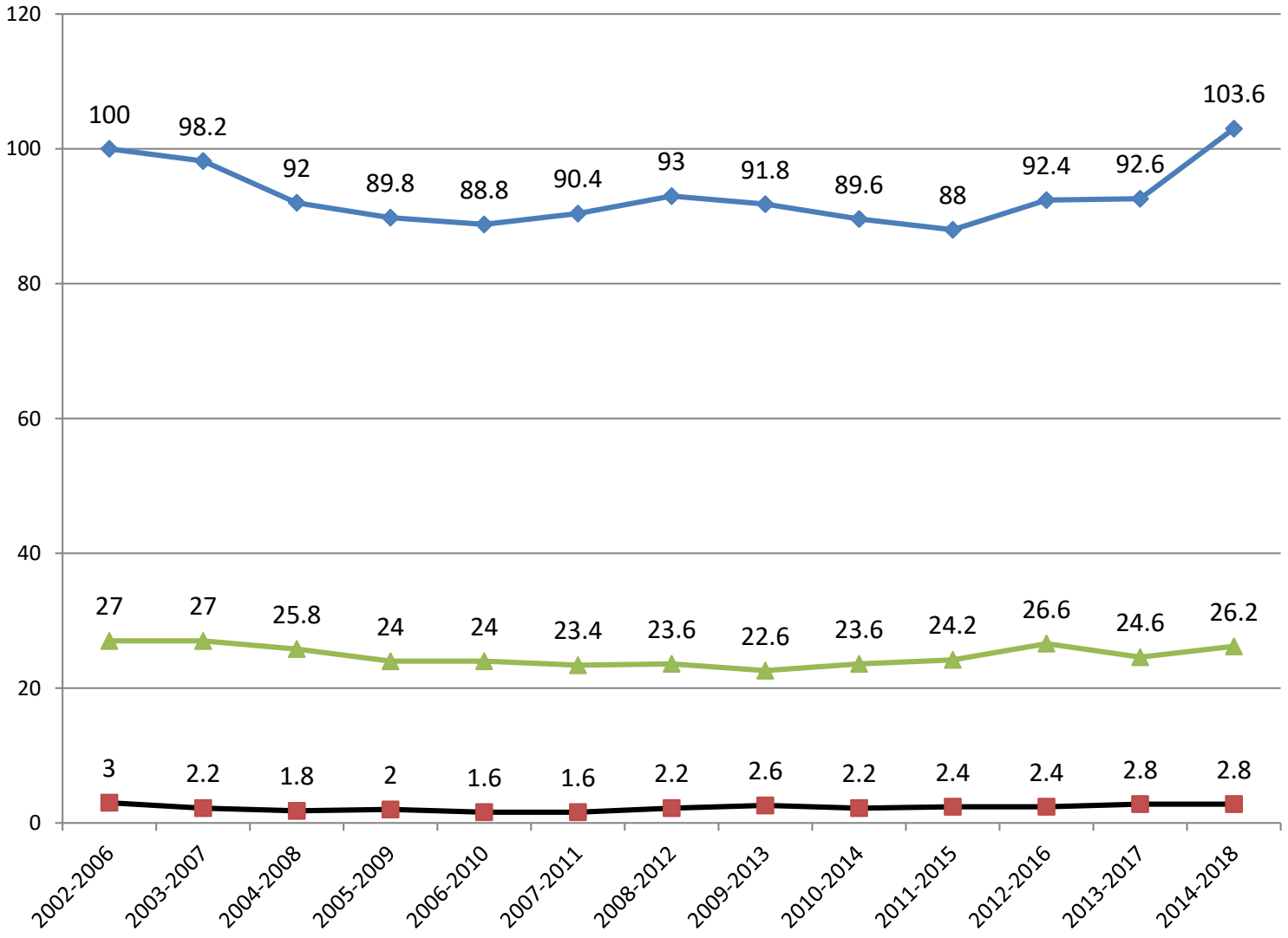
SPC Region's Ped/Bike Fatalities and Serious Injuries by Year 2010-2018

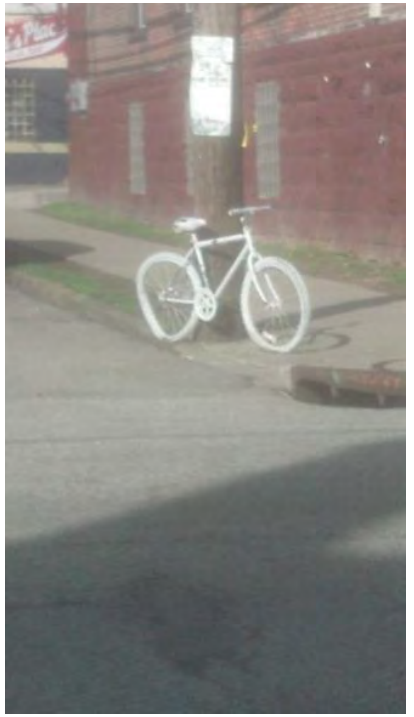


SPC 2018 PED/BIKE FATALITIES AND BY COUNTY

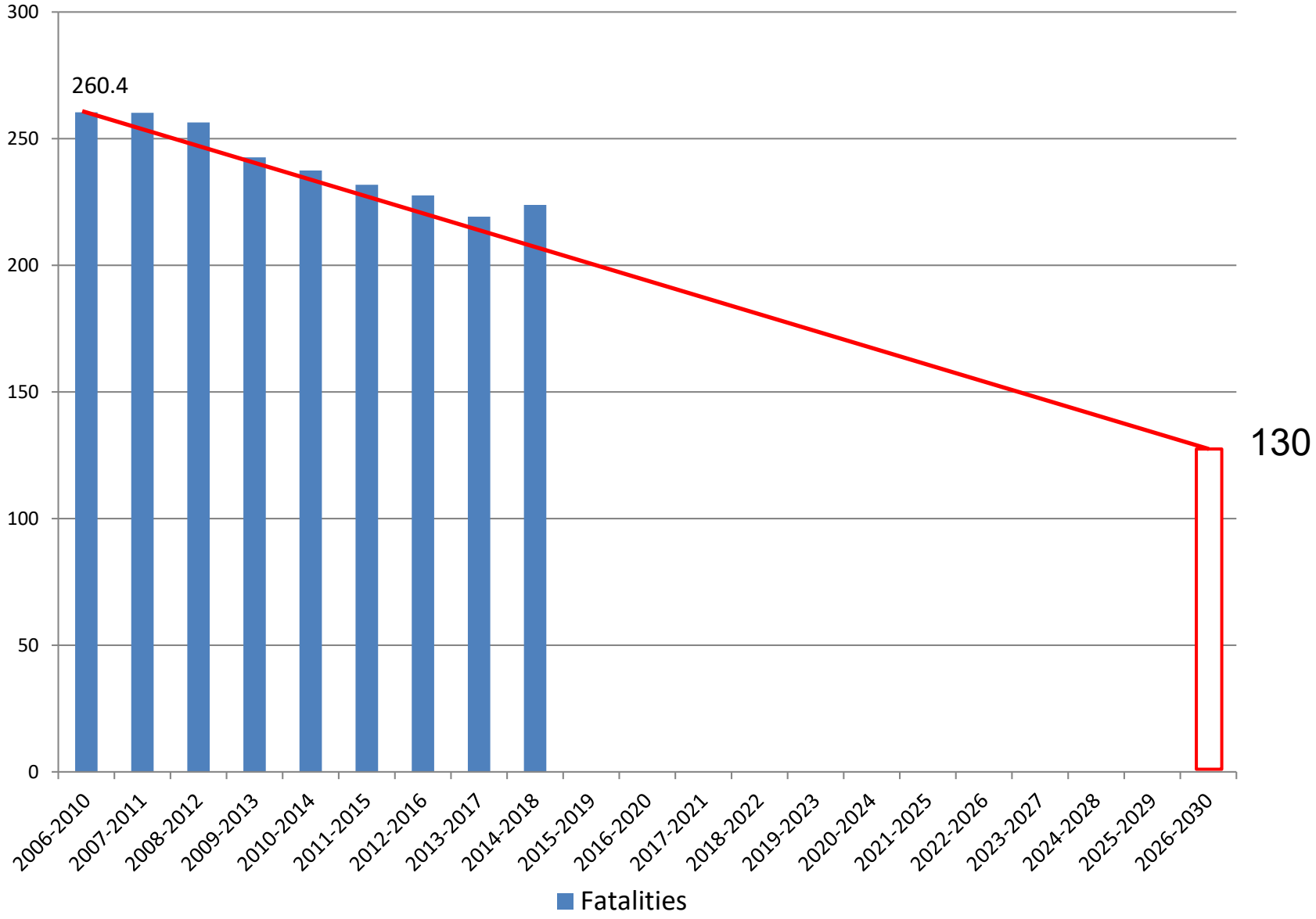


SPC Region-Non-motorized Fatals/Serious Injuries

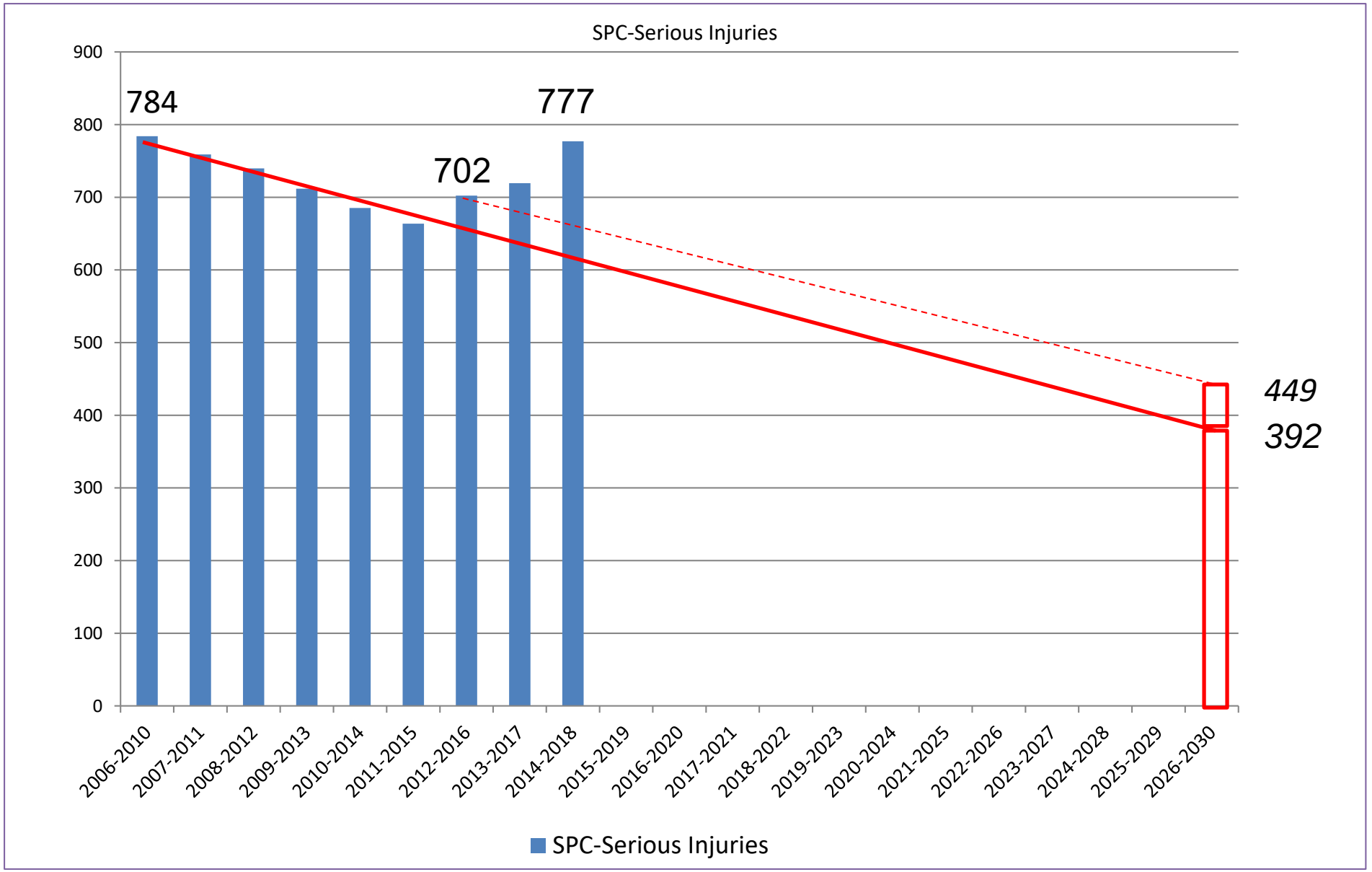




Adopted Goal: Reducing Fatalities in the SPC Region
Five-Year Averages



Adopted Goal: Reducing Serious Injuries in the SPC Region
Five-Year Averages



Performance Management – SPC

Performance Measure	5-year Rolling Averages		
	PREVIOUS TARGETS	ACTUAL	
	2014-2018	2014-2018	
Number of Fatalities	221.5	223.8	
Fatality Rate	1.072	1.096	
Number of Serious Injuries	759.7	777	
Serious Injury Rate	3.667	3.806	
Number of Non-motorized Fatalities and Serious Injuries	97.9	103.6	

Performance Management – SPC

		2016	2017	2018	2019	2020
All Fatalities	1%	226	221	229	227	224
	2%	226	221	229	225	220
Serious Injuries	1%	884	848	954	945	935
	2%	884	848	954	935	917
Non-motorized	1%	111	111	131	130	128
	2%	111	111	131	128	126

Performance Management – SPC

Performance Measure	5-year Rolling Averages			
	BASELINE	TARGET 1% based	TARGET 2% based	ACTUAL
	2014-2018	2016-2020	2016-2020	2016-2020
Number of Fatalities	223.8	225.4	224.1	
Fatality Rate	1.096	1.090	1.084	
Number of Serious Injuries	777	913.1	907.4	
Serious Injury Rate	3.806	4.418	4.390	
Number of Non-motorized Fatalities and Serious Injuries	103.6	123	122.2	

2015 SAP Goals & Objectives

Goals:

- 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.

Objectives:

- 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

2015 SAP Recommendations

Soft-side/Programmatic Solutions:

- Provide additional educational and public awareness to reduce
  - Impaired driving
  - Unbelted crashes
  - Distracted driving crashes
- Implement infrastructure safety improvement program to improve safety on all roads with an emphasis on safety for local roads
  - All road focus areas include:
    - Run-off-road crashes
    - Hit fixed object crashes
    - Head-on crashes
    - Signalized intersection crashes
    - Aggressive driving crashes
    - Secondary crashes
    - Mature driver (65+) crashes
    - Non-motorized crashes (pedestrians/ bicycles)

2015 SAP Recommendations

Location-specific improvement:

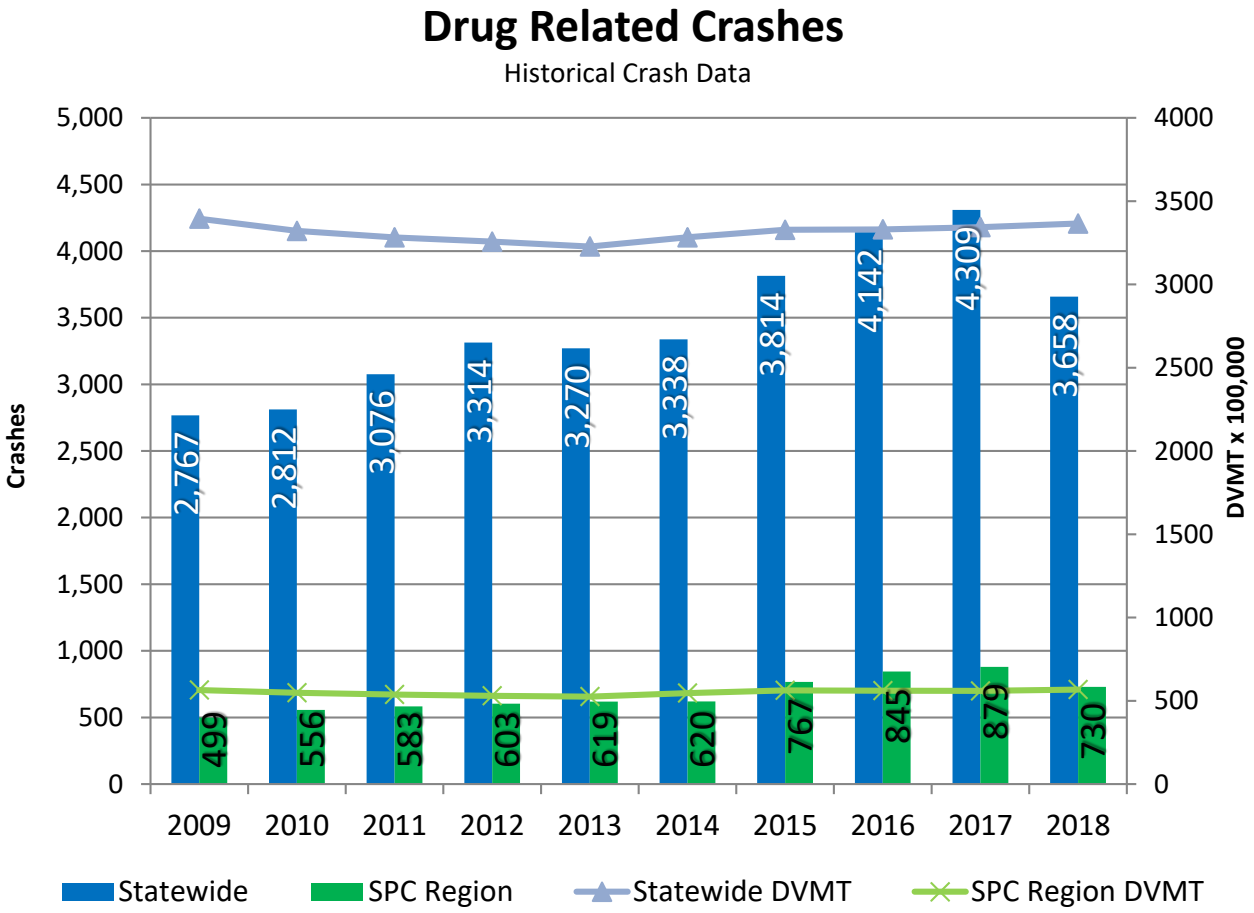
- South Braddock Avenue Safety Project
  - Conducted RSA in April 2014
  - Improvements installed in 2019:
    - ADA ramps & pedestrian signal heads
    - Curb extensions
    - Rectangular rapid flashing beacon
    - Sidewalk enhancements
    - High visibility crosswalks
    - Bicycle safe grates
    - Speed minder signs

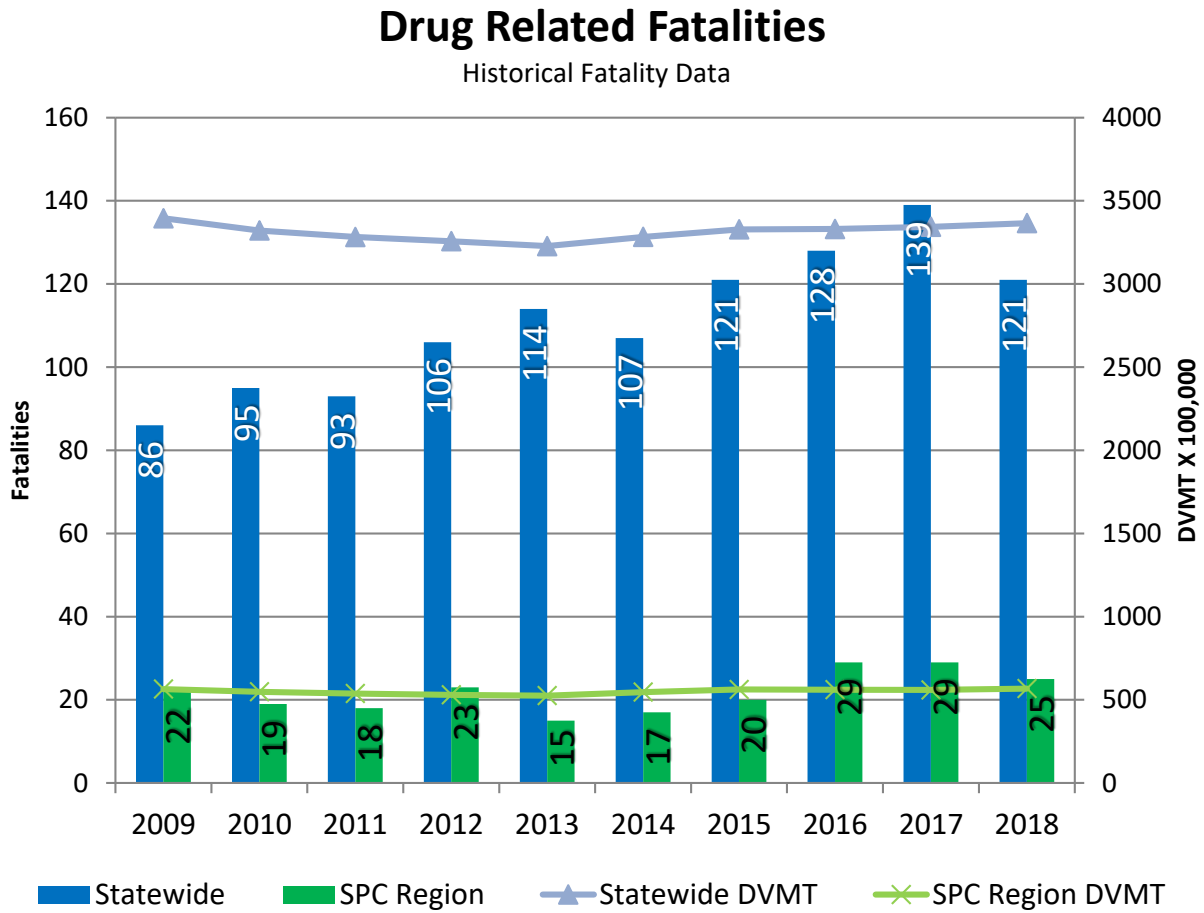
2015 SAP Recommendations

Location-specific improvement:

- McKeesport School
  - Conducted RSA in April 2014
  - Improvements installed in 2016:
    - Pedestrian railings
    - Sidewalk enhancements
    - Relocated/upgraded crosswalks

SAP 2015 Recommended Focus Area Performance



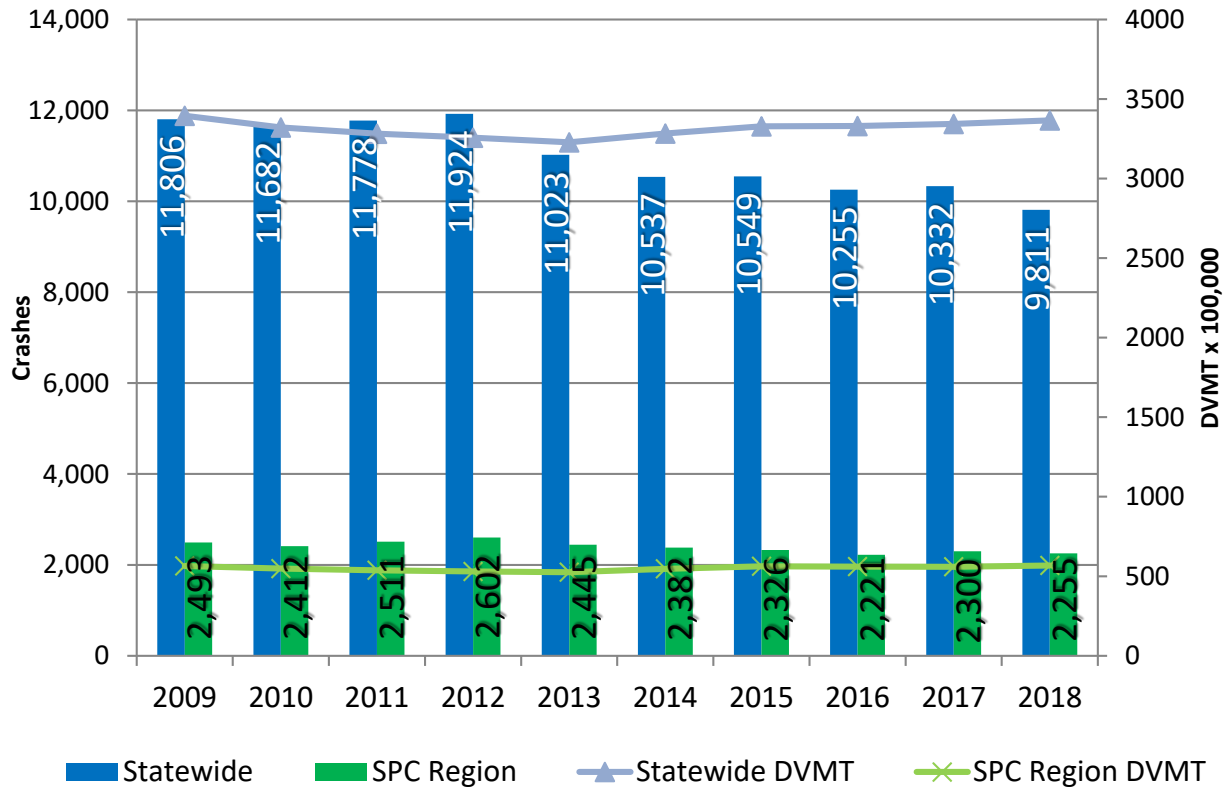


Upward Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

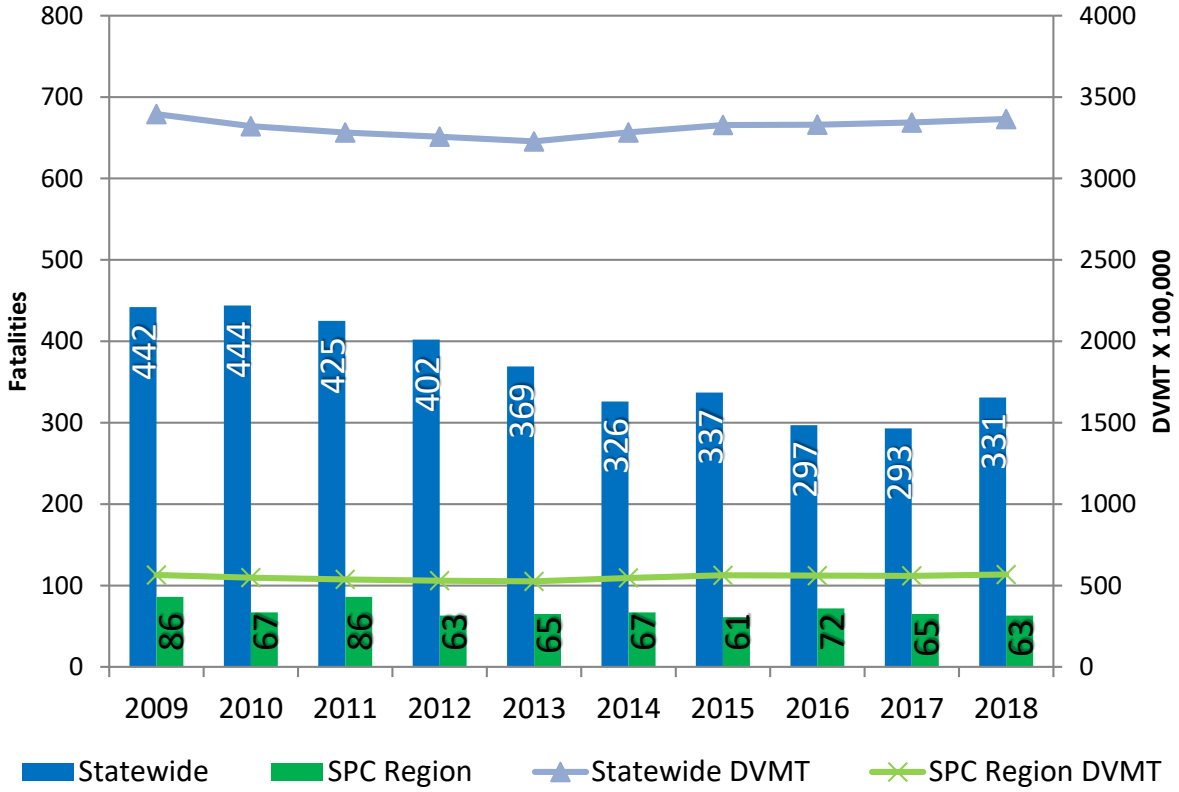
Alcohol-Related Crashes

Historical Crash Data



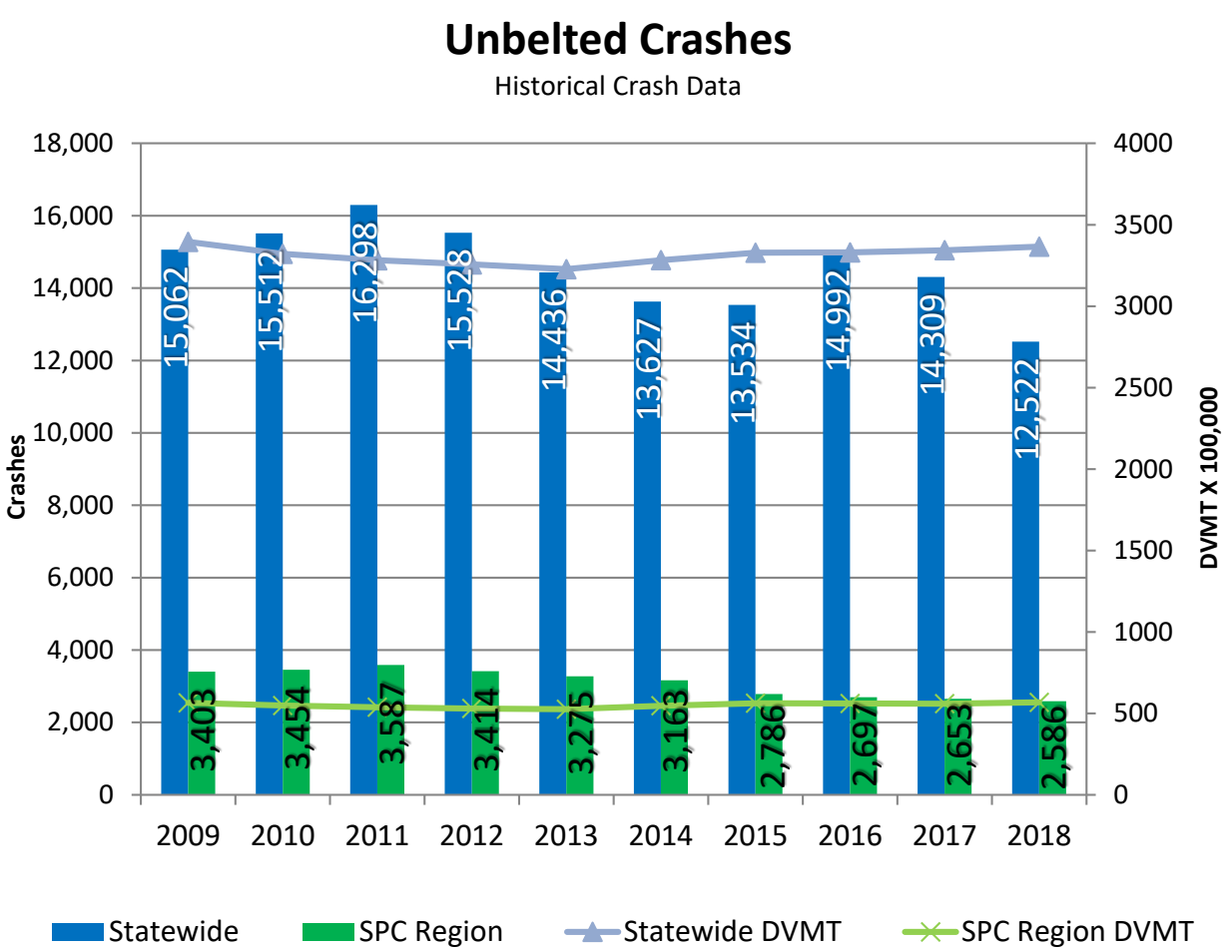
Alcohol-Related Fatalities

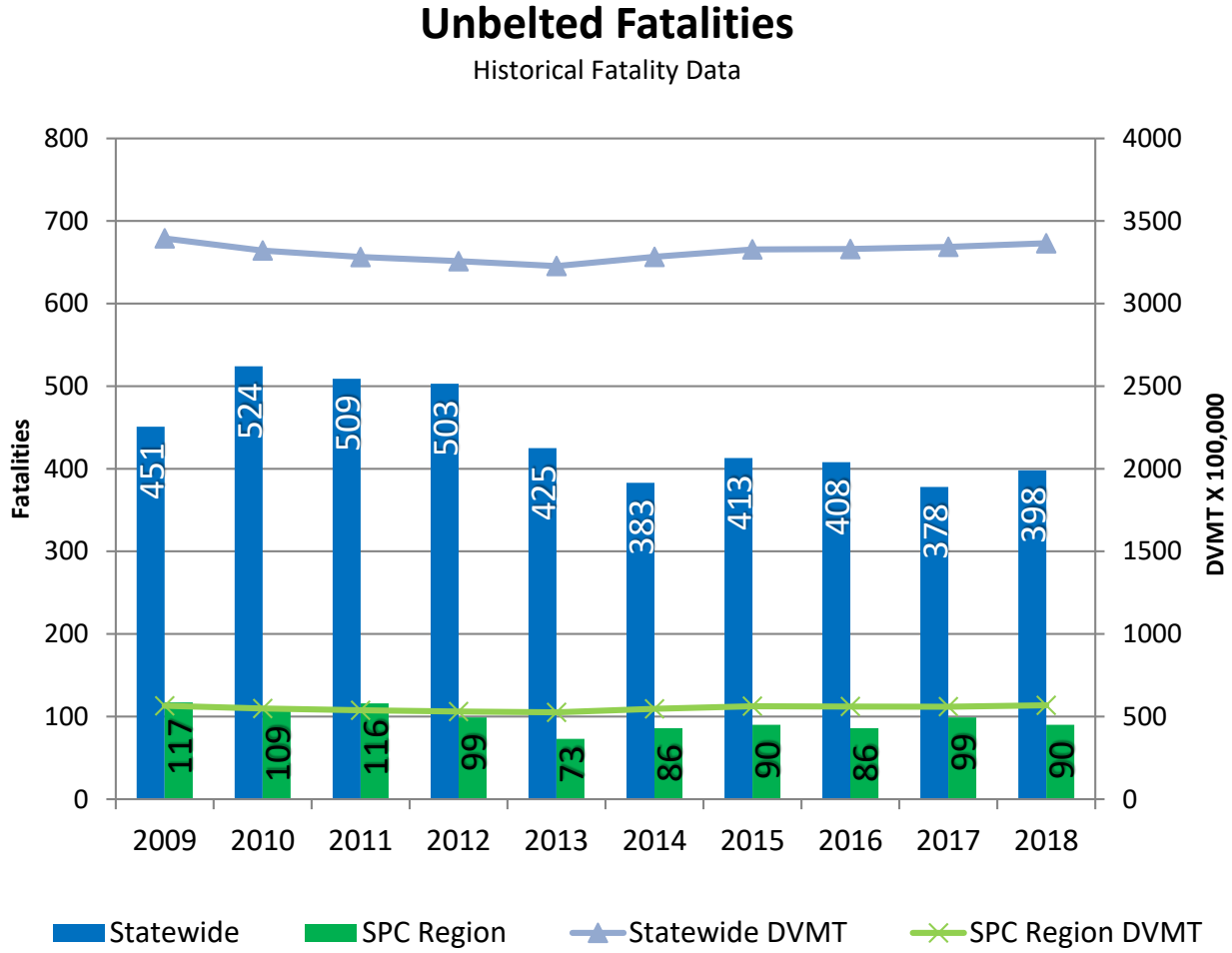
Historical Fatality Data



Downward Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance



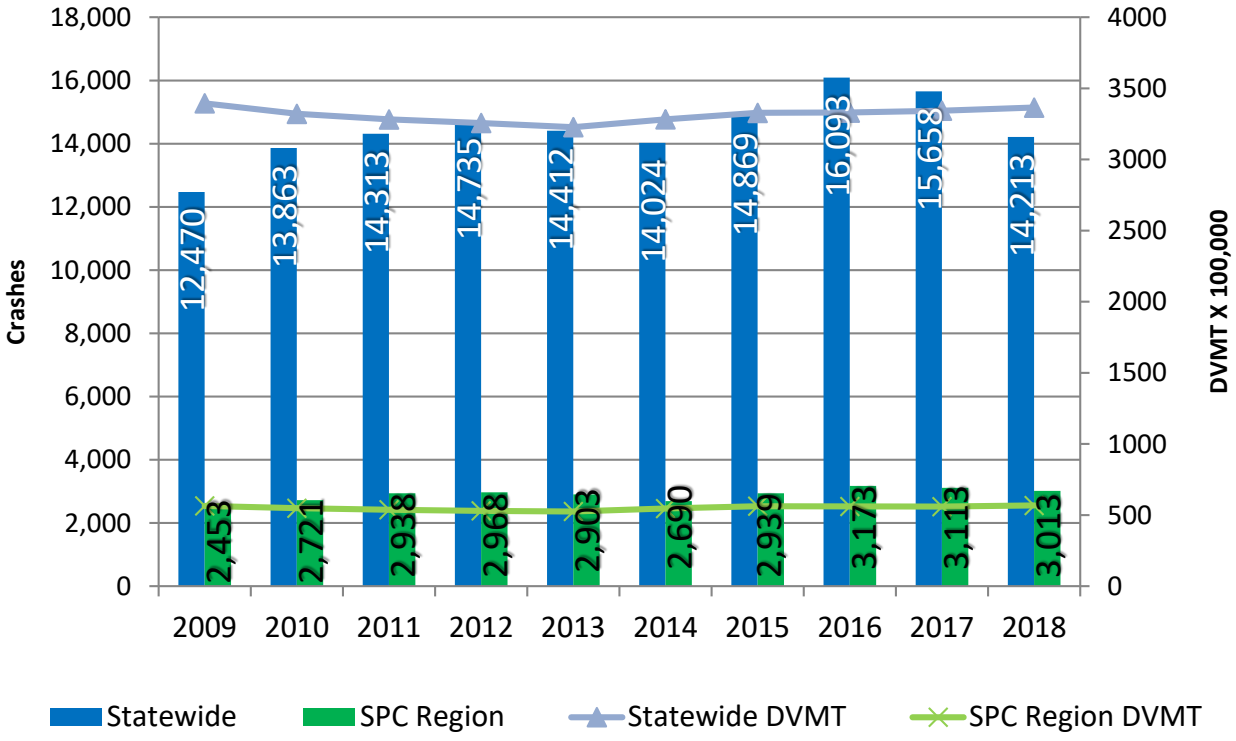


Downward Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

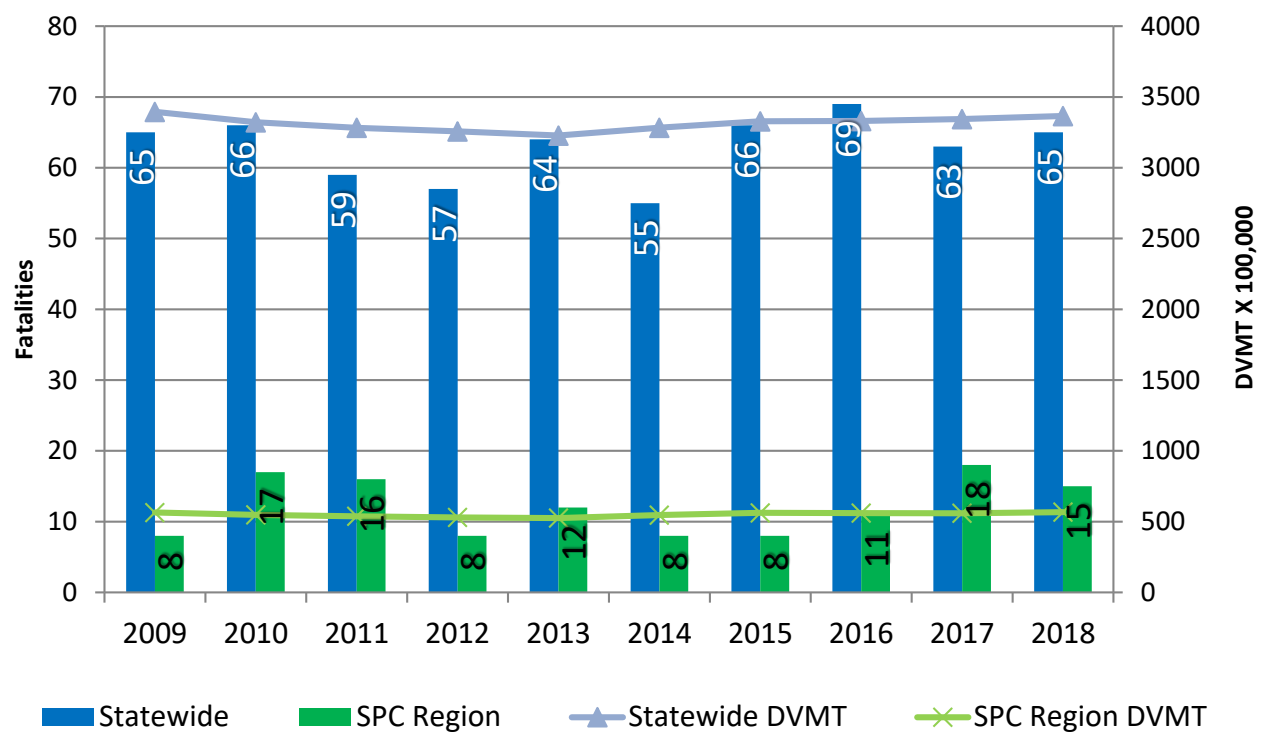
Distracted Driver Crashes

Historical Crash Data



Distracted Driver Fatalities

Historical Fatality Data

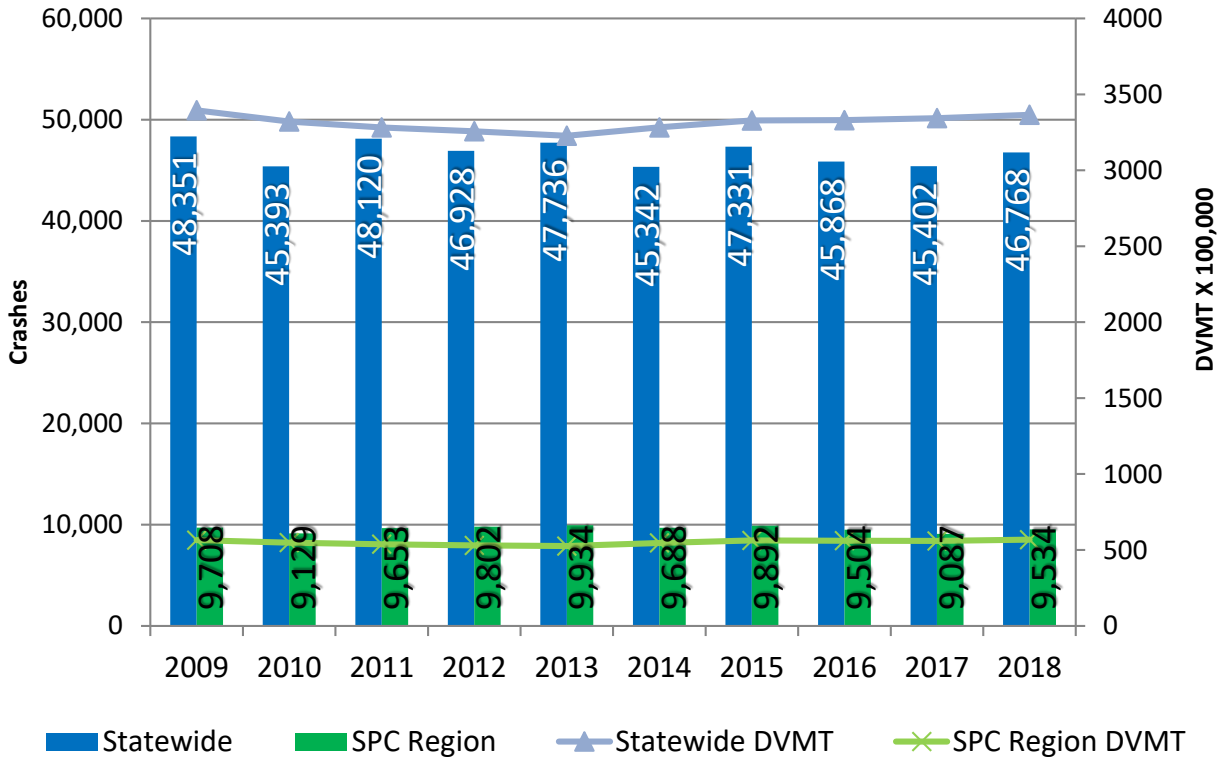


Upward Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

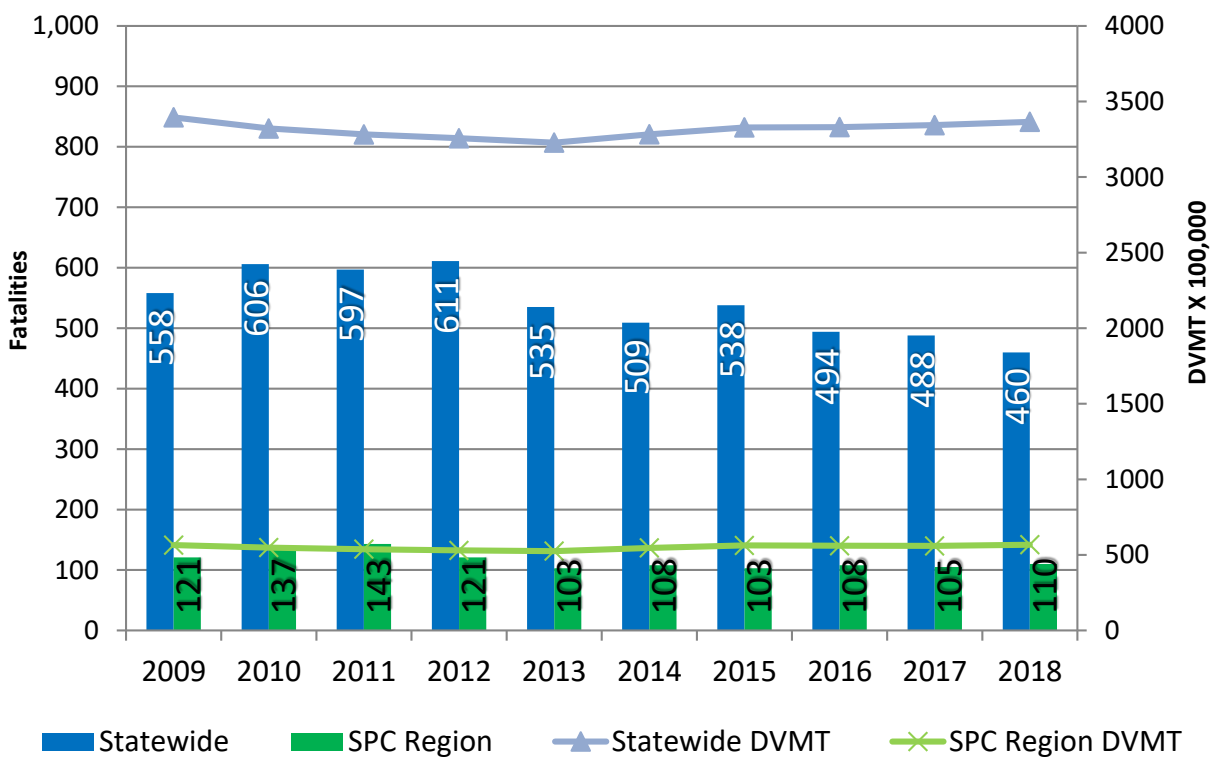
Single Vehicle Run-Off-The-Road Crashes

Historical Crash Data



Single Vehicle Run-Off-The-Road Fatalities

Historical Fatality Data

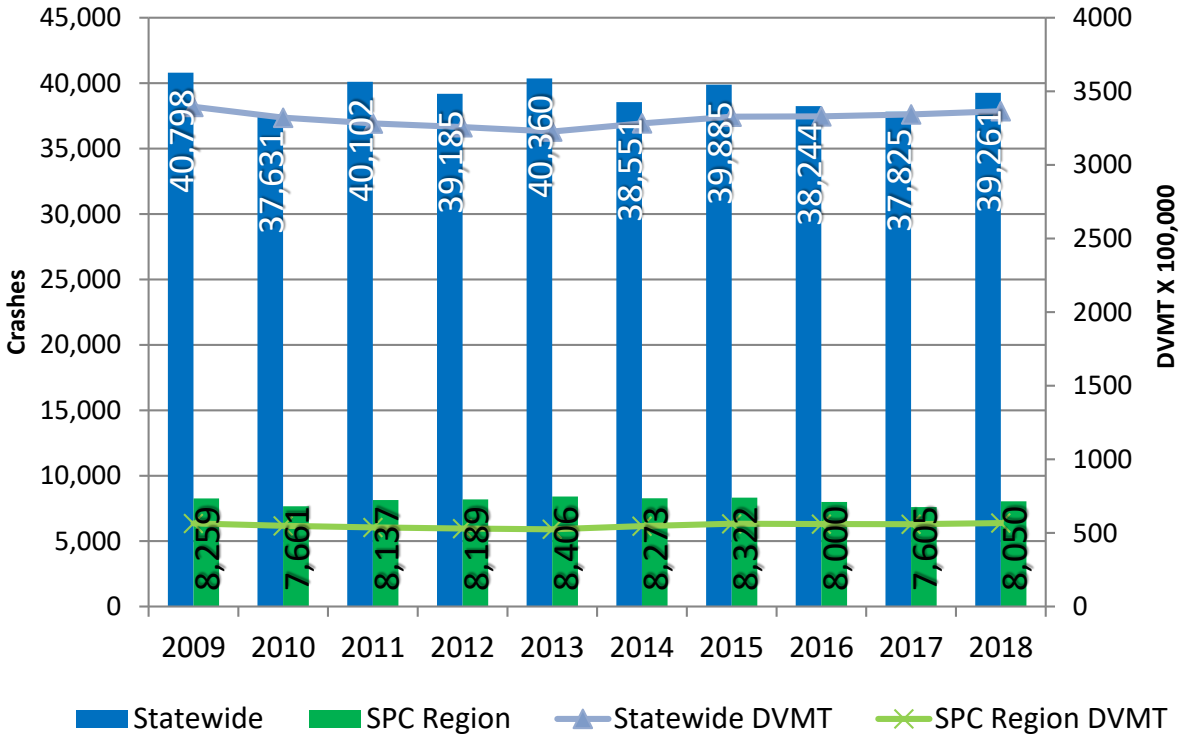


Flat Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

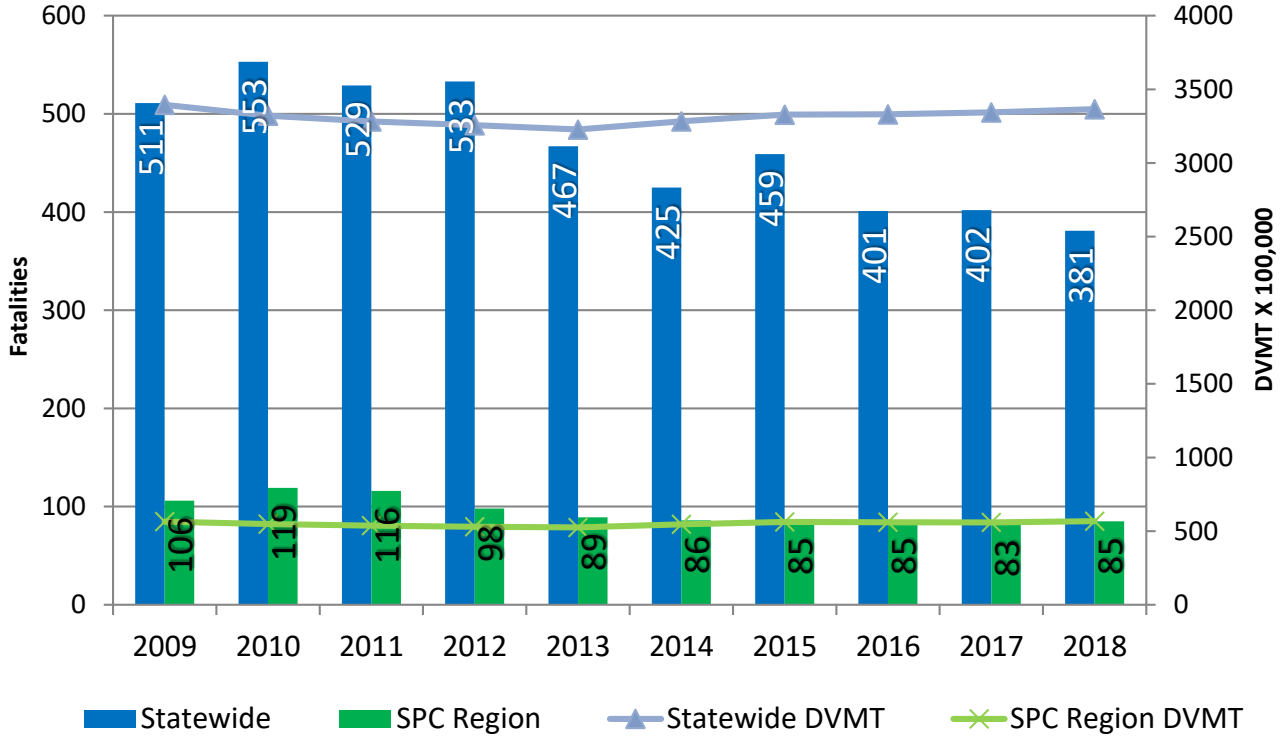
Hit Fixed Object Crashes

Historical Crash Data



Hit Fixed Object Fatalities

Historical Fatality Data

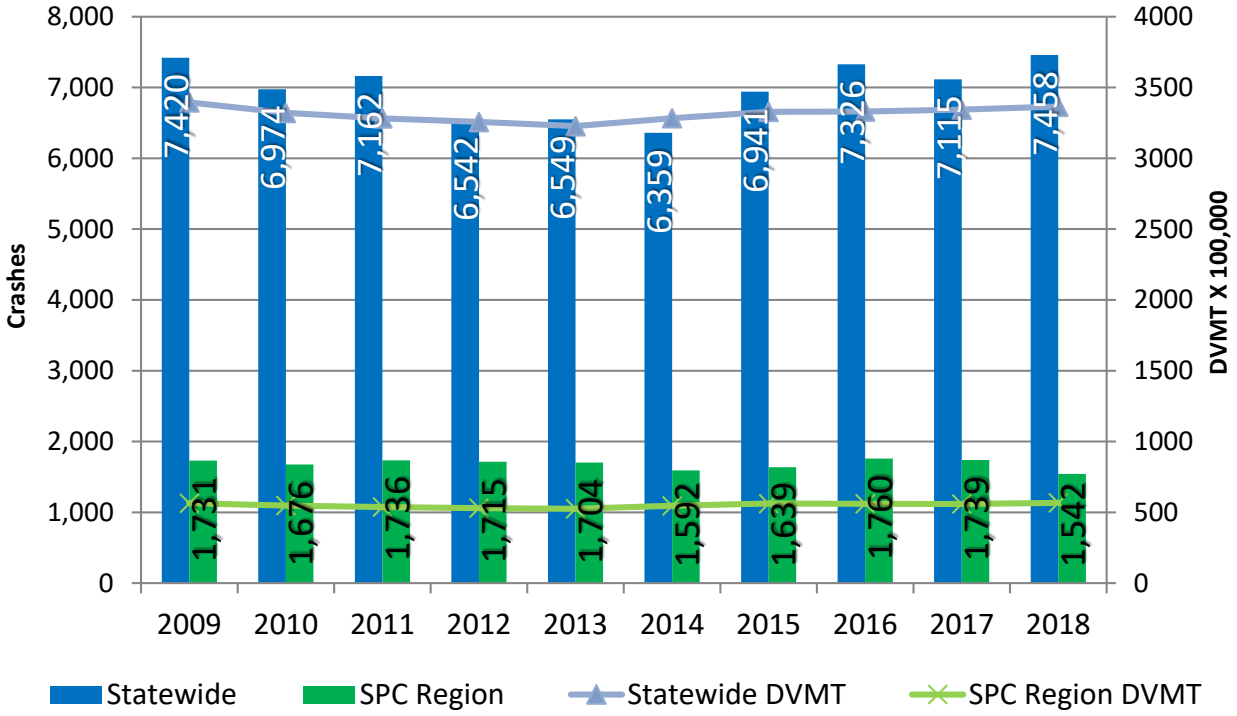


Downward Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

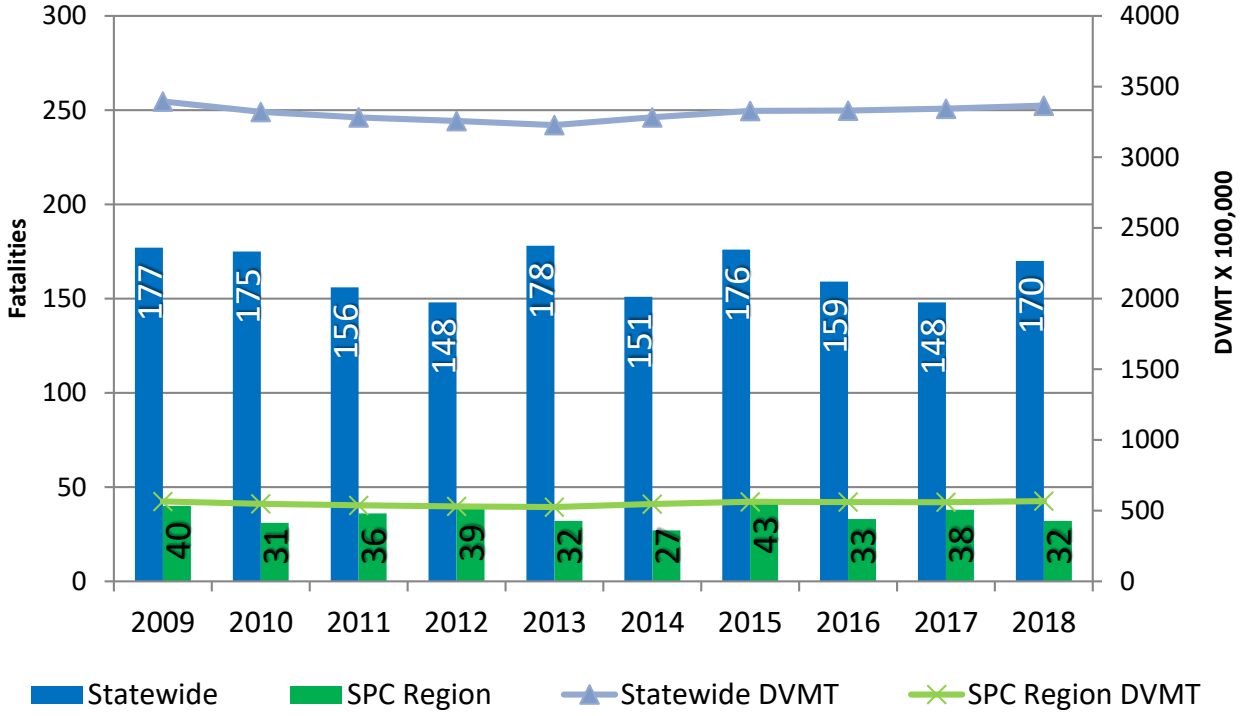
Head-On / Opposite Direction Side Swipe Crashes

Historical Crash Data



Head-On / Opposite Direction Side Swipe Fatalities

Historical Fatality Data

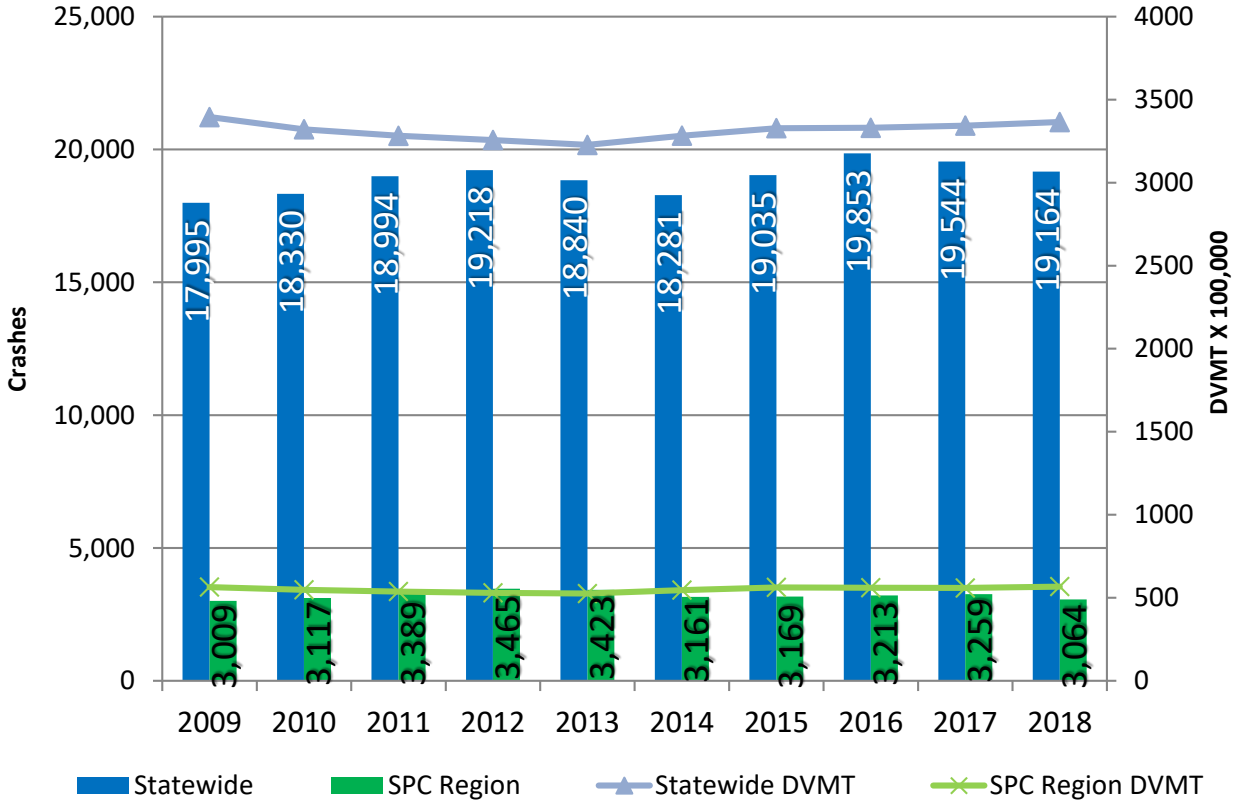


Flat Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

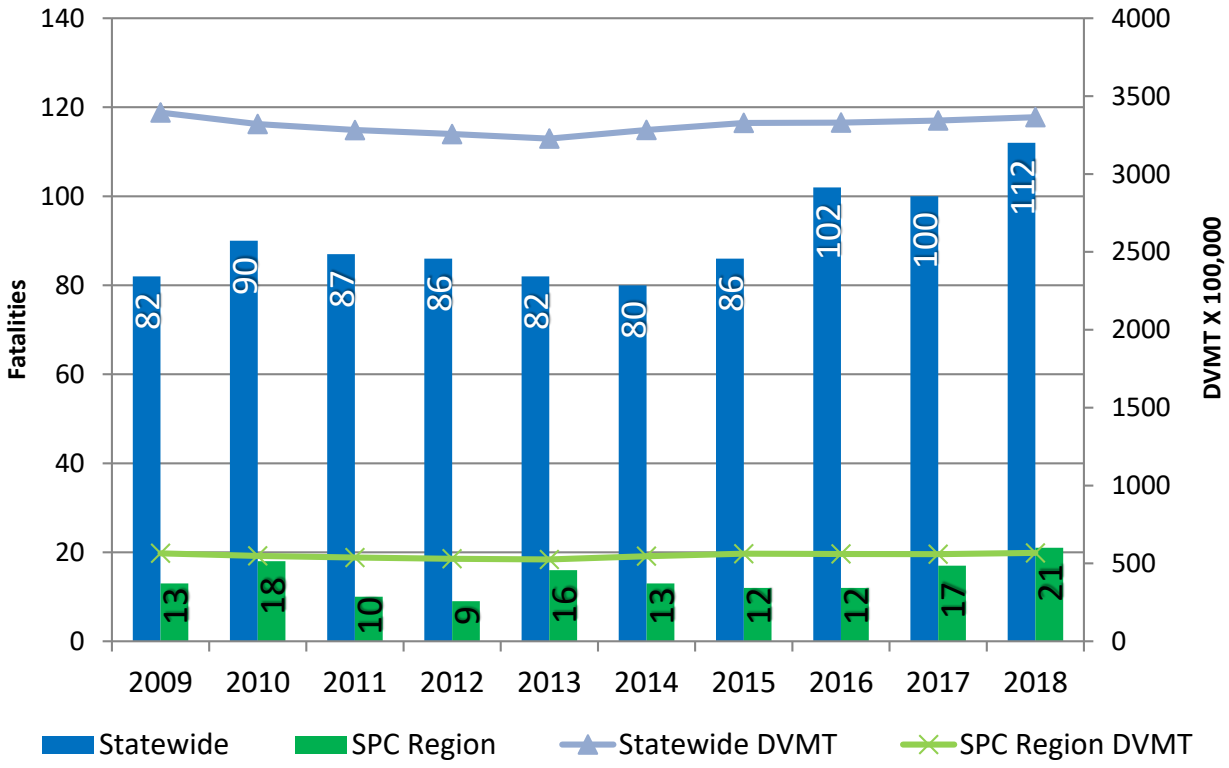
Signalized Intersection Crashes

Historical Crash Data



Signalized Intersection Fatalities

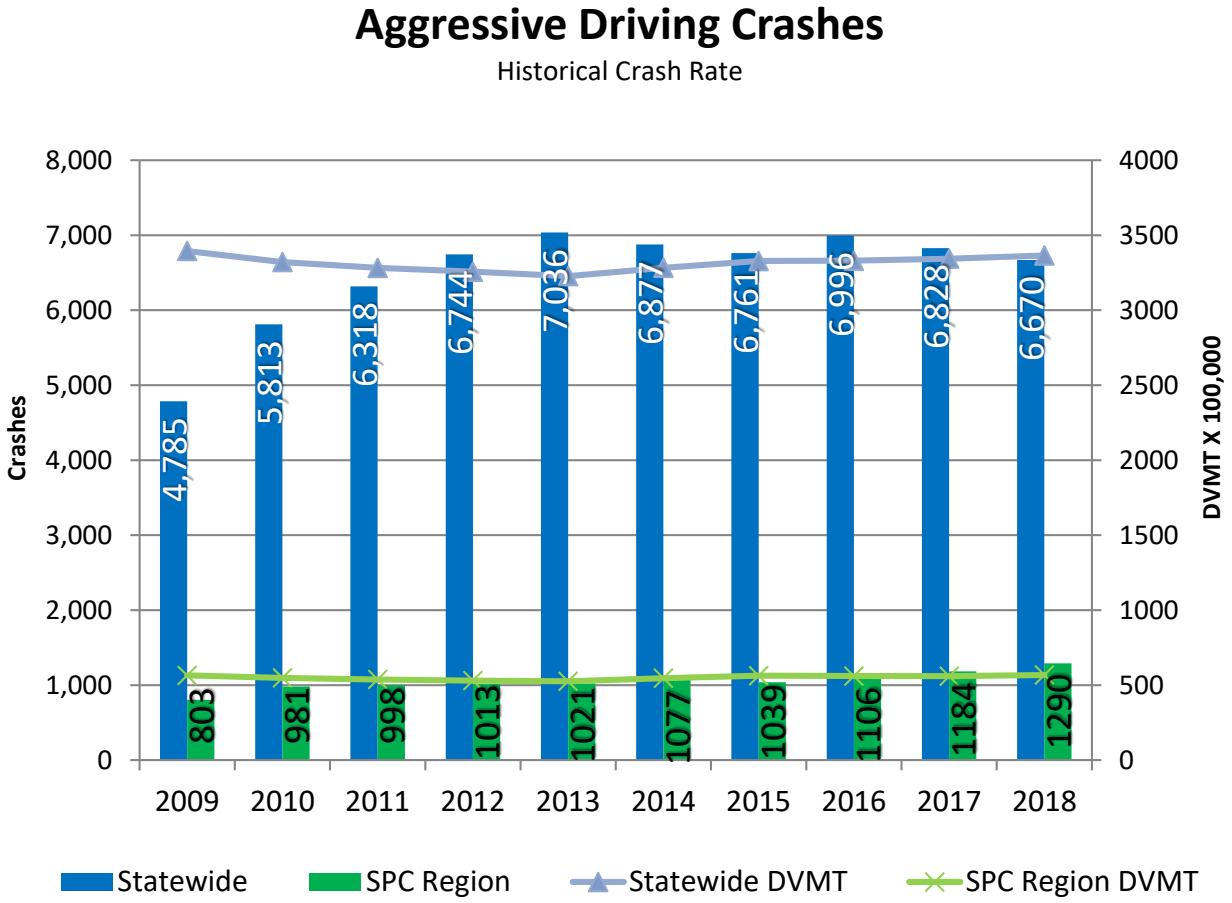
Historical Fatality Data

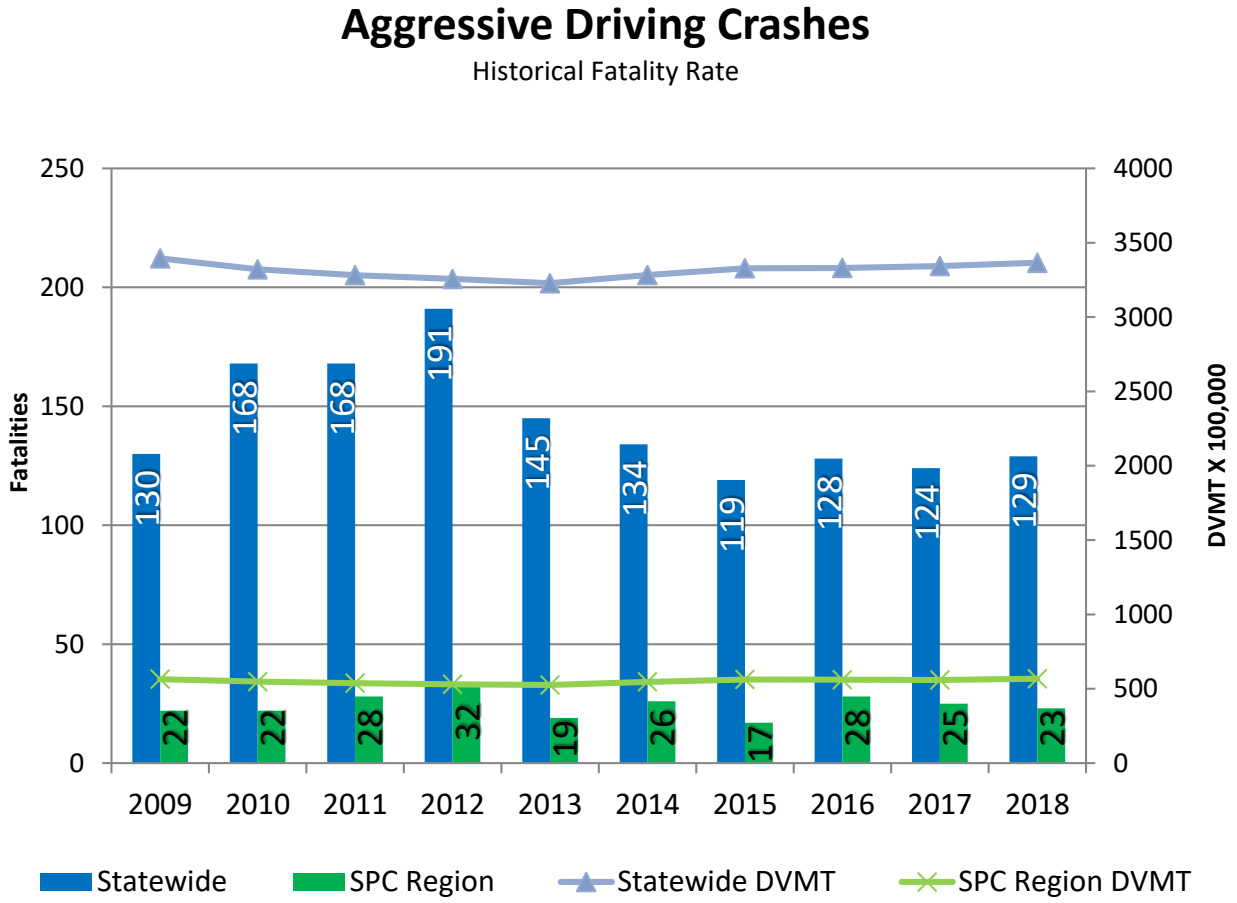


Downward Trend in Crashes

Upward Trend in Fatals

SAP 2015 Recommended Focus Area Performance





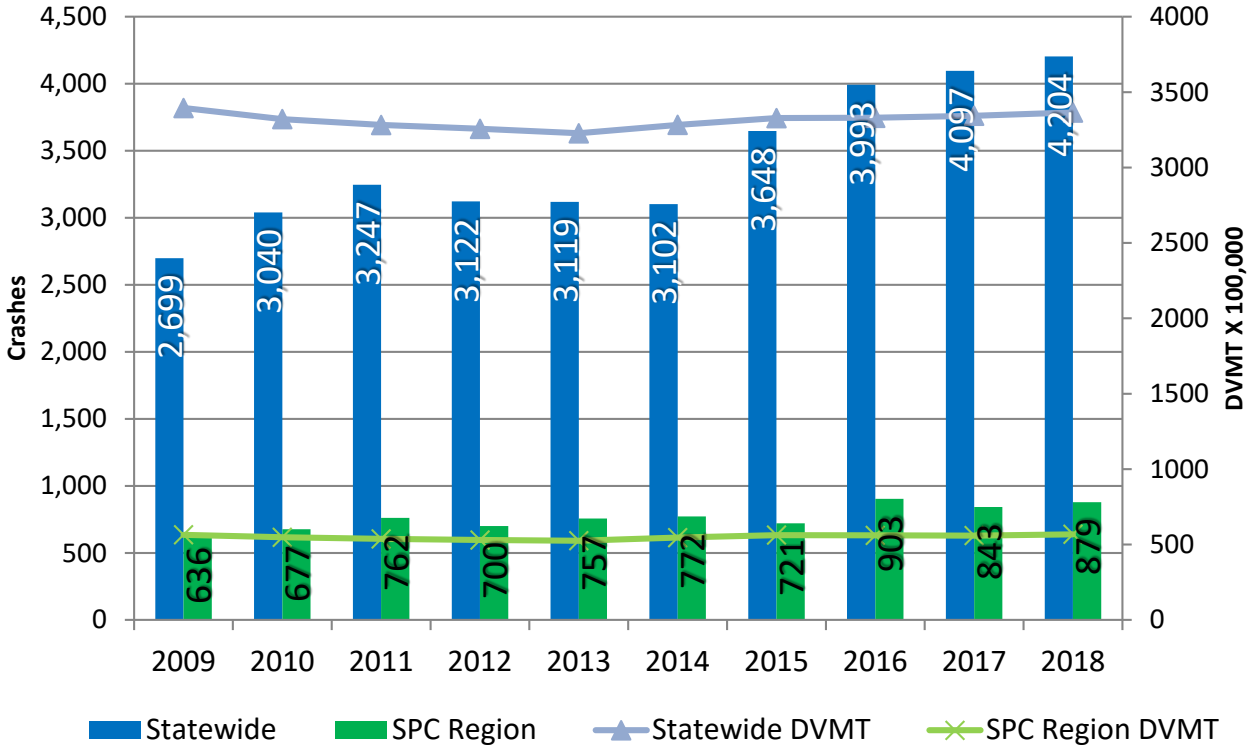
Upward Trend in Crashes

Flat Trend in Fatals

SAP 2015 Recommended Focus Area Performance

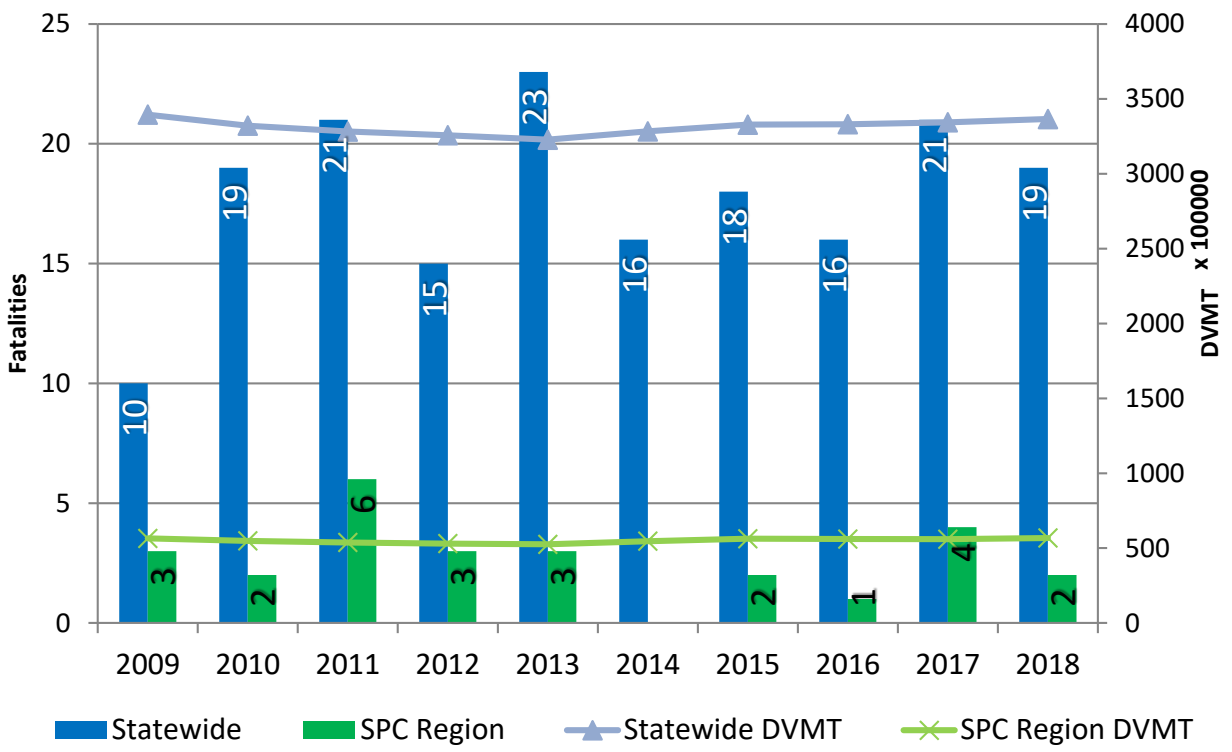
Secondary Crashes

Historical Crash Data



Secondary Crash Fatalities

Historical Fatality Data



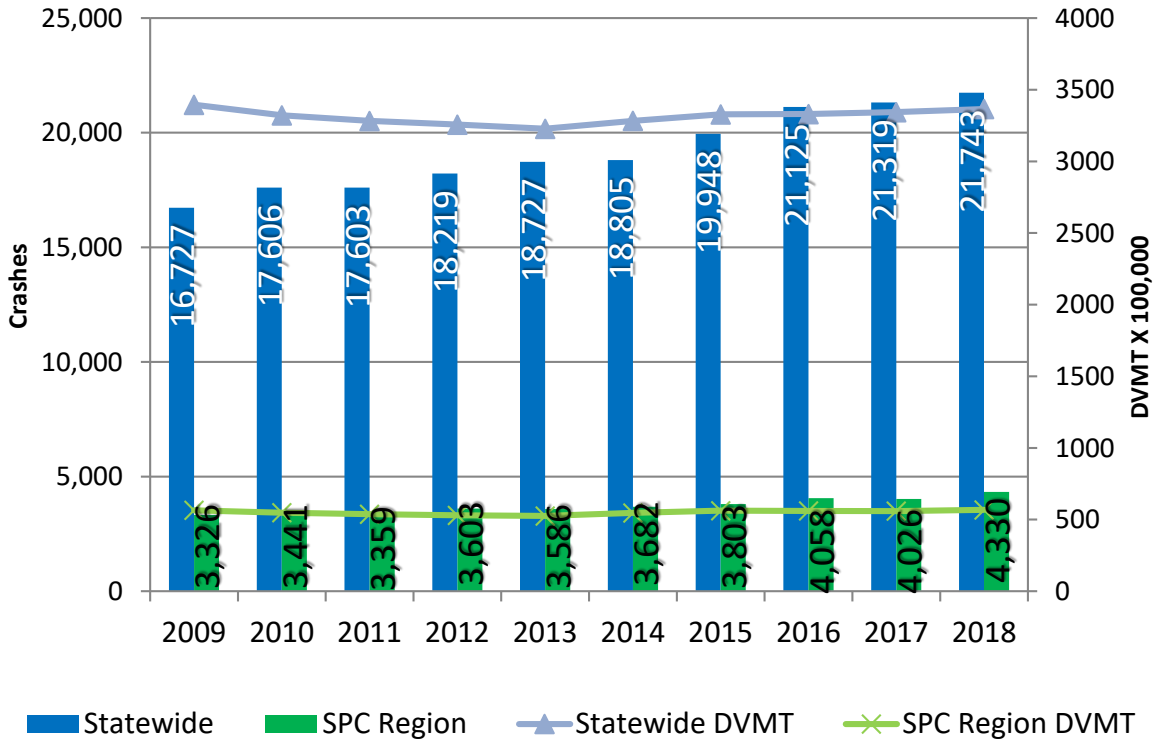
Upward Trend in Crashes

Downward Trend in Fatals

SAP 2015 Recommended Focus Area Performance

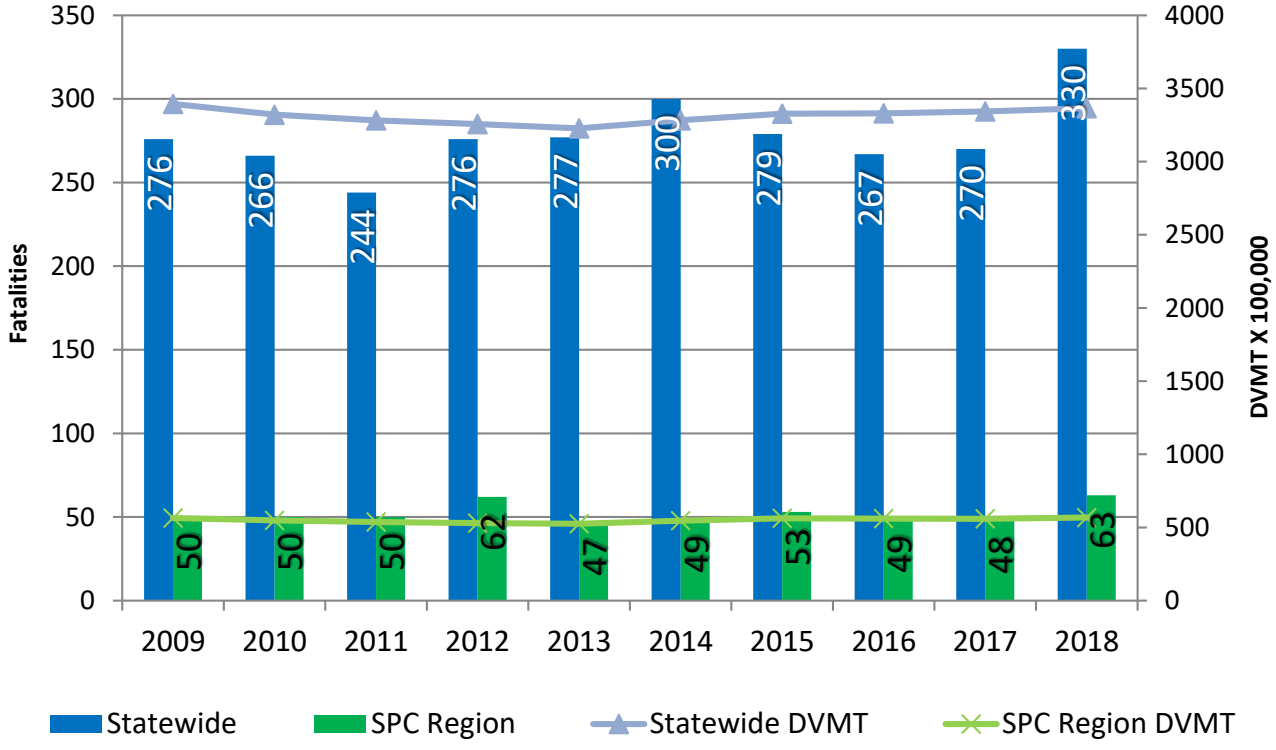
65+ Year Old Driver Crashes

Historical Crash Data



65+ Year Old Driver Fatalities

Historical Fatality Data

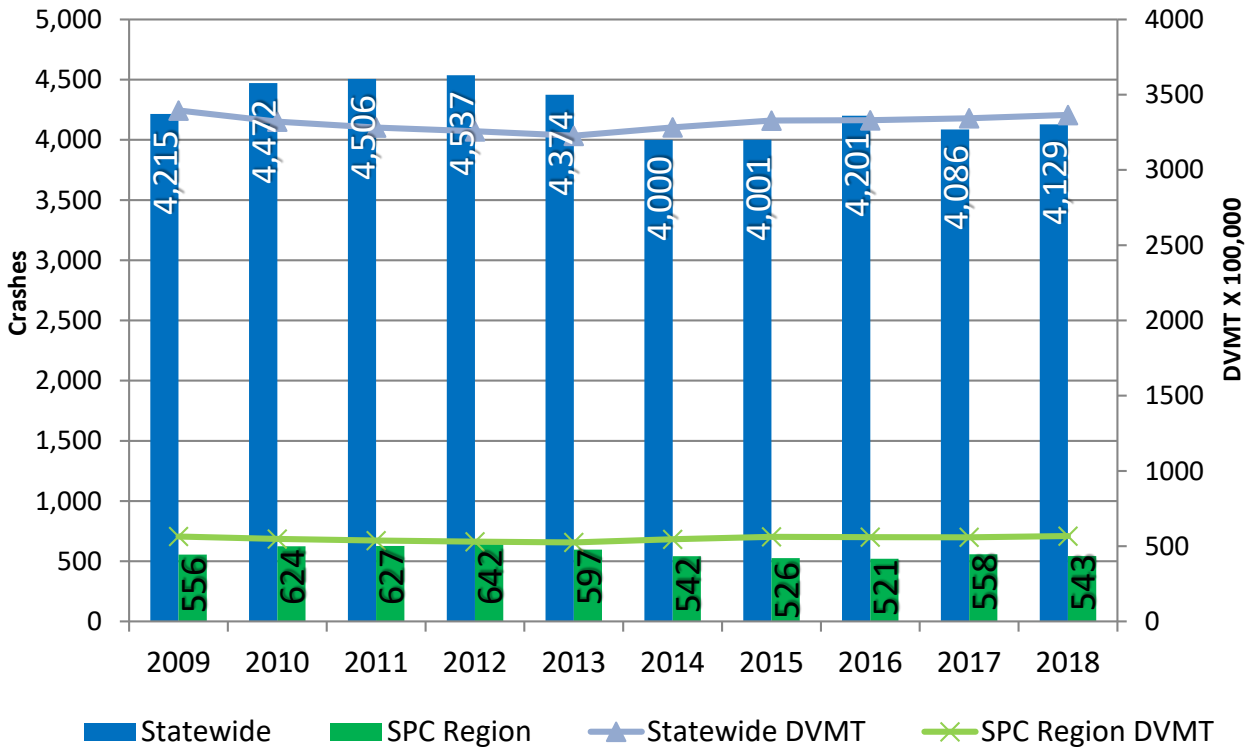


Upward Trend in Crashes/Fatals

SAP 2015 Recommended Focus Area Performance

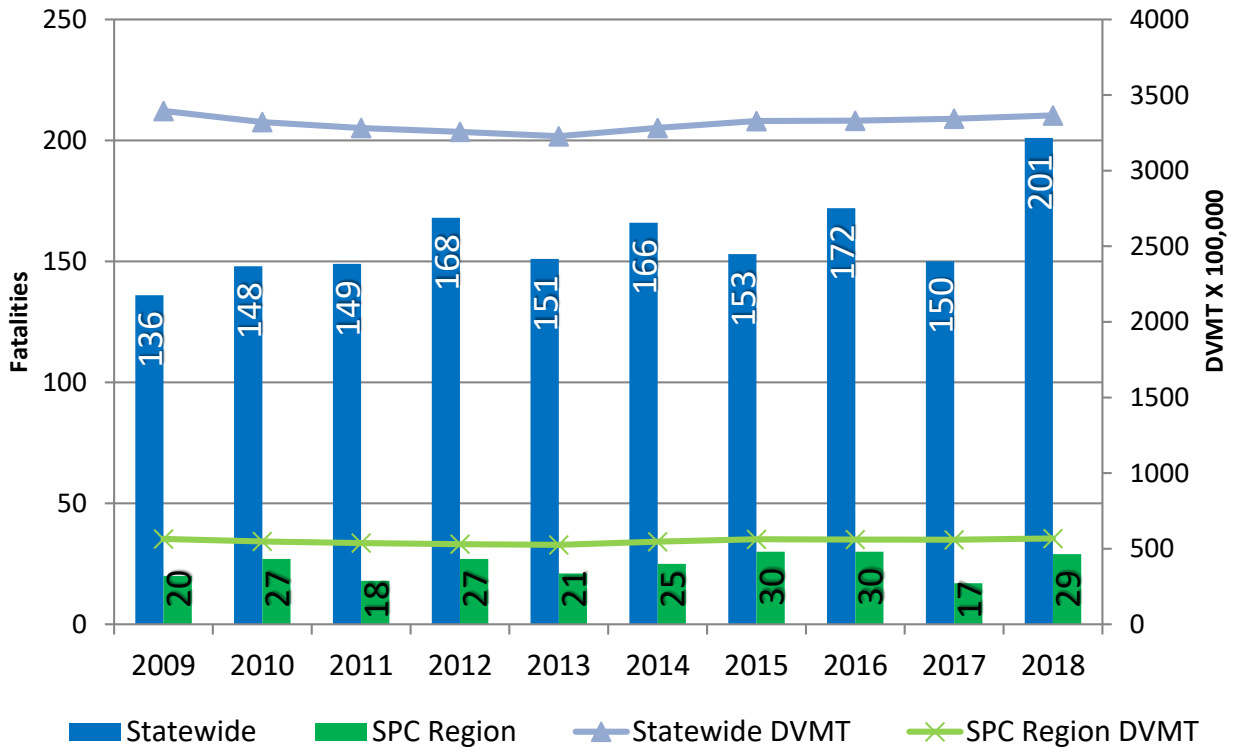
Pedestrian Crashes

Historical Crash Data



Pedestrian Fatalities

Historical Fatality Data



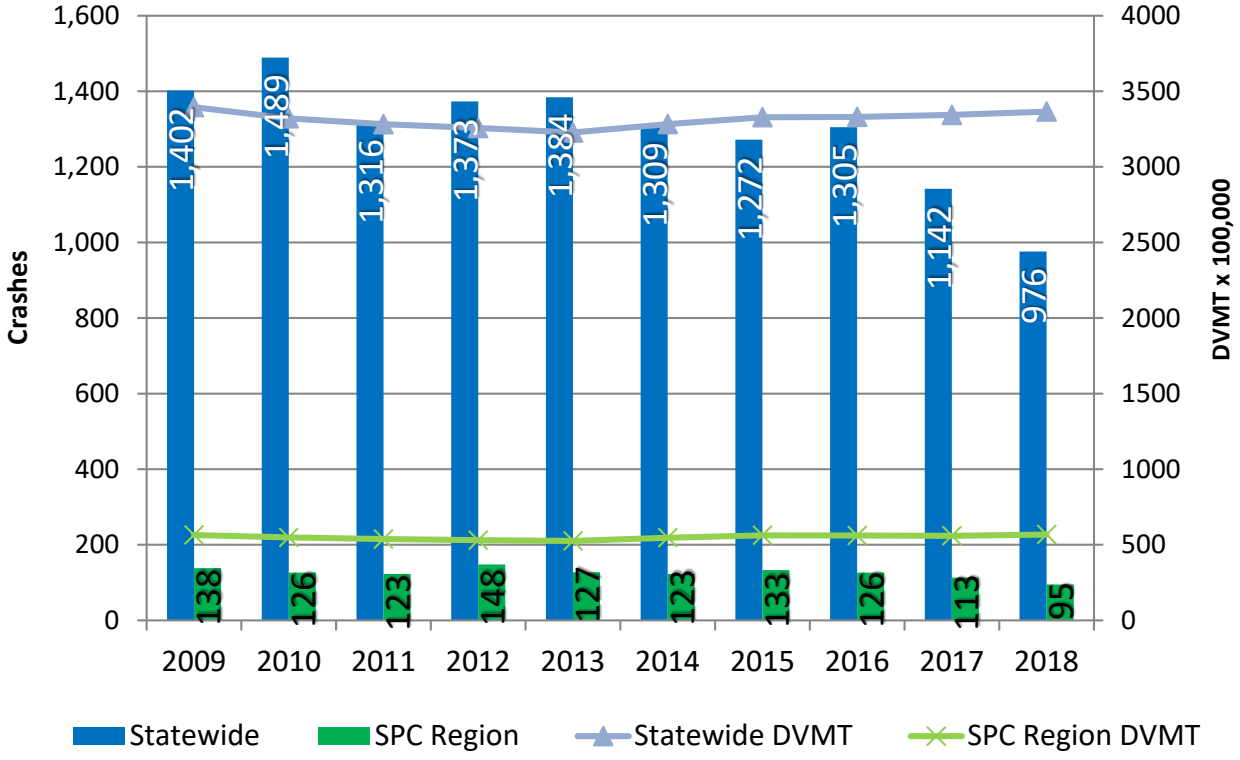
Downward Trend in Crashes

Upward Trend in Fatals

SAP 2015 Recommended Focus Area Performance

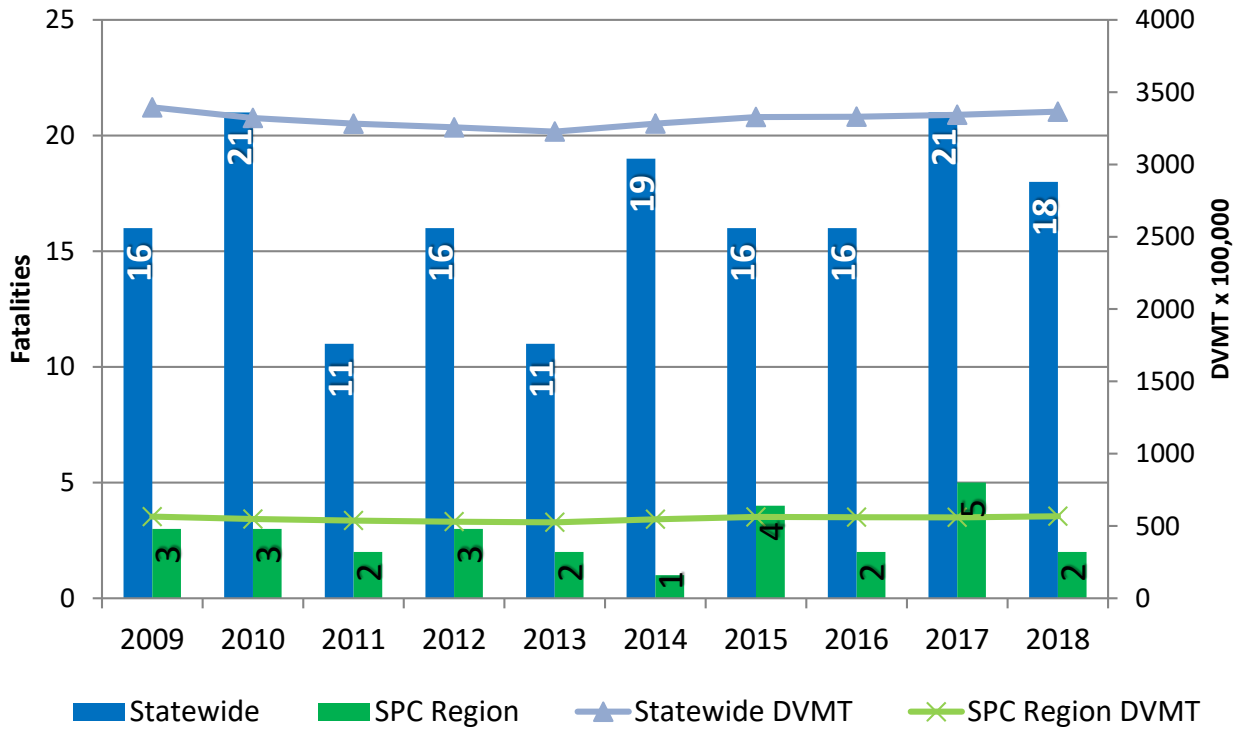
Bicycle Crashes

Historical Crash Data



Bicycle Fatalities

Historical Fatality Data



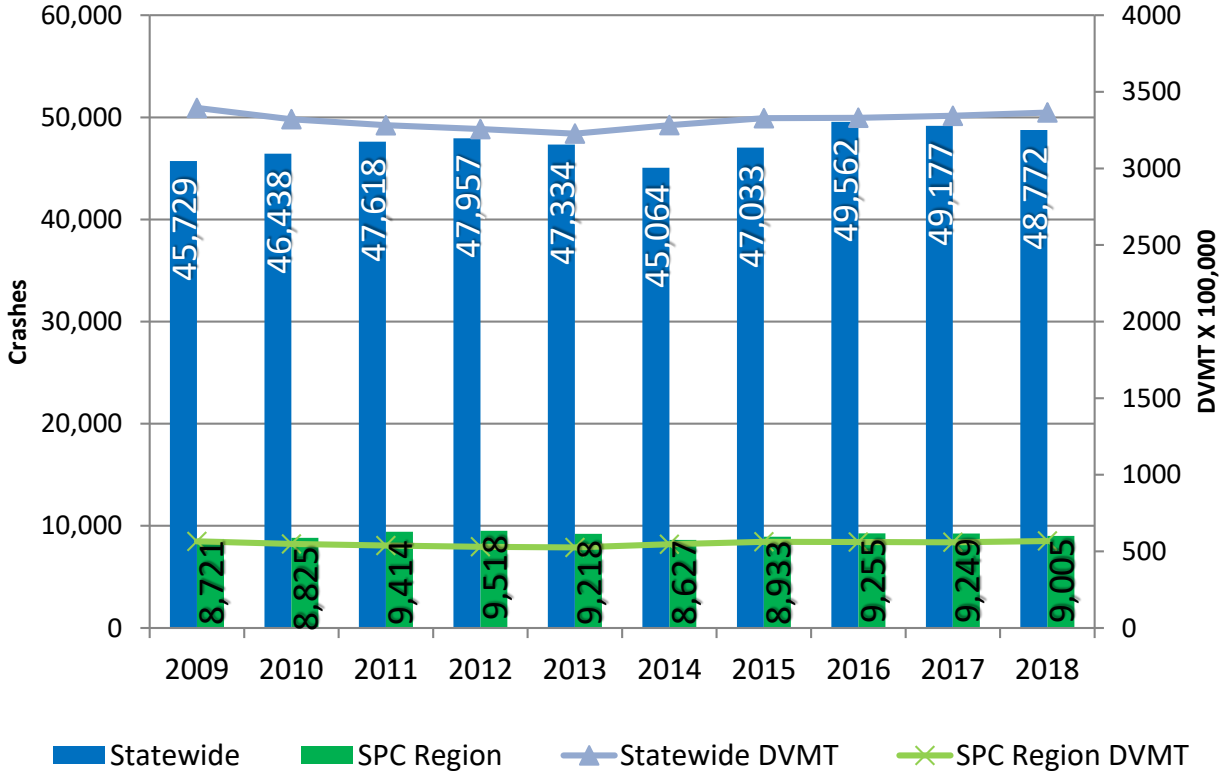
Downward Trend in Crashes

Upward Trend in Fatals

SAP 2020 Concerning Regional Crash Trends

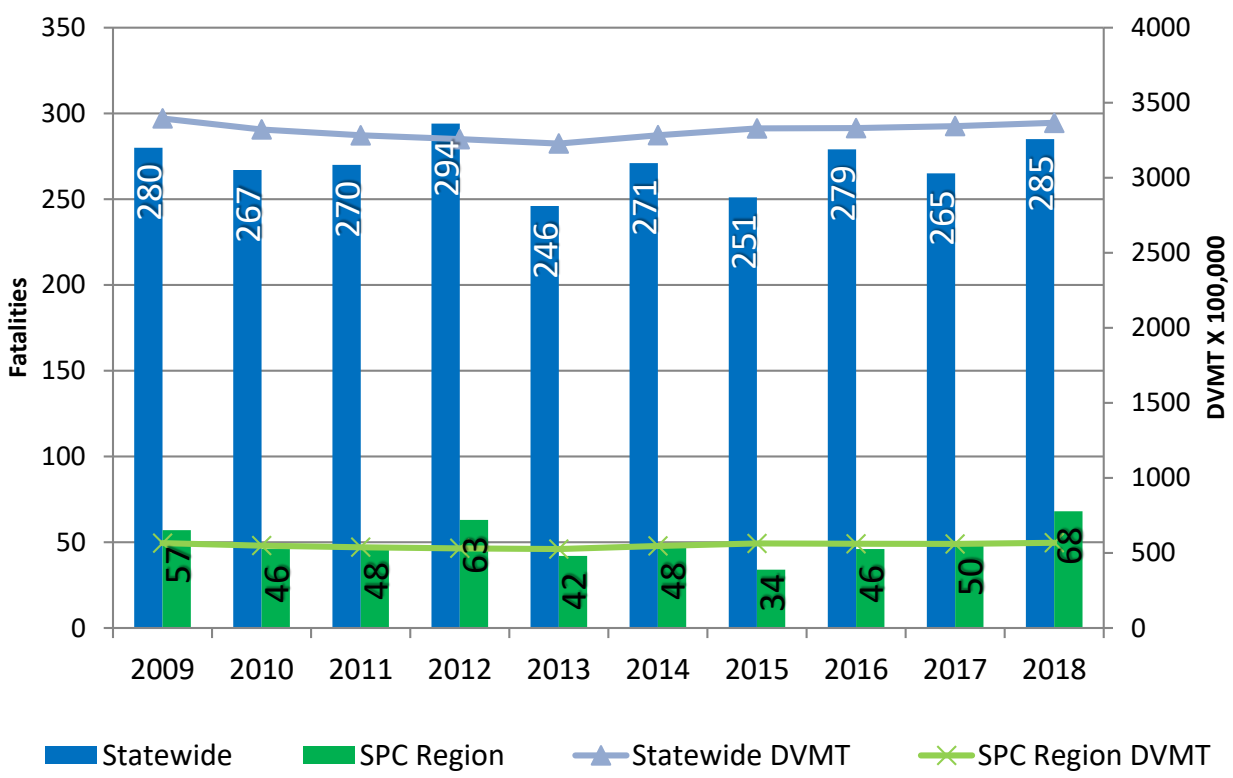
Intersection Crashes

Historical Crash Data



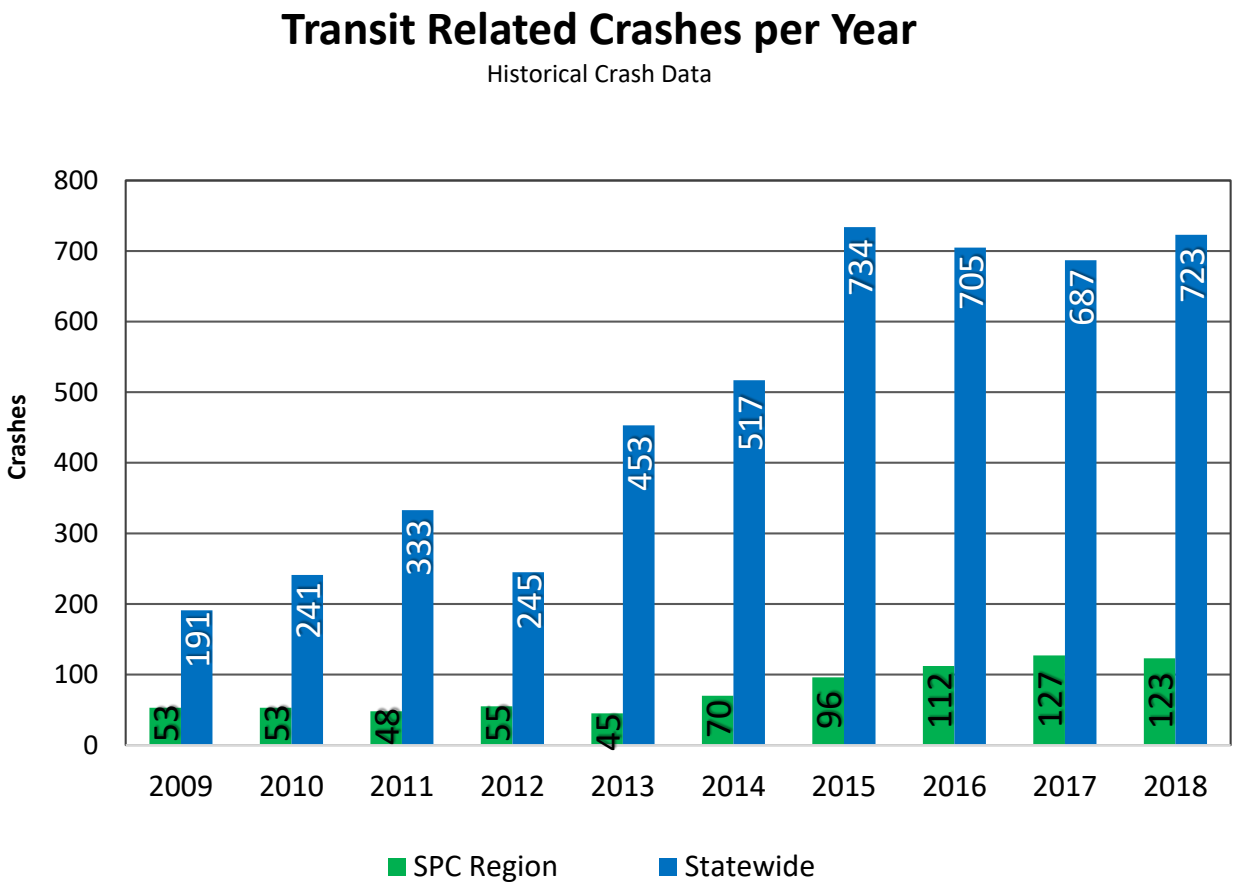
Intersection Fatalities

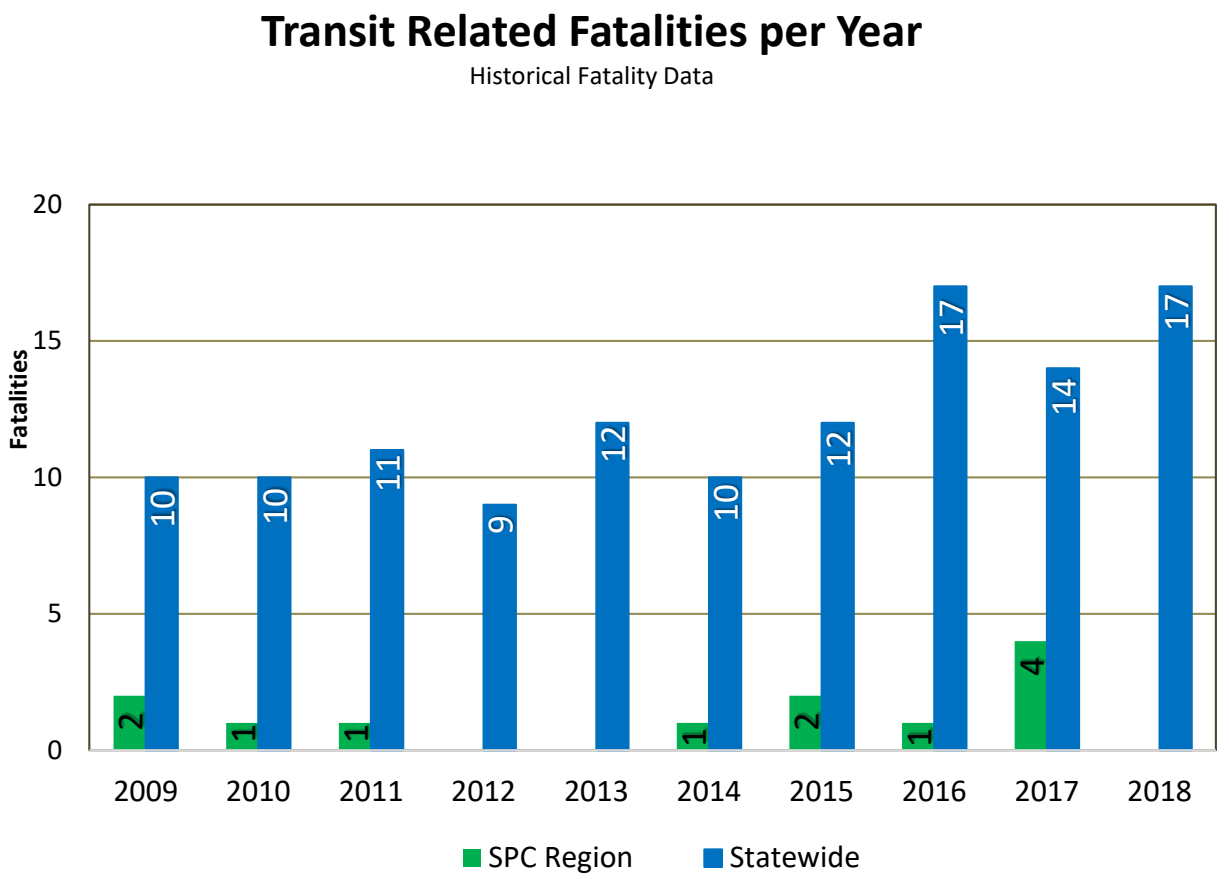
Historical Fatality Data



Upward Trend in Crashes/Fatals

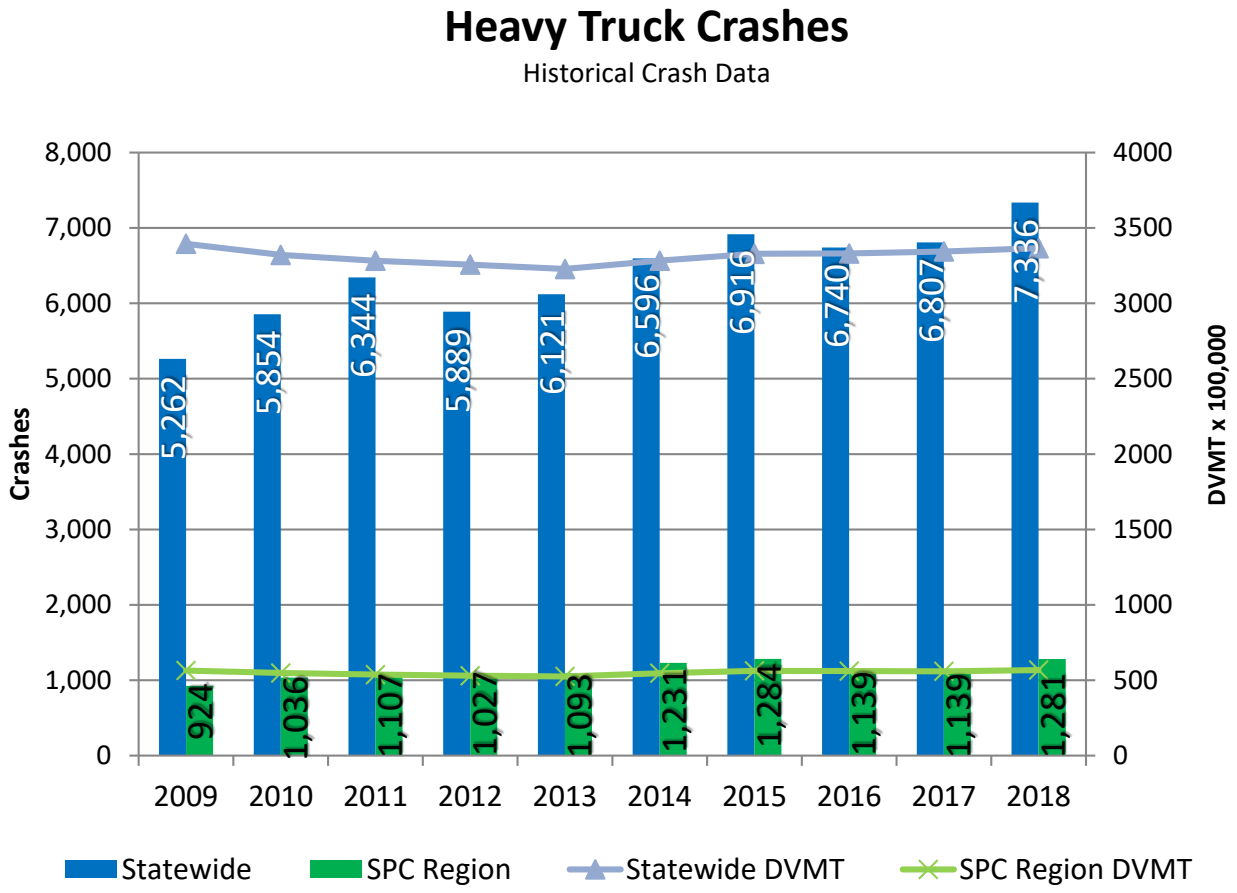
SAP 2020 Concerning Regional Crash Trends

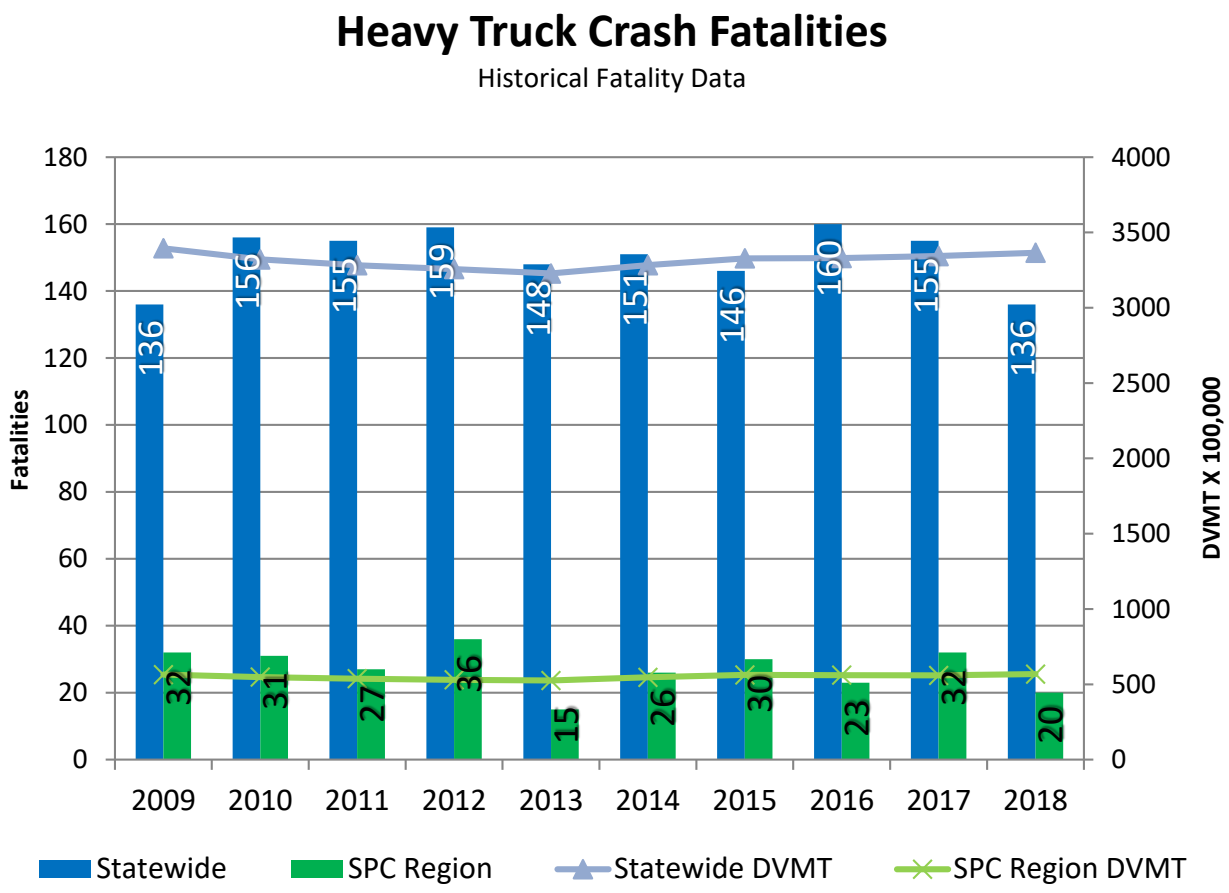




Upward Trend in Crashes/Fatals

SAP 2020 Concerning Regional Crash Trends





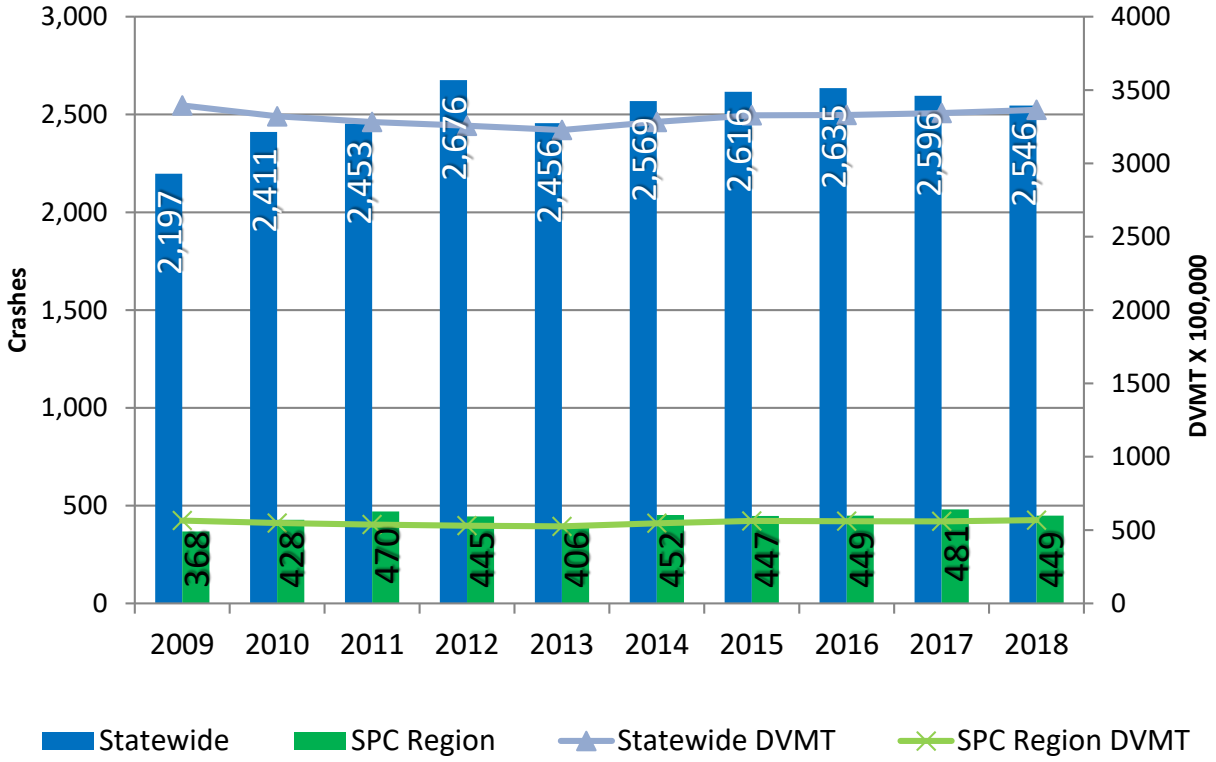
Upward Trend in Crashes

Flat Trend in Fatals

SAP 2020 Concerning Regional Crash Trends

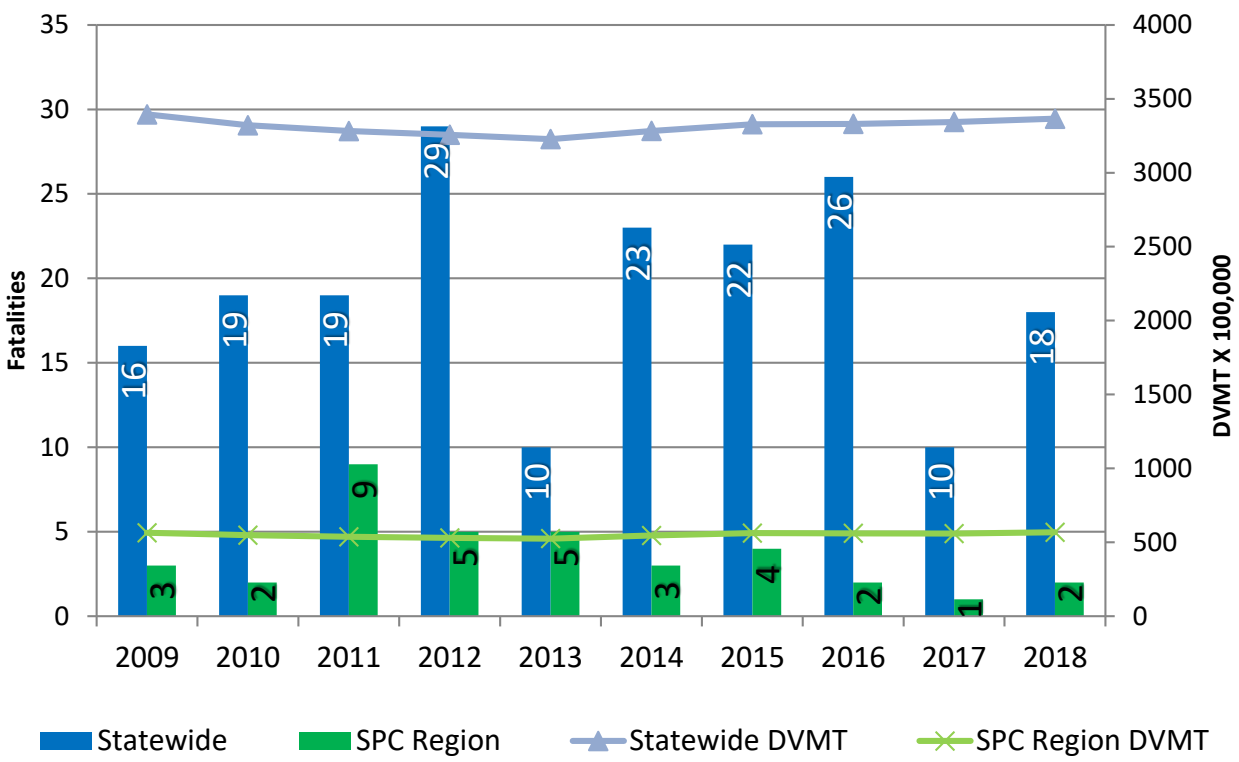
Drowsy Driver Crashes

Historical Crash Data



Drowsy Driver Fatalities

Historical Fatality Data



Flat Trend in Crashes

Downward Trend in Fatals

SAP 2020 Proposed Safety Focus Areas

Previous 2015 SAP Safety Focus Areas

- Drug related crashes
- ~~Unbelted crashes~~
- Distracted driving crashes
- Run-off-road crashes
- ~~Hit fixed object crashes~~
- Head-on crashes
- Signalized intersection crashes
- Aggressive driving crashes
- Secondary crashes
- Mature driver crashes
- Non-motorized (ped/bike) crashes

New 2020 SAP Safety Focus Areas

- Intersection crashes
- Transit-related crashes
- Heavy truck crashes
- Drowsy driver crashes

SAP 2020 Next Steps

- Survey steering committee and stakeholder group participants for consensus on new focus areas
- Schedule steering committee and stakeholder group meetings
- Examine each safety focus areas in greater granularity
  - District/County level
- Develop location specific safety “hot spots” per District
  - Compare HSM Network Screening results with high crash locations
- Report findings to steering committee and stakeholder groups
- Collaborate with steering committee and stakeholder groups to identify potential strategies and solutions to improve safety

Questions

Consultant Contact Info:

Project Manager:

Ross Buchan, PE

rbuchan@wrallp.com

Safety Analyst:

Jim French, PhD, PE, ENV SP jfrench@frenchengr.com

MEMORANDUM of MEETING

Date: April 23, 2020

Date of Meeting: April 21, 2020
Time of Meeting: 10:00 AM – 11:00 AM
Meeting Location: Skype Meeting
Meeting Description: SPC Safety Action Plan Update

Work Order Number: 95
Contract Number: SPC On-Call Contract
Project: SPC On Call: 2020 Safety Action Plan

Participants:

Name	Company	Phone	Email
Josh Spano	SPC	412-391-5590 x 362	jspano@spcregion.org
Domenic D'Andrea	SPC	412-391-5590 x 341	ddandrea@spcregion.org
Tom Klevan	SPC	412-391-5590 x 316	tklevan@spcregion.org
Evan Schoss	SPC	412-391-5590 x 338	eschoss@spcregion.org
Andy Waple	SPC	412-391-5590 x 310	awaple@spcregion.org
Ross Buchan	WRA	717-514-8916	rbuchan@wrallp.com
Scott Thompson-	WRA	724-779-7940	sthompson-graves@wrallp.com
Jim French	French	724-569-8555	jfrench@frenchengr.com
Millie French	French	724-569-8555	mfrench@frenchengr.com
Darin Alviano	Arrmstrong County	724-548-3223	ddalviano@co.armstrong.pa.us
Johnny Balay	PennDOT District 11-0	412-429-4979	jbalay@pa.gov
Douglas Barch	PennDOT District 11-0	412-429-4980	dobarch@pa.gov
Clint Beck	FHWA	717-221-3718	clint.beck@dot.gov
Eric Bell	PennDOT District 12-0	724-439-7271	erbell@pa.gov
Eric Boerer	BikePGH	412-325-4334	eric@bikepgh.org
Daniel Carpenter	Westmoreland County	724-830-3604	dcarpen1@co.westmoreland.pa.us
Frank Cippel	PennDOT District 11-0	412-429-4986	fcippel@pa.gov
Cory Craft	PennDOT District 12-0	724-439-7370	ccraft@pa.gov
Robb Dean	PennDOT District 12-0	724-439-7256	robdean@pa.gov
Jonathan Ferensic	PennDOT District 11-0	412-429-4873	jferensic@pa.gov
Gavin Gray	PennDOT BOMO	717-783-1190	gagray@pa.gov
Bill Houpt	FHWA	717-221-3411	william.houpt@dot.gov
Patti Lynn Johnston	Armstrong Town & Country Transit	724-548-8696	pljohnston@tandctransit.com
Sara Khalil	Pittsburgh Bike Share	412-512-1834	sara@pghbikeshare.org
Todd Kravits	PennDOT District 11-0	412-429-4975	tkravits@pa.gov
Todd Leiss	Pennsylvania Turnpike	717-831-7054	tleiss@paturnpike.com
Bill Lesterick	PennDOT District 11-0	412-429-4803	wlesterick@pa.gov
Lynn Manion	Airport Corridor Transportation Assoc.	412-533-4601	lynn.manion@actapgh.org
Ruth McClelland	PennDOT District 11-0	412-429-4985	rmcclelland@pa.gov

Name	Company	Phone	Email
Cheryl Moon-Sirianni	PennDOT District 11-0	412-429-5001	csirianni@pa.gov
Ann Ogoreuc	Allegheny County	412-865-8181	Ann.ogoreuc@alleghenycounty.us
Kathryn Power	PennDOT District 11-0	412-475-1862	kpower@pa.gov
Mavis Rainey	Oakland TMA	412-779-5398	mrainey@otma-pgh.org
William Rankin	PennDOT District 10-0	724-357-4810	wrankin@pa.gov
Sepehr Sadigh	PennDOT District 11-0	412-429-3804	ssadigh@pa.gov
Katy Sawyer	City of Pittsburgh	412-255-8622	Katy.sawyer@pittsburghpa.gov
Anthony Schneider	Allegheny County	502-741-4500	Anthony.Schneider@alleghenycounty.us
Joe Szczur, P.E.	PennDOT District 12-0	724-439-7340	jszczur@pa.gov
Dave Tomaswick	PennDOT District 10-0	724-357-1904	dtomaswick@pa.gov
Scott Tuite	PennDOT District 11-0	412-429-4911	sctuite@pa.gov
Bryan Walker	PennDOT District 12-0	724-439-7345	brywalker@pa.gov
Terry Wolford	PennDOT District 10-0	724-357-3016	twolford@pa.gov

The presentation entitled “SPC Safety Action Plan Update – Steering Committee Meeting 1 – Stakeholder Group Meeting 1” was given by Josh Spano, Domenic D’Andrea, and Ross Buchan. The presentation is provided as an attachment to the meeting minutes. The following discussion ensued during and after the presentation:

Meeting Discussion:
Andy Waple of SPC clarified that the South Braddock Avenue Safety Project on Slide 30 was split funded by SPC and PennDOT.

The upward trend in pedestrian and bicycle fatalities illustrated on Slides 43 and 44 were discussed. The project team indicated that they would further investigate details of these crashes to determine commonalities and trends in order to identify effective countermeasures.

In a follow-up to the meeting, the project team received an email from the PennDOT Bureau of Maintenance and Operations (BOMO) regarding their approach to historical crash analysis and some initiatives they are working on in the area of behavioral safety programming. The project team will collaborate with BOMO staff moving forward in identifying safety performance targets, analyzing safety trends, and identifying solutions.

The above is a summary between the parties regarding the topics discussed and the decisions reached. Any participants desiring to add to, or otherwise amend the minutes, are requested to put their comments in writing to the writer within seven (7) days; otherwise, the minutes will stand as written.

Ross Buchan

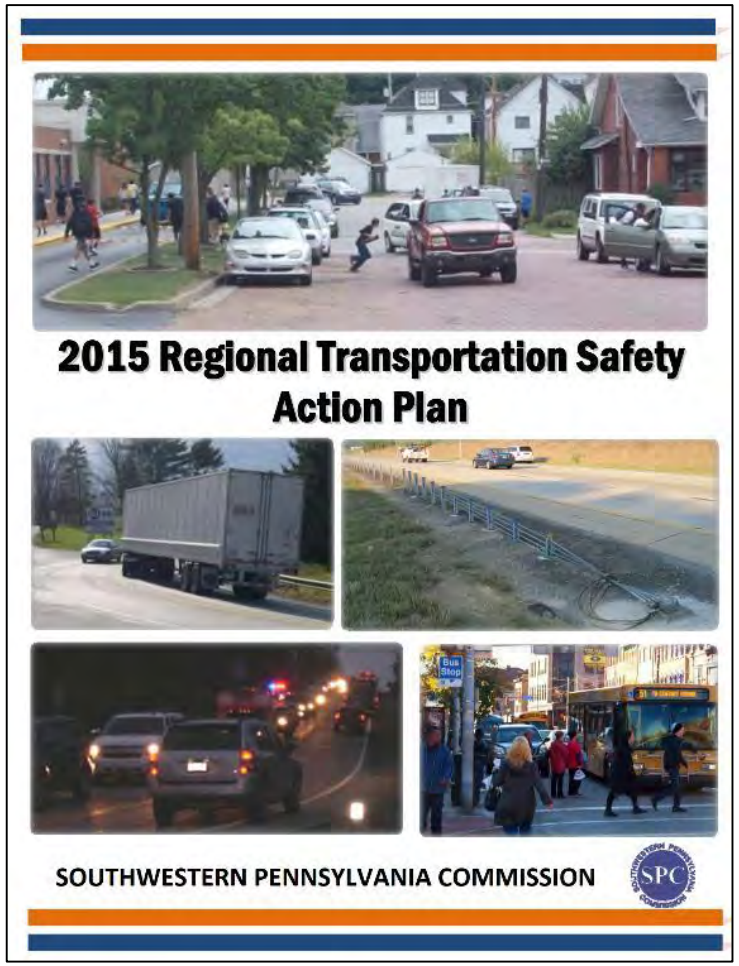
SPC SAFETY ACTION PLAN UPDATE

Steering Committee Meeting 2

June 16, 2020

Agenda

- Introductions
- Schedule
- Meeting Objectives
- Steering Committee Mtg 1 Recap
- Upcoming Stakeholder Meetings
  - Purpose & Objectives
  - Data to be Presented & Proposed Exercises
  - Steering Committee Feedback
- Next Steps/Open Discussion



Schedule

Tasks	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
1. Safety System Performance-Data Analysis									
2. Steering Committee/Stakeholder Group Mtg 1									
3. Trends, Emphasis Areas, & Safety Strategies									
4a. Steering Committee Mtg 2									
4b. Stakeholder Group Mtgs (1 in each District)									
5a. Draft SAP Findings/Document Development									
5b. Steering Committee Mtg 3									
6. Final SAP Document									

Today's Meeting Objectives

- High level review of Steering Committee Meeting 1
- Finalize approach for soliciting input & feedback at Stakeholder Meetings
  - Confirm meeting goal & objectives
  - Confirm methodology for location-specific hot spots
  - Confirm data/maps to be presented
  - Confirm exercises via virtual meeting

Steering Committee Meeting 1 Recap

Purpose of the Regional Safety Action Plan (SAP)

- Provides an overview of transportation safety for the region
- Integrates statewide planning for transportation safety
- Ensures regional collaboration
- Establishes regional….
  - Safety Goals & Objectives
  - Safety Performance Measures
  - Safety Focus Areas
- Identifies programmatic and soft-side safety strategies
- Identifies location-specific safety “hot spots” for further investigation

Steering Committee Meeting 1 Recap

2020 SAP Goals & Objectives

Goals:

- Attain the 5 Federal Safety Performance Measure targets for the region
- Enhance and support soft-side programs to improve transportation safety
- Identify potential safety improvement projects to be incorporated in the TIP and LRTP using an objective data-driven process
- Improve safety on the local road network

Objectives:

- Reduce the number and rate of fatalities on all public roads
- Reduce the number and rate of serious injuries on all public roads
- Reduce the number of non-motorized fatalities and non-motorized serious injuries on all public roads
- Identify and reduce crashes in all SAP safety focus areas on an annual basis

Steering Committee Meeting 1 Recap

Federal Safety Performance Measure Targets

Federal Performance Measure	5-year Rolling Averages		
	BASELINE	TARGET 2% based	ACTUAL
	2014-2018	2016-2020	2016-2020
Number of Fatalities	223.8	224.1	
Fatality Rate	1.096	1.084	
Number of Serious Injuries	777	907.4	
Serious Injury Rate	3.806	4.390	
Number of Non-motorized Fatalities and Serious Injuries	103.6	122.2	

Steering Committee Meeting 1 Recap

Safety Focus Areas

Previous 2015 SAP Safety Focus Areas

- Drug related crashes
- ~~Unbelted crashes~~
- Distracted driving crashes
- Run-off-road crashes
- ~~Hit fixed object crashes~~
- Head-on crashes
- Signalized intersection crashes
- Aggressive driving crashes
- Secondary crashes
- Mature driver crashes
- Non-motorized (ped/bike) crashes

New 2020 SAP Safety Focus Areas

- Intersection crashes
- Transit-related crashes
- Heavy truck crashes
- Drowsy driver crashes

Stakeholder Meeting Purpose & Objectives

Meeting Purpose:

- Verify systemic and location-specific safety areas of concern in each District and to engage stakeholders on potential solutions

Specific Objectives:

- Solicit feedback on current crash trends within each District
- Solicit feedback on potential District specific safety hot spots
- Solicit feedback on potential improvement strategies/solutions
  - Soft-side and programmatic solutions
  - Infrastructure-specific solutions

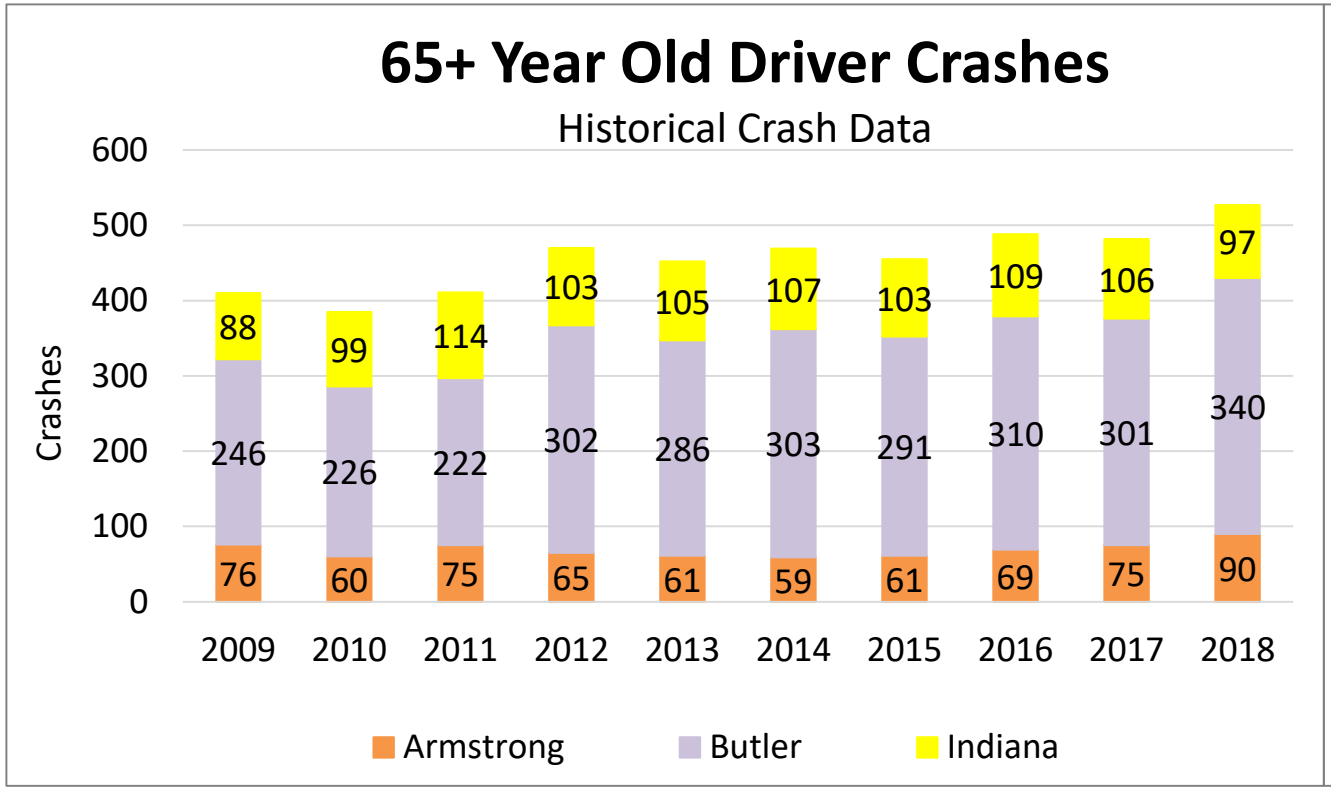
Data to be Presented & Proposed Exercises

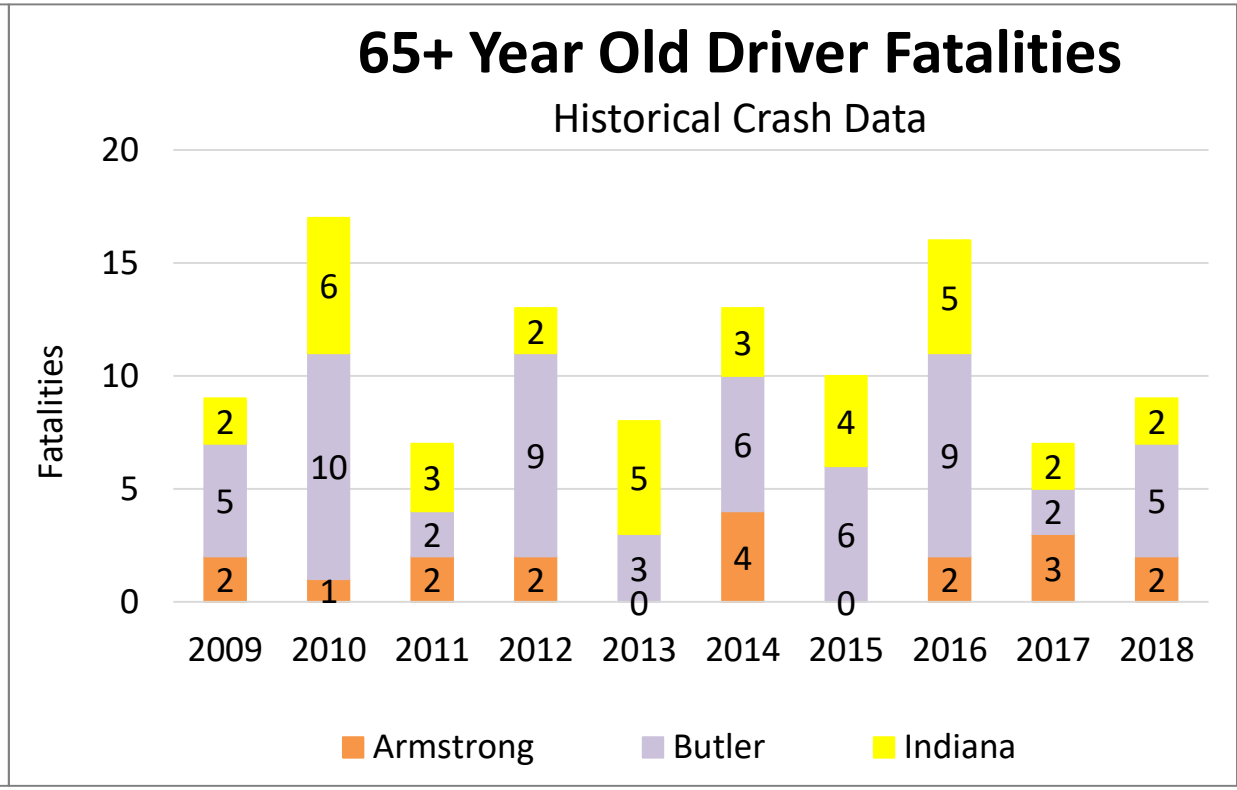
District Crash Trends

- Discuss how each District is performing in regards to 2020 Safety Focus Areas
  - 13 areas total
- Discuss disconcerting trends outside the Safety Focus Areas
  - Only present crash categories where crash frequency and/or fatals are increasing comprehensively within the District (*not per County*)
  - Final report will provide data for all 34 PennDOT crash categories

Data to be Presented & Proposed Exercises

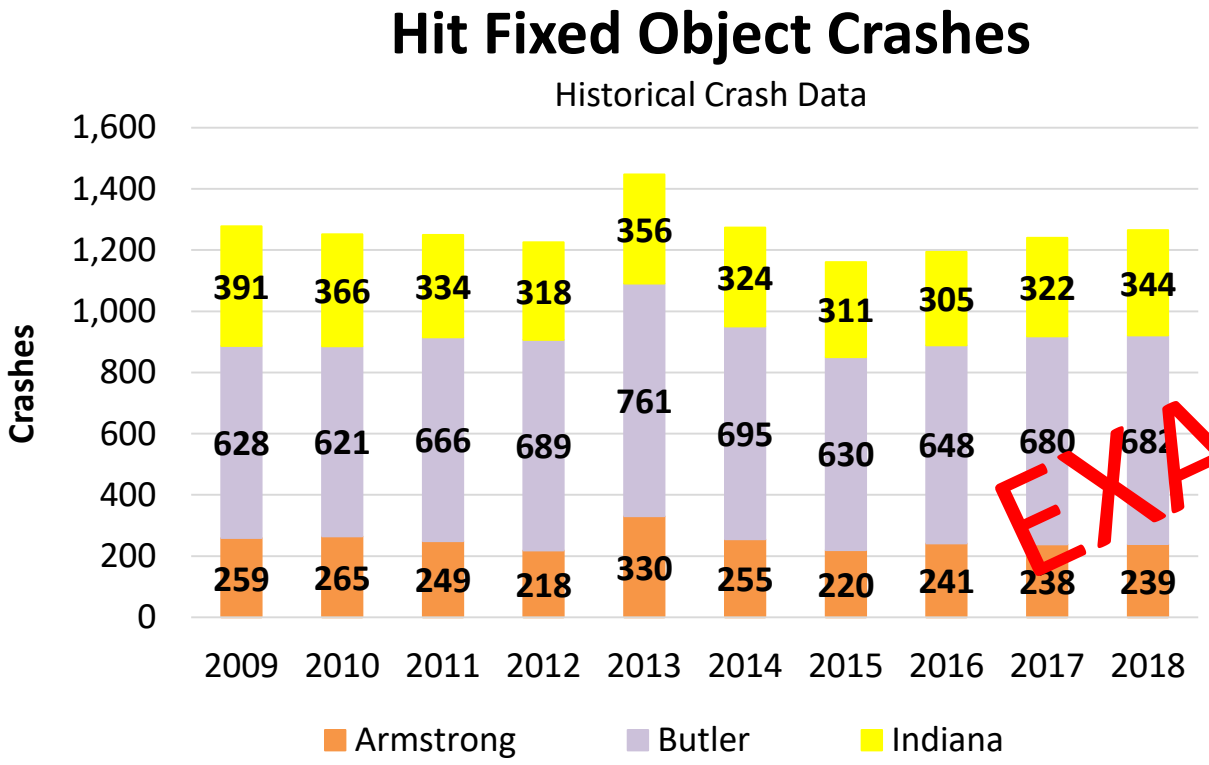
SAP Safety Focus Area (1 of 13 to presented)

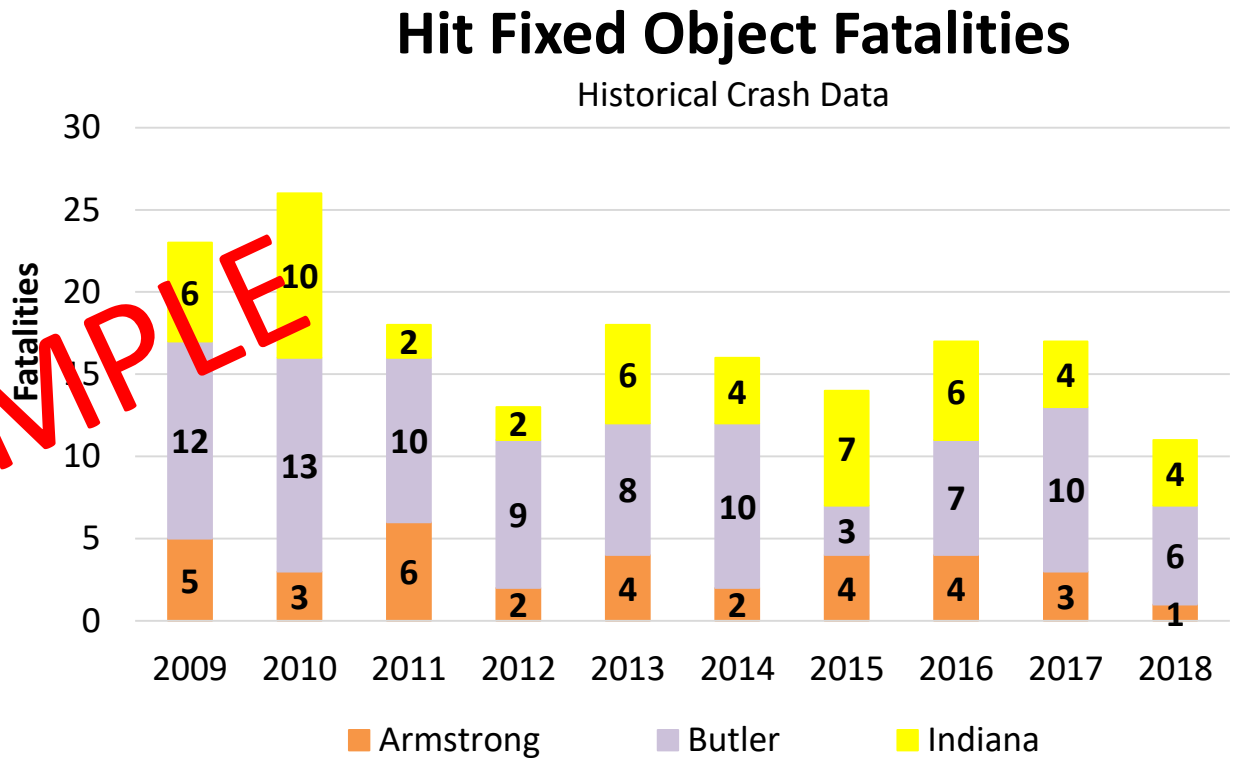




Data to be Presented & Proposed Exercises

District Specific Focus Areas (D10 Example)

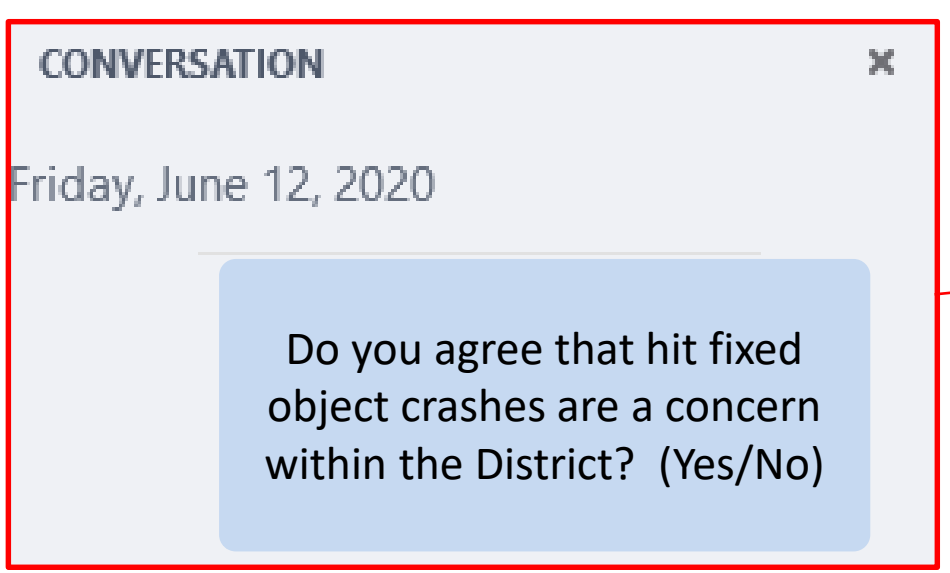


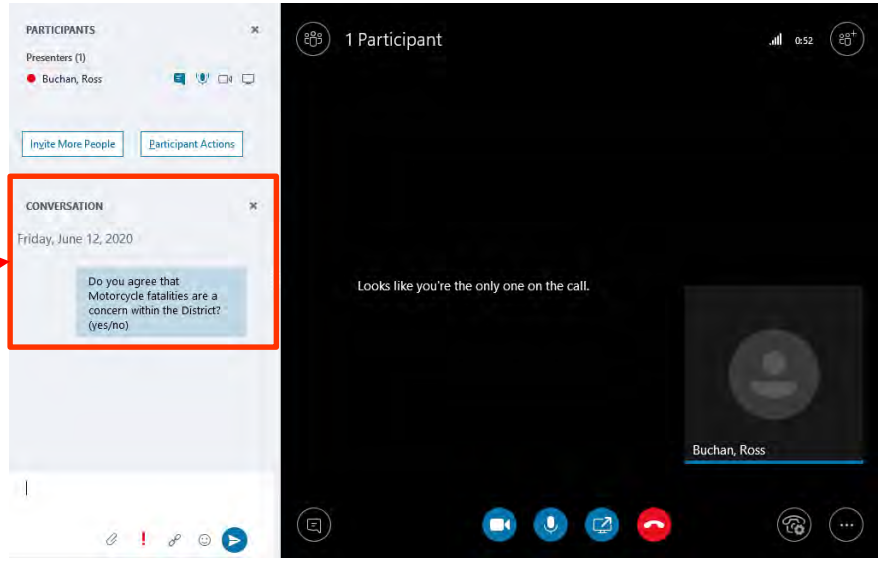


Data to be Presented & Proposed Exercises

District Focus Area Exercise

- Prompt attendees to provide feedback in the Skype chat box during presentation of each District Focus Area
  - Presenter will type question into chat box requesting feedback





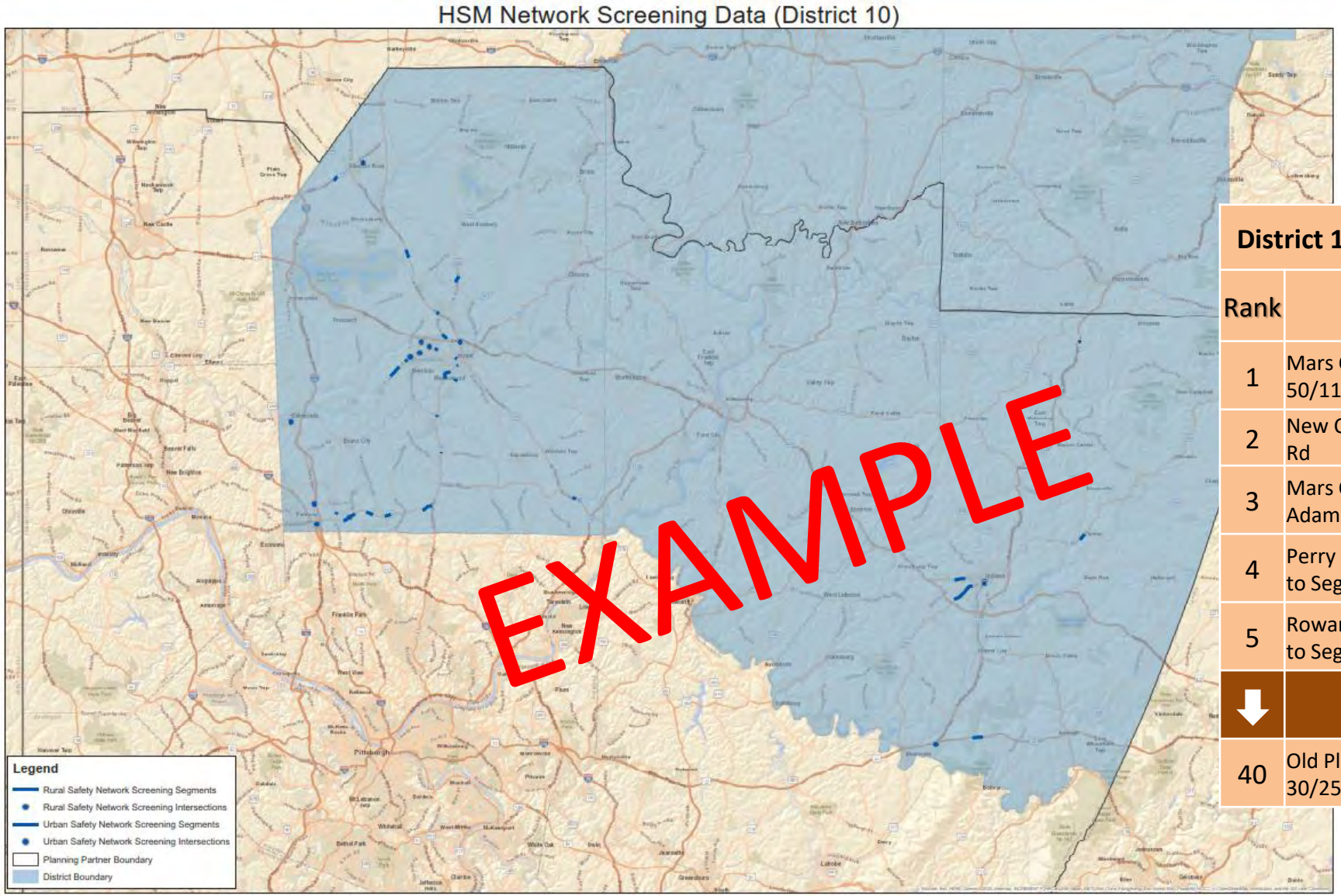
Data to be Presented & Proposed Exercises

District Location-Specific Safety Hot Spots

- HSM network screening data from 2012-2016
  - Present District static maps with top-40 initially ranked locations
  - Methodology for maps
    - Used BOMO developed HSM network screening data
      - 2012-2016 is most recent data set
    - Combined urban/rural and segment/intersection data sets to determine top-40 ranking list
    - Locations only considered if positive “Excess” value

Data to be Presented & Proposed Exercises

District Location-Specific Safety Hot Spots



District 10 HSM Network Screened Locations (Initial Ranking)

Rank	Location	Observed Crashes	Predicted Crashes	Expected Crashes	Excess
1	Mars Crider Rd, Seg 50/112 to Seg 70/846	10.2	5.69	8.49	2.8
2	New Castle Rd at Duffy Rd	8	1.74	4.12	2.38
3	Mars Crider Rd at Adams Ridge Blvd	7.8	5.06	7.33	2.27
4	Perry Hwy, Seg 50/350 to Seg 50/2059	5.4	3.09	5.17	2.08
5	Rowan Rd, Seg 10/096 to Seg 10/813	3.4	1.01	2.9	1.89
⬇					⬇
40	Old Plank Rd, Seg 30/2589 to Seg 40/228	1.8	0.3	0.95	0.65

Data to be Presented & Proposed Exercises

District Location-Specific Safety Hot Spots (cont'd)

- Supplemented HSM screening data with crash cluster data from 2014-2018
  - Overlaid District HSM static maps with top-20 crash cluster segments and top-20 crash cluster intersections
  - Methodology for maps
    - Used CDART generated crash clusters for 2014-2018
      - 2014-2018 is most recent data set
    - Ranked 40 crash cluster locations to match HSM network screened location total (40 to 40)
    - Crash cluster locations were ranked by highest delta value for each cluster category
      - Delta value is calculated using crash rate and PennDOT's homogenous reports

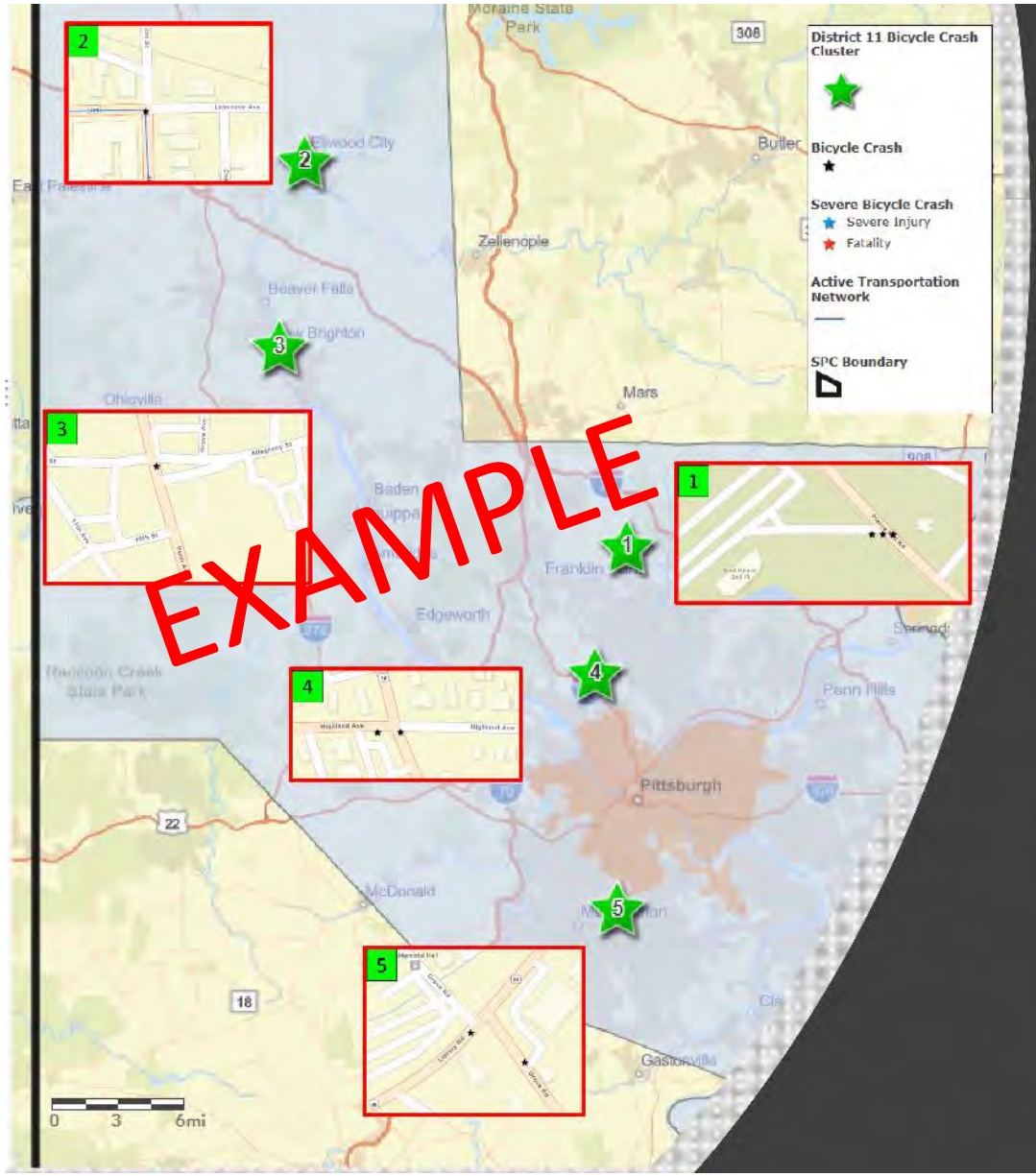
Data to be Presented & Proposed Exercises

District Specific Bicycle Safety Hot Spots

- Bicycle crash data 2014-2018
  - Present District static maps with top-3 to -5 initially ranked locations
  - Developed a separate map for City of Pittsburgh
  - Methodology for maps
    - Used most recent bicycle crash data from PCIT (reportable crashes)
      - Includes severe injury and fatals
    - Plotted all bicycle crashes in GIS and used cluster analysis tool
      - Automated and manual cluster analysis
        - » Automated analysis to drill down to 3-4 square block range
        - » Manual analysis to obtain intersection/block level locations

Data to be Presented & Proposed Exercises

District Specific Bicycle Safety Hot Spots



D11 Bicycle Crash Priority Locations

2014-2018 Crash Data

Location 1: Pearce Mill Rd @ Tennis Court Rd, McCandless Twp.

Total Crashes	4	Severe Injury Crashes	0

Location 2: Lawrence Ave @ 4th St, Ellwood City

Total Crashes	2	Severe Injury Crashes	0

Location 3: Allegheny St @ New Brighton Middle School, New Brighton

Total Crashes	2	Severe Injury Crashes	0

Location 4: Highland Ave @ Perry Hwy, West View Borough

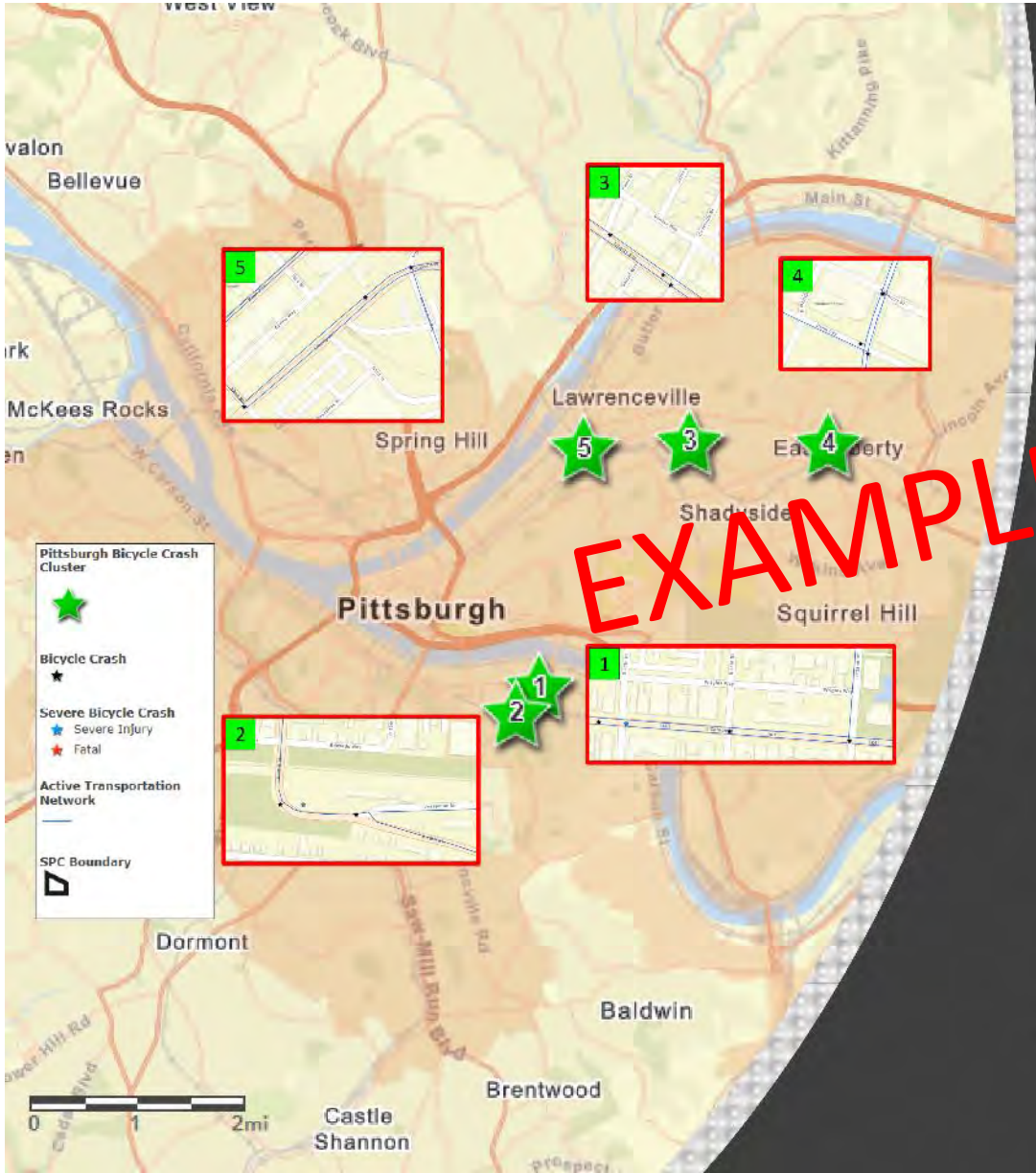
Total Crashes	2	Severe Injury Crashes	0

Location 5: Library Road @ Grove Road, Castle Shannon

Total Crashes	2	Severe Injury Crashes	0

Data to be Presented & Proposed Exercises

City of Pittsburgh Specific Bicycle Safety Hot Spots



EXAMPLE

Pittsburgh Bicycle Crash Priority Locations

2014-2018 Crash Data

Location 1: Carson St, 20th St to 22nd St, South Side Flats

Total Crashes	4	Severe Injury Crashes	1

Location 2: 18th St near Josephine St, South Side Slopes

Total Crashes	3	Severe Injury Crashes	1

Location 3: Liberty Ave, Pearl St to Cedarville St, Bloomfield

Total Crashes	3	Severe Injury Crashes	0

Location 4: Highland Ave at Penn Ave/ Kirkwood St, East Liberty

Total Crashes	3	Severe Injury Crashes	0

Location 5: Liberty Ave, 32nd St to Herron Ave Bridge, Strip District

Total Crashes	3	Severe Injury Crashes	0

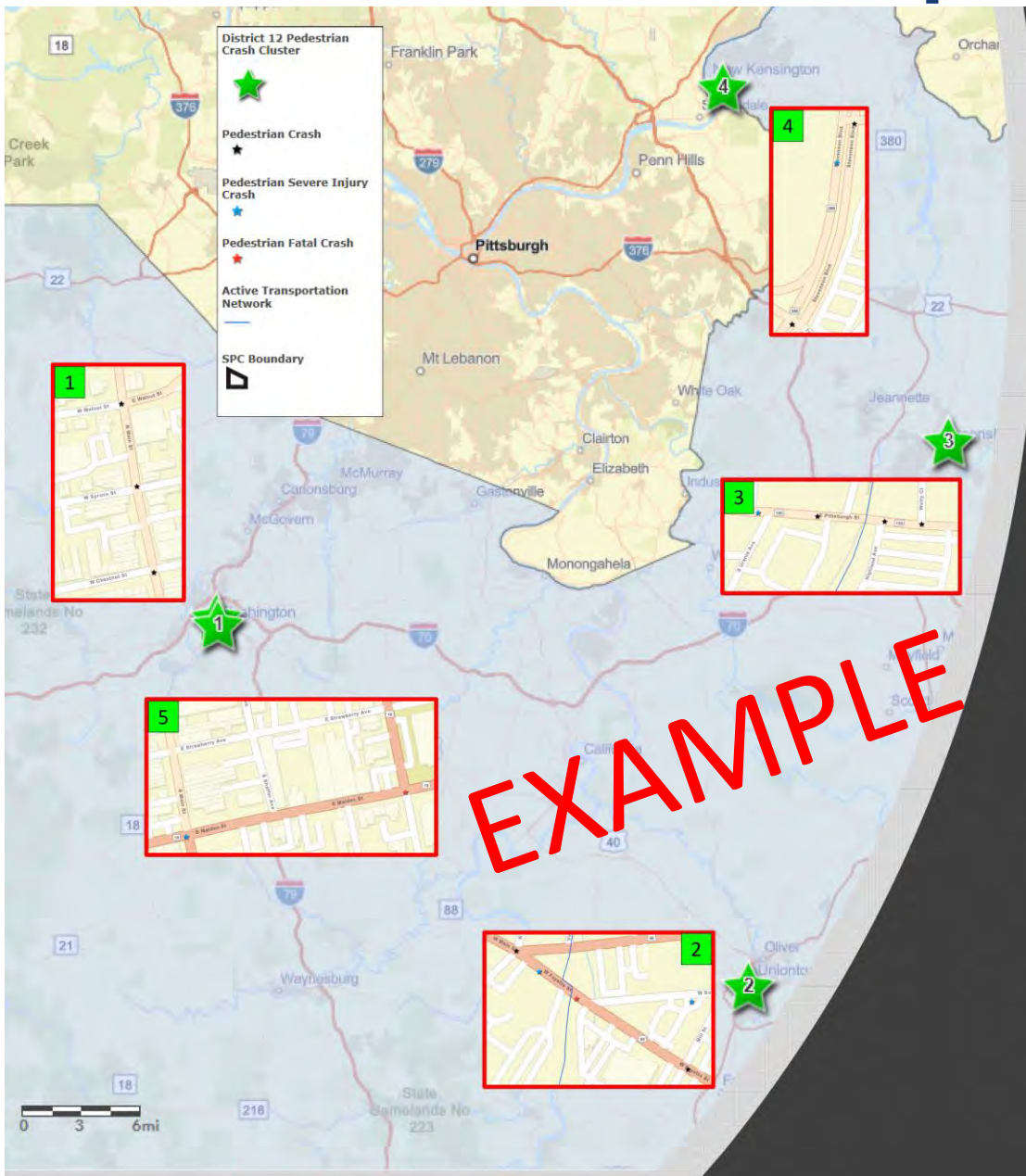
Data to be Presented & Proposed Exercises

District Specific Pedestrian Safety Hot Spots

- Pedestrian crash data 2014-2018
  - Present District static maps with top-5 initially ranked locations
  - Developed a separate map for City of Pittsburgh
  - Utilized same methodology from the bicycle maps to create pedestrian maps

Data to be Presented & Proposed Exercises

District Specific Pedestrian Safety Hot Spots



D12 Pedestrian Crash Priority Locations

2014-2018 Crash Data

Location 1: Main St from Chestnut St to Walnut St, Washington

Total Crashes	5	Severe Injury	0	Fatal	0

Location 2: Fayette St from Mount Vernon Ave to Mill St, Uniontown

Total Crashes	4	Severe Injury	1	Fatal	1

Location 3: Pittsburgh St from Urania Ave to Welty Ct, Greensburg

Total Crashes	4	Severe Injury	1	Fatal	0

Location 4: SR 366 from SR 56 to SR 780, New Kensington

Total Crashes	4	Severe Injury	1	Fatal	0

Location 5: Maiden Street from Main Street to College Street, Washington

Total Crashes	3	Severe Injury	1	Fatal	1

Data to be Presented & Proposed Exercises

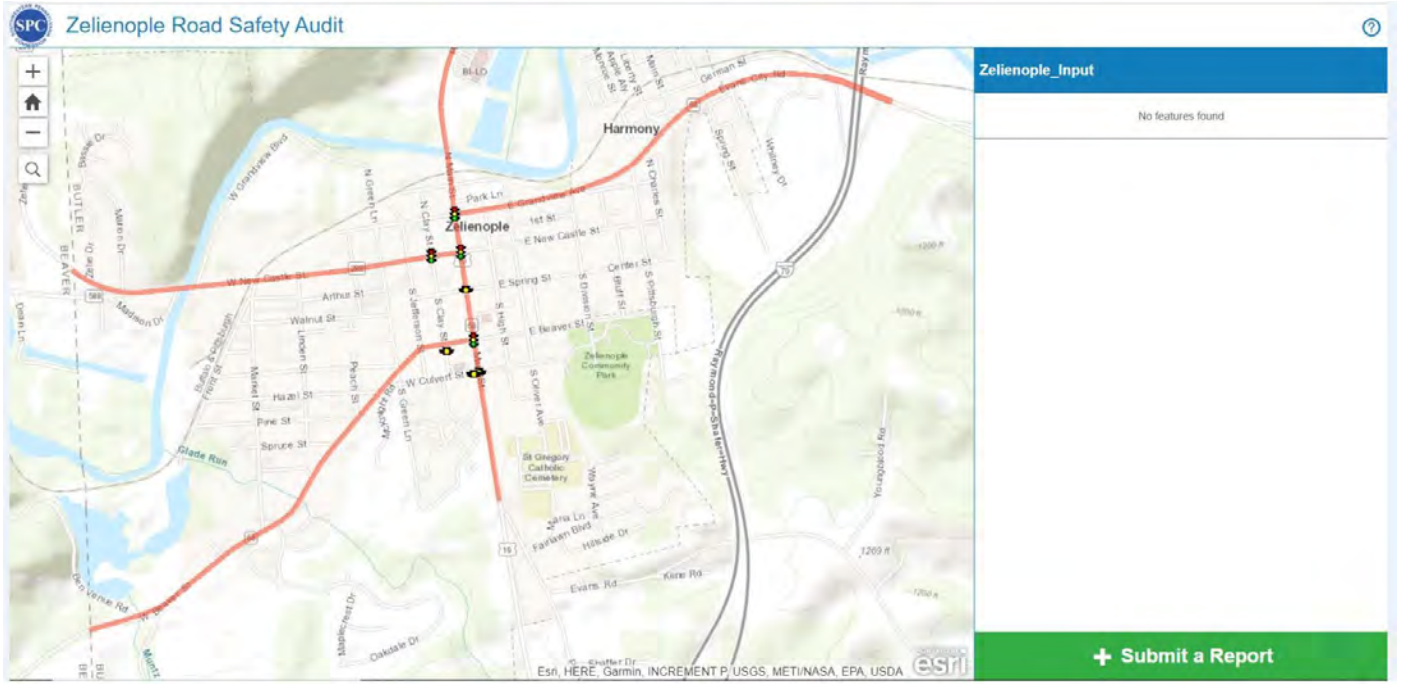
Pedestrian & Bike Network-Level Analysis

- Investigate commonalities in the crash data to support network-level, programmatic, or soft side solutions
  - For example, 70% of bicycle crashes in the City of Pittsburgh were in intersections.
- Evaluate pedestrians and bicycle data separately

Data to be Presented & Proposed Exercises

Safety Hot Spots Feedback

- Utilize wiki-maps after meeting for location confirmation and solution input
  - Map 1: HSM Network Screened Locations
  - Map 2: Bicycle & Pedestrian Priority Locations



Data to be Presented & Proposed Exercises

Safety solution discussion exercise

- Prompt each represented organization for input
- Presenter will take “notes” during discussion

Programmatic Improvements

- Improved bicycle signs/markings & design standards at intersections
- Evaluation of connections to/from bike trails
- District Road Safety Audit Program

Soft-side Improvements

- Increase drug related enforcement
- Education/safety campaigns for vehicle-bike conflicts at intersections

Infrastructure Improvements

- Deploy near-miss technology for high volume ped/bike locations

SAP 2020 Next Steps

- Incorporate today's feedback
- Finalize maps and meeting materials for Stakeholder Meetings
- Stakeholder meetings next week
  - 6/22 D12 and D11
  - 6/23 D10
- Incorporate stakeholder feedback
- Develop SAP Draft Report
- Schedule Steering Committee Meeting 3 (*August timeframe*)

Open Discussion

Consultant Contact Info:

Project Manager:

Ross Buchan, PE

rbuchan@wrallp.com

Safety Analyst:

Jim French, PhD, PE, ENV SP jfrench@frenchengr.com

MEMORANDUM of MEETING

Date: June 17, 2020

Date of Meeting: June 16, 2020
Time of Meeting: 10:00 AM – 11:00 AM
Meeting Location: Skype Meeting
Meeting Description: Steering Committee Meeting #2

Work Order Number: 95
Contract Number: SPC On-call Contract
Project: SPC On-call: 2020 Safety Action Plan

Participants:

Name	Company	Phone	Email
Josh Spano	SPC	412-391-5590 x 362	jspano@spcregion.org
Domenic D'Andrea	SPC	412-391-5590 x 341	ddandrea@spcregion.org
Tom Klevan	SPC	412-391-5590 x 316	tklevan@spcregion.org
Evan Schoss	SPC	412-391-5590 x 338	eschoss@spcregion.org
Andy Waple	SPC	412-391-5590 x 310	awaple@spcregion.org
Ross Buchan	WRA	717-514-8916	rbuchan@wrallp.com
Jim French	French	724-569-8555	jfrench@frenchengr.com
Sydney French	French	724-569-8555	sfrench@frenchengr.com
Johnny Balay	PennDOT District 11-0	412-429-4979	jbalay@pa.gov
Douglas Barch	PennDOT District 11-0	412-429-4980	dobarch@pa.gov
Nicole Barnett	Allegheny County Health Department	412-687-2243	nicole.barnett@alleghenycounty.us
Cory Craft	PennDOT District 12-0	724-439-7370	ccraft@pa.gov
Jonathan Ferensic	PennDOT District 11-0	412-429-4873	jferensic@pa.gov
Thomas Glass	PennDOT Central Office	717-783-2113	thglass@pa.gov
Todd Kravits	PennDOT District 11-0	412-429-4975	tkravits@pa.gov
Bill Lesterick	PennDOT District 11-0	412-429-4803	wlesterick@pa.gov
Ruth McClelland	PennDOT District 11-0	412-429-4985	rmcclelland@pa.gov
Ann Ogoreuc	Allegheny County	412-865-8181	Ann.ogoreuc@alleghenycounty.us
Glenn Rowe	Kittelson	717-740-6195	growe@kittelson.com
Anthony Schneider	Allegheny County	502-741-4500	Anthony.Schneider@alleghenycounty.us
Jeff Thompson	PennDOT District 11-0	412-429-4929	jefthompso@pa.gov
Dave Tomaswick	PennDOT District 10-0	724-357-1904	dtomaswick@pa.gov
Bryan Walker	PennDOT District 12-0	724-439-7345	brywalker@pa.gov
Terry Wolford	PennDOT District 10-0	724-357-3016	twolford@pa.gov

The presentation entitled “SPC Safety Action Plan Updated – Steering Committee Meeting 2 – Stakeholder Group Meeting 2” was given by Josh Spano, Domenic D’Andrea, and Ross Buchan. The presentation included a recap of Steering Committee Meeting #1 (Safety Focus areas) and a review of materials that are to be presented at the upcoming District breakout sessions for safety stakeholders., In addition, the following discussion ensued:

Josh Spano stated that if someone on the Steering Committee wanted to attend the stakeholder breakout sessions but did not already have an invitation, to let him know.

Domenic D’Andrea clarified that the Highway Safety Manual (HSM)-screened locations were the primary data source and the crash cluster data was supplementary. SPC decided to include the supplementary cluster data because while the HSM-screened locations are utilized when reviewing HSIP funding applications, there are also additional funding sources such as CMAQ and other sources that can be used for safety projects. In other comments, he noted that there are typically 0 to 5 bicycle fatalities per year across the region. Similarly, he noted that there are typically between 20 and 35 pedestrian fatalities annually in the region.

Cory Craft and Todd Kravitz both anticipated that the safety analysis and identified hot spots would be very useful in helping to identify priorities and future projects.

Josh Spano said that Wiki-Maps would be used to identify hot spot locations and provide a place for the stakeholders to provide feedback on specific locations.

The above is a summary between the parties regarding the topics discussed and the decisions reached. Any participants desiring to add to, or otherwise amend the minutes, are requested to put their comments in writing to the writer within seven (7) days; otherwise, the minutes will stand as written.

Ross Buchan
Sender’s name

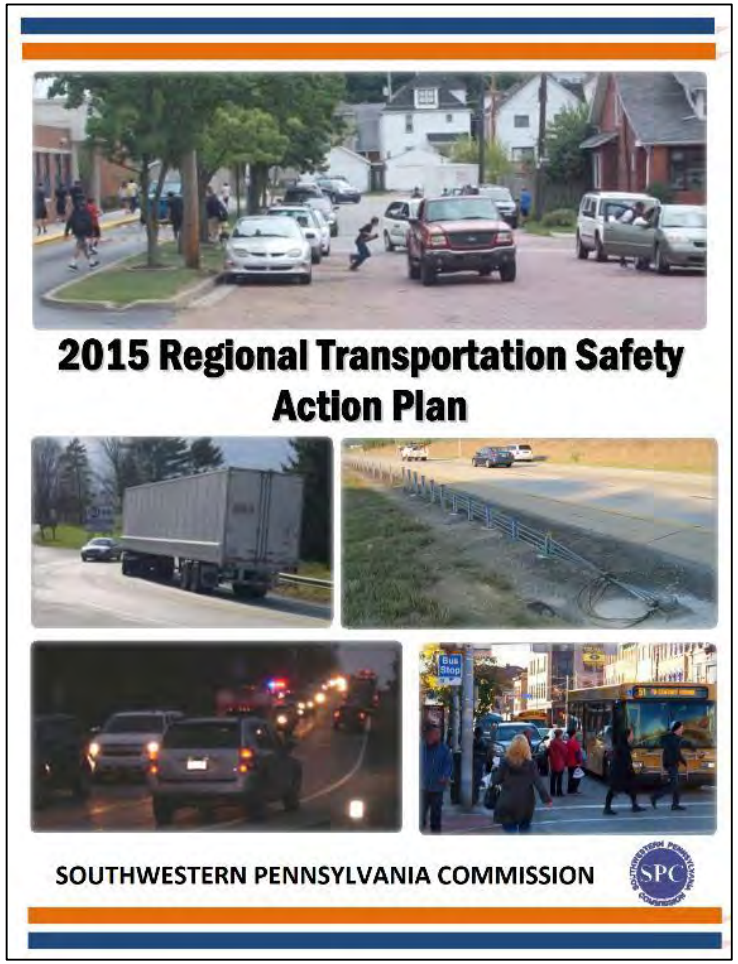
SPC SAFETY ACTION PLAN UPDATE

District 10-0 Stakeholder Meeting

June 23, 2020

Agenda

- Introductions
- Schedule
- Meeting Purpose & Objectives
- District Safety Analytics
  - Safety Focus Area Performance
  - District-Specific Safety Trends
  - Location-Specific Safety “Hot Spots”
  - Network Level Trends
- Safety Strategies & Improvement Identification
- Next Steps/Open Discussion



Schedule

Tasks	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
1. Safety System Performance-Data Analysis									
2. Steering Committee/Stakeholder Group Mtg 1									
3. Trends, Emphasis Areas, & Safety Strategies									
4a. Steering Committee Mtg 2									
4b. Stakeholder Group Mtgs (1 in each District)									
5a. Draft SAP Findings/Document Development									
5b. Steering Committee Mtg 3									
6. Final SAP Document									

Meeting Purpose & Objectives

Meeting Purpose:

- Verify District systemic, network level, and location-specific safety areas of concern and to engage stakeholders on potential solutions

Specific Objectives:

- Solicit feedback on current District crash trends
- Solicit feedback on potential District-specific safety hot spots
- Solicit feedback on potential improvement strategies/solutions
  - Soft-side and programmatic solutions
  - Infrastructure-specific solutions

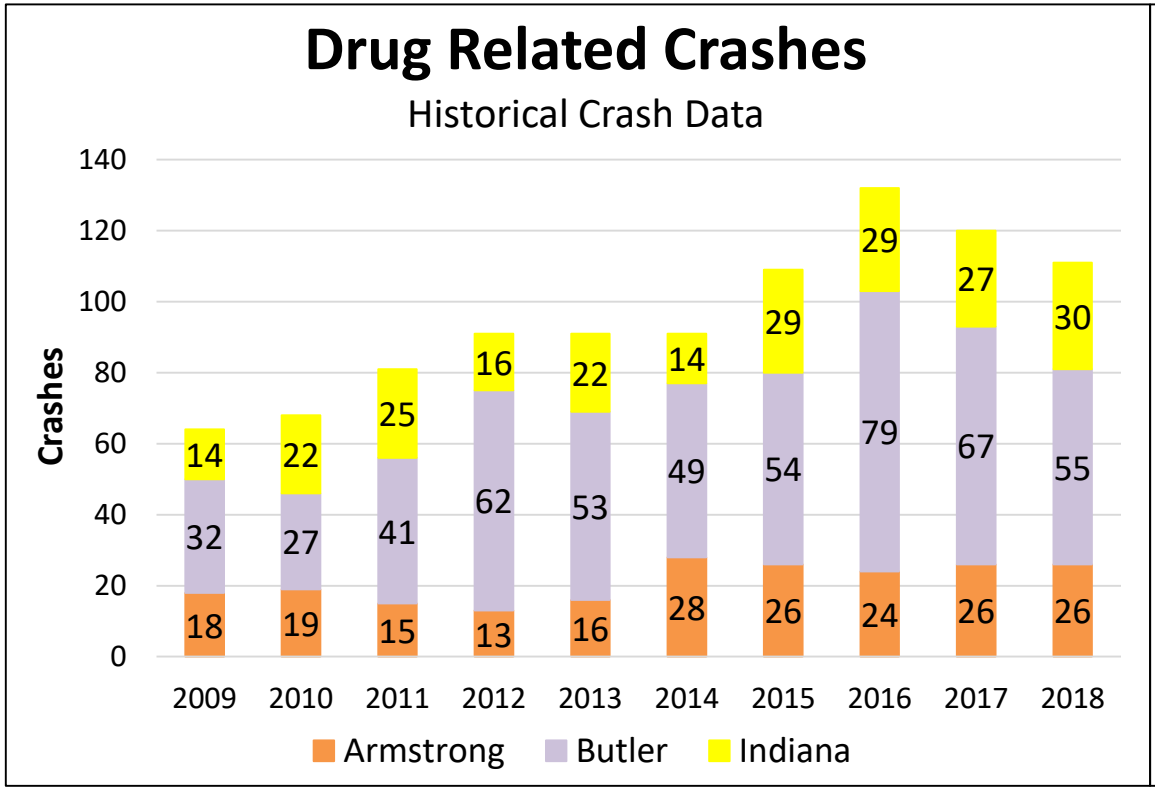
Safety Focus Area Performance

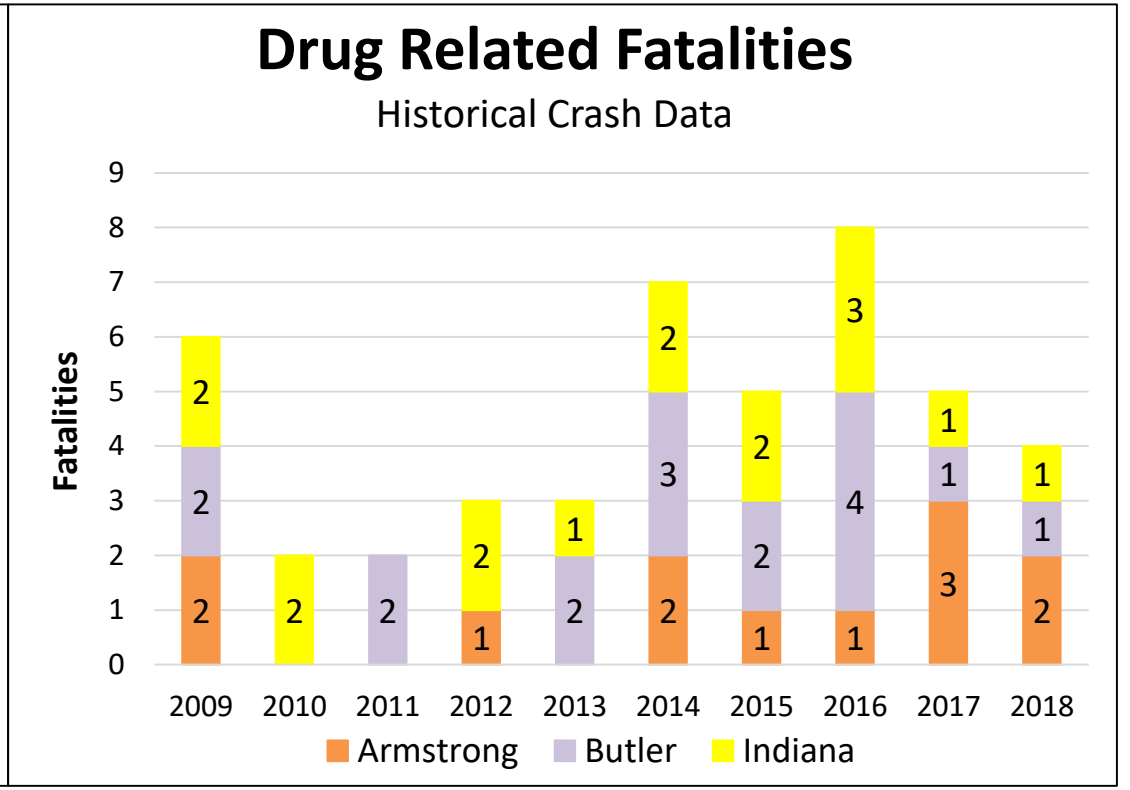
Safety Focus Areas

- 13 Safety Focus Area were identified by the Steering Committee for the 2020 SAP Update
  1) Drug related crashes
  2) Distracted driving crashes
  3) Run-off-road crashes
  4) Head-on crashes
  5) Signalized intersection crashes
  6) Aggressive driving crashes
  7) Secondary crashes
  8) Mature driver crashes
  9) Non-motorized (ped/bike) crashes
  10) Intersection crashes
  11) Transit-related crashes
  12) Heavy truck crashes
  13) Drowsy driver crashes
- Confirm District/County performance (i.e. total crashes and fatalities) in each of the 13 Safety Focus Areas

Safety Focus Area Performance

Safety Focus Area: Drug Related Crashes



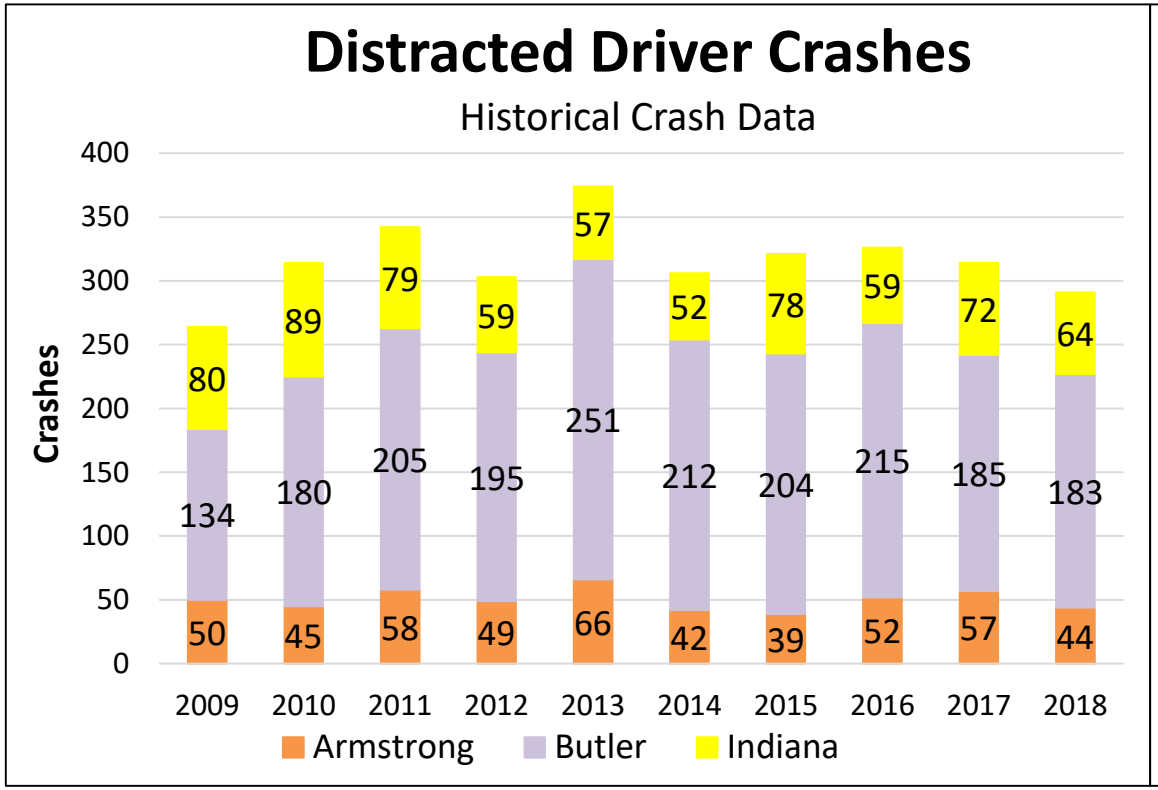


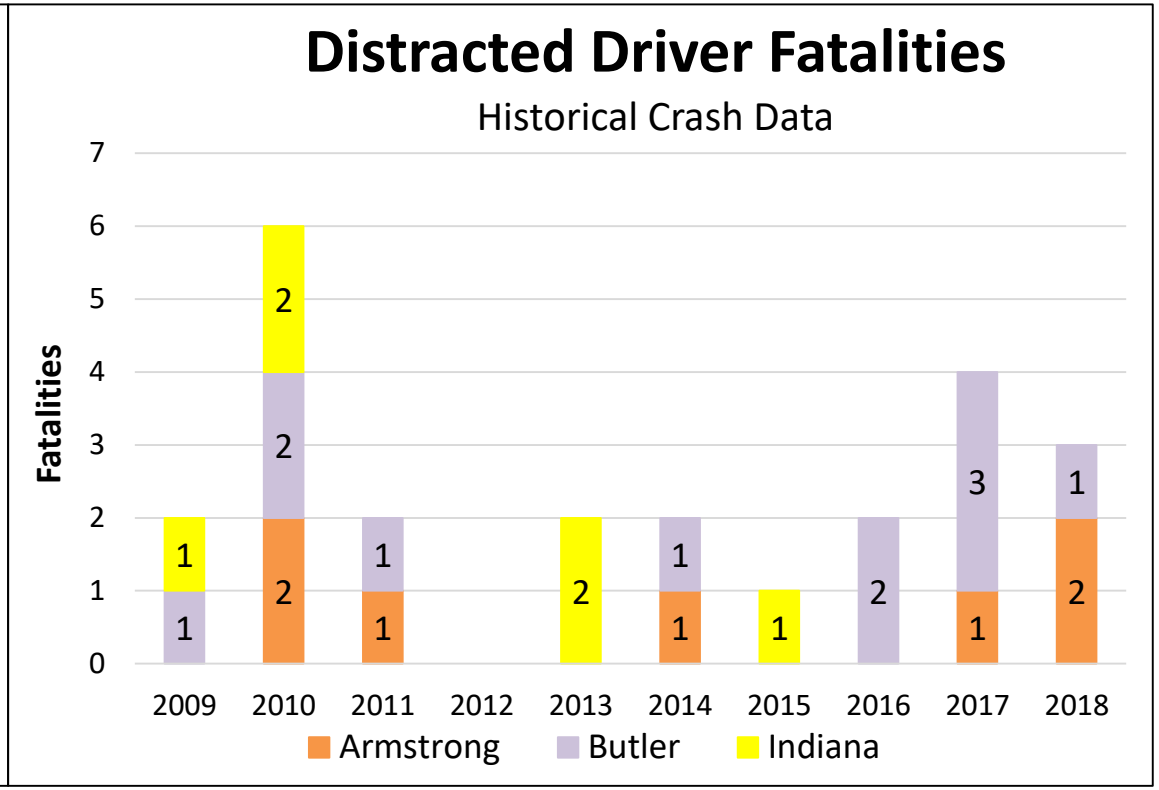
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Distracted Driving Crashes

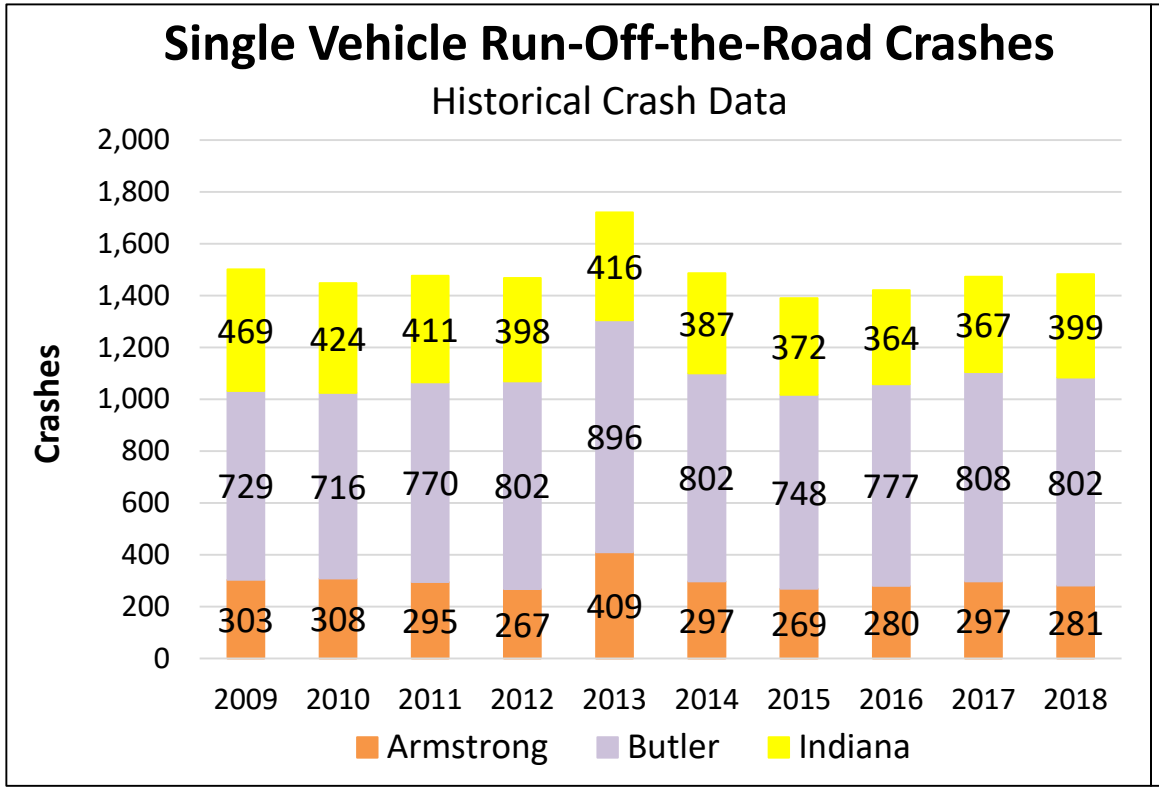


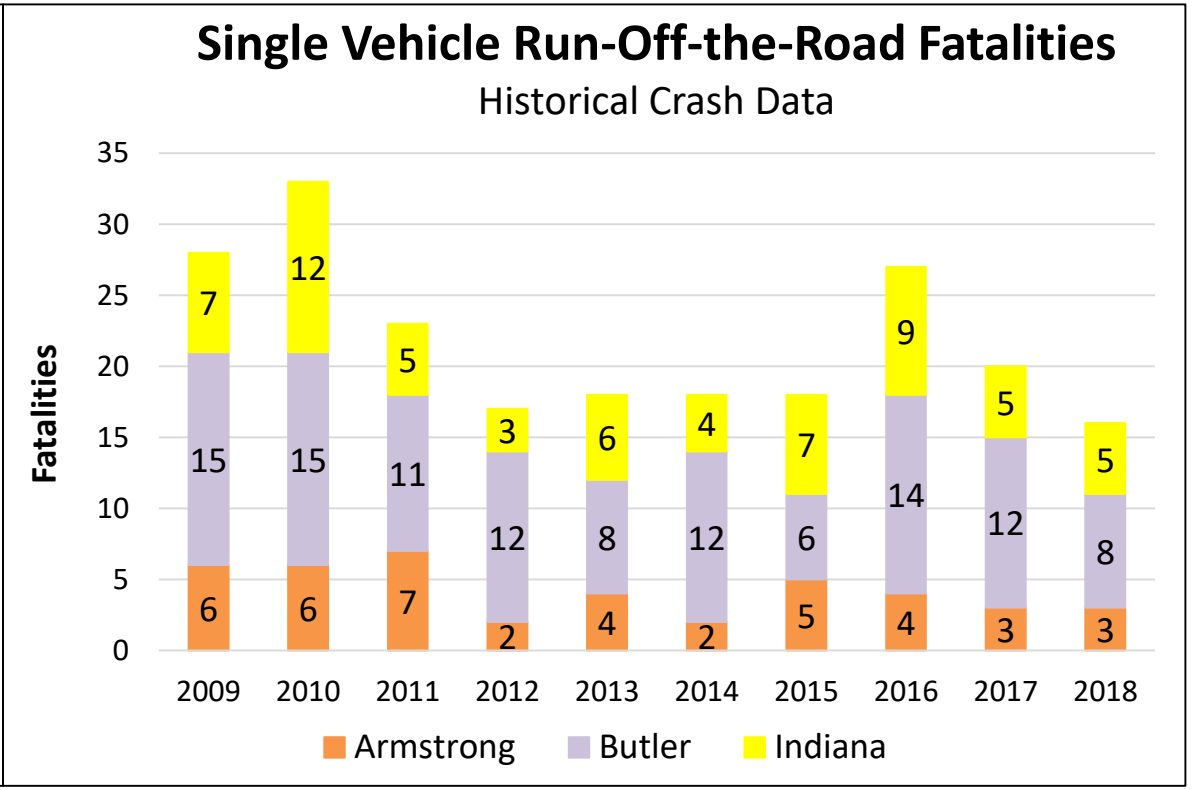


Stagnant Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Single Vehicle Run-Off-the-Road Crashes



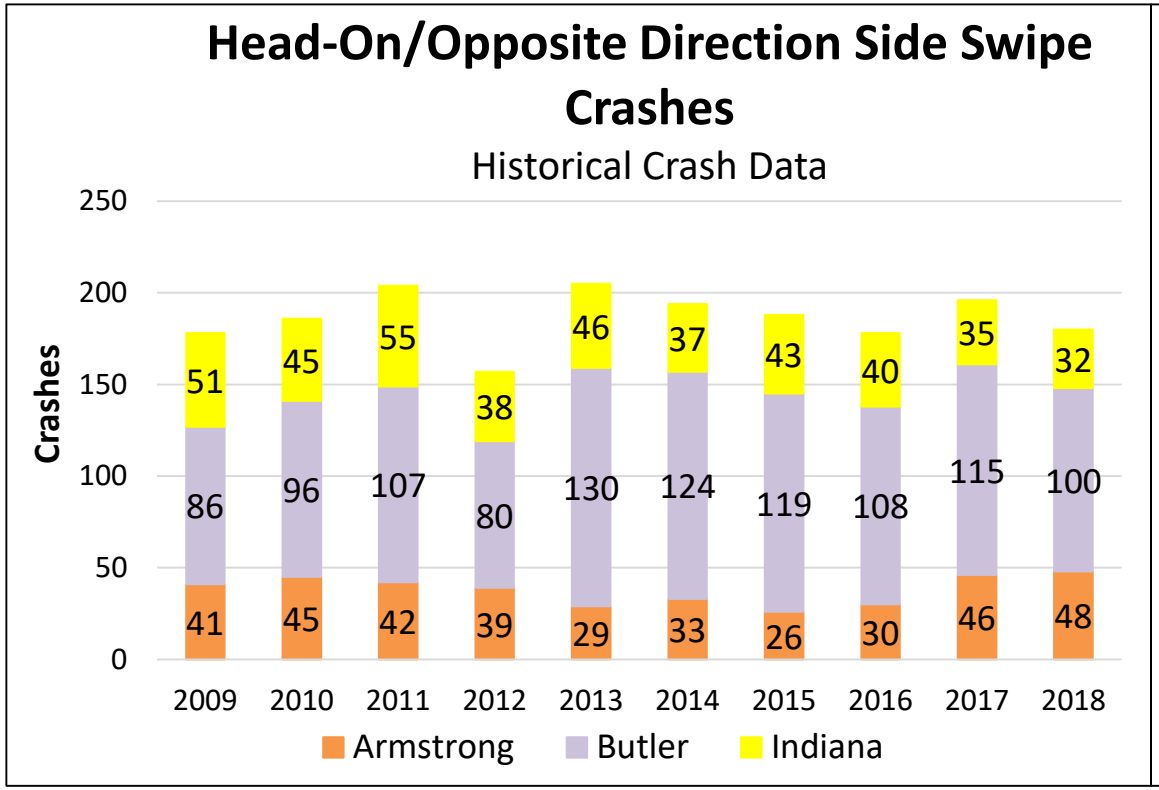


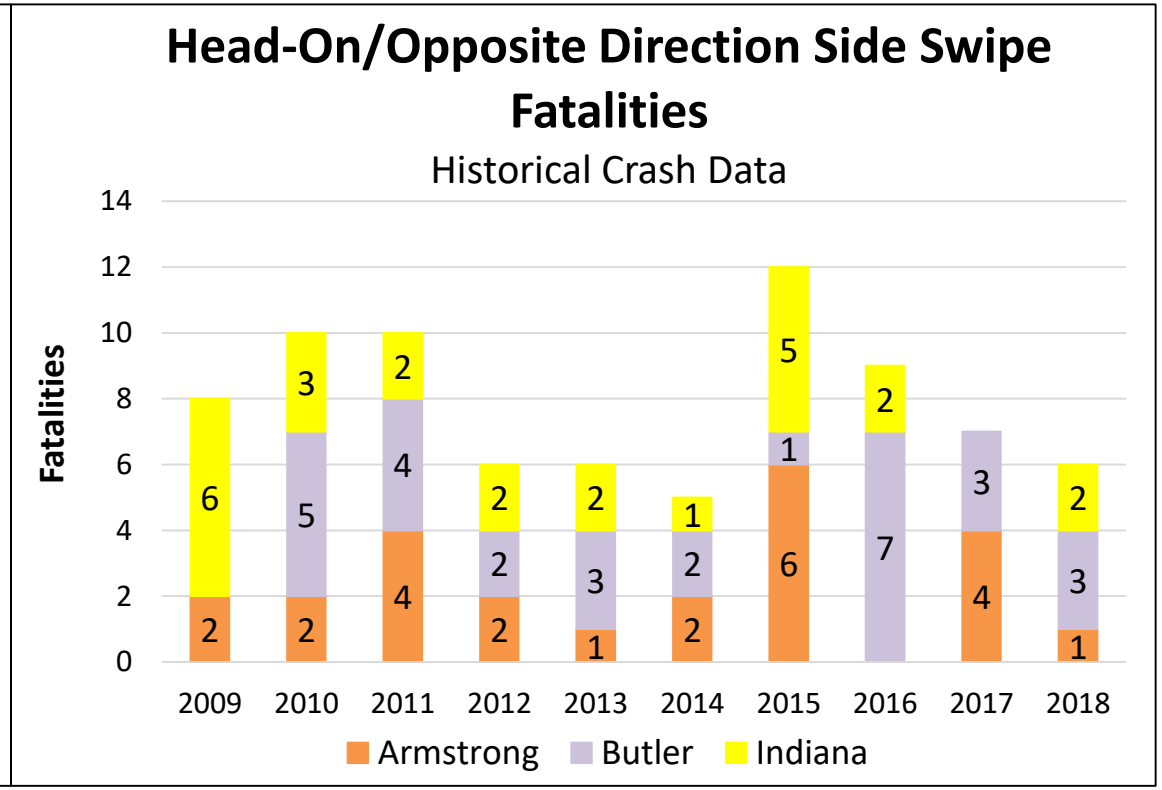
Stagnant Trend in Crashes

Downward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Head-On/ Opposite Direction Side Swipe Crashes

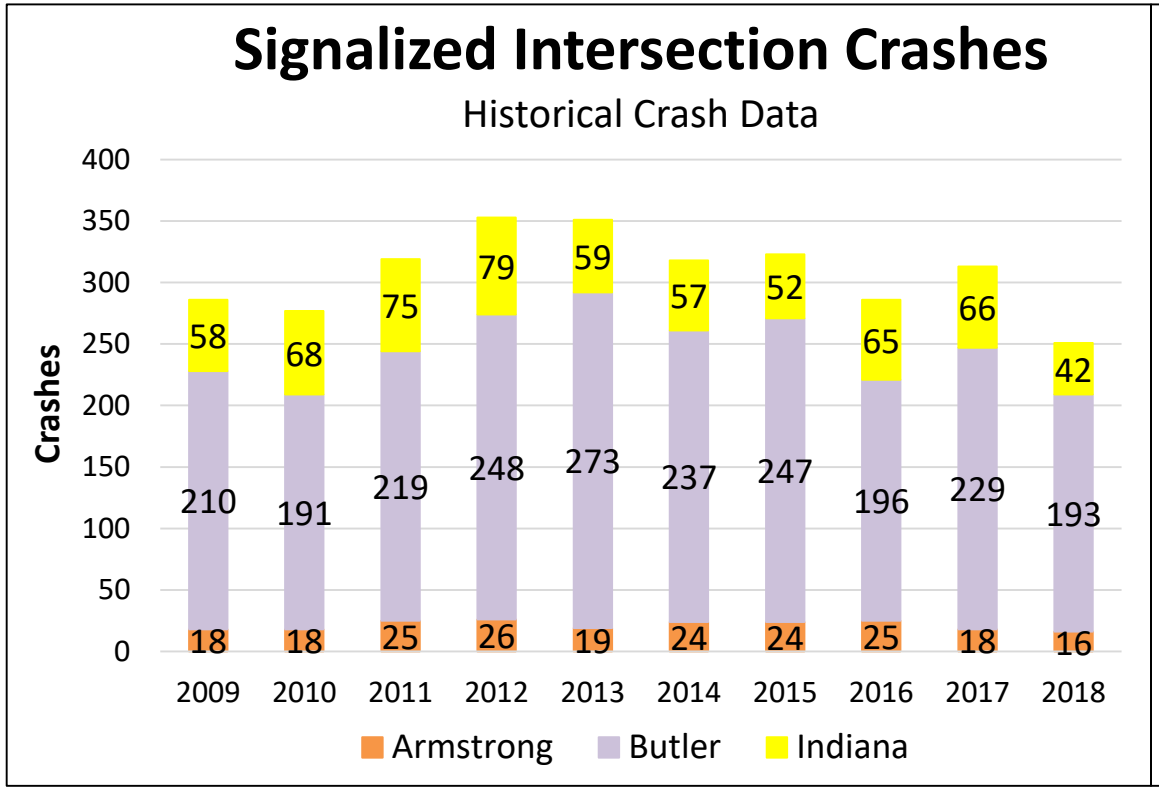


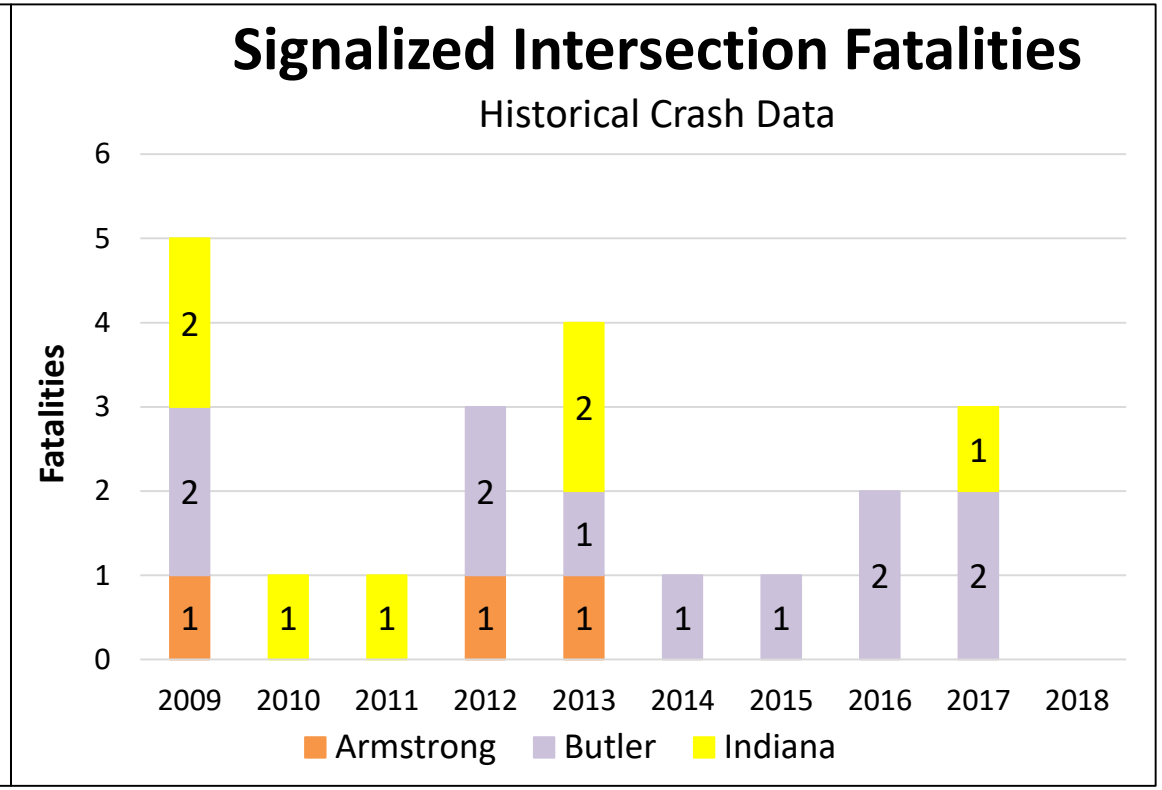


Stagnant Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Signalized Intersection Crashes



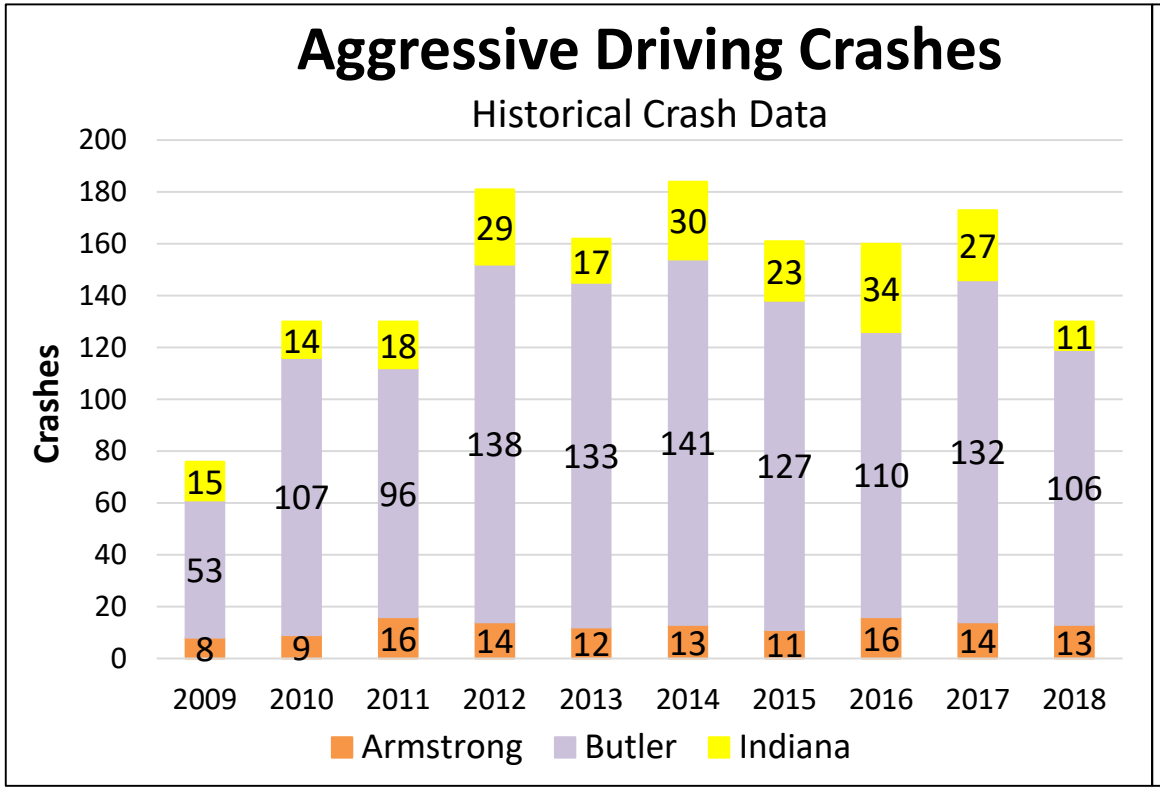


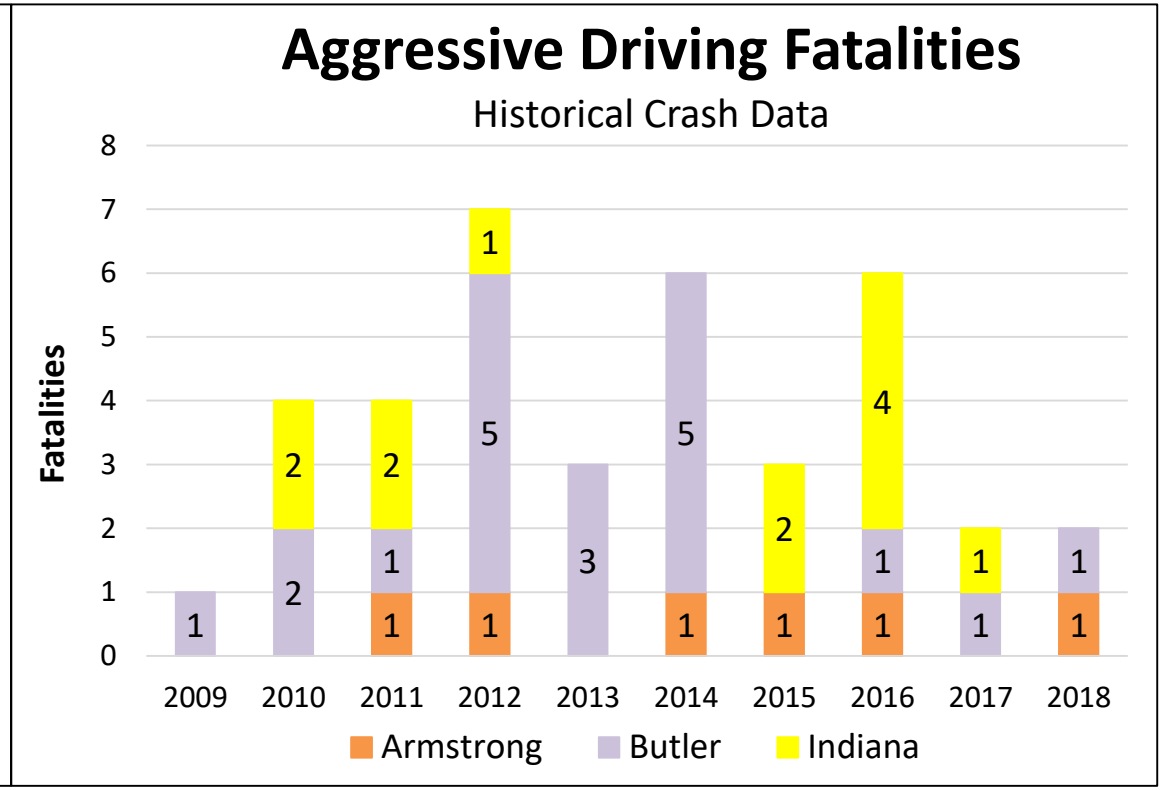
Downward Trend in Crashes

Downward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Aggressive Driving Crashes



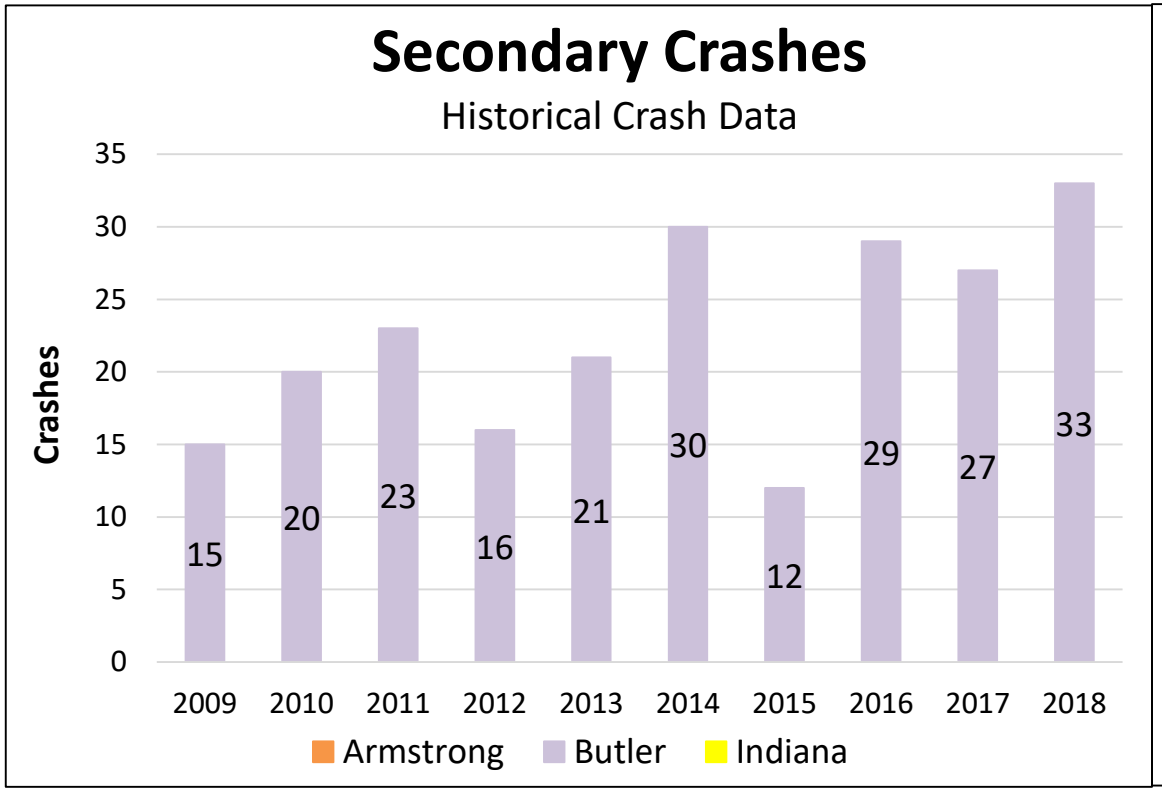


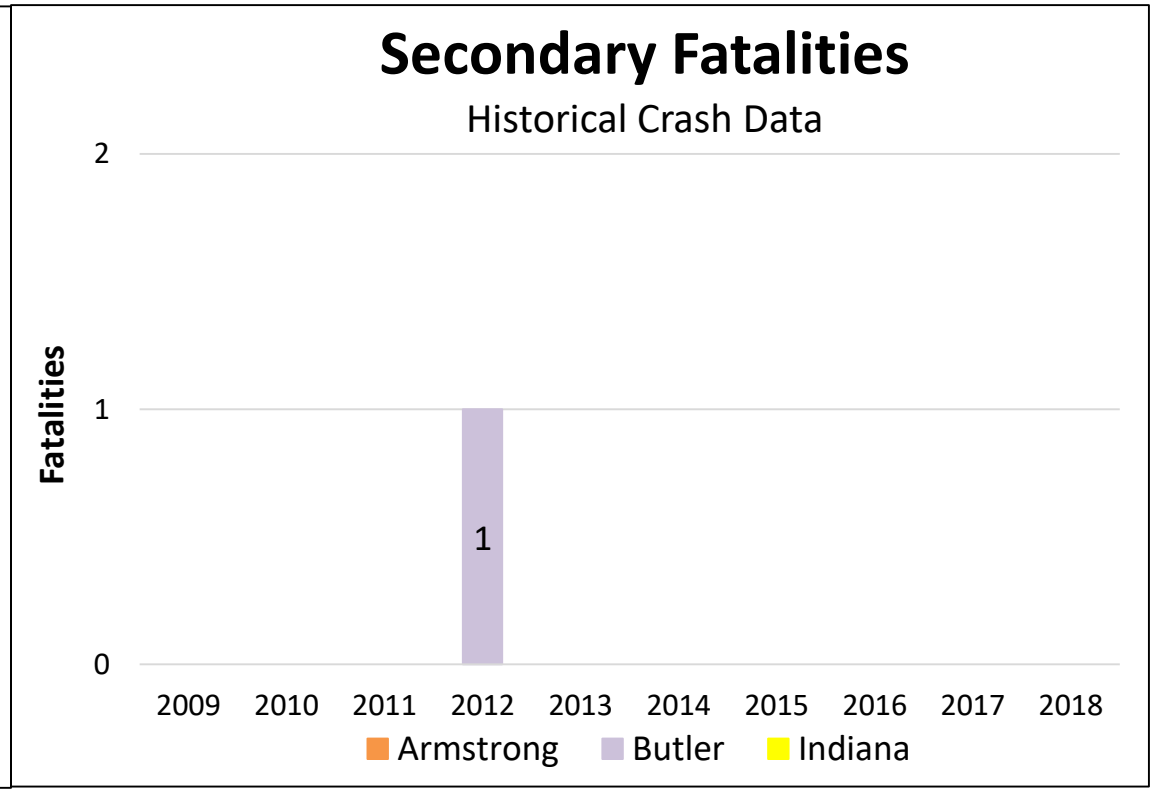
Downward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Secondary Crashes



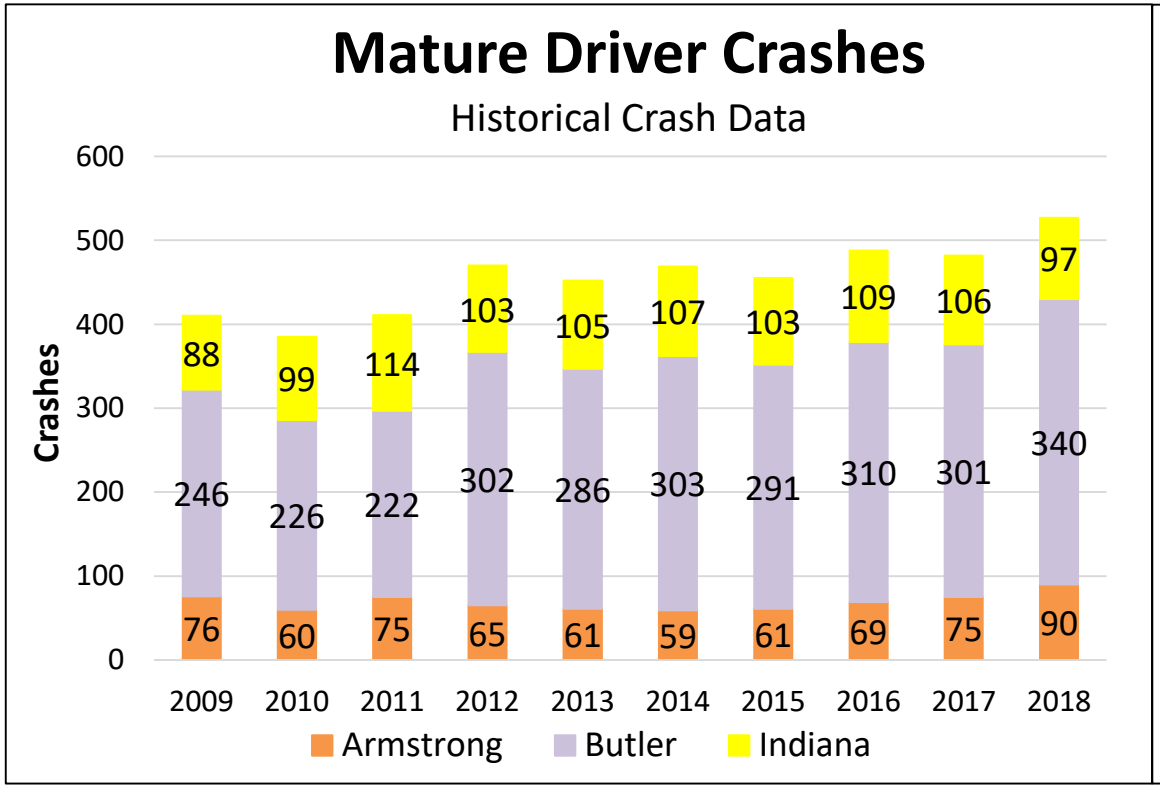


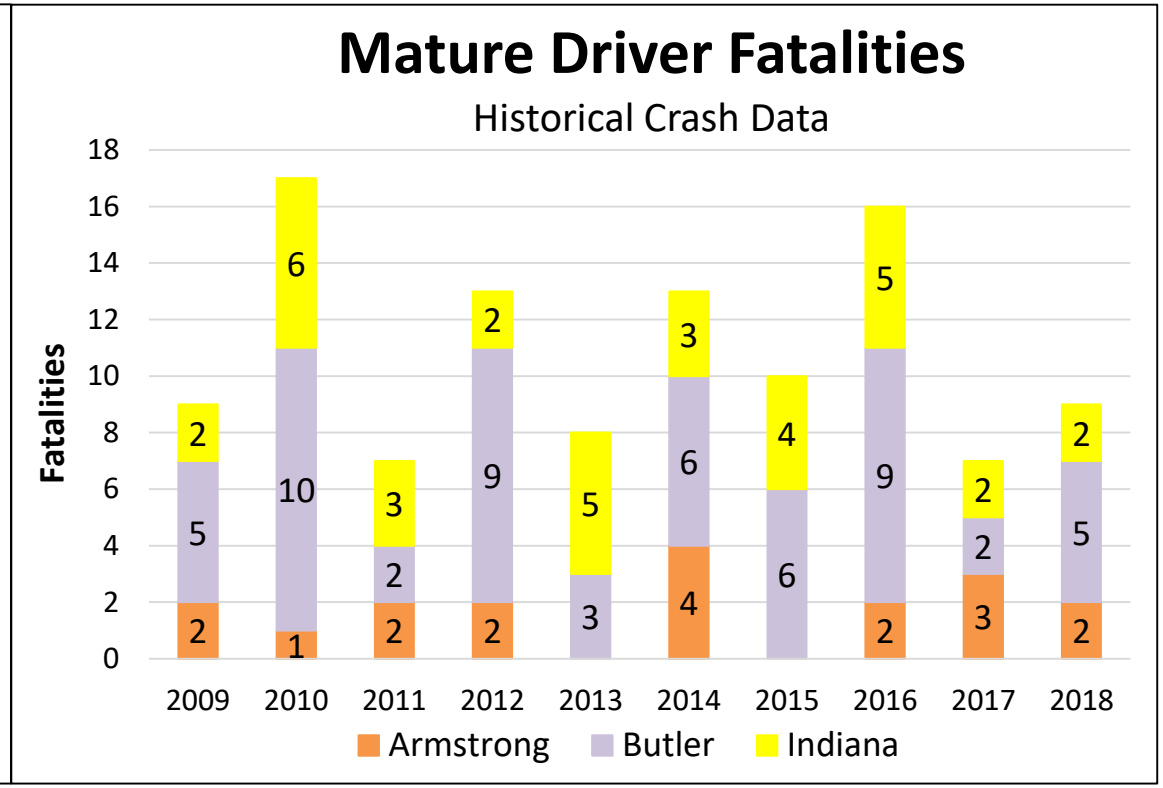
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Mature Driver Crashes



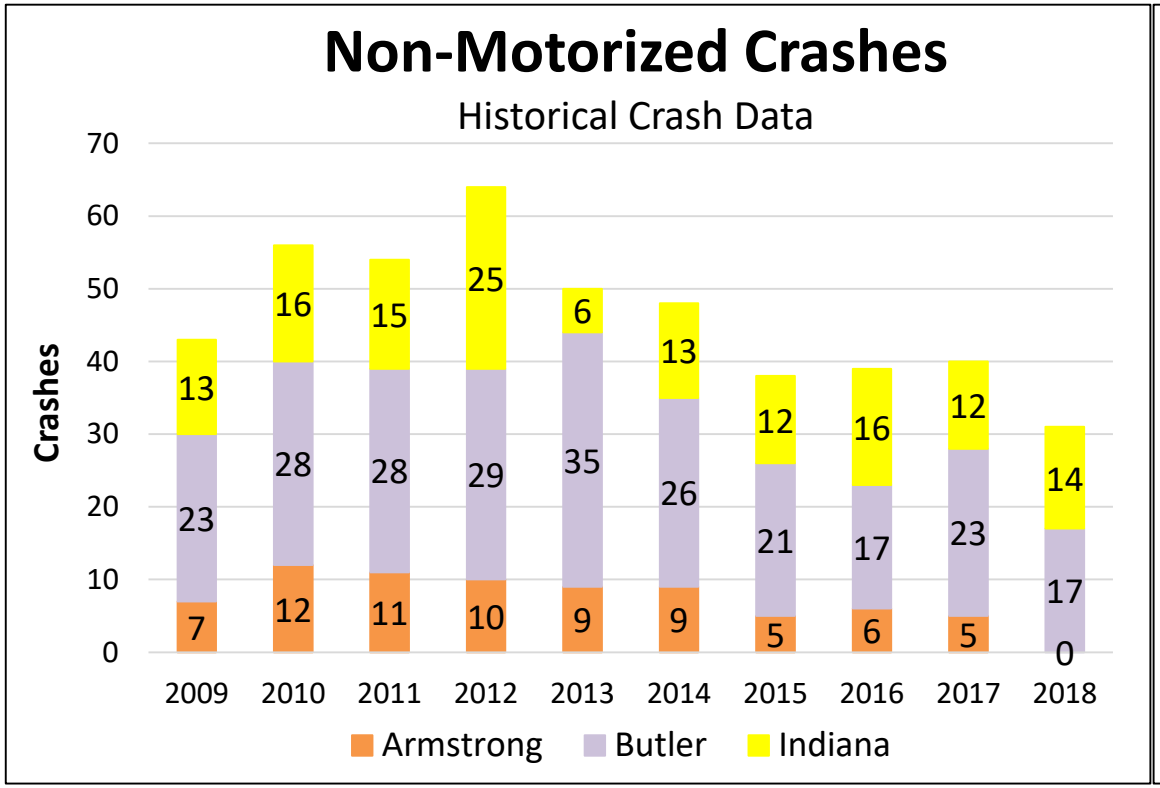


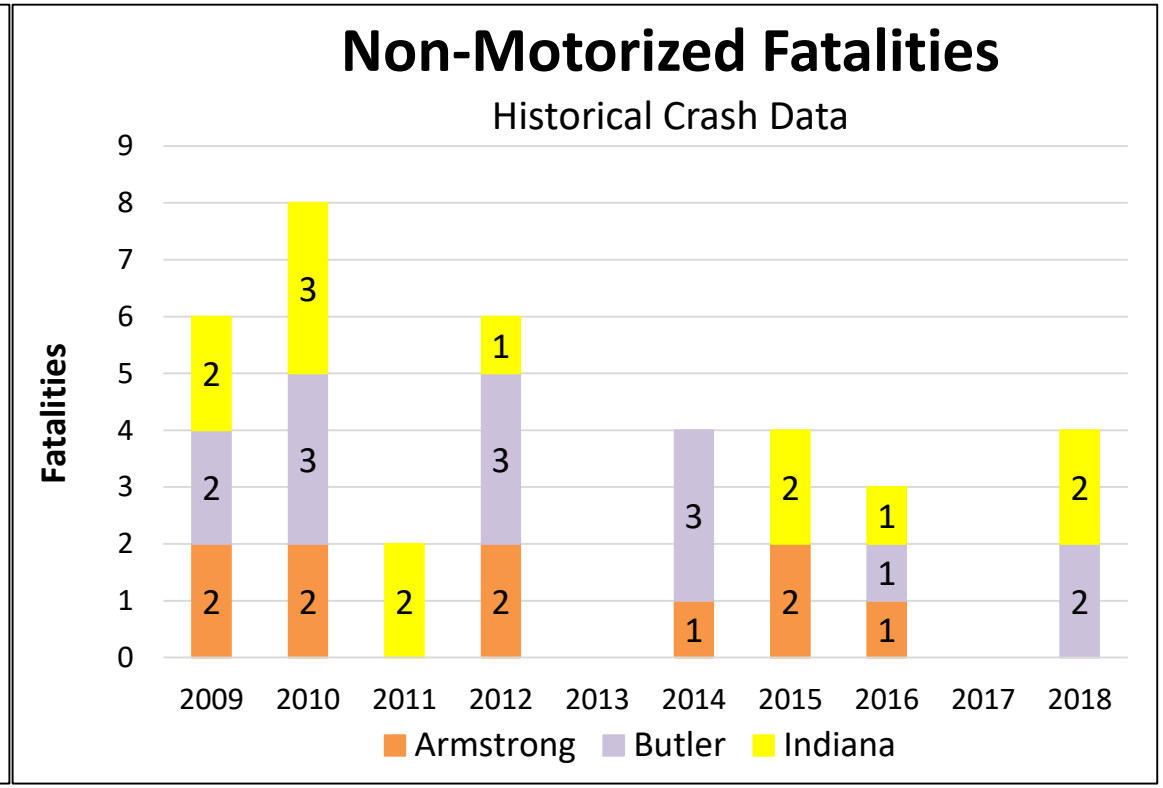
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Non-Motorized (Ped/Bike) Crashes

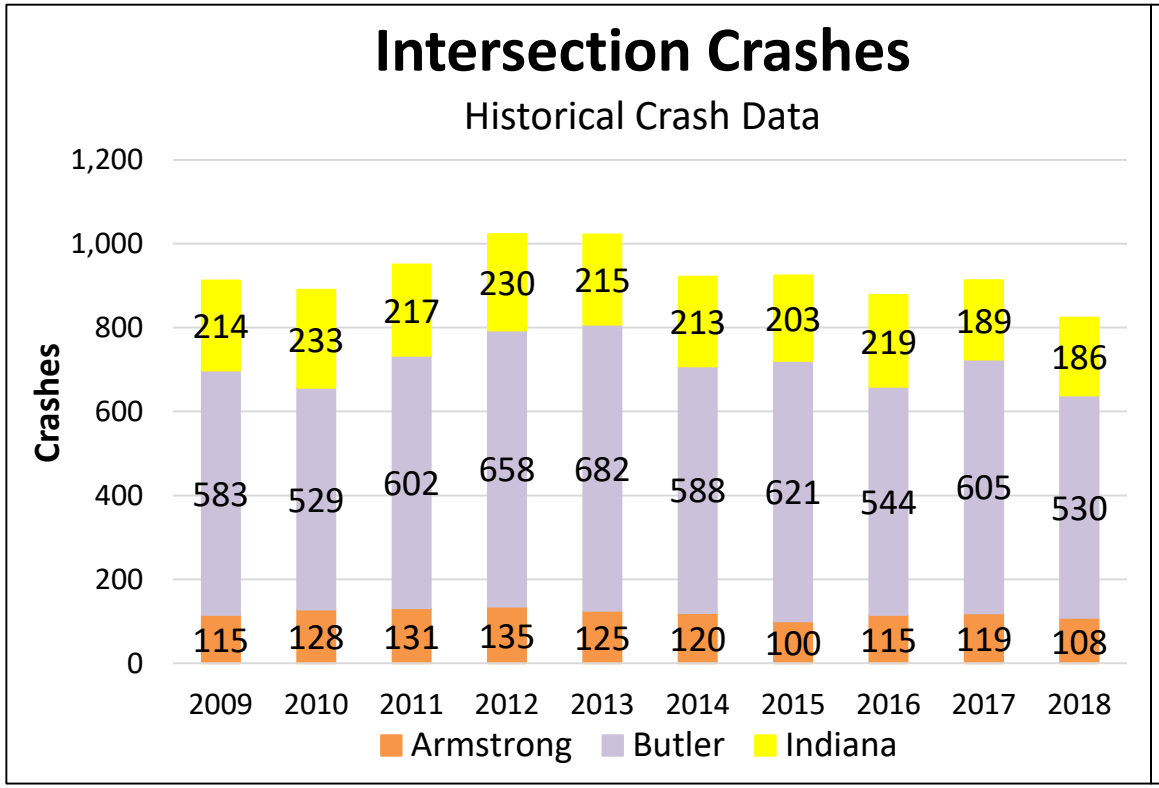


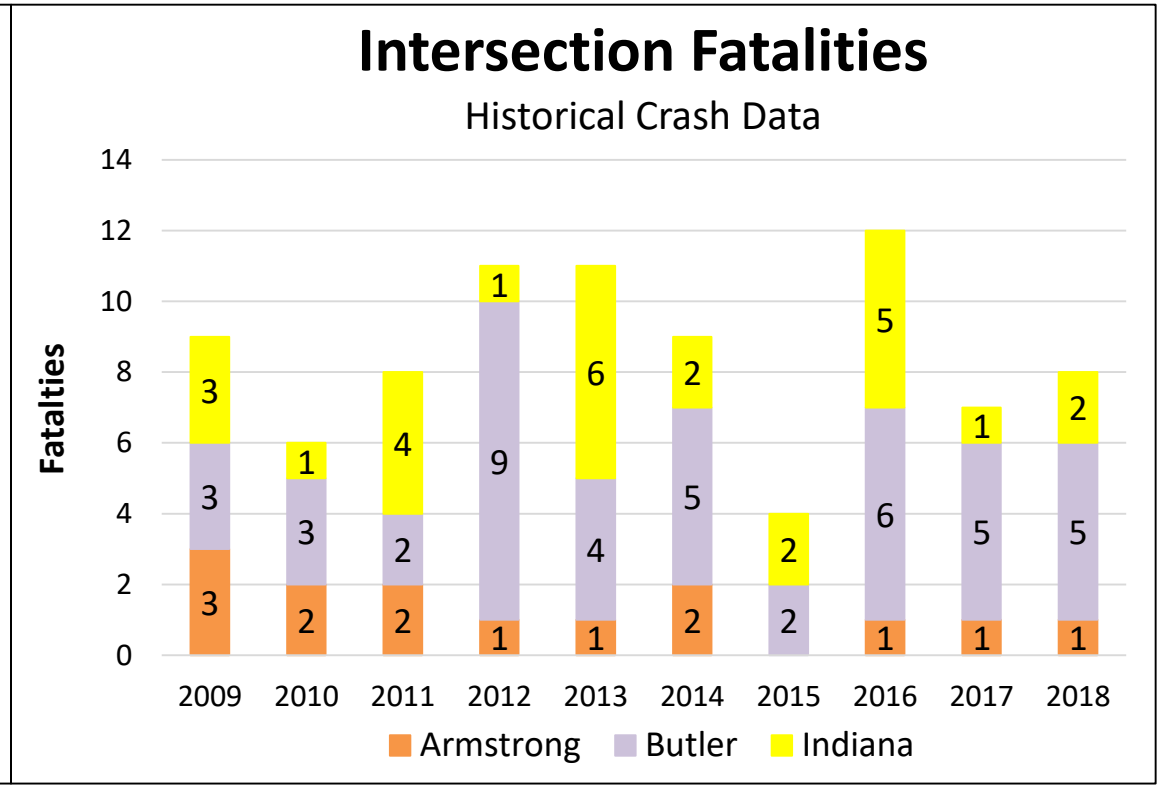


Downward Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Intersection Crashes



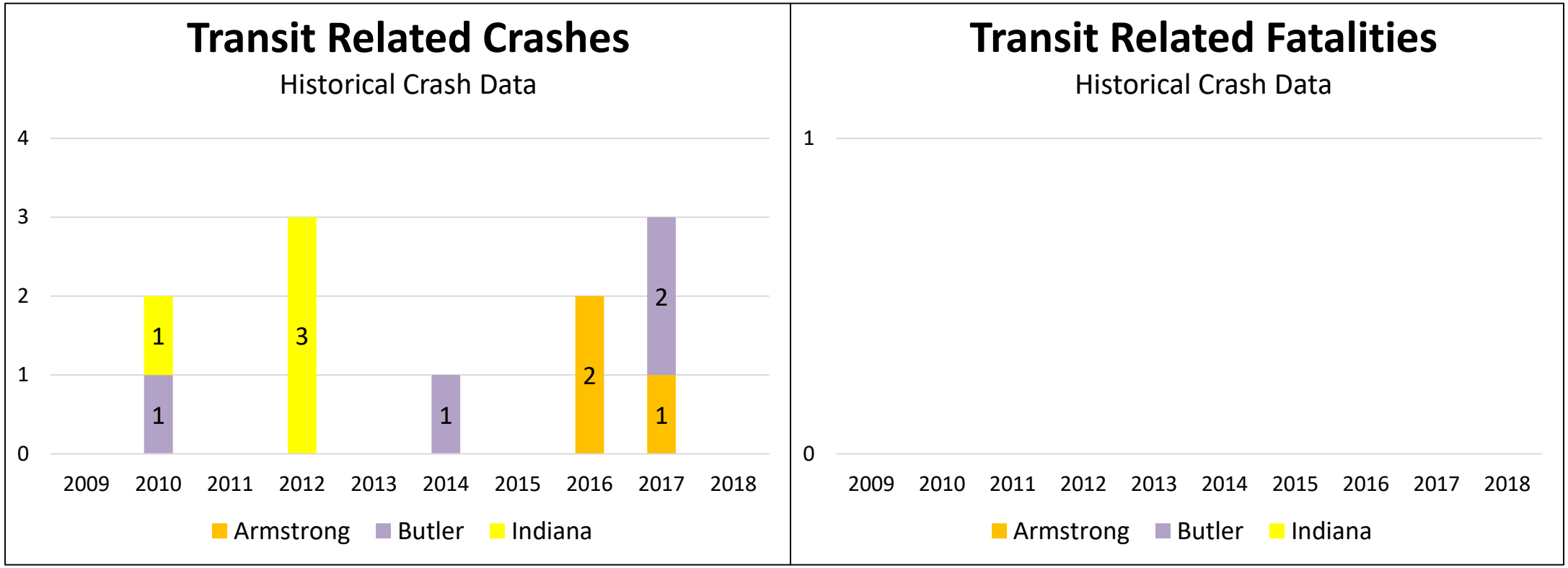


Downward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Transit Related Crashes

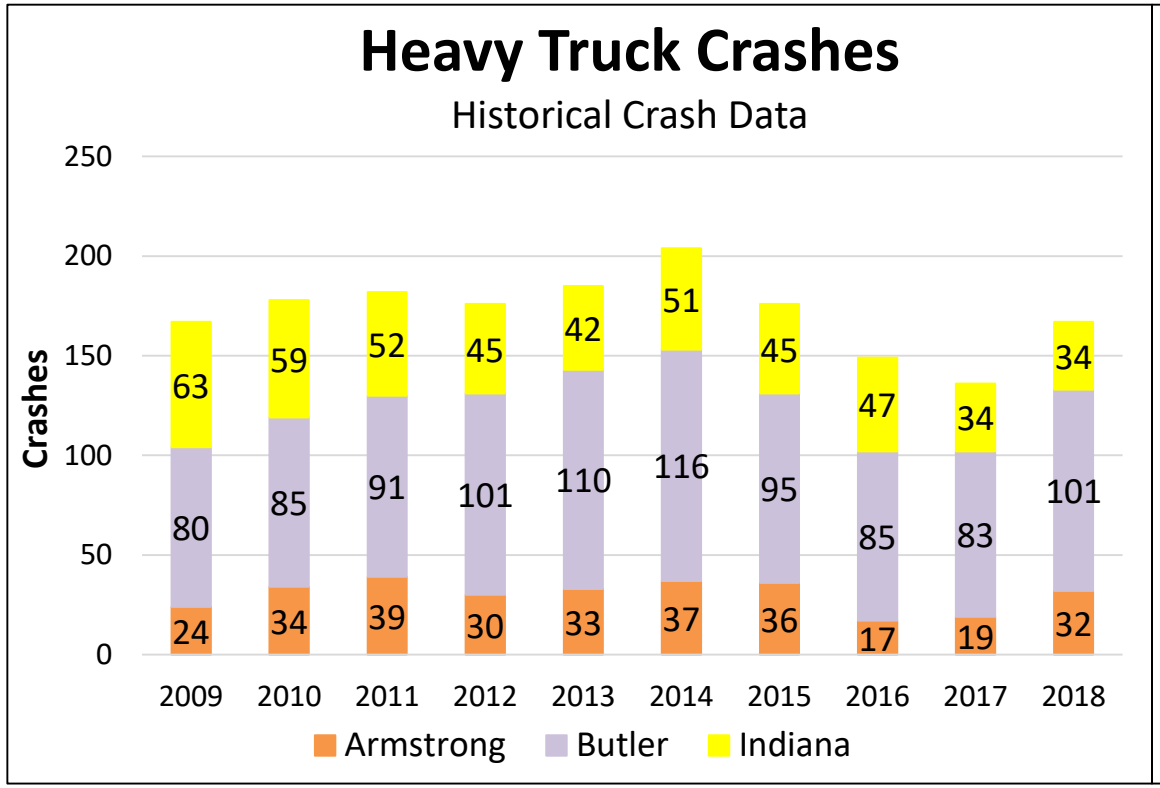


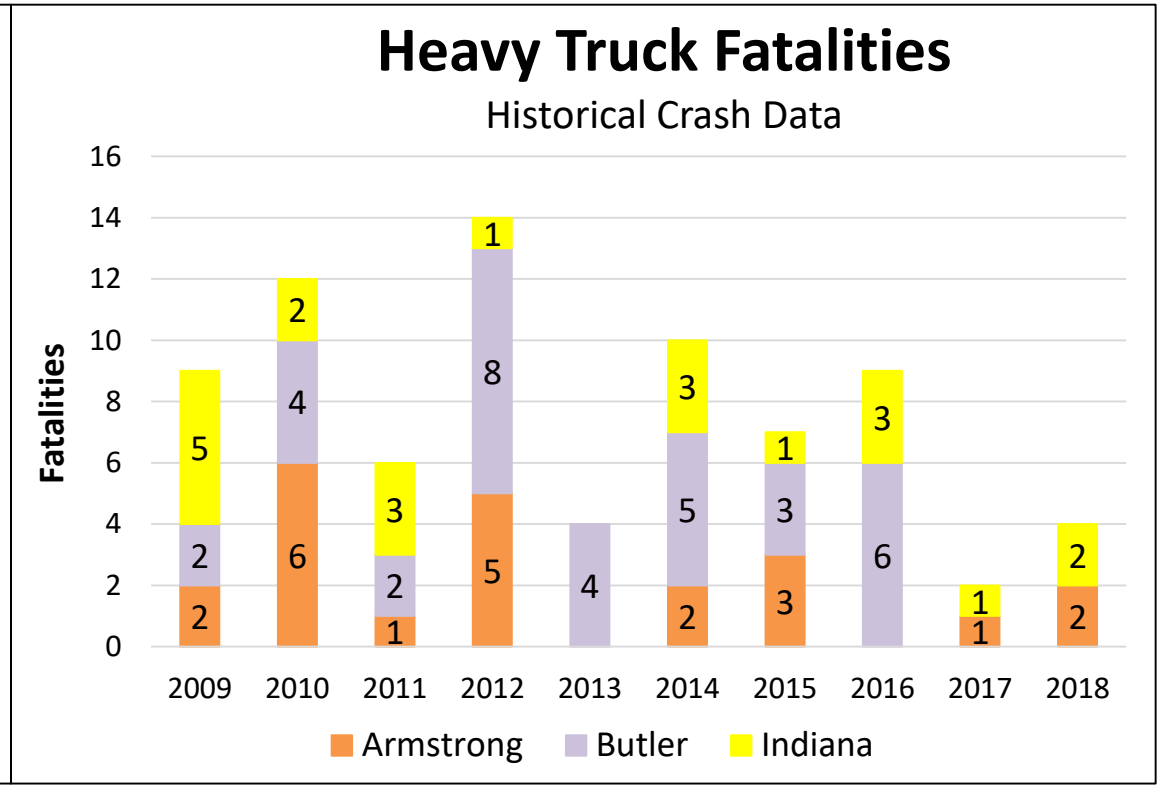
Source: Federal Transit Administration Database

Stagnant Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Heavy Truck Crashes



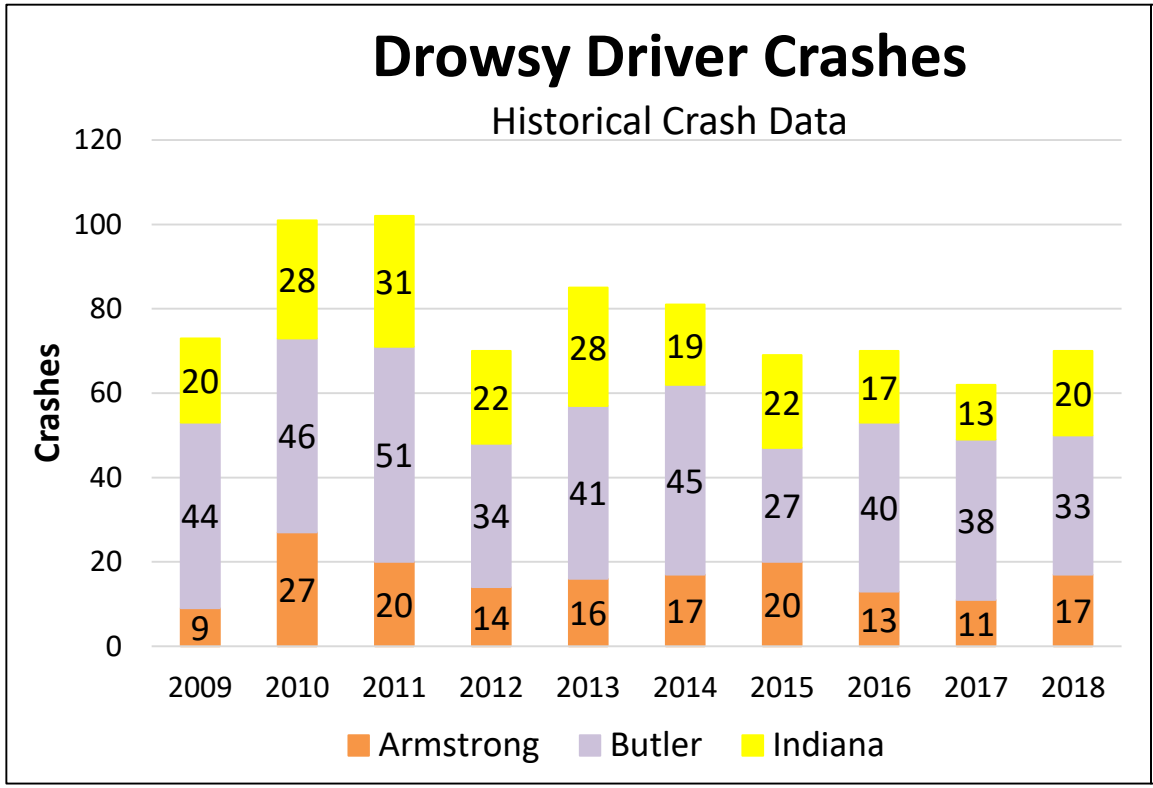


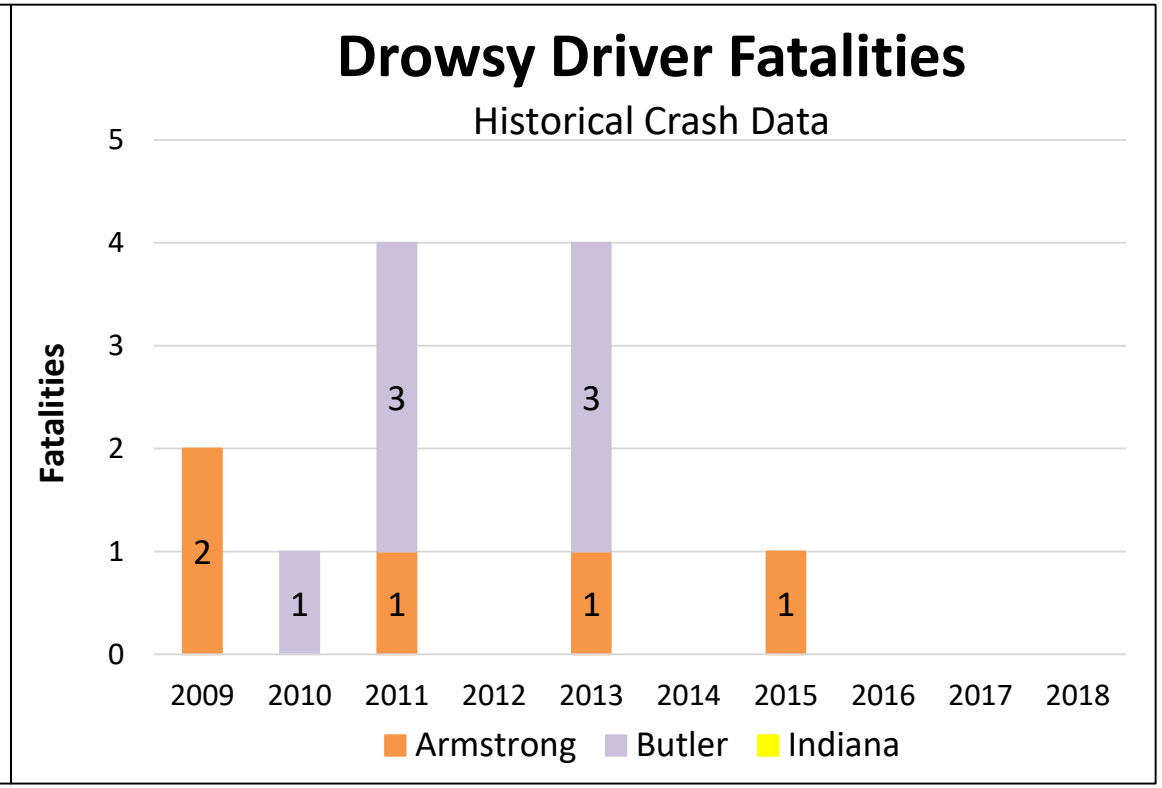
Stagnant Trend in Crashes

Downward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Drowsy Driver Crashes





Downward Trend in Crashes/Fatalities

District-Specific Safety Trends

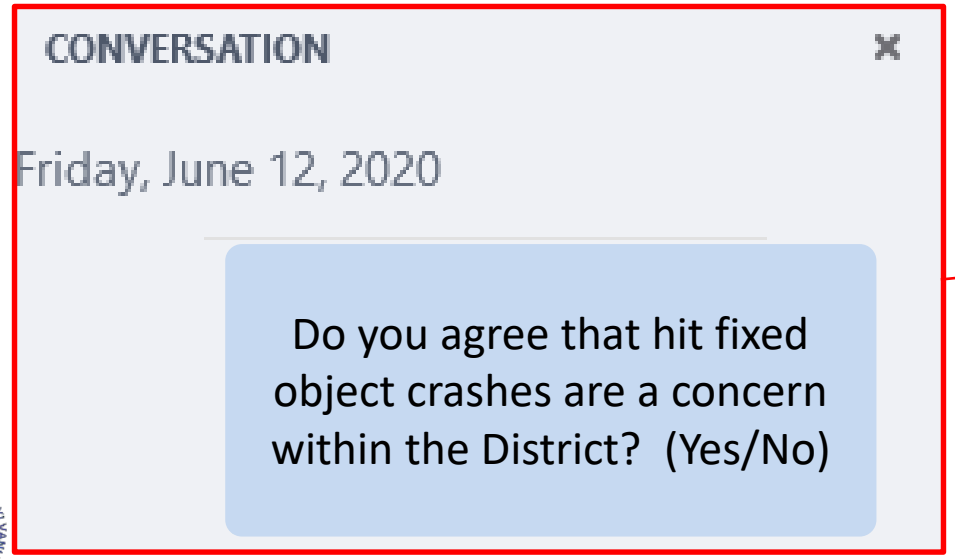
District Safety Focus Areas

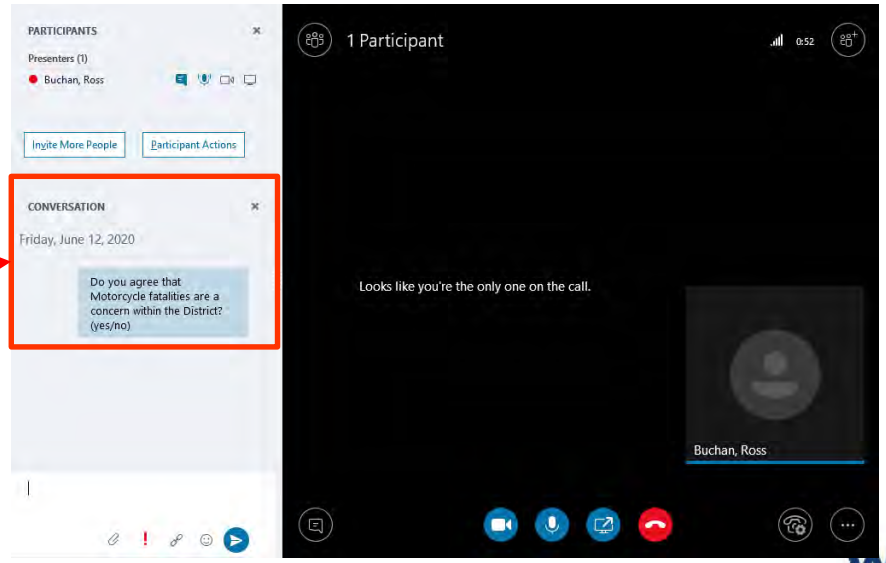
- PennDOT monitors an additional 21 crash categories in addition to the 13 Safety Focus Areas
- Investigated the other 21 categories for disconcerting trends (stagnant or increasing crash trends)
  - Only flagged crash categories where crash frequency and/or fatals are increasing comprehensively within the District (*not per County*)
- Final report will provide data for all 34 PennDOT crash categories

District-Specific Safety Trends

District Safety Focus Area Exercise

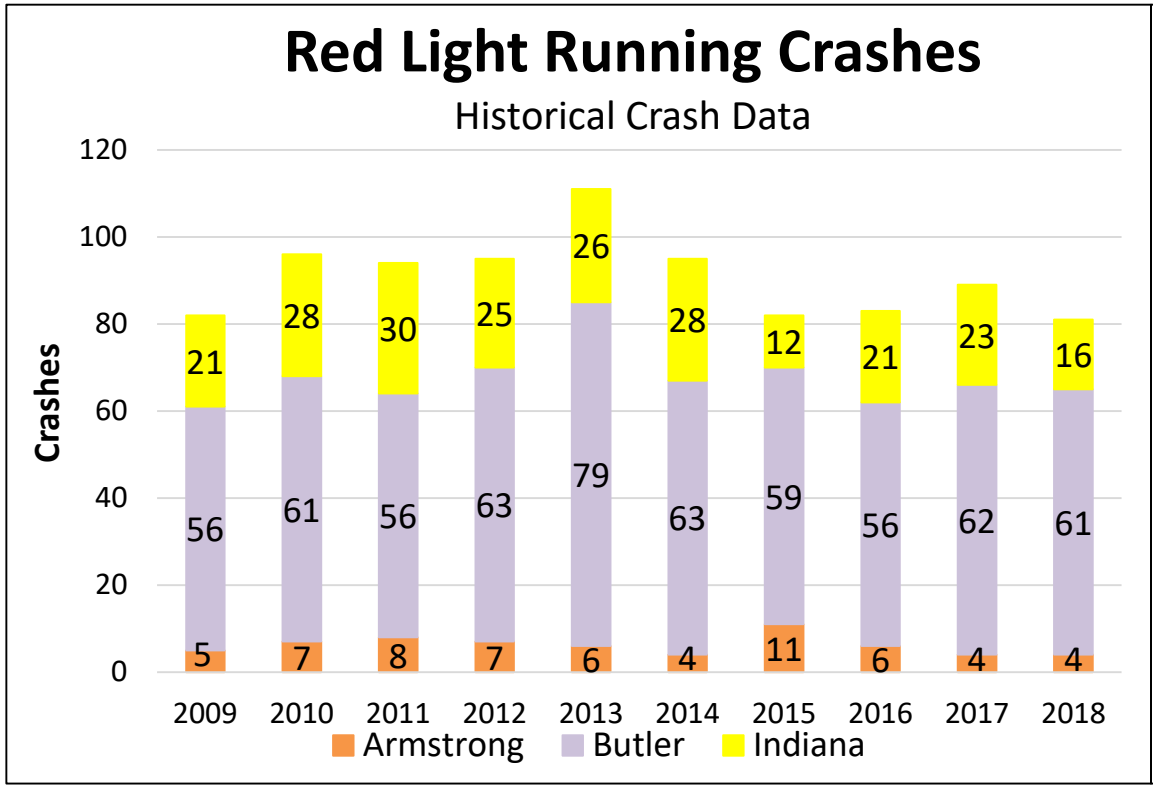
- Presenter to review stagnant or increasing Districtwide crash trends not discussed on the previous slides
- Presenter will prompt attendees to provide feedback in the Skype chat box during review of slide
  - Presenter will type question into chat box requesting “yes” or “no” response to make the crash trend a District Safety Focus Area

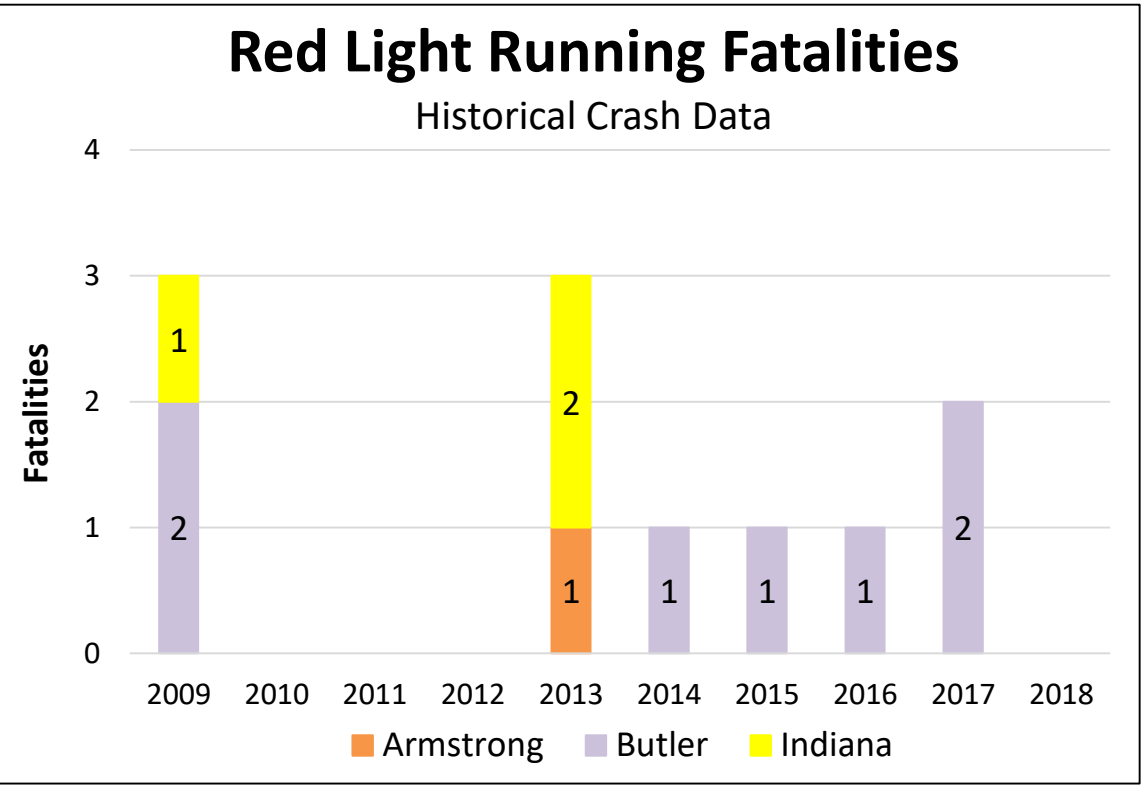




District-Specific Safety Trends

District Focus Area: Red Light Running Crashes

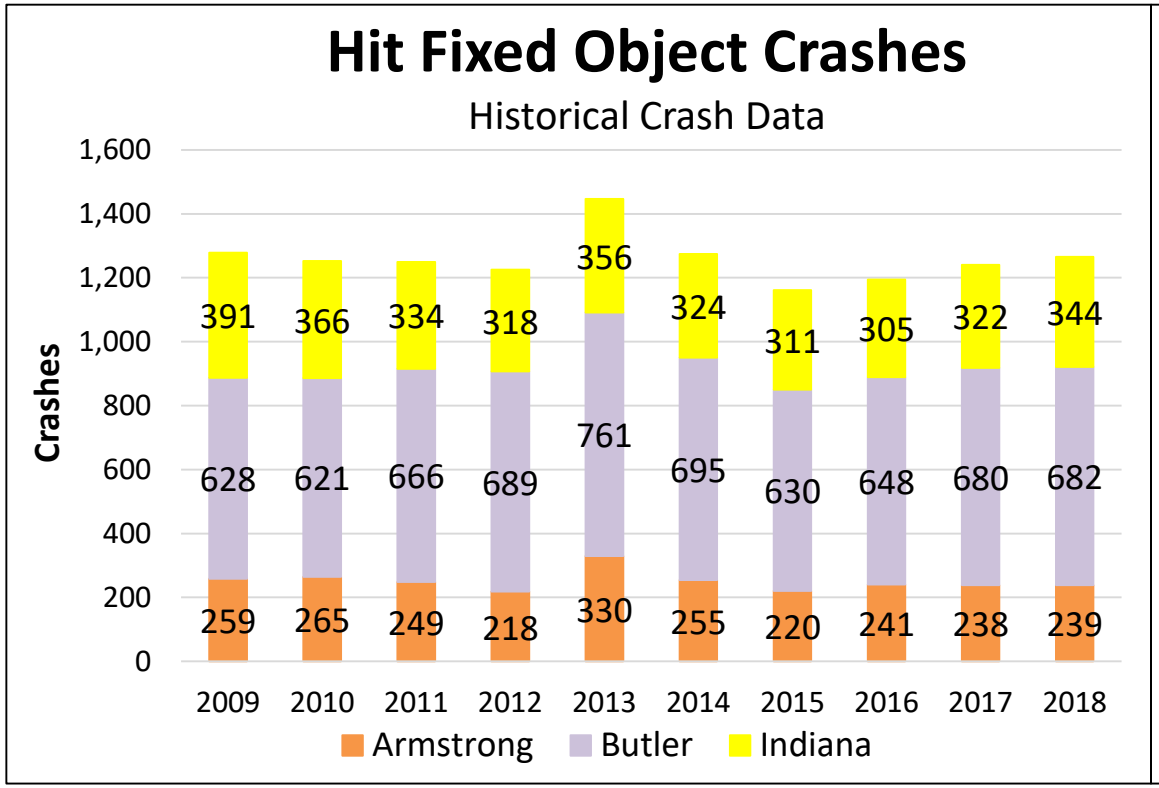


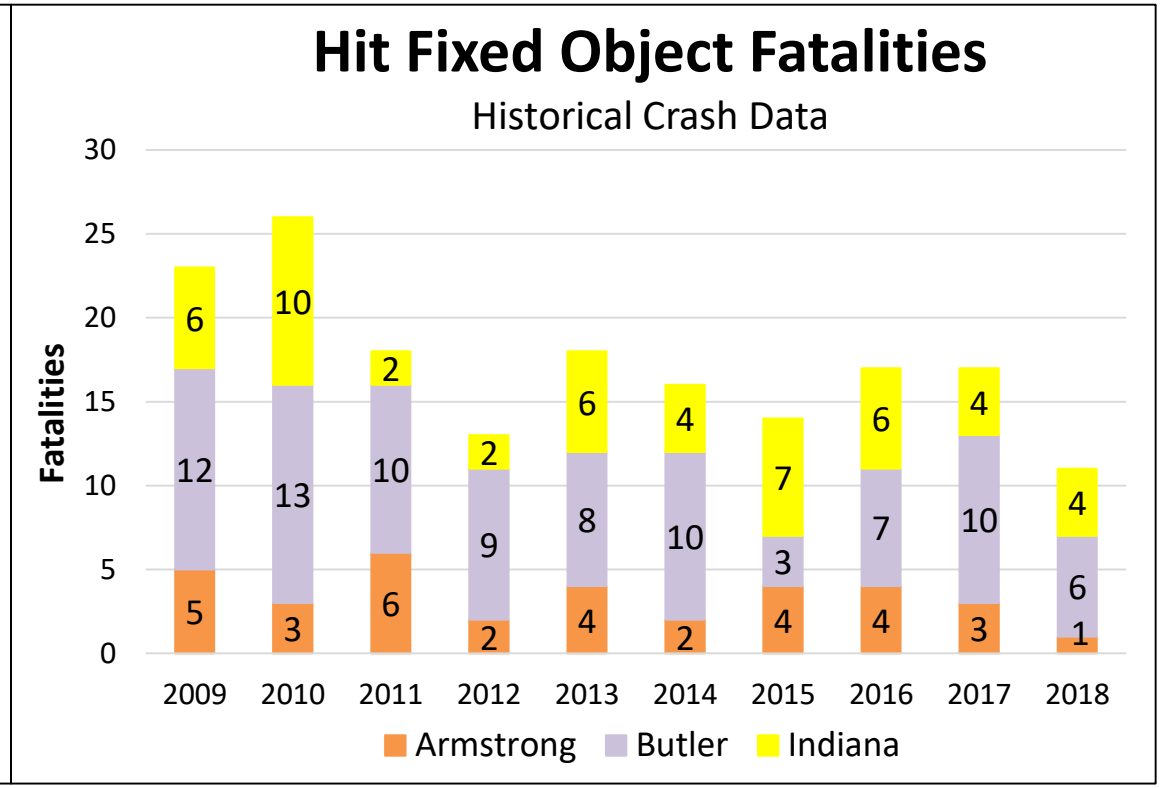


Stagnant Trend in Crashes/Fatalities

District-Specific Safety Trends

District Safety Focus Area: Hit Fixed Object Crashes



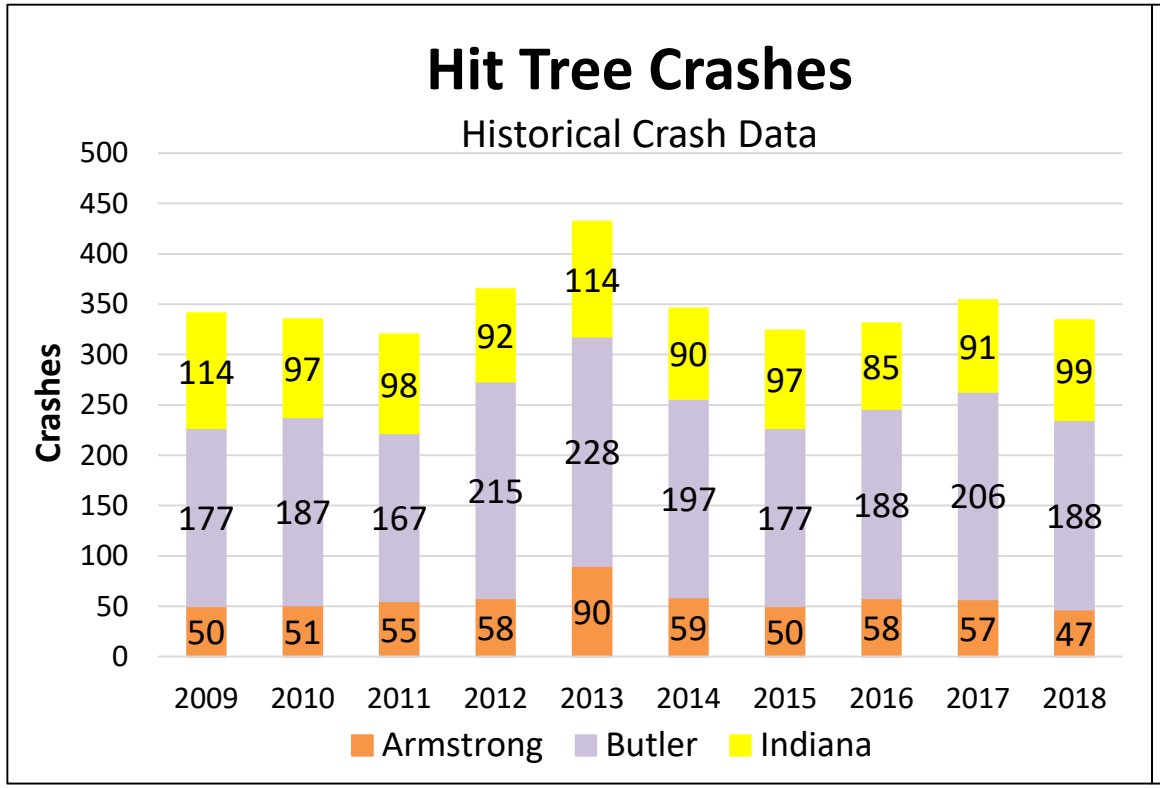


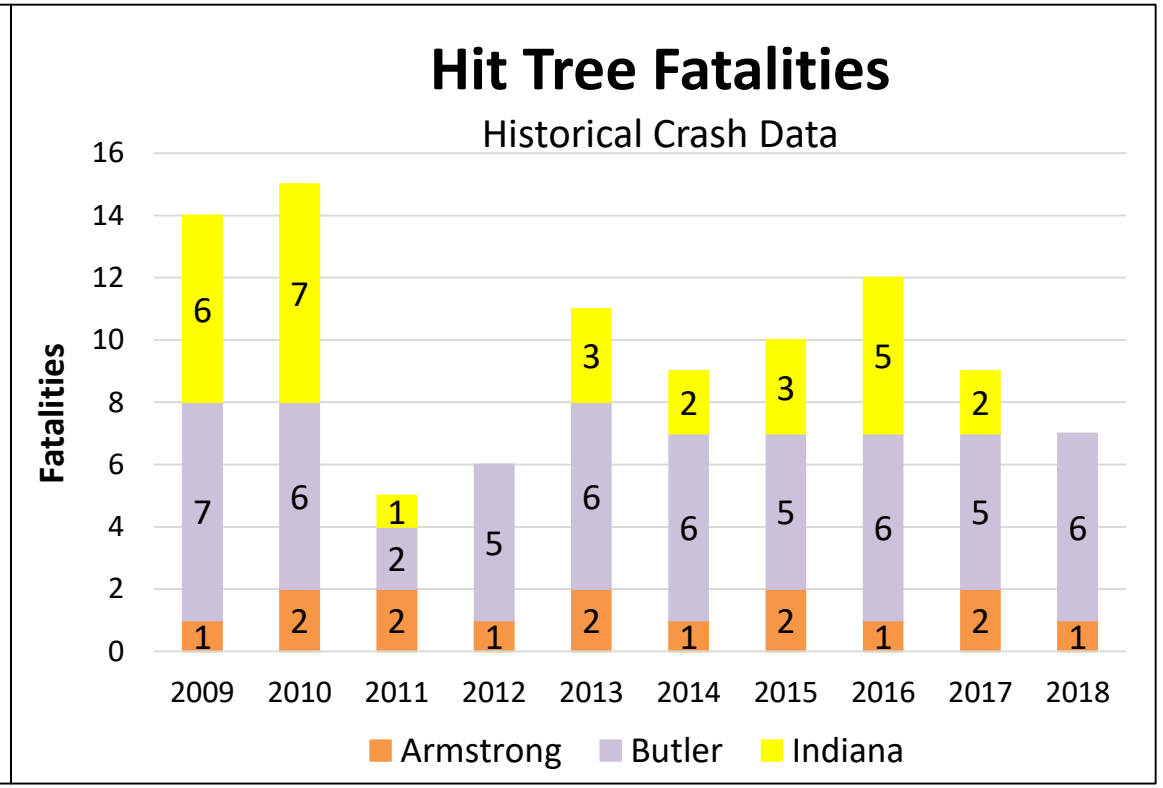
Stagnant Trend in Crashes

Downward Trend in Fatalities

District-Specific Safety Trends

District Safety Focus Area: Hit Tree Crashes



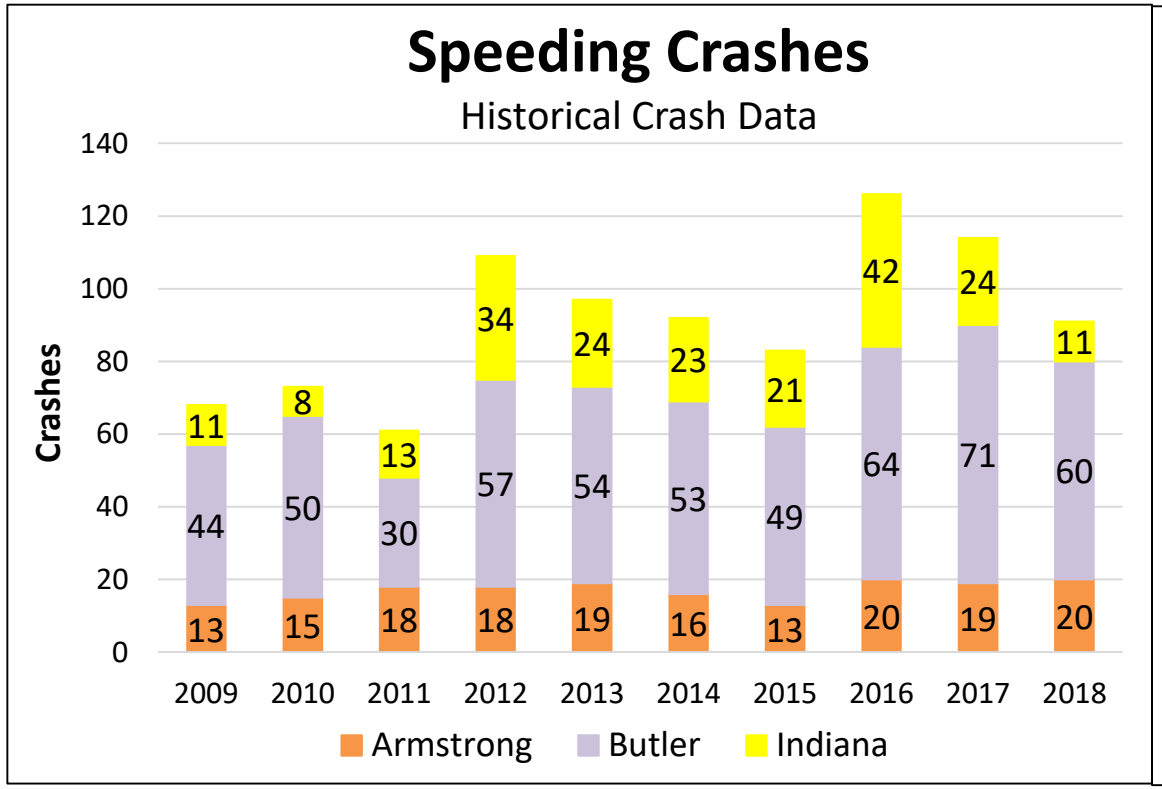


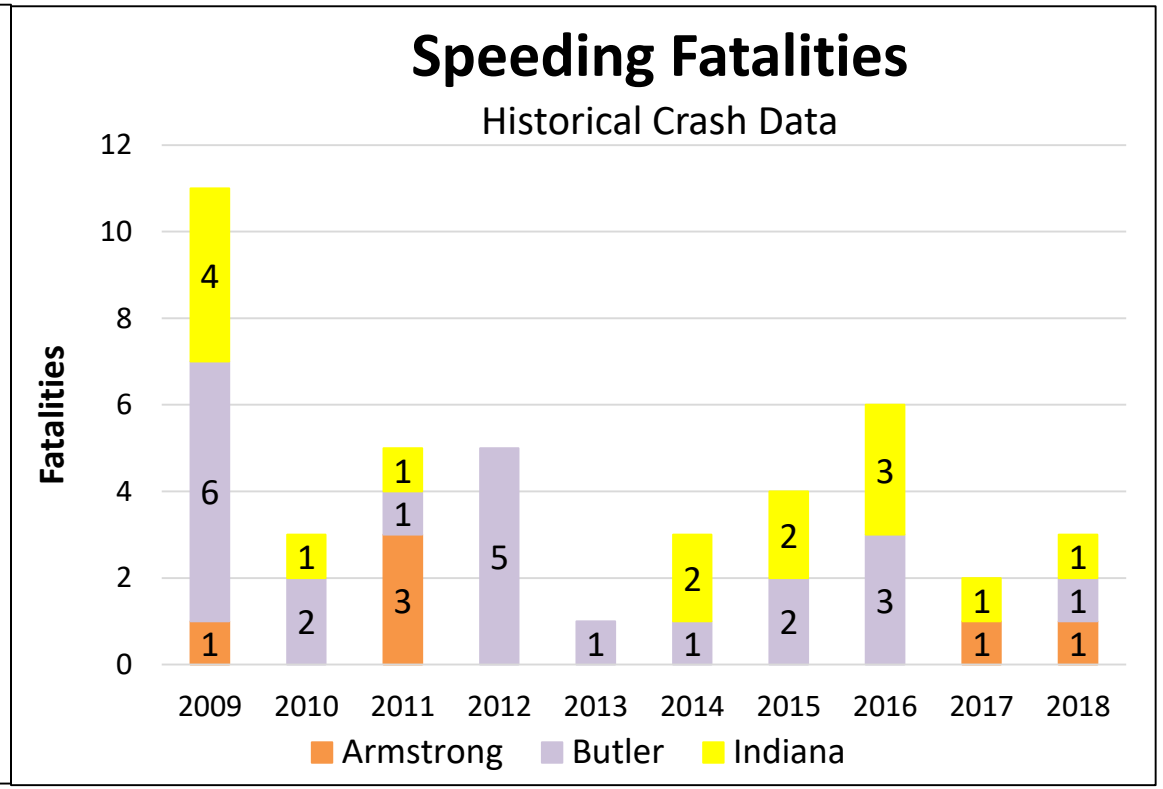
Stagnant Trend in Crashes

Downward Trend in Fatalities

District-Specific Safety Trends

District Safety Focus Area: Speeding Crashes





Stagnant Trend in Crashes/Fatalities

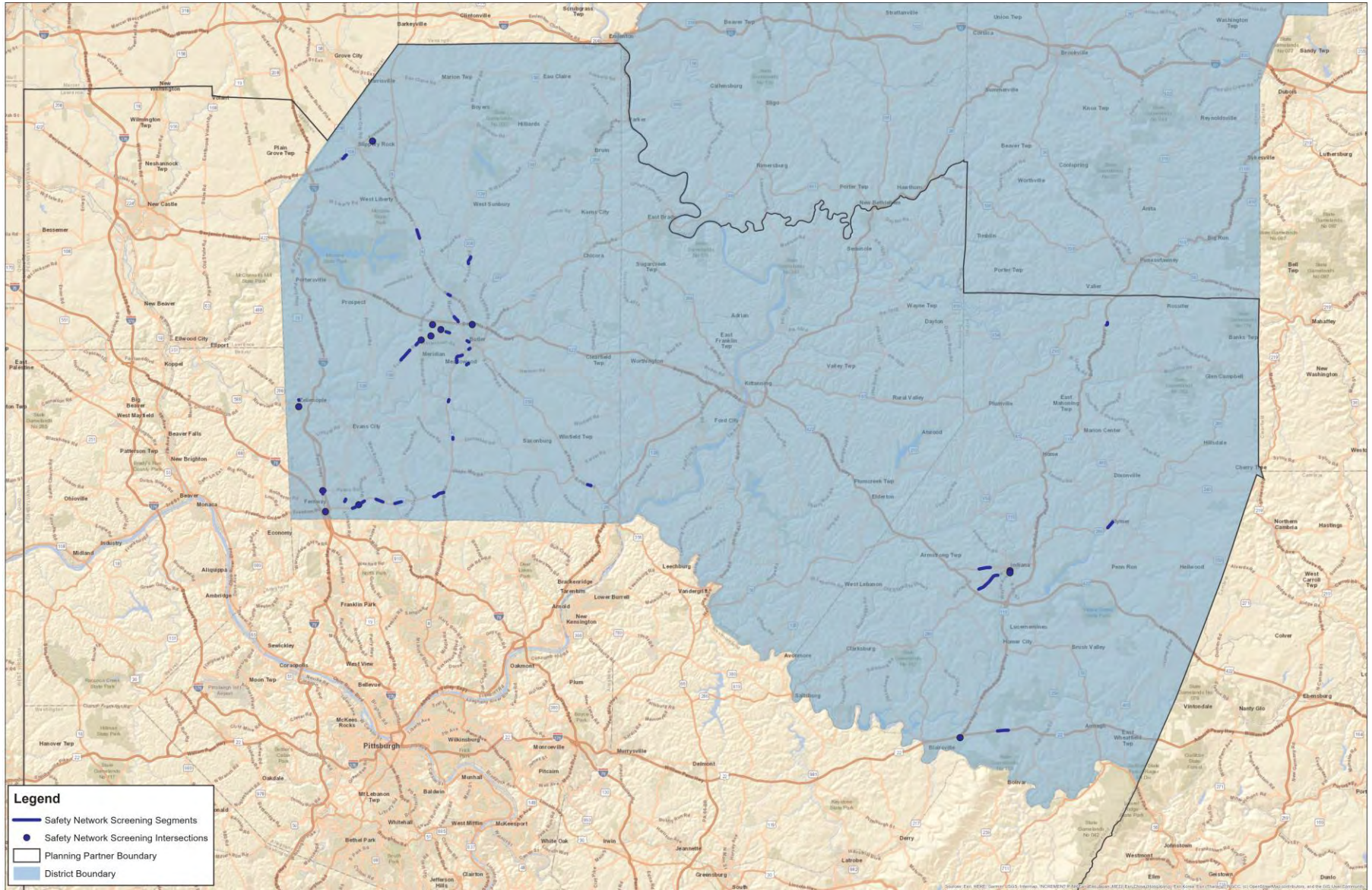
Location-Specific Safety Hot Spots

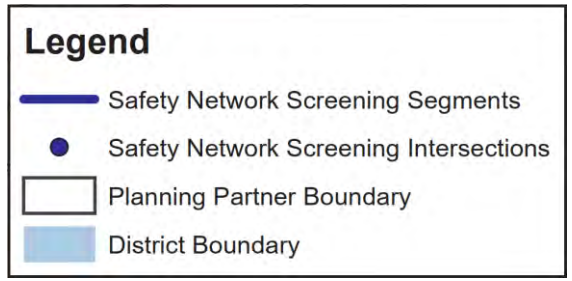
Safety Hot Spot Analysis

- HSM network screening data from 2012-2016
  - Mapped every location within GIS
  - Identified the top-40 initially ranked locations based on “Excess” value to develop interactive and static maps
  - Methodology for maps
    - Used BOMO developed HSM network screening data
      - 2012-2016 is most recent data set
    - Combined urban/rural and segment/intersection data sets to determine top-40 ranking list
    - Locations only considered if positive “Excess” value

Location-Specific Safety Hot Spots

HSM Network Screen Location Safety Hot Spots





Location-Specific Safety Hot Spots

HSM Network Screen Location Safety Hot Spots

District 10 HSM Network Screened Locations Initial Ranking (2012-2016 Data)					
Rank	Location	Observed Crashes	Predicted Crashes	Expected Crashes	Excess
1	Mars Crider Rd, from seg 50 off 112 to seg 70 off 846	10.2	5.69	8.49	2.8
2	New Castle Rd At Duffy Rd	8	1.74	4.12	2.38
3	Mars Crider Rd At Adams Ridge Blvd	7.8	5.06	7.33	2.27
4	Perry Hwy, from seg 50 off 350 to seg 50 off 2059	5.4	3.09	5.17	2.08
5	Rowan Rd, from seg 10 off 96 to seg 10 off 813	3.4	1.01	2.9	1.89
6	Beaver St At Clay St	4.2	1.07	2.92	1.85
7	SR 0286 Hwy/Oakland Ave, from seg 434 off 1779 to seg 480 off 478	9.8	6.62	8.43	1.81
8	New Castle Rd, from seg 450 off 1127 to seg 450 off 2589	4.4	2.12	3.92	1.8
9	Pittsburgh Rd, from seg 290 off 43 to seg 300 off 1295	7.8	5.77	7.52	1.75
10	Route 0068 At Meridian Rd / Benbrook Rd	6	2.9	4.48	1.58
11	Perry Hwy At Mall Entrance Rd / St Francis Way	6.2	3.9	5.23	1.33
12	Branchton Rd At Harmony Rd	3.6	0.54	1.83	1.29
13	New Castle Rd / SR 3036 Hwy At SR 0356 Hwy / Private Dwy	6	3.79	5.05	1.26
14	Pittsburgh Rd, from seg 140 off 102 to seg 140 off 694	2.2	0.81	1.99	1.18
15	South Pike Rd, from seg 90 off 3190 to seg 100 off 800	3.2	0.99	2.16	1.17
16	Mars Crider Rd, from seg 90 off 1994 to seg 100 off 1951	4.4	2.43	3.55	1.12
17	Route 0068 At Eberhart Rd	4.8	2.34	3.45	1.11
18	William Penn Hwy, from seg 132 off 467 to seg 152 off 295	3.4	1.7	2.77	1.07
19	Evans City Rd, from seg 350 off 2068 to seg 360 off 110	3	1.11	2.17	1.06
20	N Main St Ext At Filbert Rd	5.2	0.96	2.02	1.06

KEY Segments
Intersections

Location-Specific Safety Hot Spots

HSM Network Screen Location Safety Hot Spots

District 10 HSM Network Screened Locations Initial Ranking (2012-2016 Data)					
Rank	Location	Observed Crashes	Predicted Crashes	Expected Crashes	Excess
21	Mercer Rd, from seg 30 off 50 to seg 30 off 2538	3	1.06	2.09	1.03
22	Perry Hwy At Ogle View Rd/Rowan Rd	7.2	5.72	6.71	0.99
23	Mars Crider Rd, from seg 130 off 142 to seg 140 off 592	3.6	1.77	2.72	0.95
24	West Sunbury Rd, from seg 70 off 1153 to seg 80 off 361	3.6	1.16	2.09	0.93
25	Franklin Rd, from seg 50 off 569 to seg 50 off 1578	2.2	0.91	1.83	0.92
26	William Flinn Hwy, from seg 550 off 1297 to seg 560 off 2162	3.8	1.8	2.7	0.9
27	Pittsburgh Rd, from seg 200 off 391 to seg 200 off 1171	1.8	0.65	1.55	0.9
28	Mars Crider Rd, from seg 190 off 540 to seg 210 off 1055	5.8	4.36	5.24	0.88
29	N Main St Ext, from seg 450 off 1186 to seg 460 off 481	2.4	0.8	1.66	0.86
30	SR 0119 Hwy / Old Wm Penn Hwy At Pine Ridge Rd / Park and Ride Rd	2.6	1.25	2.1	0.85
31	New Castle Rd, from seg 70 off 2631 to seg 80 off 1553	3	1.37	2.22	0.85
32	Perry Hwy, from seg 220 off 217 to seg 220 off 404	1.6	0.16	0.98	0.82
33	SR 0119 Hwy, from seg 780 off 823 to seg 780 off 1922	2.4	0.46	1.22	0.76
34	6th St At Washington St	4.2	0.73	1.49	0.76
35	Evans City Rd, from seg 320 off 1247 to seg 340 off 1447	6.8	5.67	6.38	0.71
36	Philadelphia St, from seg 10 off 8 to seg 20 off 3003	3.8	2.27	2.96	0.69
37	Franklin St, from seg 760 off 220 to seg 770 off 1357	3	1.46	2.14	0.68
38	Pittsburgh Rd, from seg 310 off 1573 to seg 310 off 2145	1.6	0.83	1.5	0.67
39	6th St At Locust St	3.4	0.9	1.55	0.65
40	Old Plank Rd, from seg 30 off 2589 to seg 40 off 228	1.8	0.3	0.95	0.65

KEY Segments
Intersections

Location-Specific Safety Hot Spots

Safety Hot Spot Analysis (cont'd)

- Supplemented HSM screening data with crash cluster data from 2014-2018
  - Overlaid HSM maps with top-20 crash cluster segments and top-20 crash cluster intersections
  - Methodology for maps
    - Used CDART generated crash clusters for 2014-2018
      - 2014-2018 is most recent data set
    - Ranked 40 crash cluster locations to match HSM network screened location total (40 to 40)
    - Crash cluster locations were ranked by highest delta value for each cluster category
      - Delta value is calculated using crash rate and PennDOT's homogenous reports

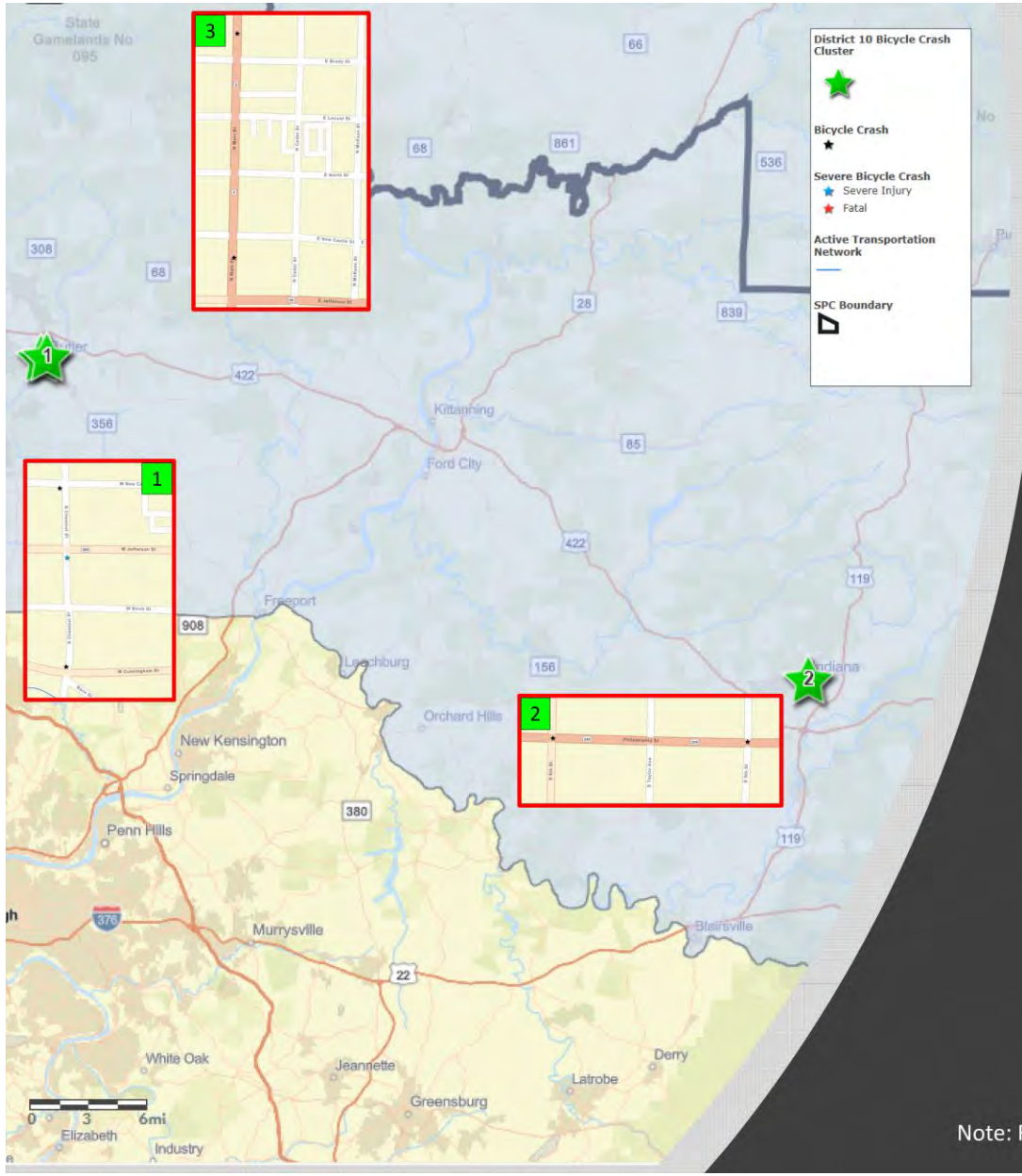
Location-Specific Safety Hot Spots

District-Specific Bicycle Safety Hot Spots

- Bicycle crash data 2014-2018
  - Mapped every bicycle crash in GIS
  - Developed maps with top-3 initially ranked locations
  - Methodology for maps
    - Used most recent bicycle crash data from PCIT (reportable crashes)
      - Includes severe injury and fatals
    - Plotted all bicycle crashes in GIS and used cluster analysis tool
      - Automated and manual cluster analysis
        - » Automated analysis to drill down to 3-4 square block range
        - » Manual analysis to obtain intersection/block level locations

Location-Specific Safety Hot Spots

Bicycle Safety Hot Spots



D10 Bicycle Crash Priority Locations

2014-2018 Crash Data

Location 1: Chestnut St from New Castle St to Cunningham St, Butler

Total Crashes	3	Severe Injury	1	Fatal	0

Location 2: Philadelphia St from 6th to 5th St, Indiana

Total Crashes	2	Severe Injury	0	Fatal	0

Location 3: Main St from Brady St to New Castle St, Butler

Total Crashes	2	Severe Injury	0	Fatal	0

Note: For Locations 2 and 3, the distances between the crashes are over 700 ft.

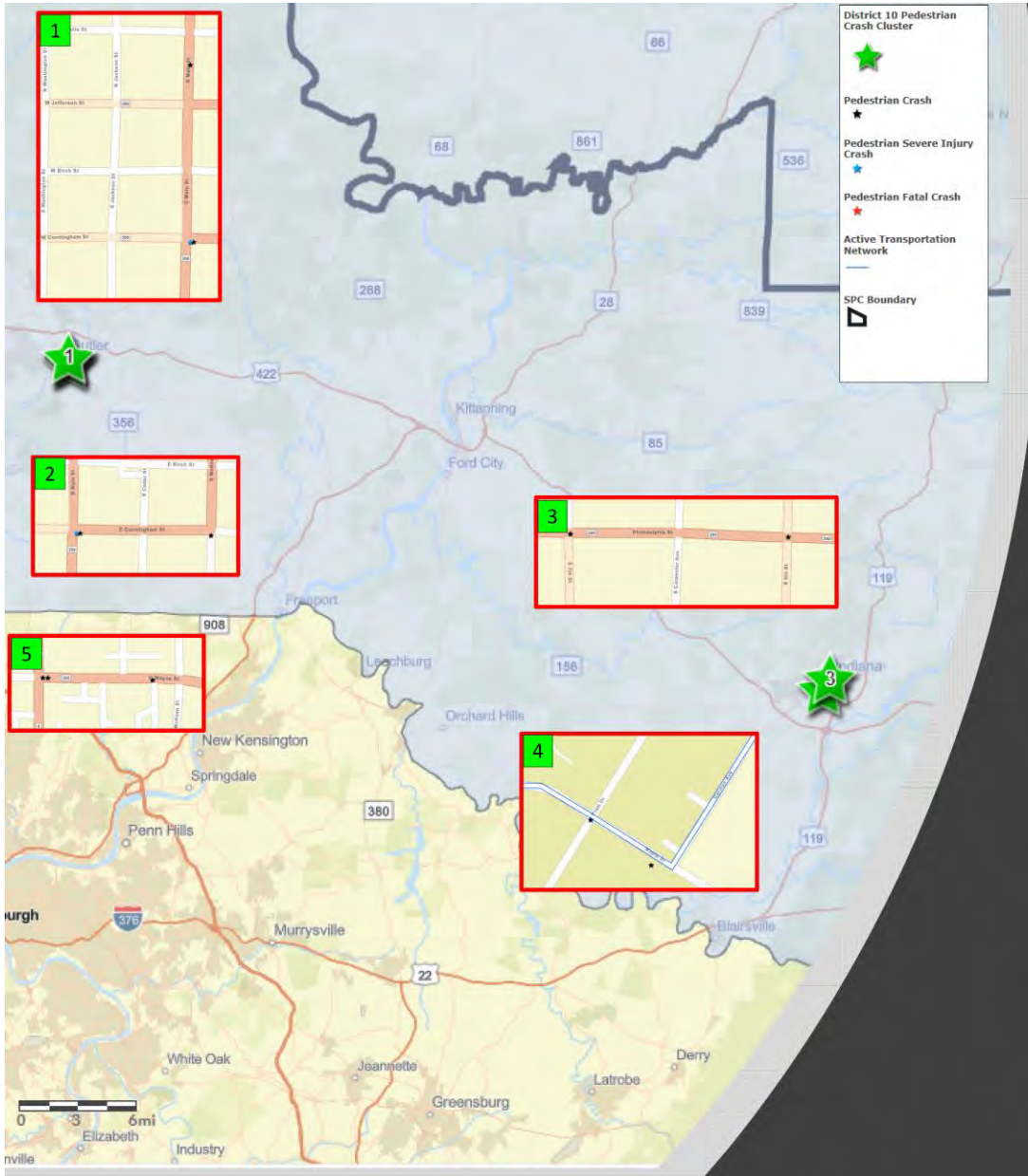
Location-Specific Safety Hot Spots

District-Specific Pedestrian Safety Hot Spots

- Pedestrian crash data 2014-2018
  - Developed maps with top-5 initially ranked locations
  - Utilized same methodology from the bicycle maps to create pedestrian maps

Location-Specific Safety Hot Spots

Pedestrian Safety Hot Spots



D10 Pedestrian Crash Priority Locations

2014-2018 Crash Data

Location 1: Main Street from New Castle St to Cunningham St, Butler

Total Crashes	3	Severe Injury	1	Fatal	0

Location 2: Cunningham St from Main St to McKean St, Butler

Total Crashes	3	Severe Injury	1	Fatal	0

Location 3: Philadelphia St from 7th St to 6th St, Indiana

Total Crashes	3	Severe Injury	0	Fatal	0

Location 4: Maple St from Pratt Dr to Garman Ave, Indiana

Total Crashes	3	Severe Injury	0	Fatal	0

Location 5: Wayne St from Main St to McKean St, Butler

Total Crashes	3	Severe Injury	0	Fatal	0

Network Level Trends

Pedestrian & Bike Network-Level Analysis (2014-2018)

- 47 bicycle crashes and 148 pedestrian crashes resulting in 14 fatalities and 29 severe injuries
- Fatality rate of 9% of pedestrian crashes is the highest in the region (regional average ~5%)
- 13 fatal pedestrian crashes are scattered throughout area, with two in Apollo and two in Butler area
- Only 18% of pedestrian crashes were at signals, with 59% at “non-intersection” locations
- Butler City / Township and Indiana have biggest groupings of ped crashes, but still account for less than half the ped crashes and less than 25% of fatal and severe injuries
- Butler and Indiana both rise to top of bicycle and ped crashes
- Cranberry is an additional focus area for bicycles

Safety Strategies & Improvement Identification

Wiki-Map Exercise

- Developed 2 Wiki-Maps to solicit feedback regarding location-specific safety hot spots
  - Map 1: HSM Network Screened Locations
  - Map 2: Bicycle & Pedestrian Priority Locations
- Attendees to review after meeting and provide feedback prior to July 10th

Wiki-Map Demo

Safety Strategies & Improvement Identification

Safety solution roundtable exercise

- Presenter to go around the room asking each participant for suggestions
- Participants may type directly into the chat box
- Presenter will take “live notes” during discussion

Programmatic Improvements

- *Improved bicycle signs/markings & design standards at intersections*
- *Evaluation of connections to/from bike trails*
- *District Road Safety Audit Program*
- *Explore opportunities to incorporate bike facilities in tight urban corridors/streets (bikes riding on sidewalks)*
- *Hit pole locations*
- *Motorcycle crashes appear to be trending upward (provide motorcycle maps in minutes)*

Soft-side Improvements

- *Increase drug related enforcement*
- *Education/safety campaigns for vehicle-bike conflicts at intersections*
  - *Indiana Boro Bike Ped Committee*
  - *Indiana Boro Safety Action Plan (Bike/Ped)*
- *Impaired/distracted/driver concerns, educational outreach/safety campaigns*
- *Collaborate with IUP on Safety Education Campaigns*

Infrastructure Improvements

- *Deploy near-miss technology for high volume ped/bike locations*

SAP 2020 Next Steps

- Incorporate today's feedback
- Distribute Wiki-Maps and interactive map links
- Incorporate stakeholder feedback
- Develop SAP Draft Report
- Schedule Steering Committee Meeting 3 (*August timeframe*)

Open Discussion

Consultant Contact Info:

Project Manager:

Ross Buchan, PE

rbuchan@wrallp.com

Safety Analyst:

Jim French, PhD, PE, ENV SP jfrench@frenchengr.com

MEMORANDUM of MEETING

Date: June 29, 2020

Date of Meeting: June 23, 2020
Time of Meeting: 10 AM
Meeting Location: Skype
Meeting Description: D10 Stakeholder Meeting

CC: File

Work Order Number: 95
Contract Number: SPC On Call
Project: SPC Safety Action Plan Update

Participants:

Name	Company	Phone	Email
Josh Spano	SPC	412-391-5590 x 362	jspano@spcregion.org
Domenic D'Andrea	SPC	412-391-5590 x 341	ddandrea@spcregion.org
Evan Schoss	SPC	412-391-5590 x 338	eschoss@spcregion.org
Andy Waple	SPC	412-391-5590 x 310	awaple@spcregion.org
Ross Buchan	WRA	717-514-8916	rbuchan@wrallp.com
Jim French	French	724-569-8555	jfrench@frenchengr.com
Adam Weinshenker	French	724-569-8555	aweinshenker@frenchengr.com
Brian Allen	PennDOT District 10-0	724-357-2800	briallen@pa.gov
Alice Hammond	PennDOT District 10-0	724-357-2805	alhammond@pa.gov
Josh Krug	Indiana County Office of Planning and Development	724-465-3870	jkrug@ceo.co.indiana.pa.us
Joel MacKay	Butler County Planning Commission	724-284-5300	jmackay@co.butler.pa.us
William Rankin	PennDOT District 10-0	724-357-4810	wrankin@pa.gov
Mike Shanshala	PennDOT District 10-0	724-422-1139	mshanshala@pa.gov
Harold Swan	PennDOT District 10-0	724-357-2082	hswan@pa.gov
David Tomaswick	PennDOT District 10-0	724-357-2845	dtomaswick@pa.gov
Terry Wolford	PennDOT District 10-0	724-357-3016	twolford@pa.gov

The presentation entitled "SPC Safety Action Plan Updated – District 10-0 Stakeholder Meeting" was given by Josh Spano, Domenic D'Andrea, and Ross Buchan. The following discussion ensued during the presentation:

- Terry Wolford asked if secondary crashes included those caused by work zones. The project team will follow-up with BOMO in this regard, but it was suggested that it may vary based on how the individual police officers filing the reports identify it.
    - Follow-up: The secondary crash statistics were developed based on any rear-end crash on an interstate facility. Therefore, work zone crashes would be included as part of the analysis.

- Of the four additional proposed District Safety Focus Areas:
  - Red-Light Running was not considered a priority. Mike Shanshala commented that retiming signals and the addition of exclusive left turn lanes would help, but the trends in fatalities appeared to be random.
  - It was suggested to combine Hit Fixed Object and Hit Tree crashes and consider it a District Safety Focus Area. There has been past and recent activity by the District aimed at lowering these types of crashes, but the District acknowledged that they need to stay vigilant in this regard.
    - It was noted that in 1996, an initiative to upgrade guiderail delineation was undertaken and the result was an increase in crashes. It was expected that this was due to drivers selecting higher speeds during adverse weather because of the increased visibility provided by the delineation. Based on that experience, the District has considered whether additional delineation and RPMs result in better or worse safety. Since the 90's the District has provided the delineation where appropriate to aid the elderly and other drivers with difficulty seeing in the dark. They expect that since the 90's, there has likely been a flat trend for run-off-the-road crashes with a decrease in fatalities.
    - When discussing Hit Tree Crashes, Mike Shanshala noted that there have been recent efforts to remove all dead ash trees, dead oak trees, and known problematic trees from the right-of-way.
  - Speeding was accepted as an additional District Safety Focus Area. The gateway corridors into Indiana, such as South 6th Street in Indiana, were identified as particular focus areas.
    - Significant discussion of the 6th St corridor occurred during the meeting. It was noted that it is a hotspot for crashes, especially in the area in the vicinity of IUP and at side streets such as Locust Street. South of Hospital Drive the crashes are not as frequent. Krug noted that drivers maintain high speeds established outside of town through the residential area and into town. Lowering the speed limit is not expected to be effective as Borough police already have a significant presence. Teenage drivers and alcohol were also identified as potential contributing factors. Domenic noted that SPC recently completed Roadway Safety Audits for both 6th St and Wayne Avenue in Indiana, which include numerous safety suggestions. Krug noted that solar-powered blinking stop signs have seemed to help and that RSA information should be shared with IUP.
    - It was also noted that recently paved roads tend to have higher speeds, which could contribute to speed-related crashes.

- Domenic noted that out of the 37 fatalities in 2018 in the three-county D-10 area, 3 were pedestrians and one was a bicyclist.

- Krug noted that bike riding is primarily on low-volume roads or off-road trails.

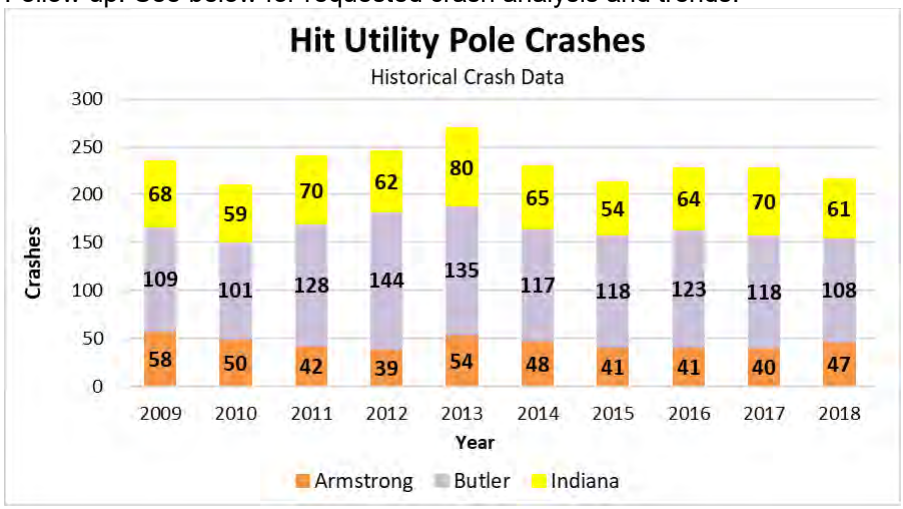
- With respect to the pedestrian crashes, it was noted that the areas around the IUP campus, particularly 6th Street and Philadelphia Street, have many bars, which may contribute to the crash problem.

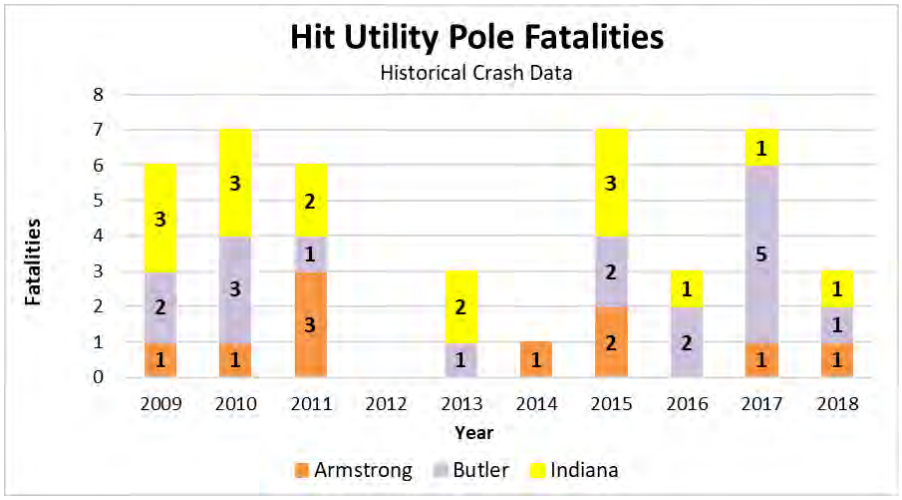
- With the respect to the bicycle crashes in Butler, it was noted that limited intersection sight distance caused by the proximity of buildings to the travel way may be a contributing factor, particularly in the western portion of the downtown area.

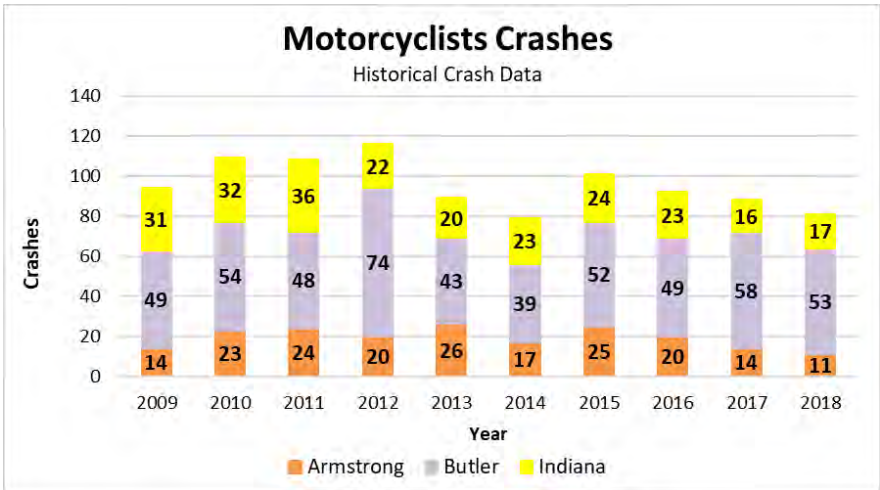
- It was explained that Wiki-Maps would be made available to the stakeholder group to make comments in the near future. A demonstration was provided on how to use it. Those comments will be compiled and provided under separate cover. Comments are due by July 10th.

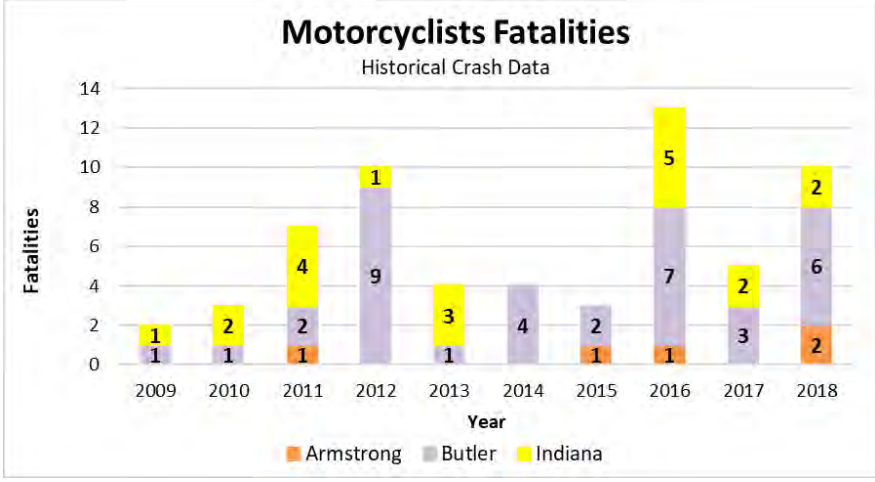
- Suggestions for safety improvement strategies followed the end of the formal presentation. Ideas were recorded in real-time on a slide.

- Josh Krug indicated a county-wide concern with impaired, tired, and distracted driving on rural highways. He also indicated possible drug-related crash concerns around the IUP campus. He noted that past RSAs have been very useful. Future safety strategies included educational outreach programs, such as working with IUP on limiting jaywalking / dangerous pedestrian habits and implementing pedestrian and bicycle safety programs on campus.
- Joel Mackay noted difficulties posed by bicyclists on sidewalks and on the tight City streets in Butler as possible contributors to the non-motorized crash problems in Butler.
- Dave Tomaswick noted that hit utility poles and motorcycle crashes are trending upwards in their overall District. It was noted that the SPC region only covers three (Butler, Armstrong, and Indiana) of the five counties in the District, so they may or may not be trending upward in the part in the SPC region. Project team to provide crash analysis for hit utility poles and motorcycle crashes in the meeting minutes.
  - Follow up: See below for requested crash analysis and trends.









The above is a summary of understanding between the parties regarding the topics discussed and the decisions reached. Any participants desiring to add to, or otherwise amend the minutes, are requested to put their comments in writing to the writer within seven (7) days; otherwise, the minutes will stand as written.

Ross Buchan

Sender's name

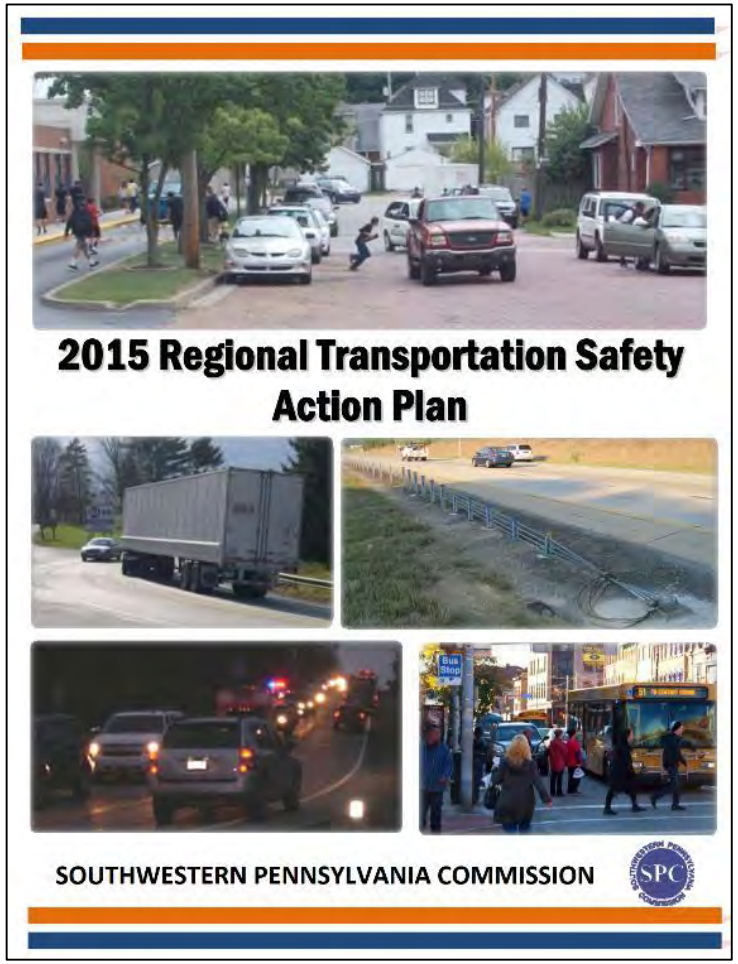
SPC SAFETY ACTION PLAN UPDATE

District 11-0 Stakeholder Meeting

June 22, 2020

Agenda

- Introductions
- Schedule
- Meeting Purpose & Objectives
- District Safety Analytics
  - Safety Focus Area Performance
  - District-Specific Safety Trends
  - Location-Specific Safety “Hot Spots”
  - Network Level Trends
- Safety Strategies & Improvement Identification
- Next Steps/Open Discussion



Schedule

Tasks	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
1. Safety System Performance-Data Analysis									
2. Steering Committee/Stakeholder Group Mtg 1									
3. Trends, Emphasis Areas, & Safety Strategies									
4a. Steering Committee Mtg 2									
4b. Stakeholder Group Mtgs (1 in each District)									
5a. Draft SAP Findings/Document Development									
5b. Steering Committee Mtg 3									
6. Final SAP Document									

Meeting Purpose & Objectives

Meeting Purpose:

- Verify District systemic, network level, and location-specific safety areas of concern and to engage stakeholders on potential solutions

Specific Objectives:

- Solicit feedback on current District crash trends
- Solicit feedback on potential District-specific safety hot spots
- Solicit feedback on potential improvement strategies/solutions
  - Soft-side and programmatic solutions
  - Infrastructure-specific solutions

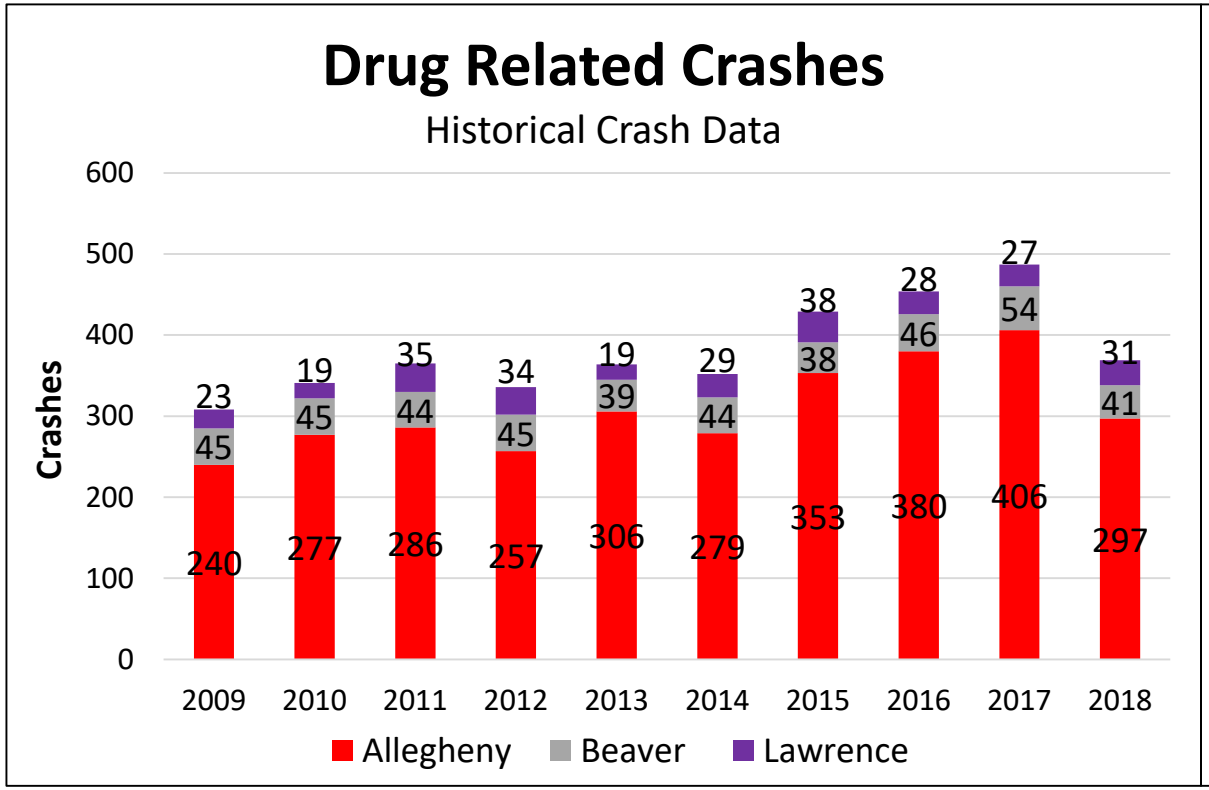
Safety Focus Area Performance

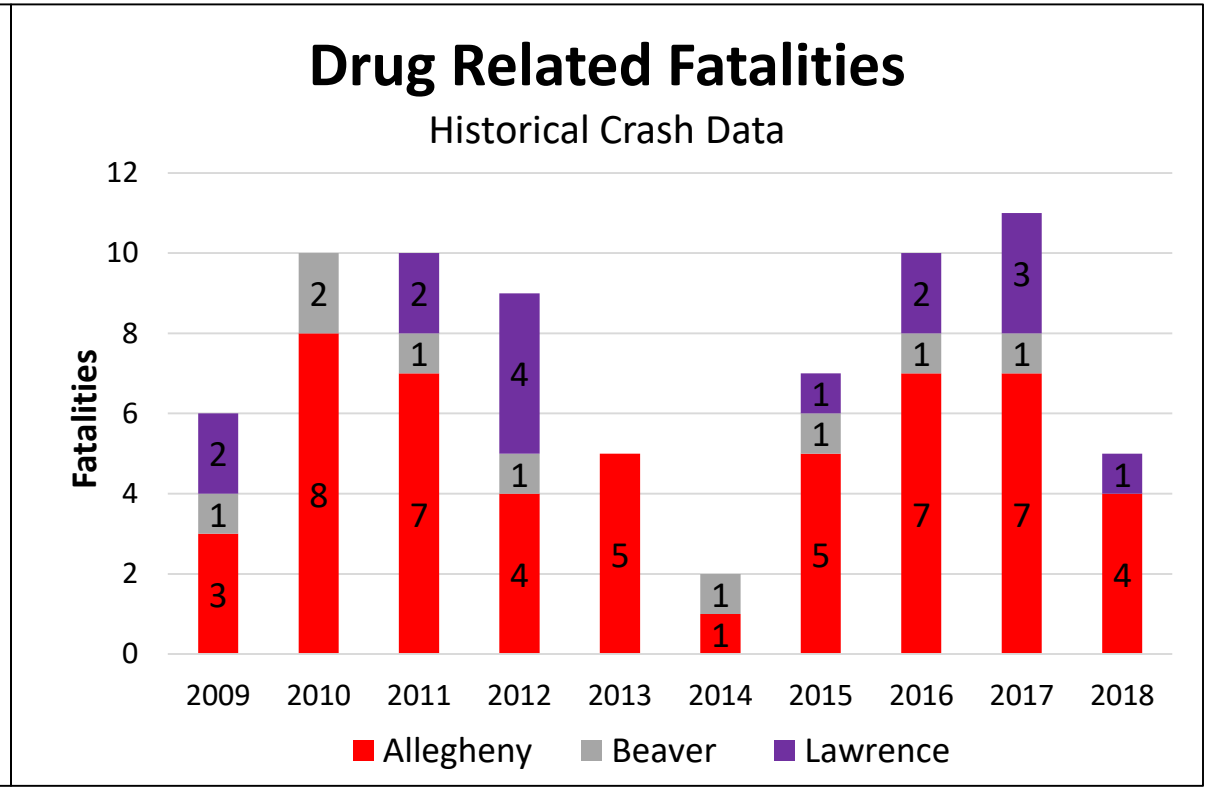
Safety Focus Areas

- 13 Safety Focus Area were identified by the Steering Committee for the 2020 SAP Update
  1) Drug related crashes
  2) Distracted driving crashes
  3) Run-off-road crashes
  4) Head-on crashes
  5) Signalized intersection crashes
  6) Aggressive driving crashes
  7) Secondary crashes
  8) Mature driver crashes
  9) Non-motorized (ped/bike) crashes
  10) Intersection crashes
  11) Transit-related crashes
  12) Heavy truck crashes
  13) Drowsy driver crashes
- Confirm District/County performance (i.e. total crashes and fatalities) in each of the 13 Safety Focus Areas

Safety Focus Area Performance

Safety Focus Area: Drug Related Crashes

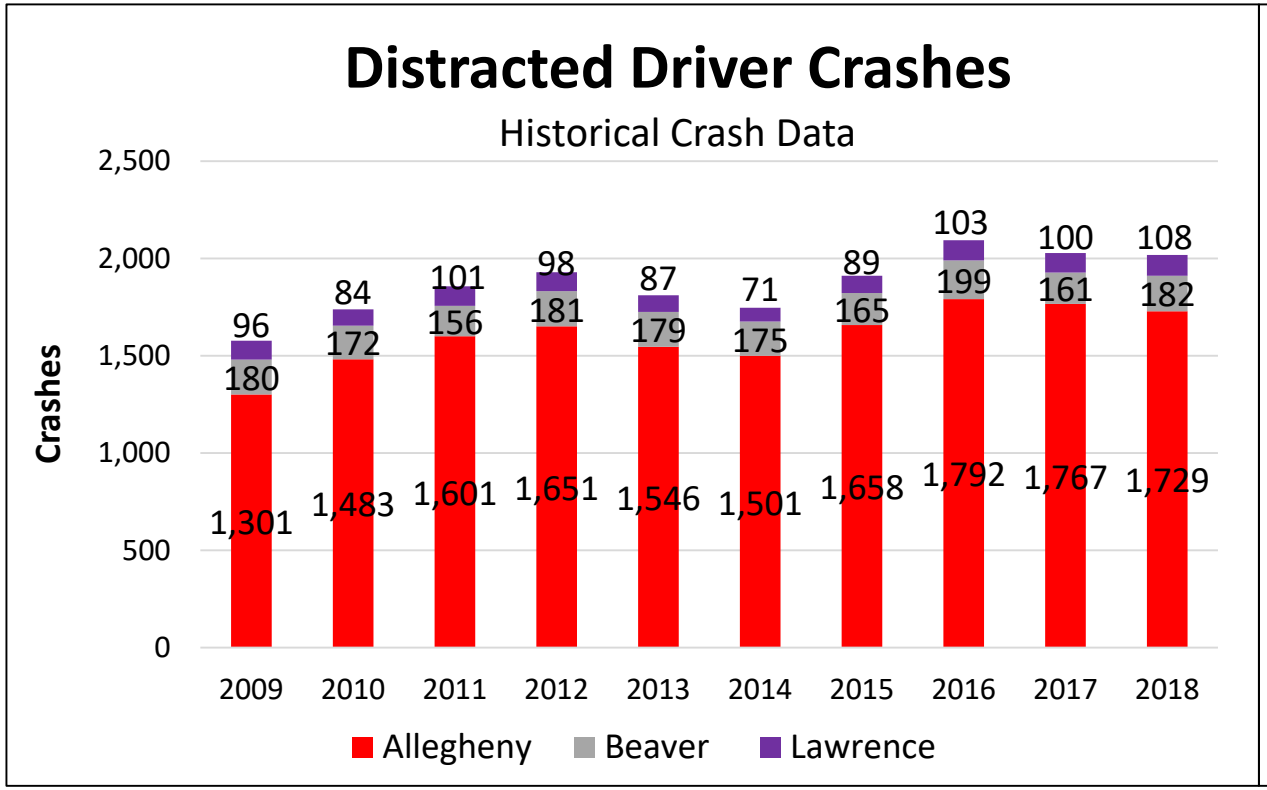


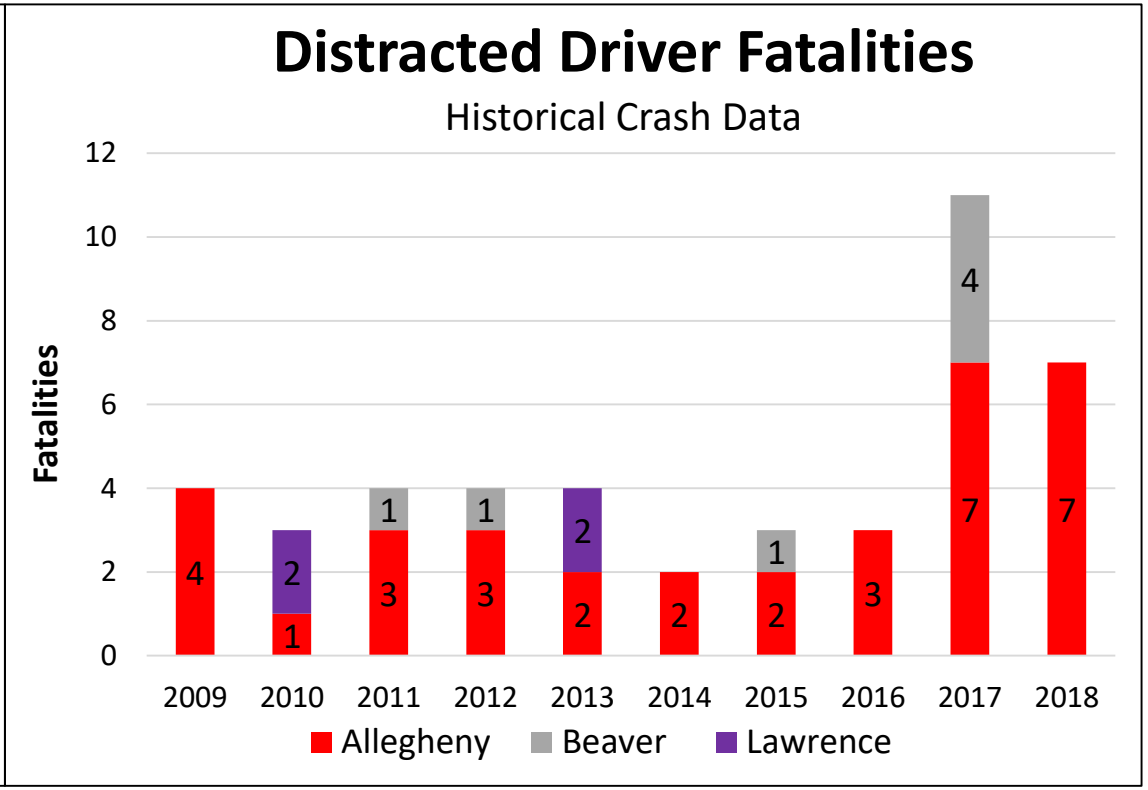


Upward Trend in Crashes/Fatals

Safety Focus Area Performance

Safety Focus Area: Distracted Driver Crashes

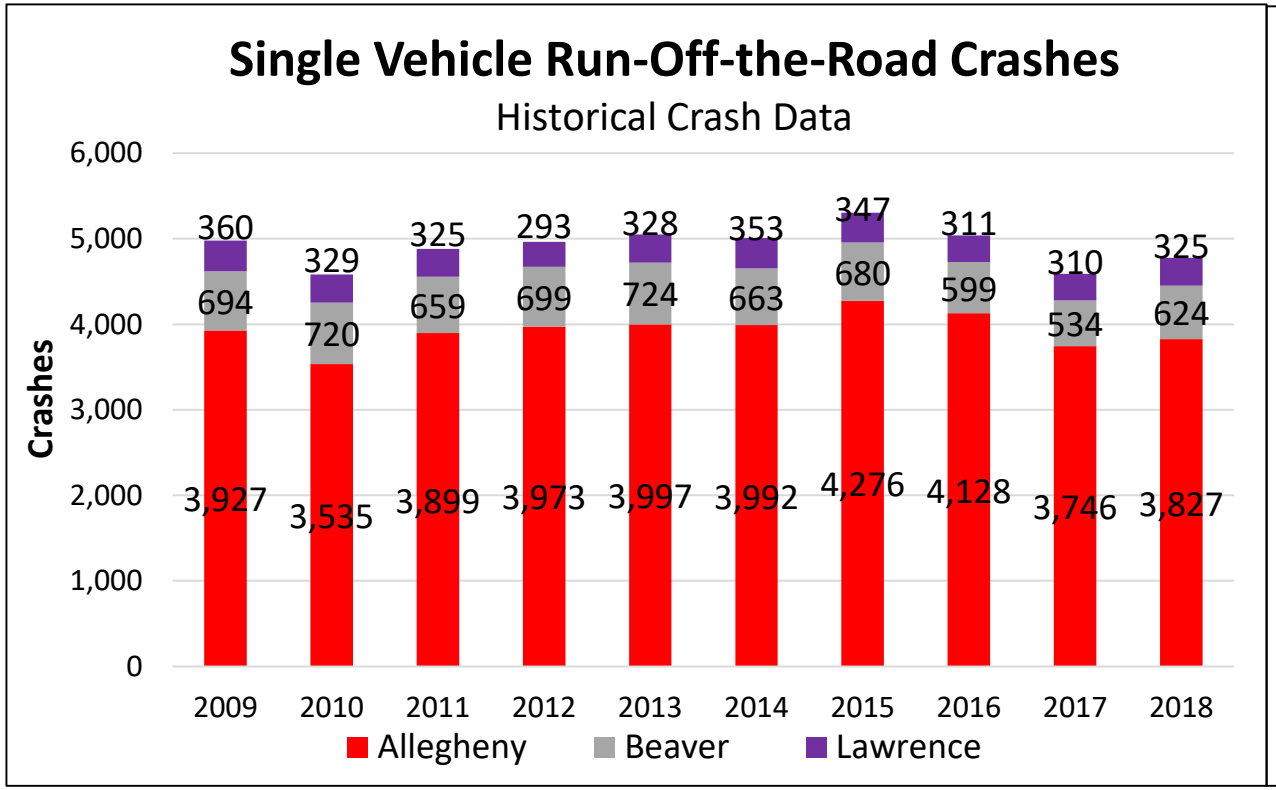


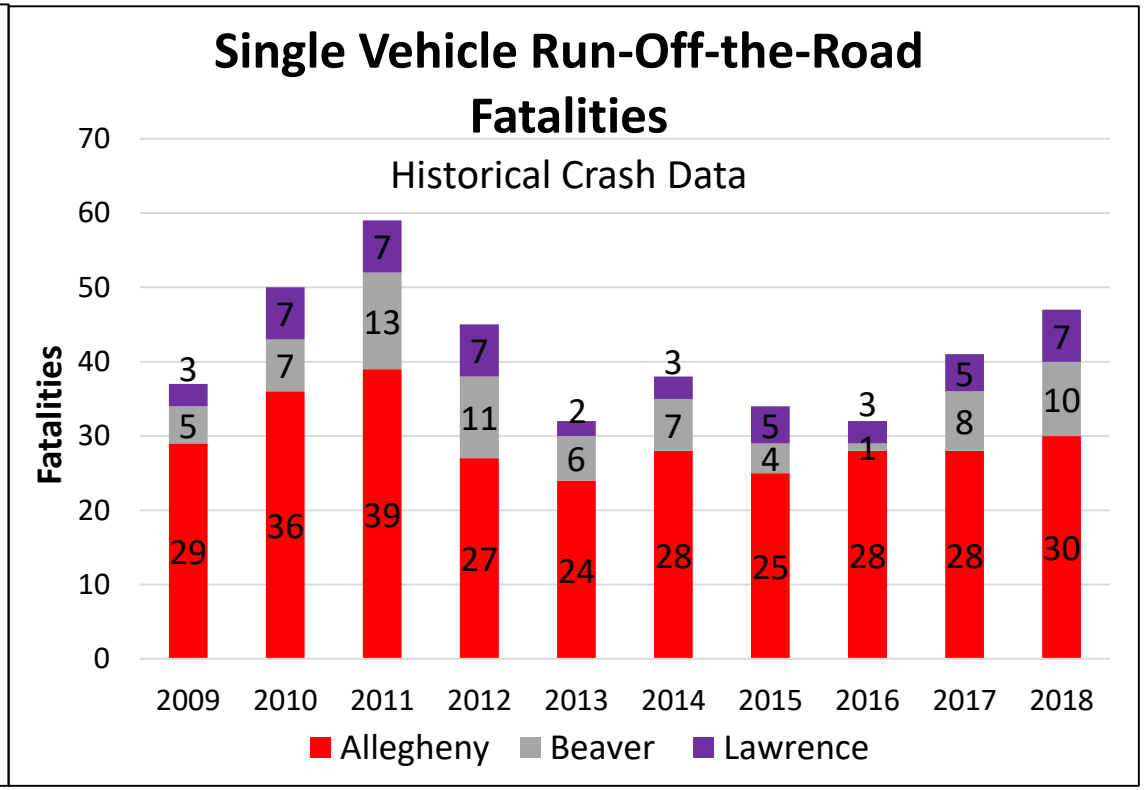


Upward Trend in Crashes/Fatals

Safety Focus Area Performance

Safety Focus Area: Single Vehicle Run-Off-The-Road Crashes



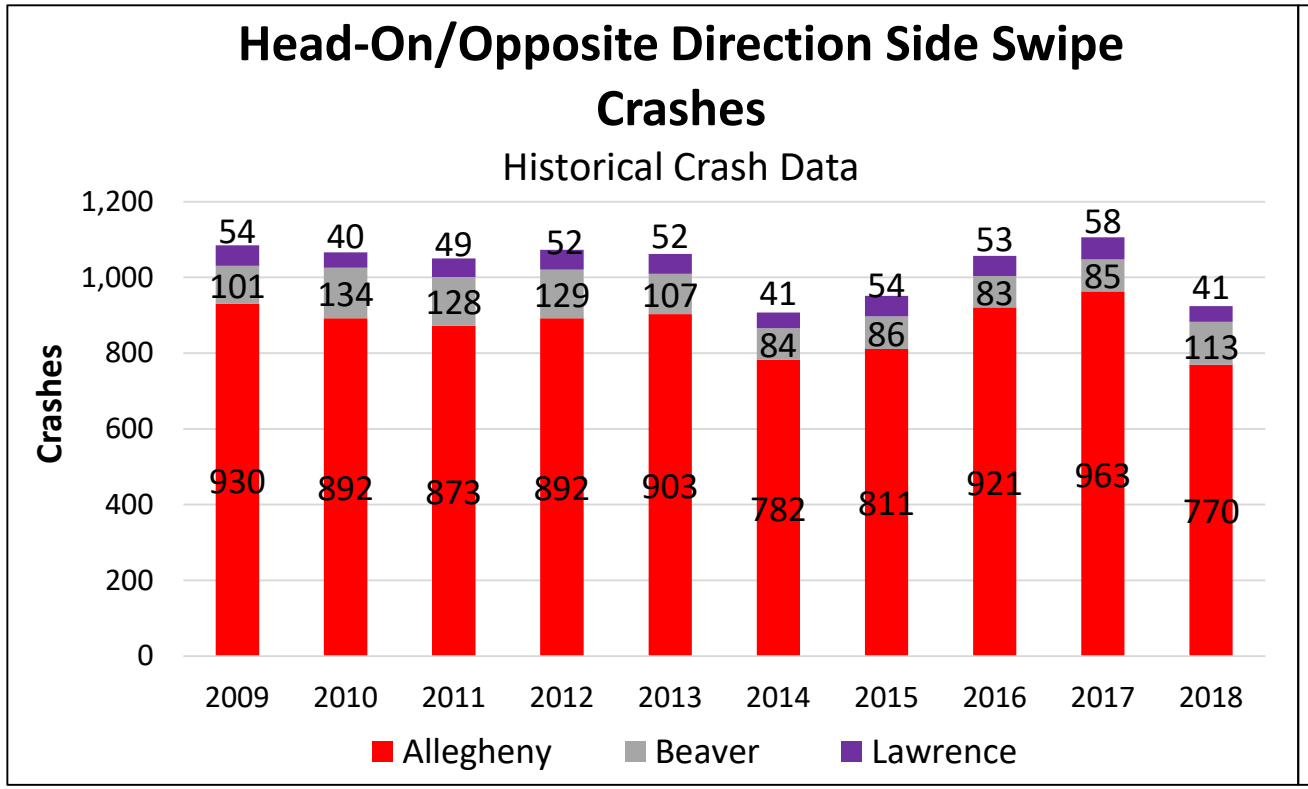


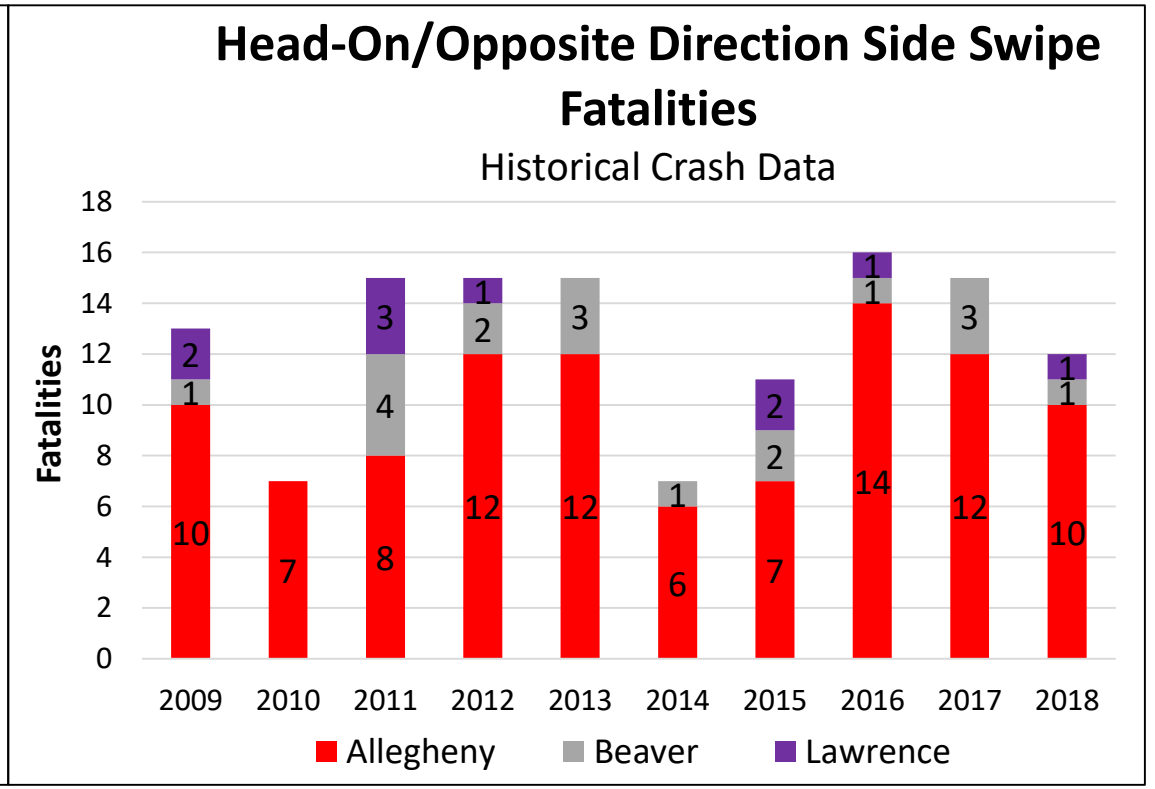
Stagnant Trend in Crashes

Upward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Head-On/Opposite Direction Side Swipe Crashes

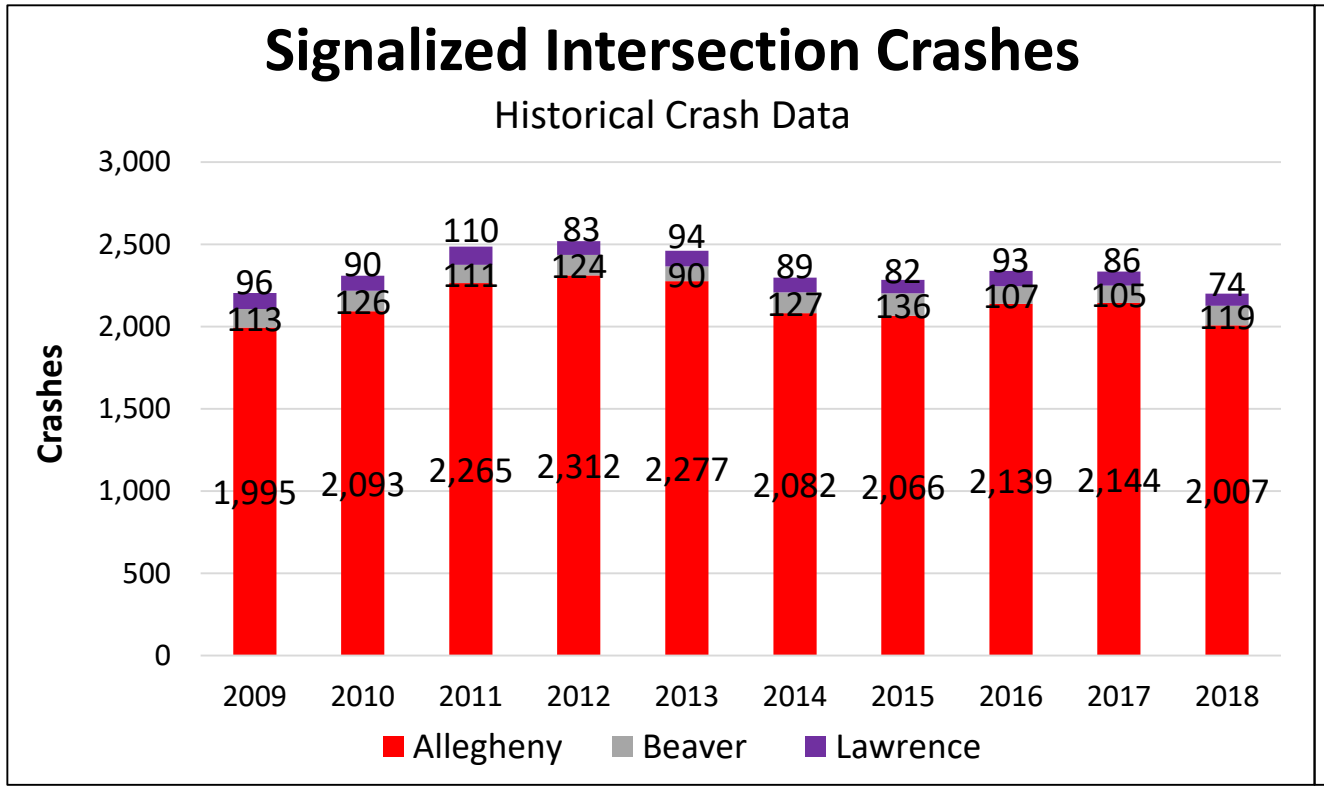


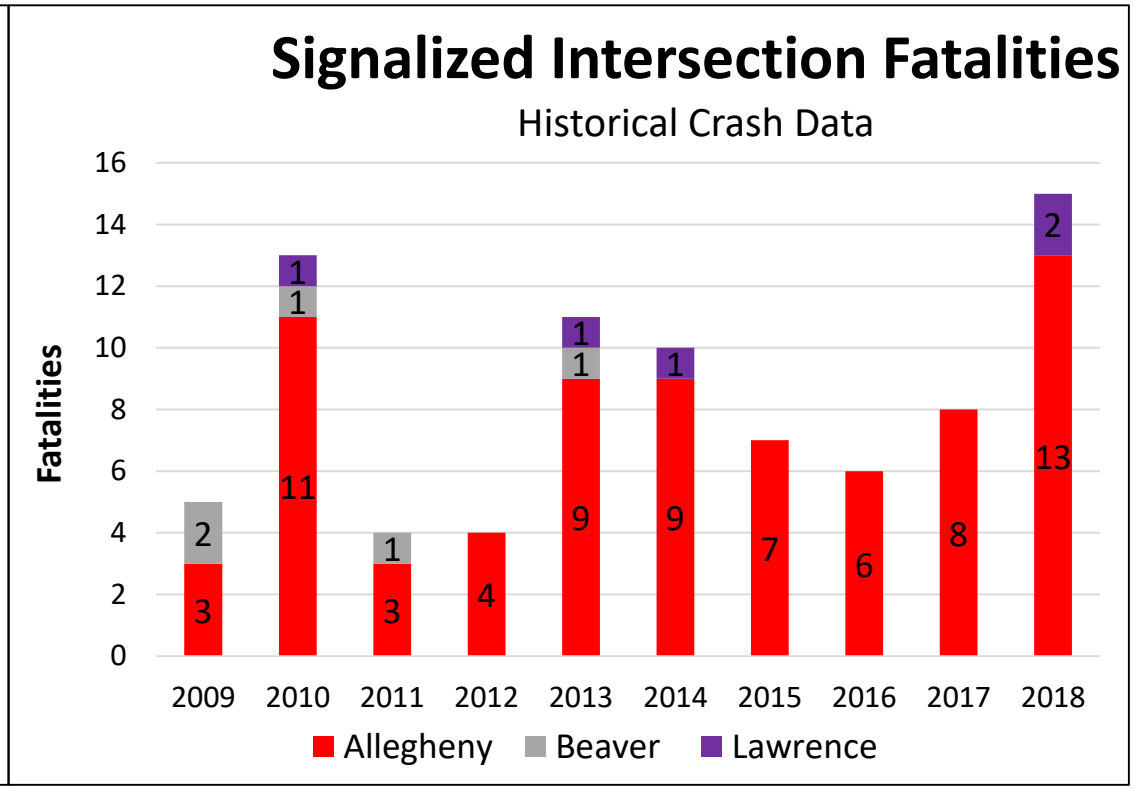


Stagnant Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Signalized Intersection Crashes



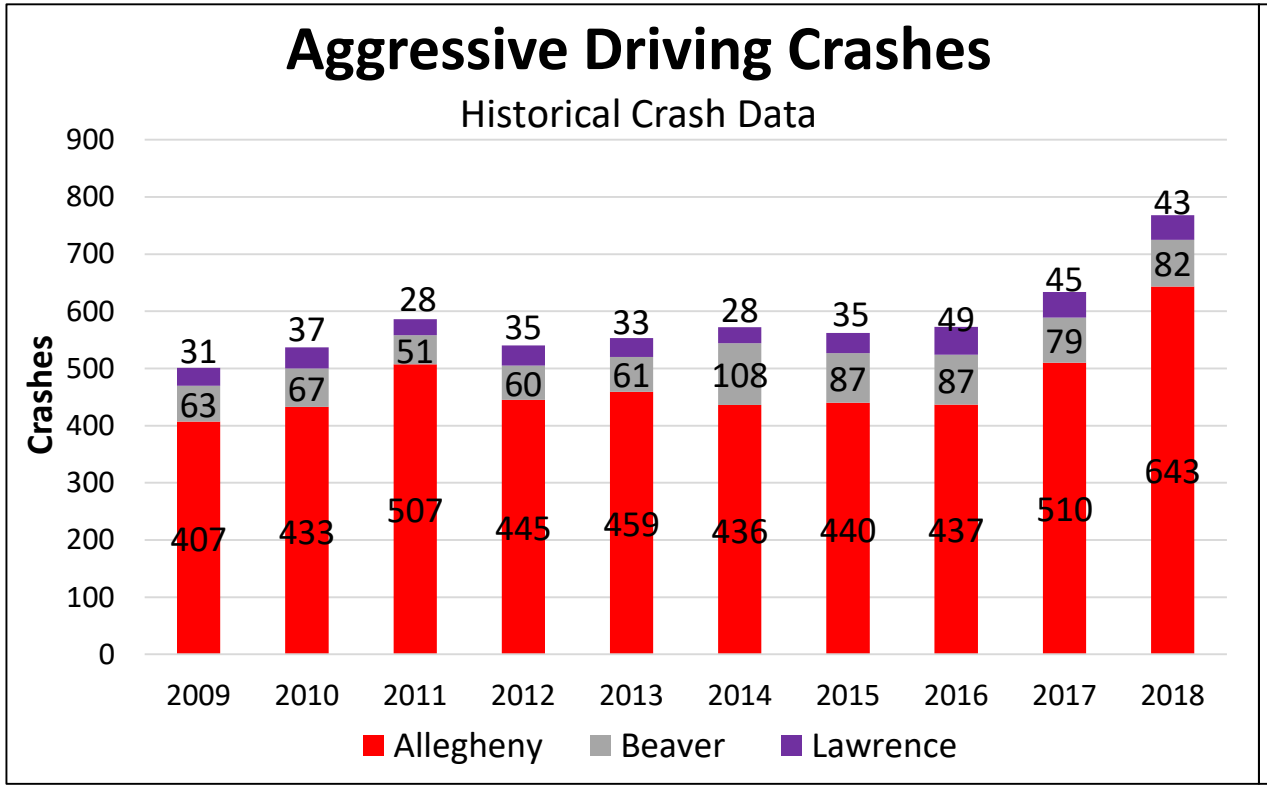


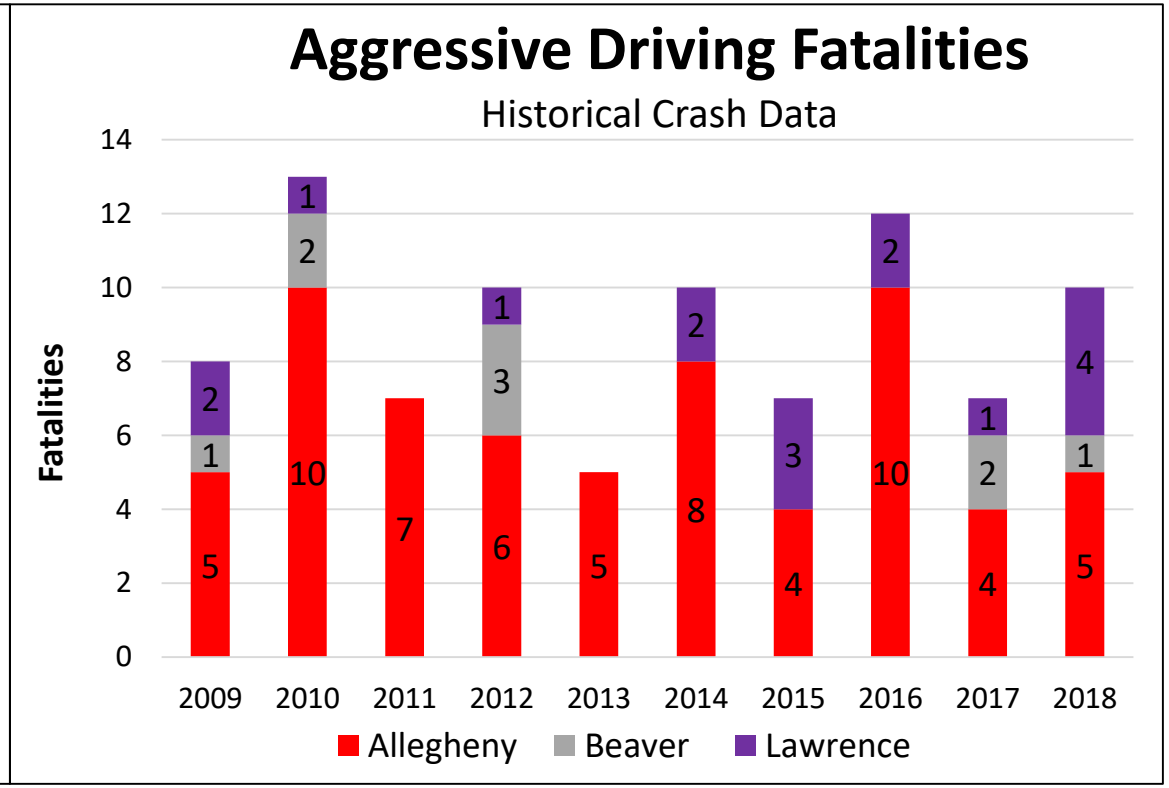
Stagnant Trend in Crashes

Upward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Aggressive Driving Crashes



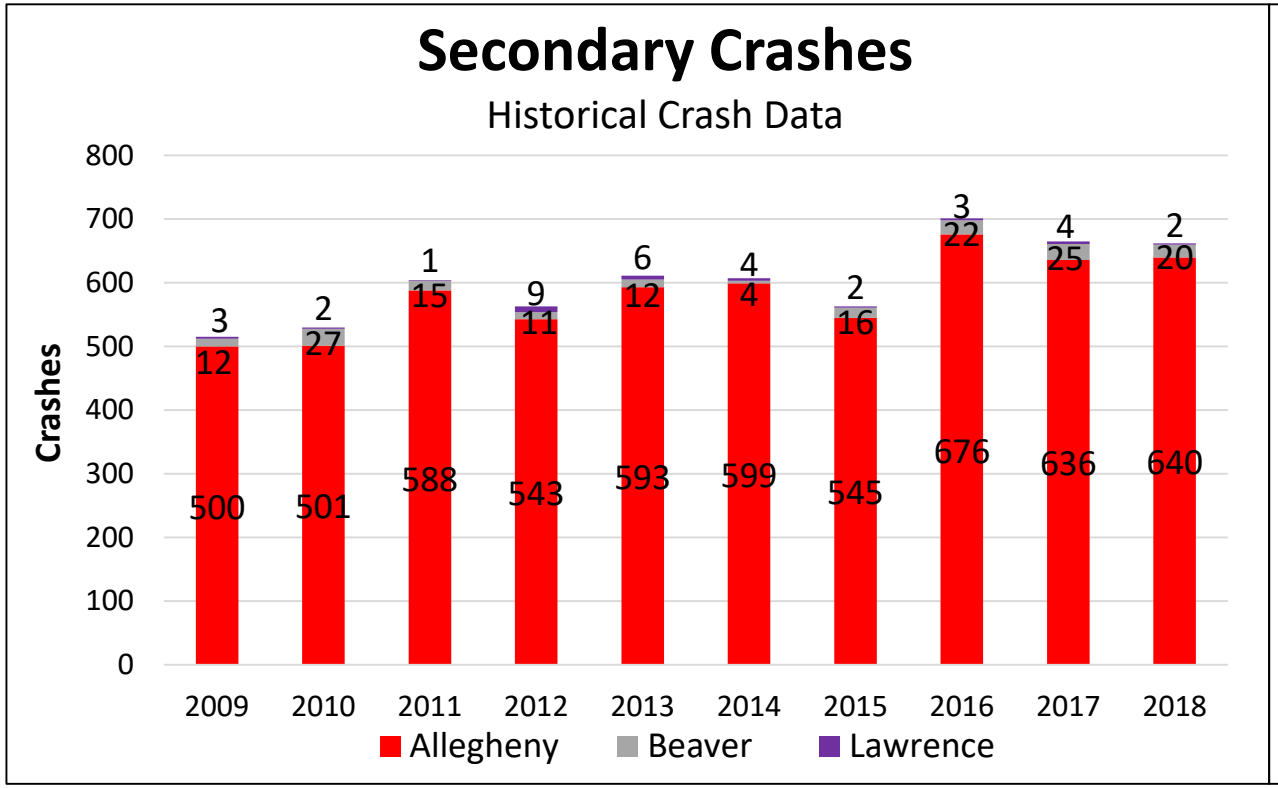


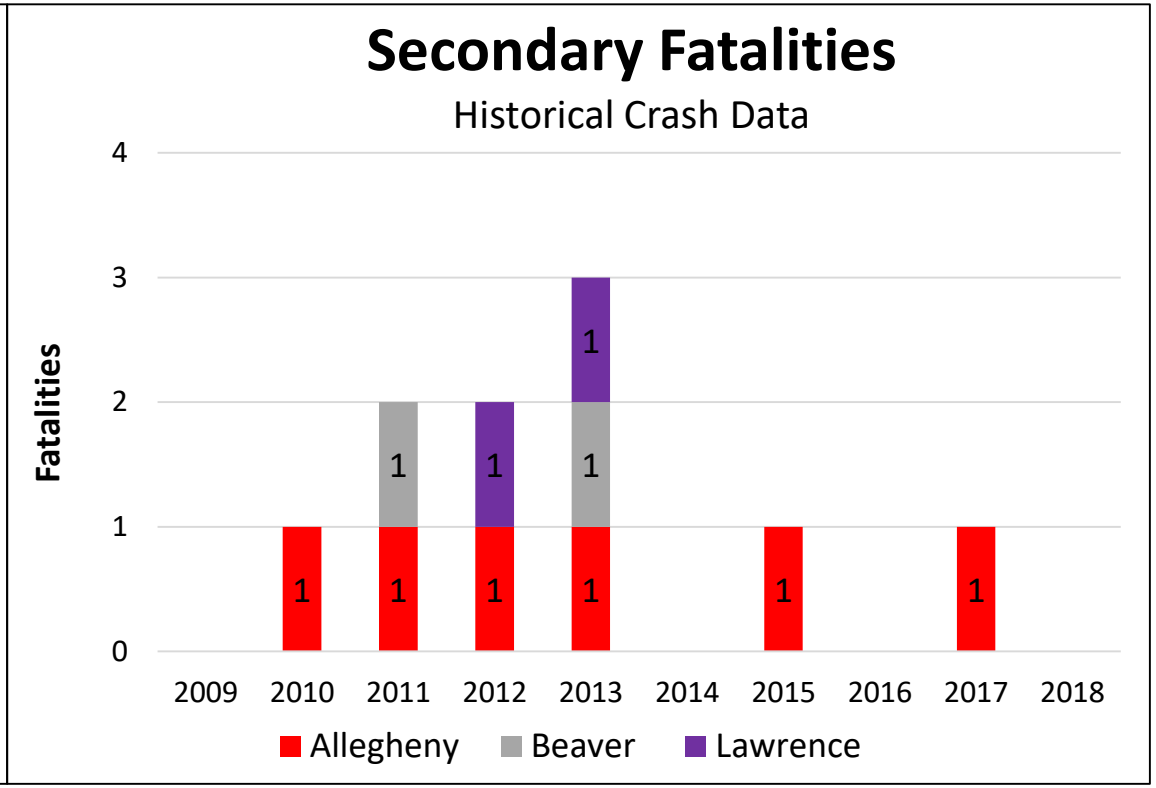
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Secondary Crashes



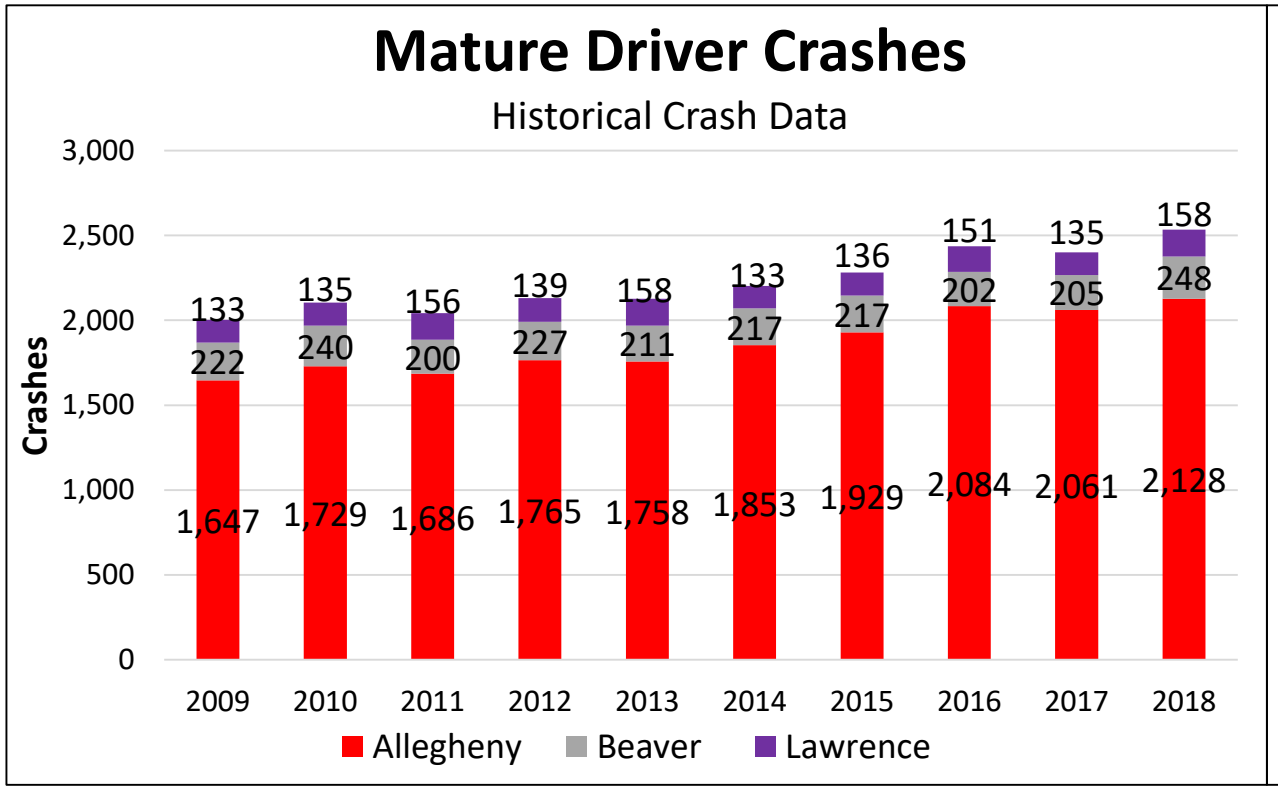


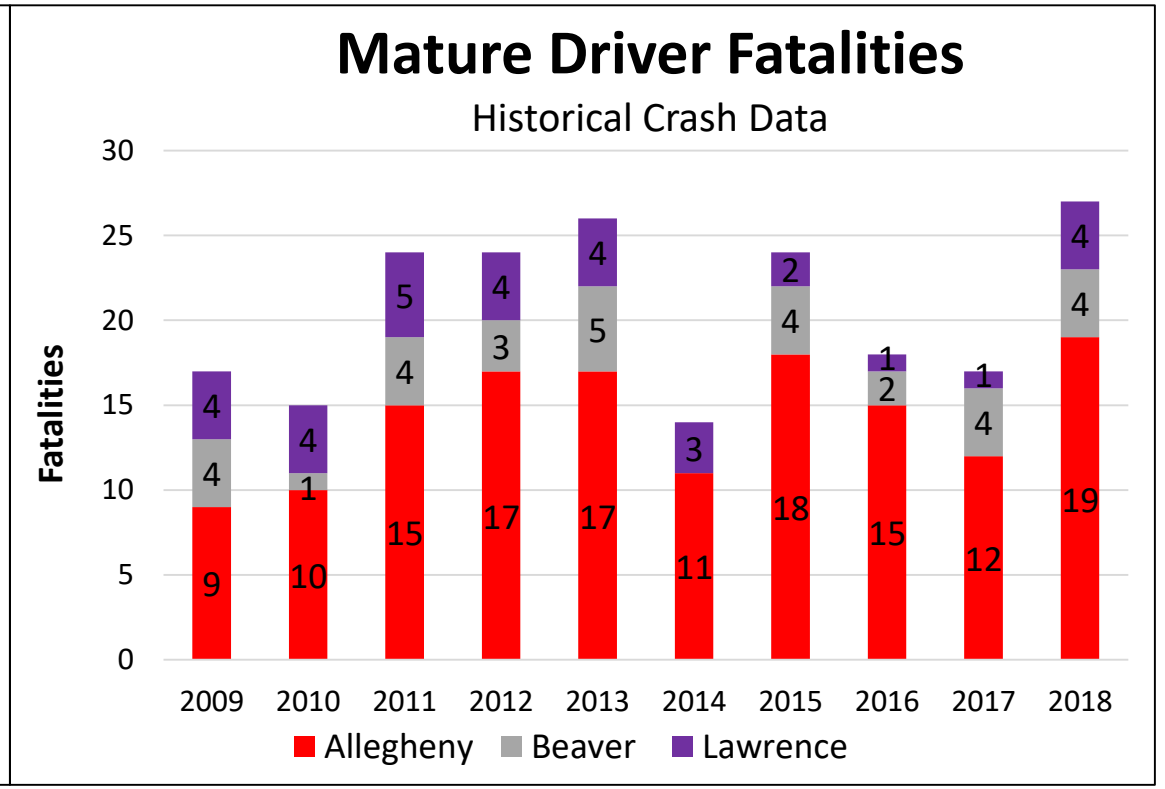
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Mature Driver Crashes



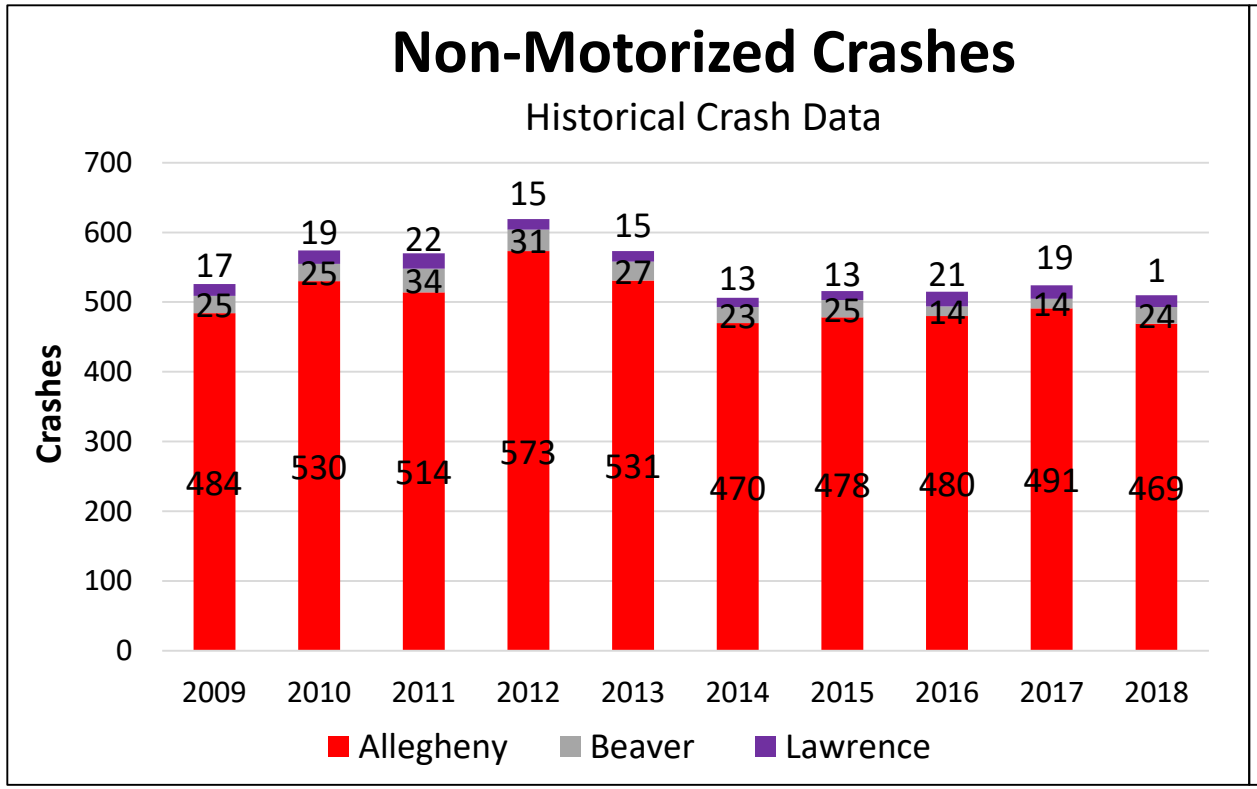


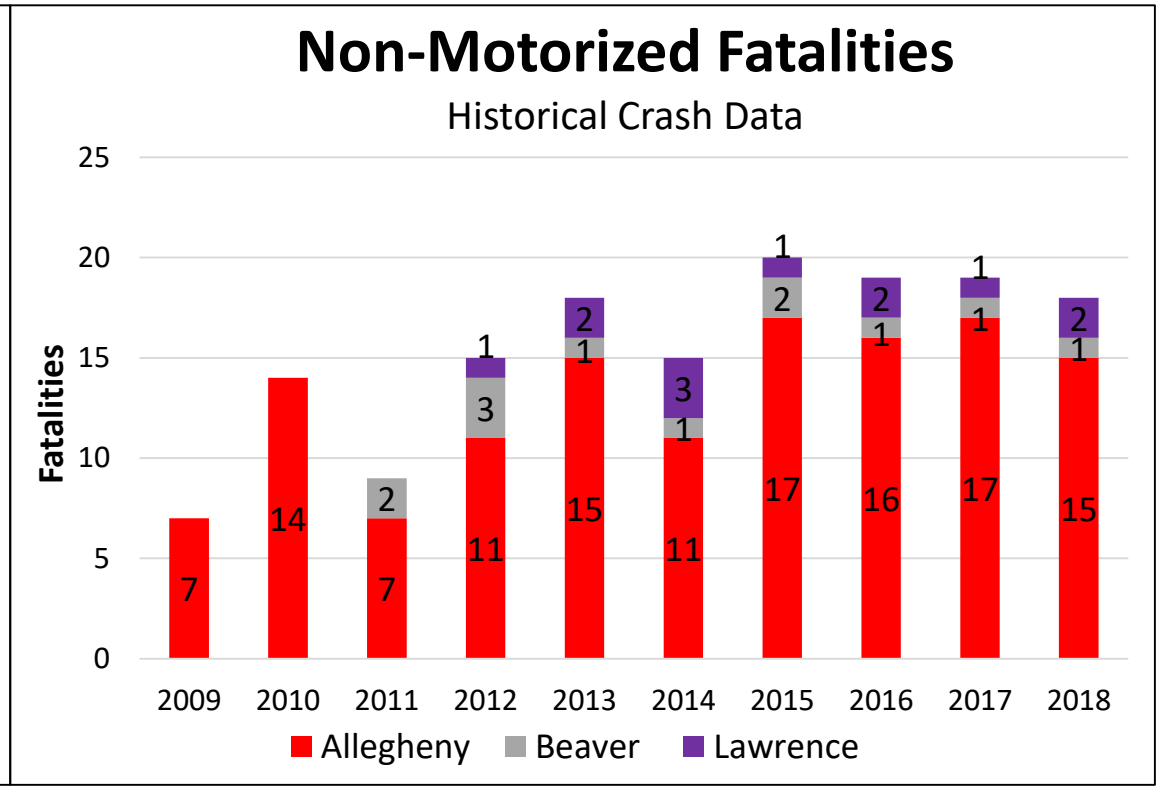
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Non-Motorized Crashes



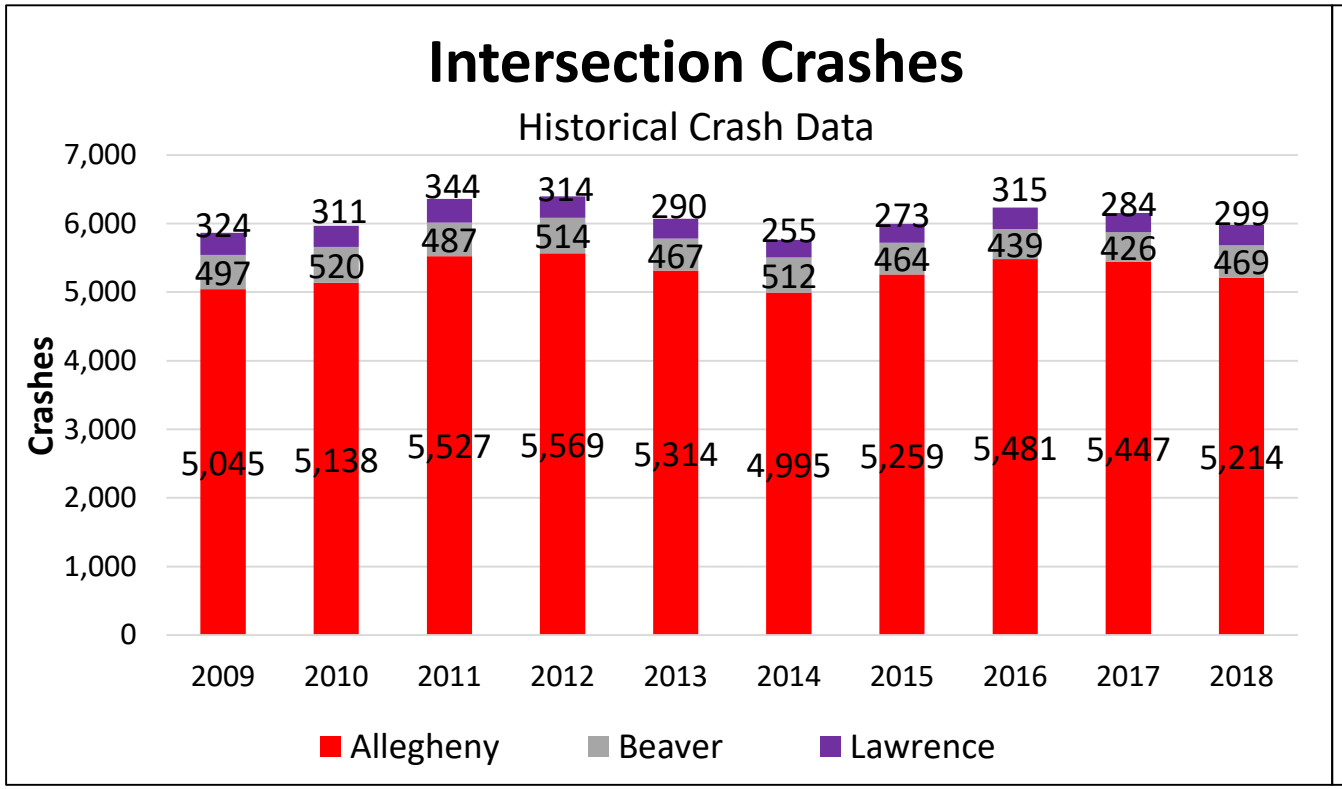


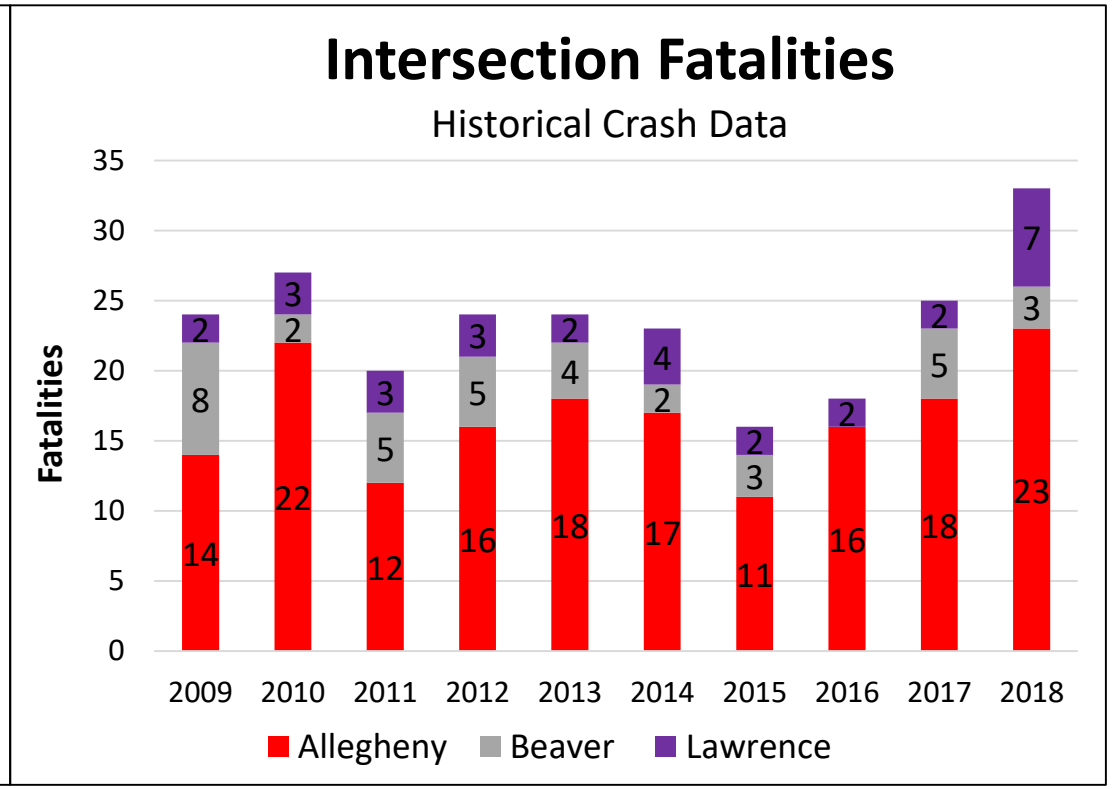
Stagnant Trend in Crashes

Upward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Intersection Crashes



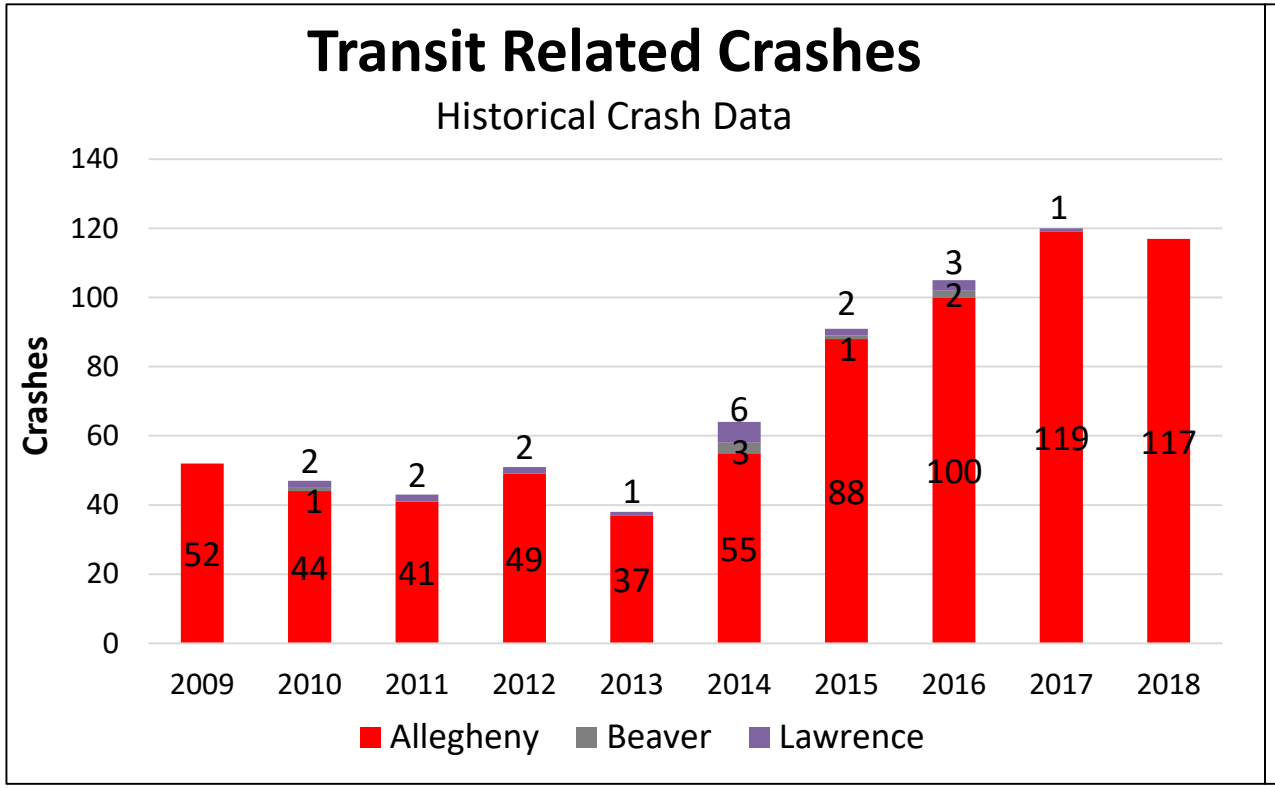


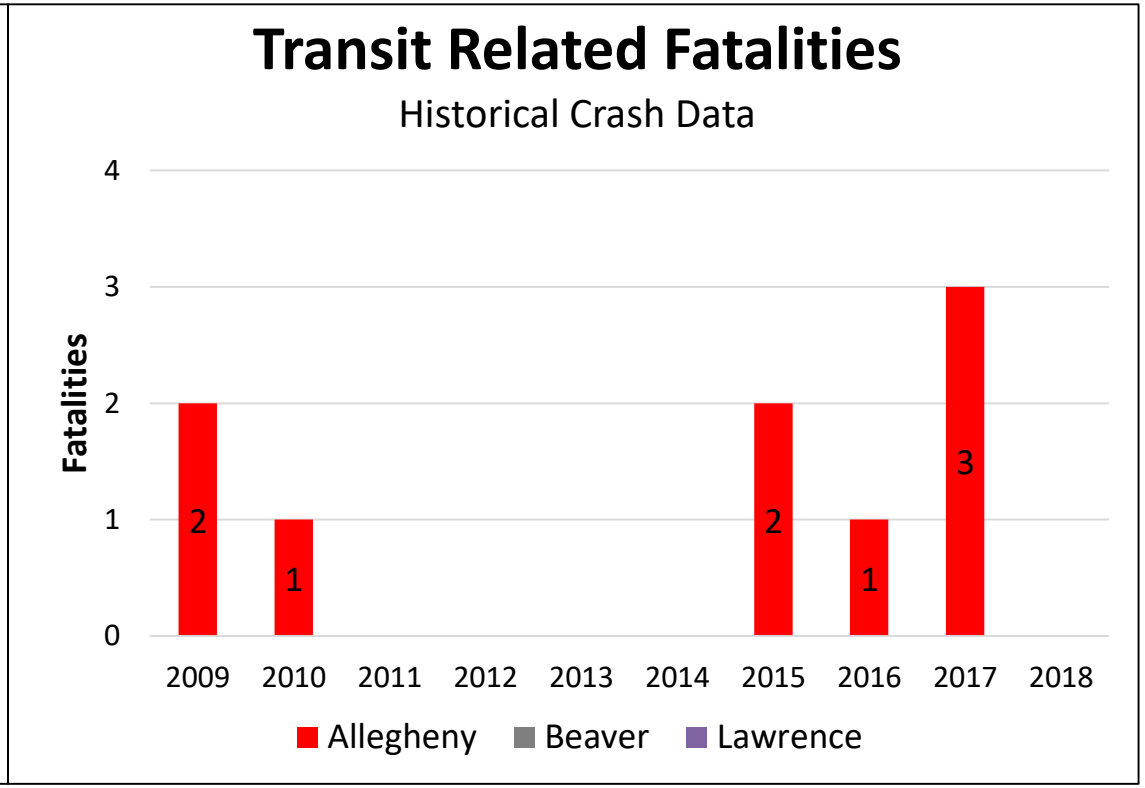
Stagnant Trend in Crashes

Upward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Transit Related Crashes



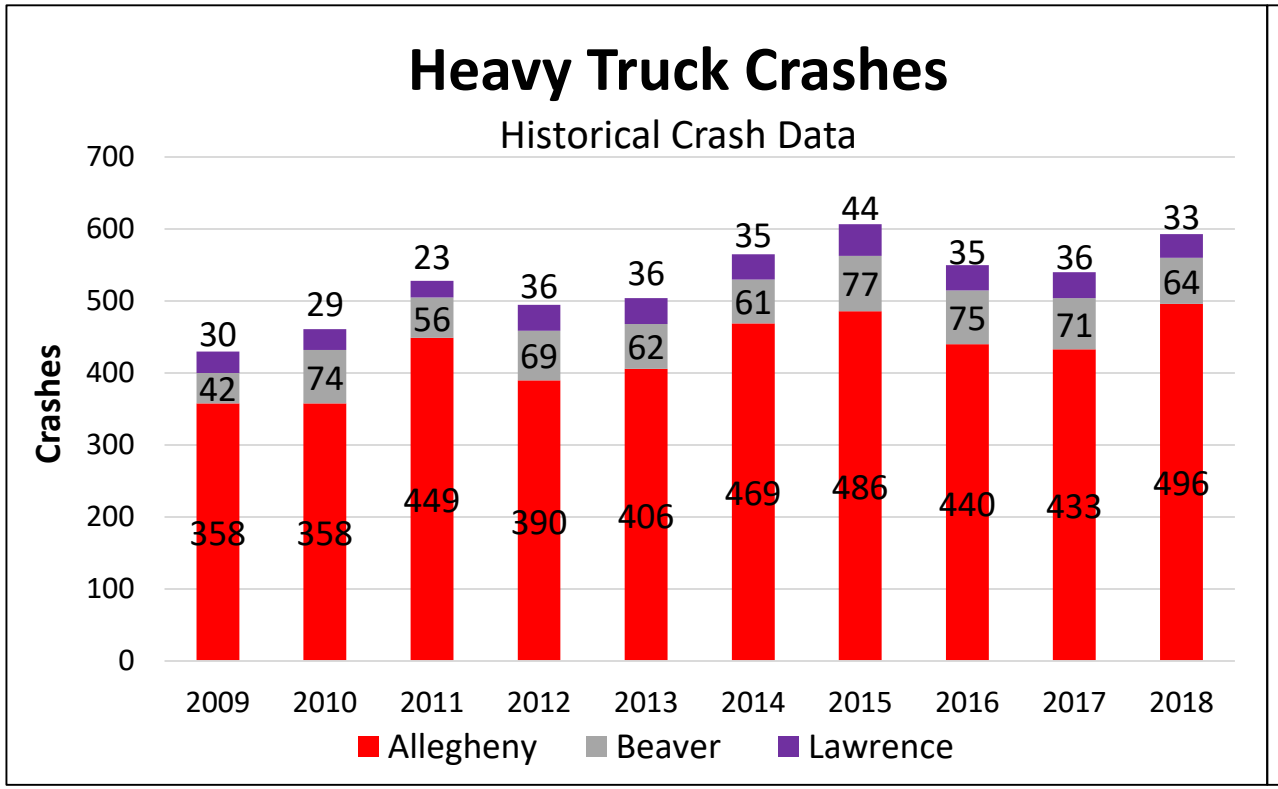


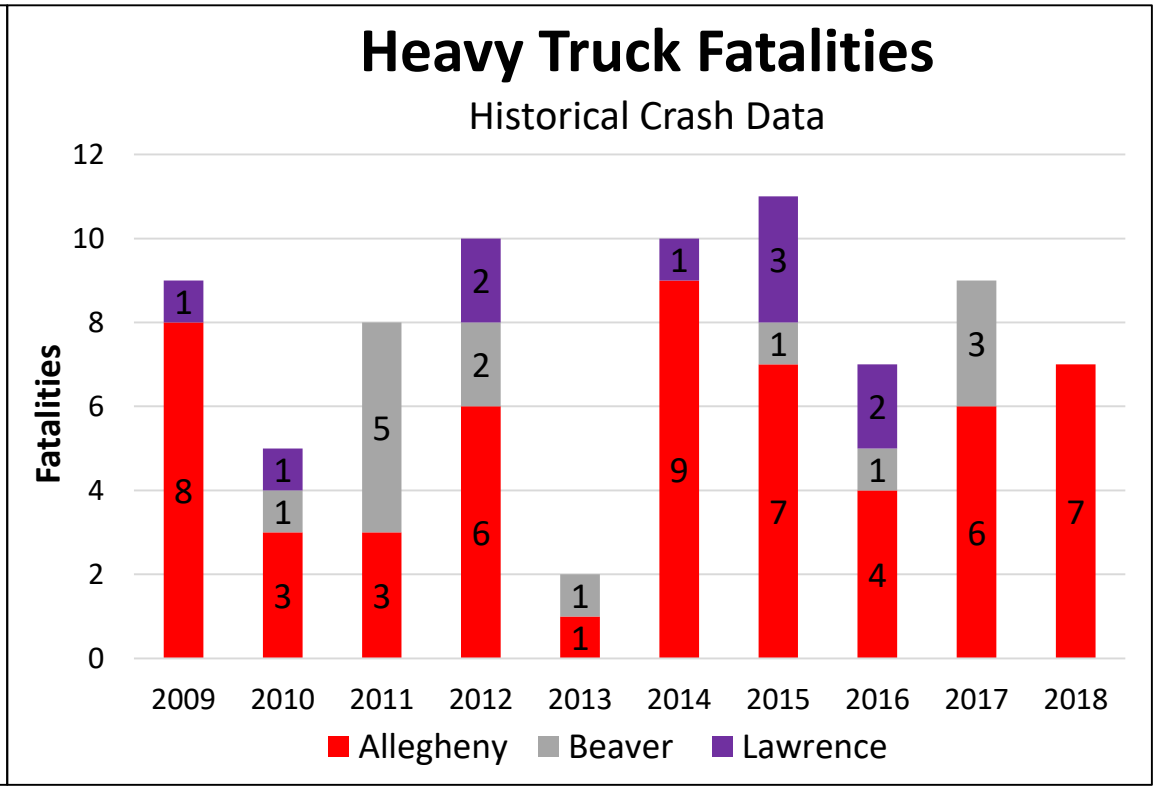
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Heavy Truck Crashes



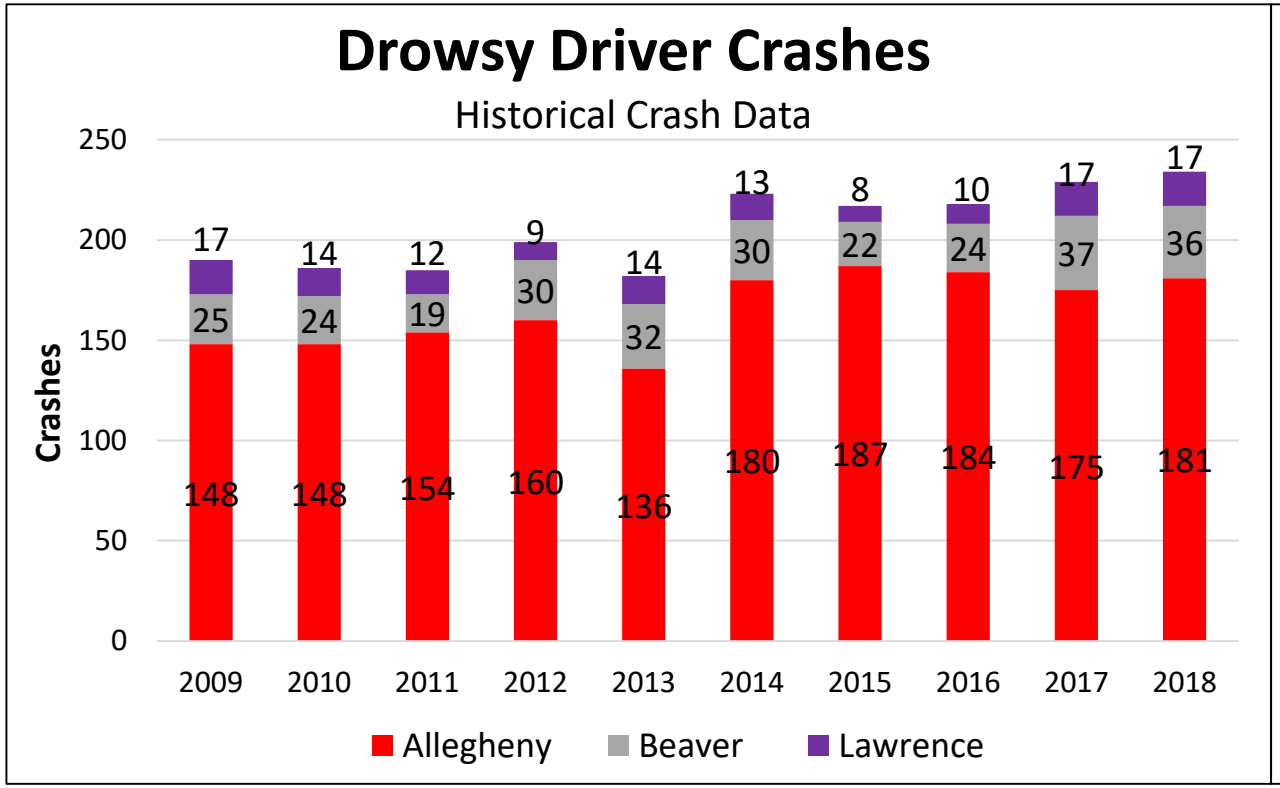


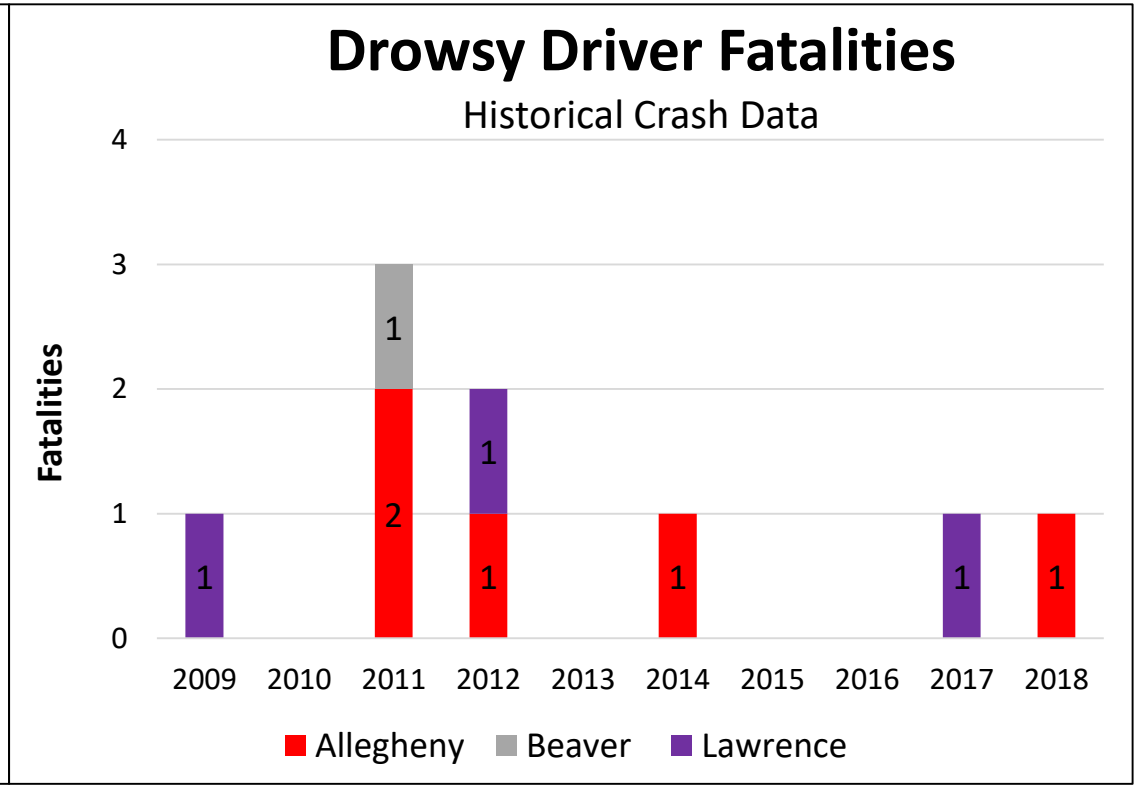
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Drowsy Driver Crashes





Upward Trend in Crashes

Stagnant Trend in Fatalities

District-Specific Safety Trends

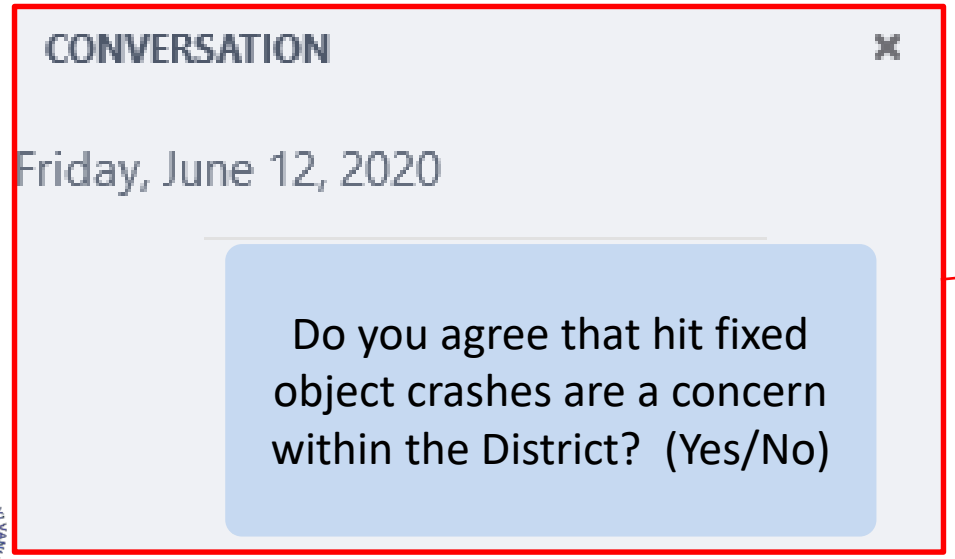
District Safety Focus Areas

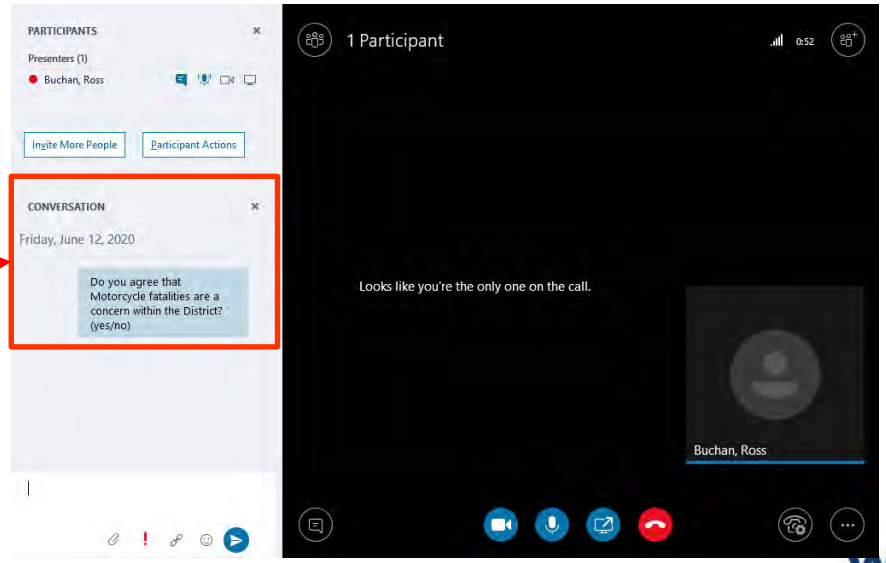
- PennDOT monitors an additional 21 crash categories in addition to the 13 Safety Focus Areas
- Investigated the other 21 categories for disconcerting trends (stagnant or increasing crash trends)
  - Only flagged crash categories where crash frequency and/or fatals are increasing comprehensively within the District (*not per County*)
- Final report will provide data for all 34 PennDOT crash categories

District-Specific Safety Trends

District Safety Focus Area Exercise

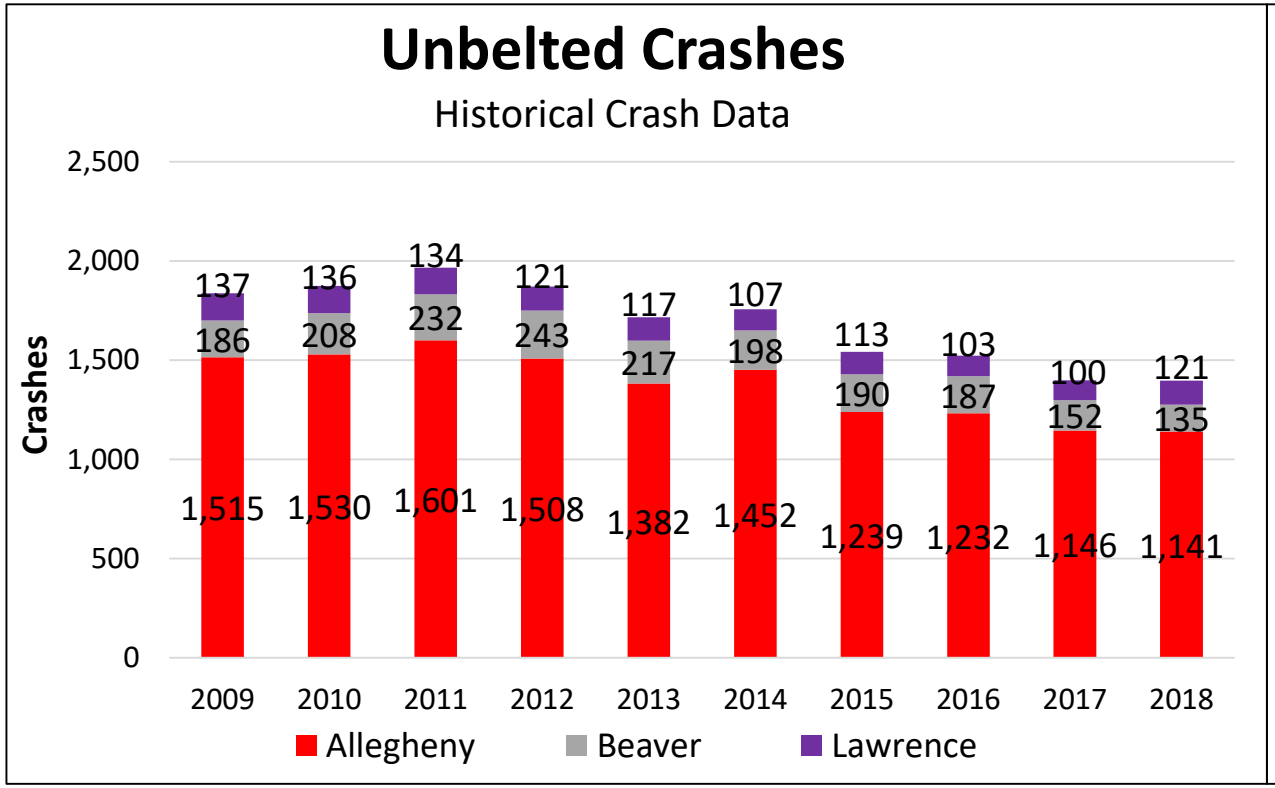
- Presenter to review stagnant or increasing Districtwide crash trends not discussed on the previous slides
- Presenter will prompt attendees to provide feedback in the Skype chat box during review of slide
  - Presenter will type question into chat box requesting “yes” or “no” response to make the crash trend a District Safety Focus Area

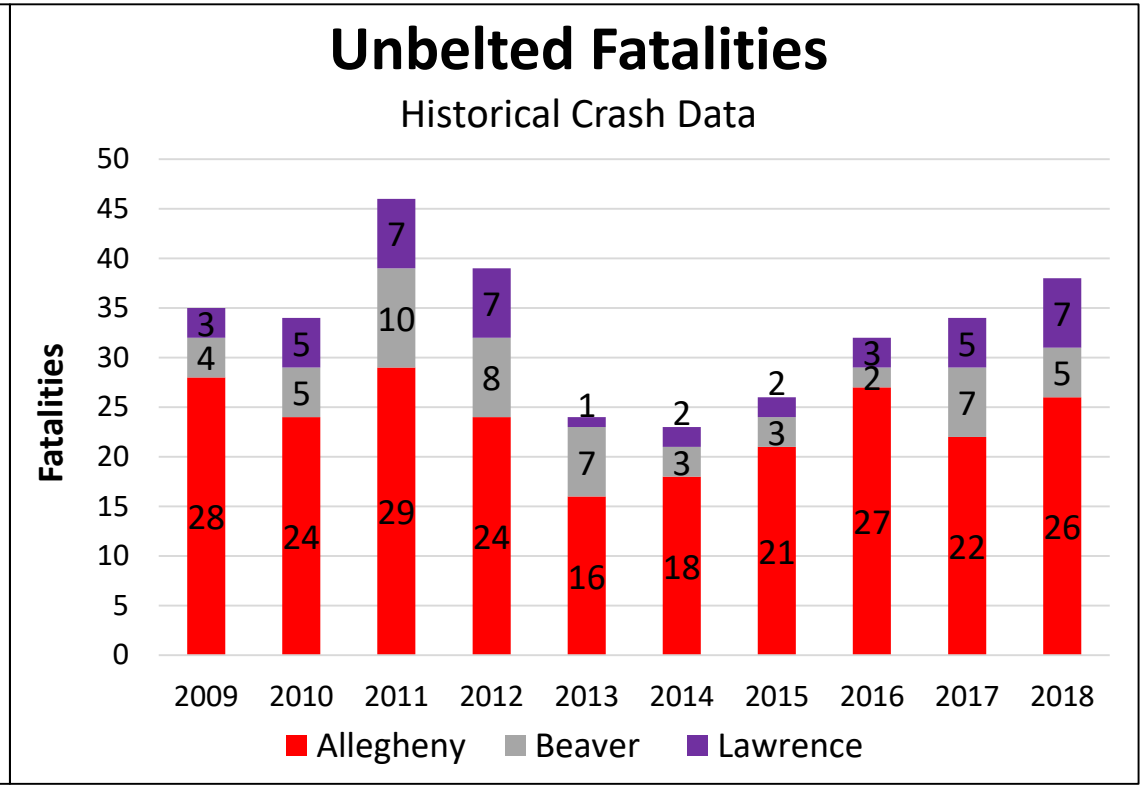




District-Specific Safety Trends

District Safety Focus Area: Unbelted Crashes



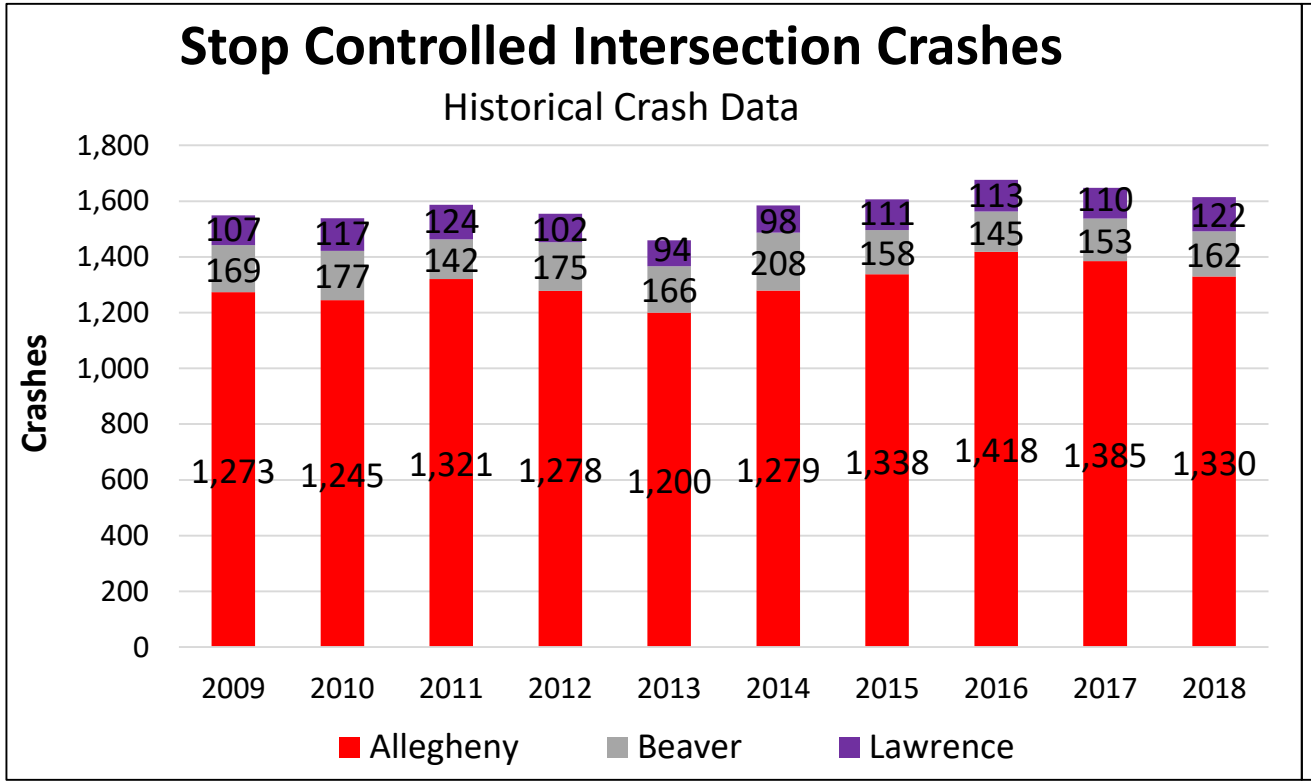


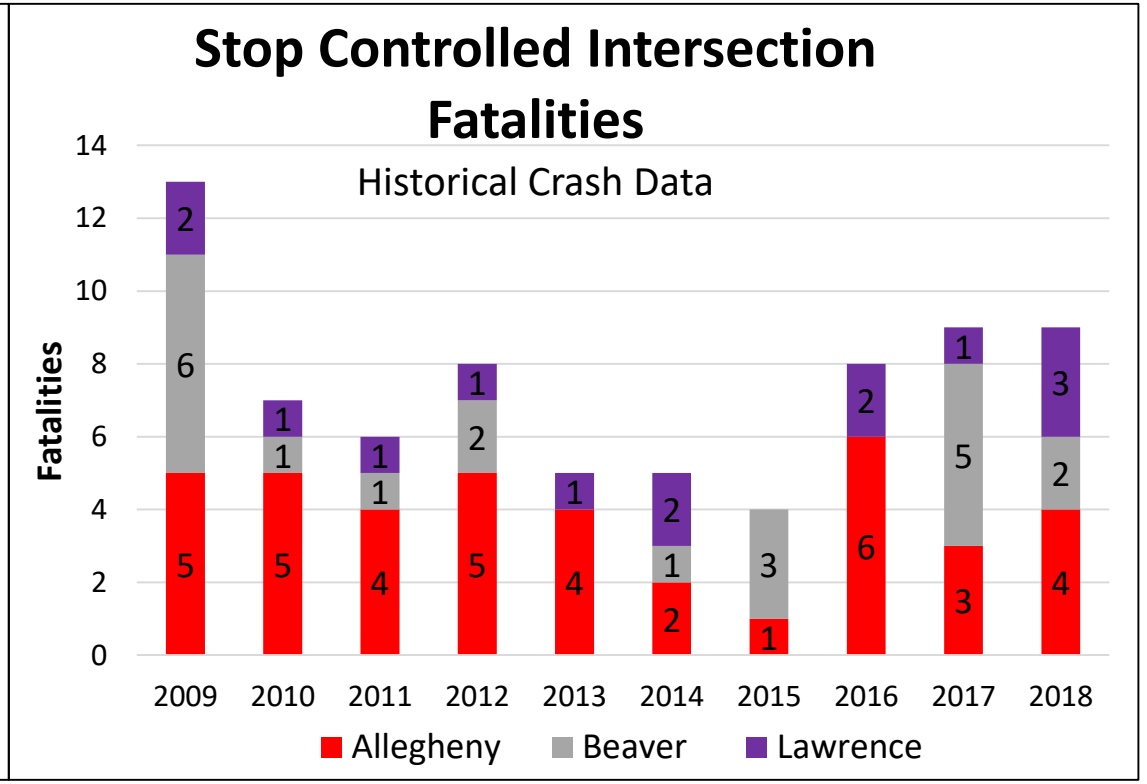
Downward Trend in Crashes

Upward Trend in Fatalities

District-Specific Safety Trends

District Safety Focus Area: Stop Controlled Intersection Crashes



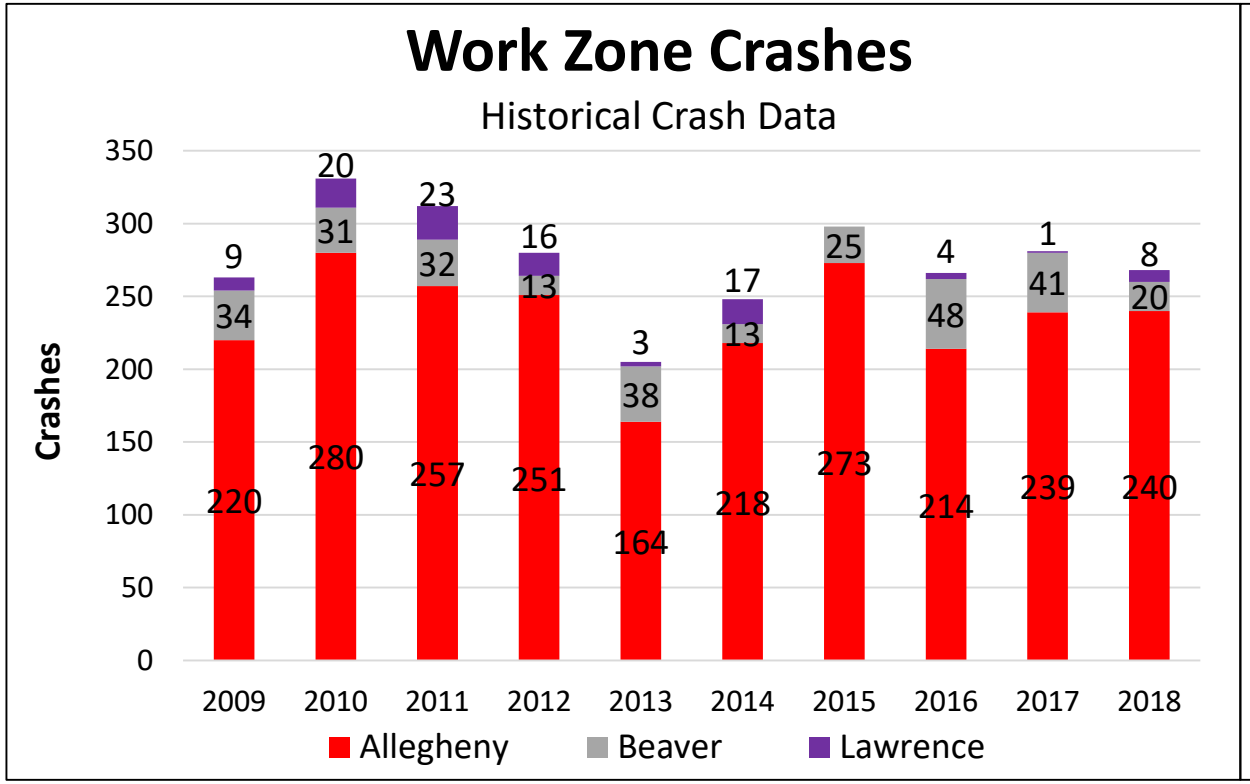


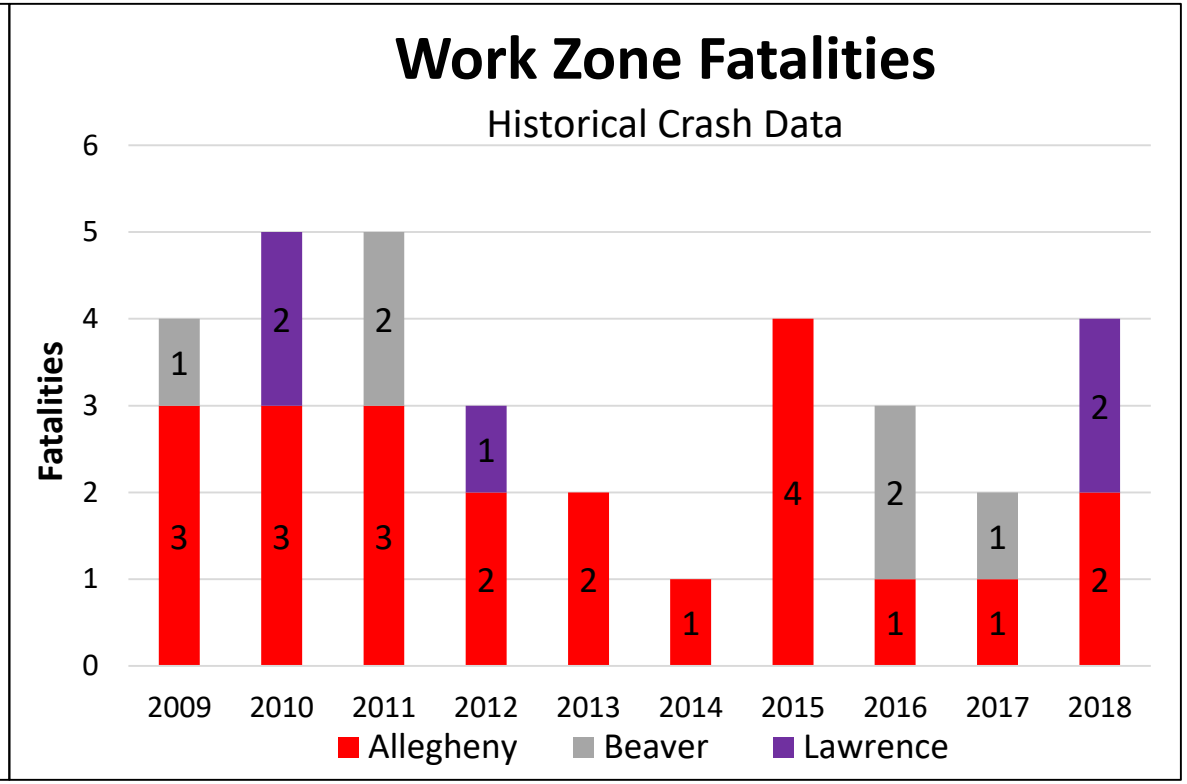
Upward Trend in Crashes

Stagnant Trend in Fatalities

District-Specific Safety Trends

District Safety Focus Area: Work Zone Crashes





Stagnant Trend in Crashes/Fatalities

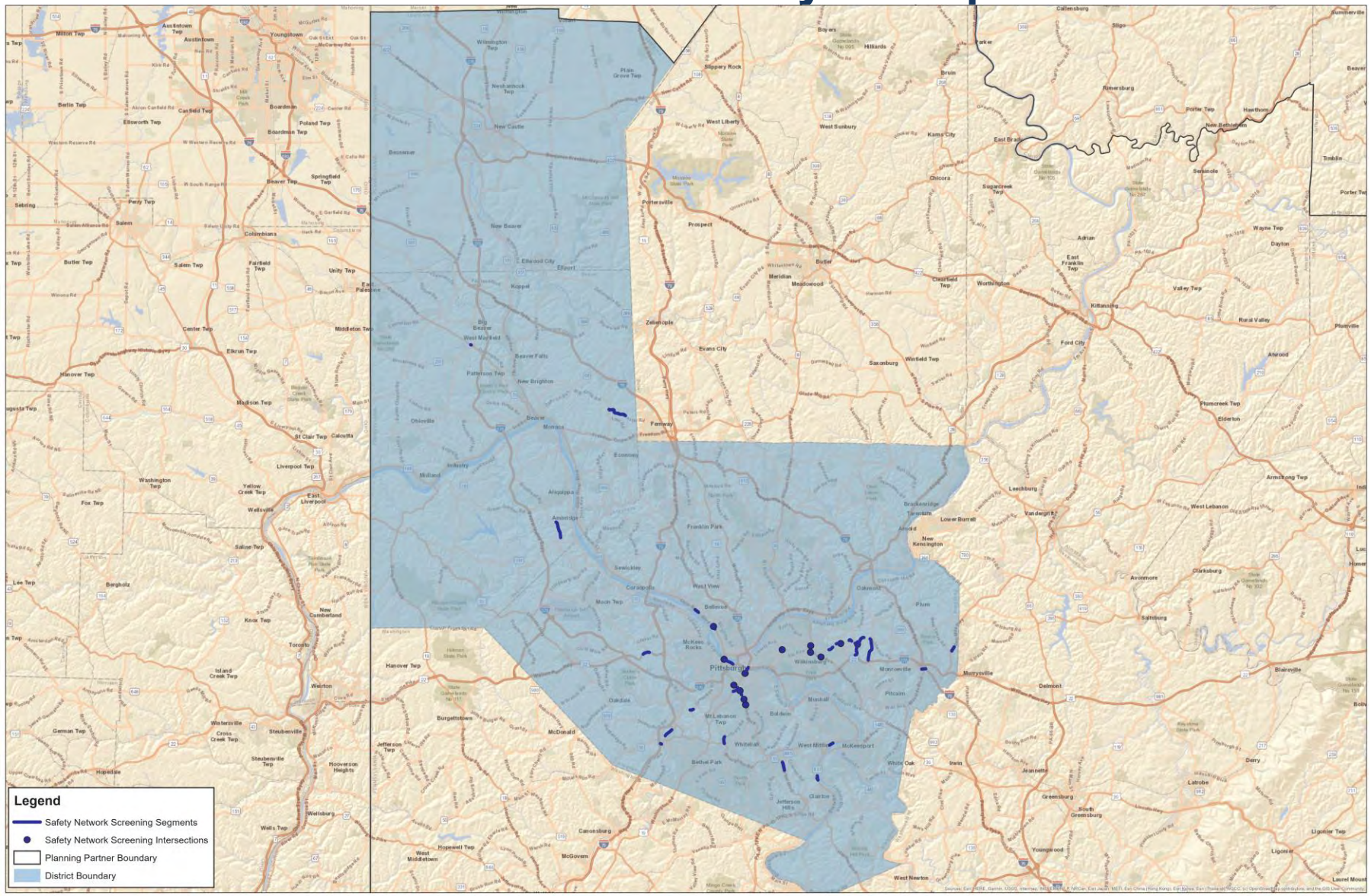
Location-Specific Safety Hot Spots

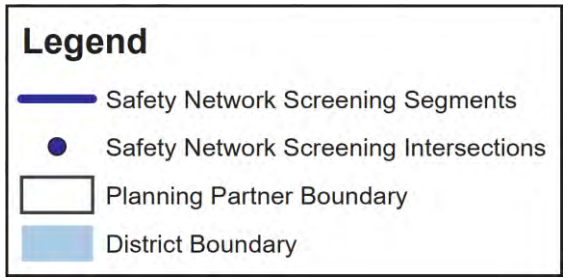
Safety Hot Spot Analysis

- HSM network screening data from 2012-2016
  - Mapped every location within GIS
  - Identified the top-40 initially ranked locations based on “Excess” value to develop interactive and static maps
  - Methodology for maps
    - Used BOMO developed HSM network screening data
      - 2012-2016 is most recent data set
    - Combined urban/rural and segment/intersection data sets to determine top-40 ranking list
    - Locations only considered if positive “Excess” value

Location-Specific Safety Hot Spots

HSM Network Screen Location Safety Hot Spots





Location-Specific Safety Hot Spots

HSM Network Screen Location Safety Hot Spots

District 11 HSM Network Screened Locations Initial Ranking (2012-2016 Data)					
Rank	**Location**	**Observed Crashes**	**Predicted Crashes**	**Expected Crashes**	**Excess**
1	Saw Mill Run Blvd / West End Bridge At Carson St	35.8	8.62	29.01	20.39
2	Liberty Bridge At McArdle Rd	24.2	6.21	18.62	12.41
3	Ohio River Blvd, from seg 30 off 179 to seg 30 off 2022	10	2.23	9.38	7.15
4	Ohio River Blvd At McKees Rocks Bridge / Brighton Hts Blvd	18.8	9.68	16.79	7.11
5	Rodi Rd, from seg 40 off 916 to seg 60 off 599	15.8	7.28	14.35	7.07
6	Saw Mill Run Blvd At Whited St / Colerain St	15.4	3.11	9.62	6.51
7	West Carson St, from seg 590 off 200 to seg 600 off 236	18.6	12.19	18.22	6.03
8	Washington Ave / Washington Pk, from seg 130 off 1379 to seg 150 off 455	16.6	10.34	16.16	5.82
9	Liberty Br, from seg 110 off 0 to seg 110 off 2683	14.6	9.04	14.27	5.23
10	Rodi Rd, from seg 20 off 1470 to seg 40 off 730	12.8	6.61	11.75	5.14
11	Library Rd, from seg 110 off 35 to seg 120 off 566	10	3.59	8.72	5.13
12	Saw Mill Run Blvd At Edgebrook Ave	12	2.74	7.28	4.54
13	Saw Mill Run Blvd At Bausman St / Private Dwy	12	4.92	9.45	4.53
14	Constitution Blvd, from seg 390 off 2194 to seg 390 off 2453	5.6	1.02	5.33	4.31
15	Frankstown Rd, from seg 220 off 1217 to seg 250 off 545	11.8	6.37	10.66	4.29
16	Millers Run Rd, from seg 100 off 707 to seg 100 off 1085	5.2	0.88	4.81	3.93
17	Beulah Rd, from seg 132 off 2397 to seg 152 off 529	7.6	2.62	6.45	3.83
18	Saw Mill Run Blvd, from seg 380 off 2000 to seg 386 off 1105	12	8.02	11.76	3.74
19	Frankstown Rd, from seg 162 off 2003 to seg 180 off 278	8	3.93	7.59	3.66
20	West Liberty Ave, from seg 60 off 1700 to seg 90 off 169	10.8	6.96	10.53	3.57

KEY Segments
Intersections

Location-Specific Safety Hot Spots

HSM Network Screen Location Safety Hot Spots

District 11 HSM Network Screened Locations Initial Ranking (2012-2016 Data)					
Rank	**Location**	**Observed Crashes**	**Predicted Crashes**	**Expected Crashes**	**Excess**
21	Ohio River Blvd, from seg 60 off 354 to seg 60 off 1990	8.8	5.28	8.59	3.31
22	Coal Hollow Rd / Beulah Rd, from seg 122 off 2032 to seg 132 off 1995	7.4	3.38	6.48	3.1
23	Washington St, from seg 220 off 1244 to seg 230 off 565	5.6	1.31	4.4	3.09
24	Frankstown Rd At Coal Hollow Rd / Beulah Rd / Laketon Rd	9.6	4.74	7.8	3.06
25	Penn Ave At N Dallas Ave / S Dallas Ave	9.2	4.23	7.21	2.98
26	Brodhead Rd, from seg 40 off 1079 to seg 60 off 400	8.6	5.76	8.6	2.84
27	Frankstown Rd, from seg 210 off 272 to seg 210 off 1466	5	1.41	4.21	2.8
28	Golden Mile Hwy, from seg 50 off 1000 to seg 50 off 2742	5.4	1.56	4.36	2.8
29	Saw Mill Run Blvd At Crane Ave	9	4.64	7.43	2.79
30	5th Ave / Washington Blvd At Frankstown Ave	9	4.63	7.34	2.71
31	Baum Blvd At Millvale Ave	8.2	2.71	5.4	2.69
32	Northern Pk, from seg 10 off 1736 to seg 20 off 1307	5.6	2.63	5.27	2.64
33	Rochester Rd, from seg 10 off 500 to seg 30 off 741	8.4	3.85	6.4	2.55
34	Penn Ave At Brushton Ave	7.6	1.91	4.41	2.5
35	Bennett St / Frankstown Ave / Frankstown Rd, from seg 150 off 839 to seg 162 off 10	5	1.49	3.98	2.49
36	Clairton Blvd, from seg 230 off 1048 to seg 250 off 160	15	12.38	14.87	2.49
37	Greentree Rd, from seg 130 off 0 to seg 140 off 415	5.6	2.97	5.39	2.42
38	Frankstown Rd At Robinson Blvd / Verona Rd	8	3.79	6.19	2.4
39	Steubenville Pk, from seg 190 off 2310 to seg 210 off 200	7.2	4.31	6.71	2.4
40	North State St, from seg 170 off 1019 to seg 180 off 733	5.8	2.93	5.28	2.35

KEY Segments
Intersections

Location-Specific Safety Hot Spots

Safety Hot Spot Analysis (cont'd)

- Supplemented HSM screening data with crash cluster data from 2014-2018
  - Overlaid HSM maps with top-20 crash cluster segments and top-20 crash cluster intersections
  - Methodology for maps
    - Used CDART generated crash clusters for 2014-2018
      - 2014-2018 is most recent data set
    - Ranked 40 crash cluster locations to match HSM network screened location total (40 to 40)
    - Crash cluster locations were ranked by highest delta value for each cluster category
      - Delta value is calculated using crash rate and PennDOT's homogenous reports

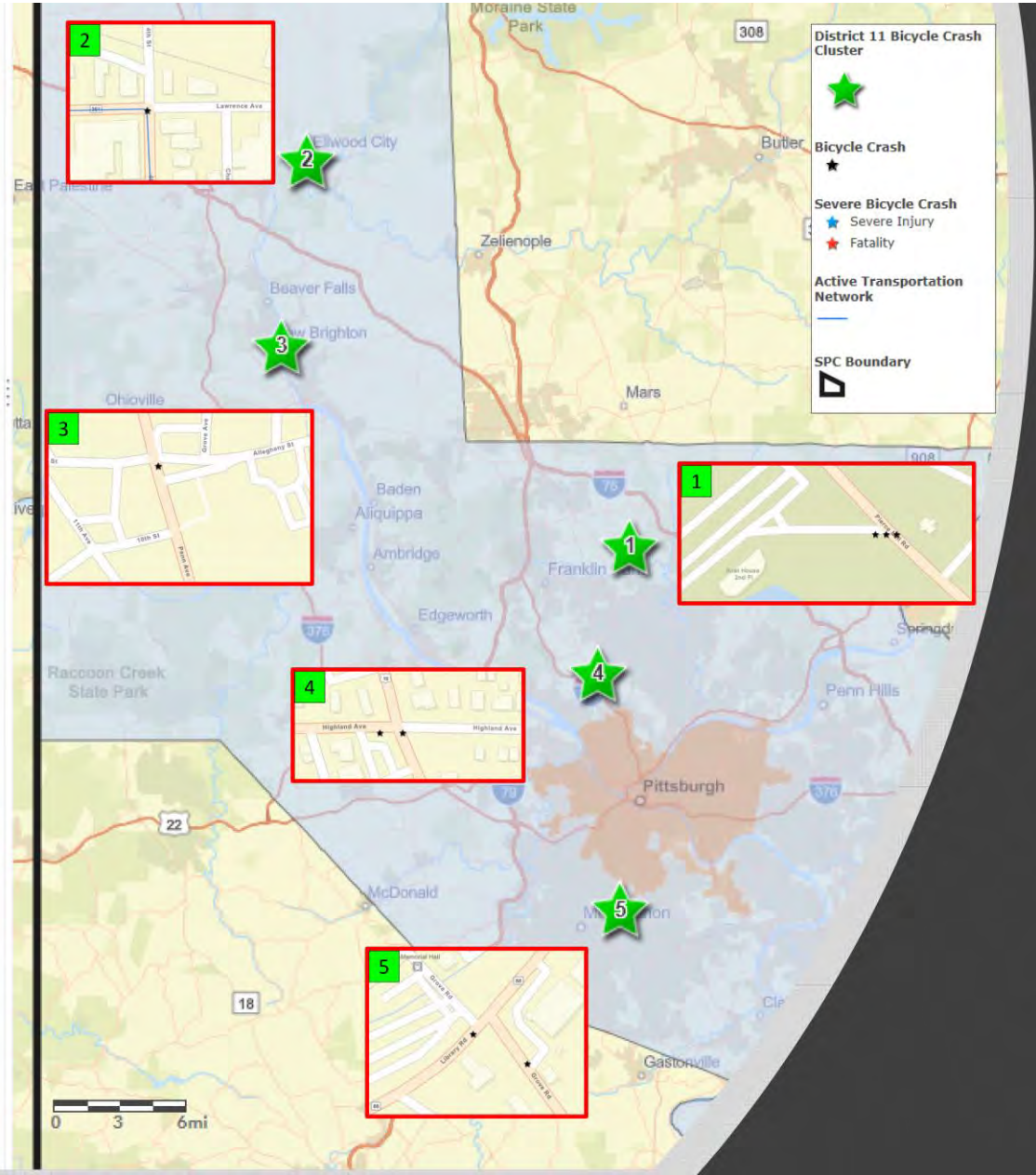
Location-Specific Safety Hot Spots

District-Specific Bicycle Safety Hot Spots

- Bicycle crash data 2014-2018
  - Mapped every bicycle crash in GIS
  - Developed maps with top-5 initially ranked locations
    - Created separate map for City of Pittsburgh
  - Methodology for maps
    - Used most recent bicycle crash data from PCIT (reportable crashes)
      - Includes severe injury and fatals
    - Plotted all bicycle crashes in GIS and used cluster analysis tool
      - Automated and manual cluster analysis
        - » Automated analysis to drill down to 3-4 square block range
        - » Manual analysis to obtain intersection/block level locations

Location-Specific Safety Hot Spots

D11 Bicycle Safety Hot Spots



D11 Bicycle Crash Priority Locations

2014-2018 Crash Data

Location 1: Pearce Mill Rd @ Tennis Court Rd, McCandless Twp.

Total Crashes	4	Severe Injury Crashes	0

Location 2: Lawrence Ave @ 4th St, Ellwood City

Total Crashes	2	Severe Injury Crashes	0

Location 3: Allegheny St @ New Brighton Middle School, New Brighton

Total Crashes	2	Severe Injury Crashes	0

Location 4: Highland Ave @ Perry Hwy, West View Borough

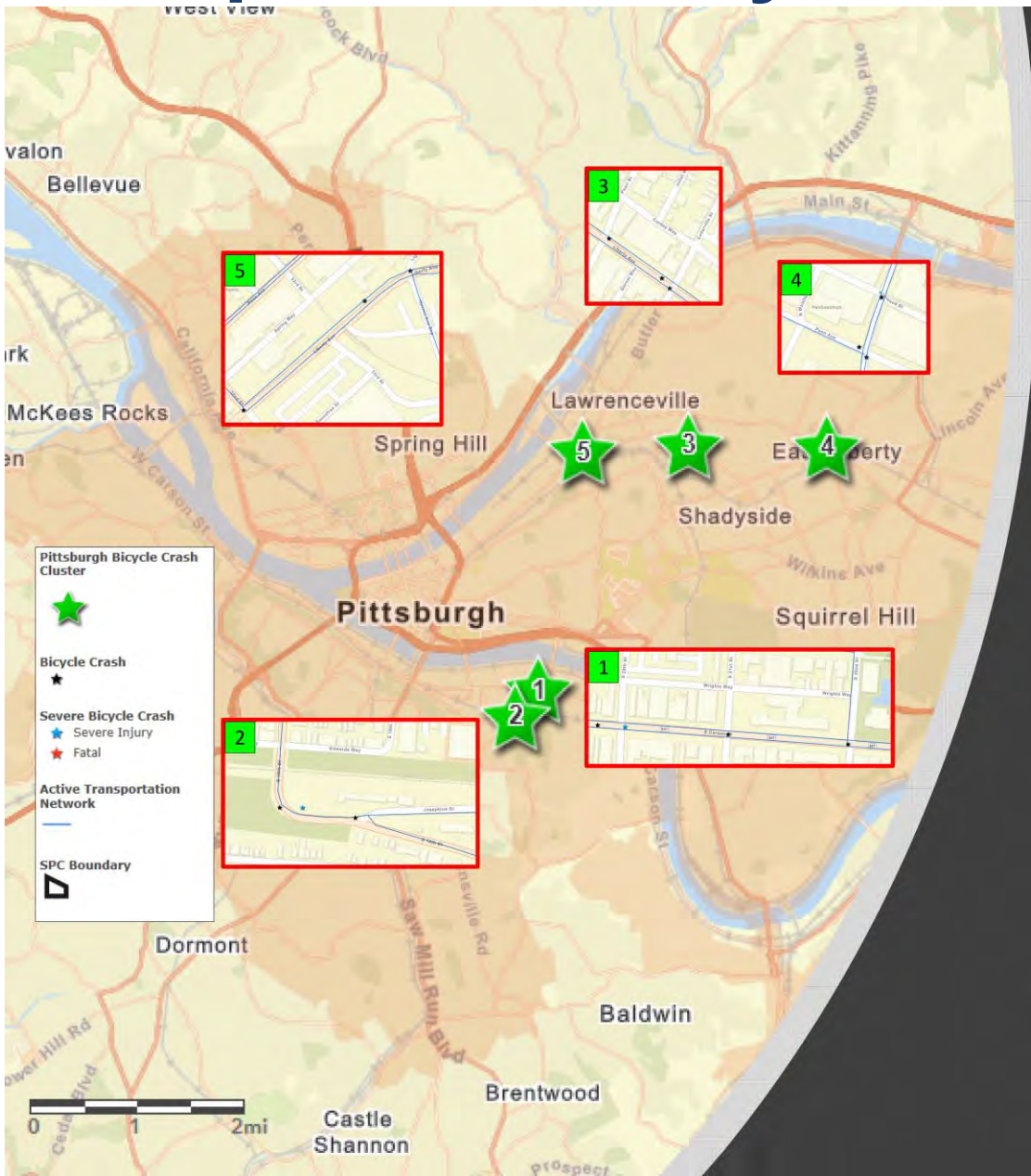
Total Crashes	2	Severe Injury Crashes	0

Location 5: Library Road @ Grove Road, Castle Shannon

Total Crashes	2	Severe Injury Crashes	0

Location-Specific Safety Hot Spots

City of Pittsburgh Bicycle Safety Hot Spots



Pittsburgh Bicycle Crash Priority Locations

2014-2018 Crash Data

Location 1: Carson St, 20th St to 22nd St, South Side Flats

Total Crashes	4	Severe Injury Crashes	1

Location 2: 18th St near Josephine St, South Side Slopes

Total Crashes	3	Severe Injury Crashes	1

Location 3: Liberty Ave, Pearl St to Cedarville St, Bloomfield

Total Crashes	3	Severe Injury Crashes	0

Location 4: Highland Ave at Penn Ave/ Kirkwood St, East Liberty

Total Crashes	3	Severe Injury Crashes	0

Location 5: Liberty Ave, 32nd St to Herron Ave Bridge, Strip District

Total Crashes	3	Severe Injury Crashes	0

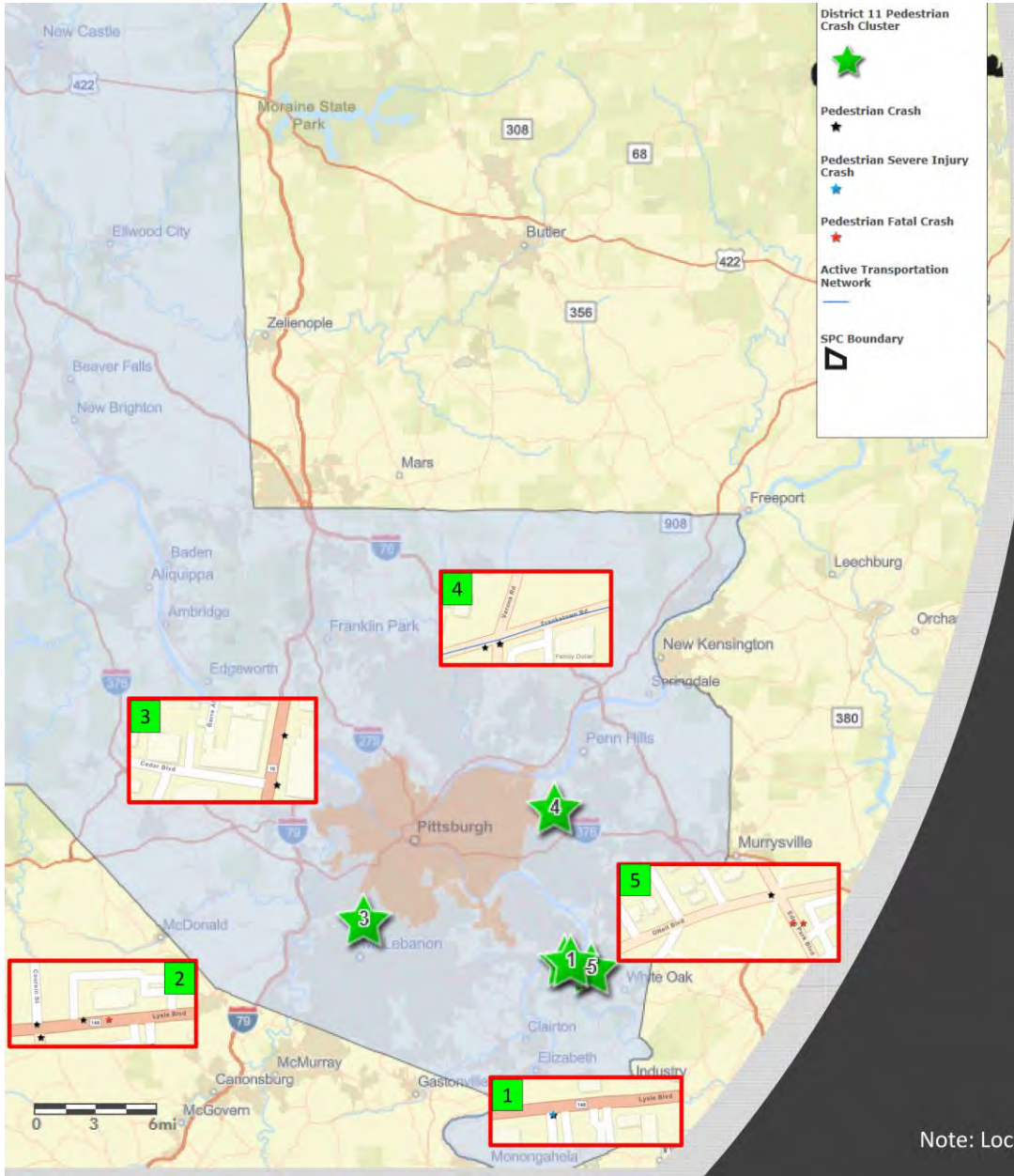
Location-Specific Safety Hot Spots

District-Specific Pedestrian Safety Hot Spots

- Pedestrian crash data 2014-2018
  - Developed maps with top-5 initially ranked locations
    - Created separate map for City of Pittsburgh
  - Utilized same methodology from the bicycle maps to create pedestrian maps

Location-Specific Safety Hot Spots

D11 Pedestrian Safety Hot Spots



D11 Pedestrian Crash Priority Locations

2014-2018 Crash Data

Location 1: Lysle Blvd @ Evans St, McKeesport

Total Crashes	7	Severe Injury	3	Fatal	0

Location 2: Lysle Blvd @ Coursin St, McKeesport

Total Crashes	6	Severe Injury	0	Fatal	1

Location 3: Washington Road @ Cedar Blvd, Mount Lebanon

Total Crashes	5	Severe Injury	0	Fatal	0

Location 4: Frankstown Rd @ Verona Rd, Penn Hills

Total Crashes	5	Severe Injury	0	Fatal	0

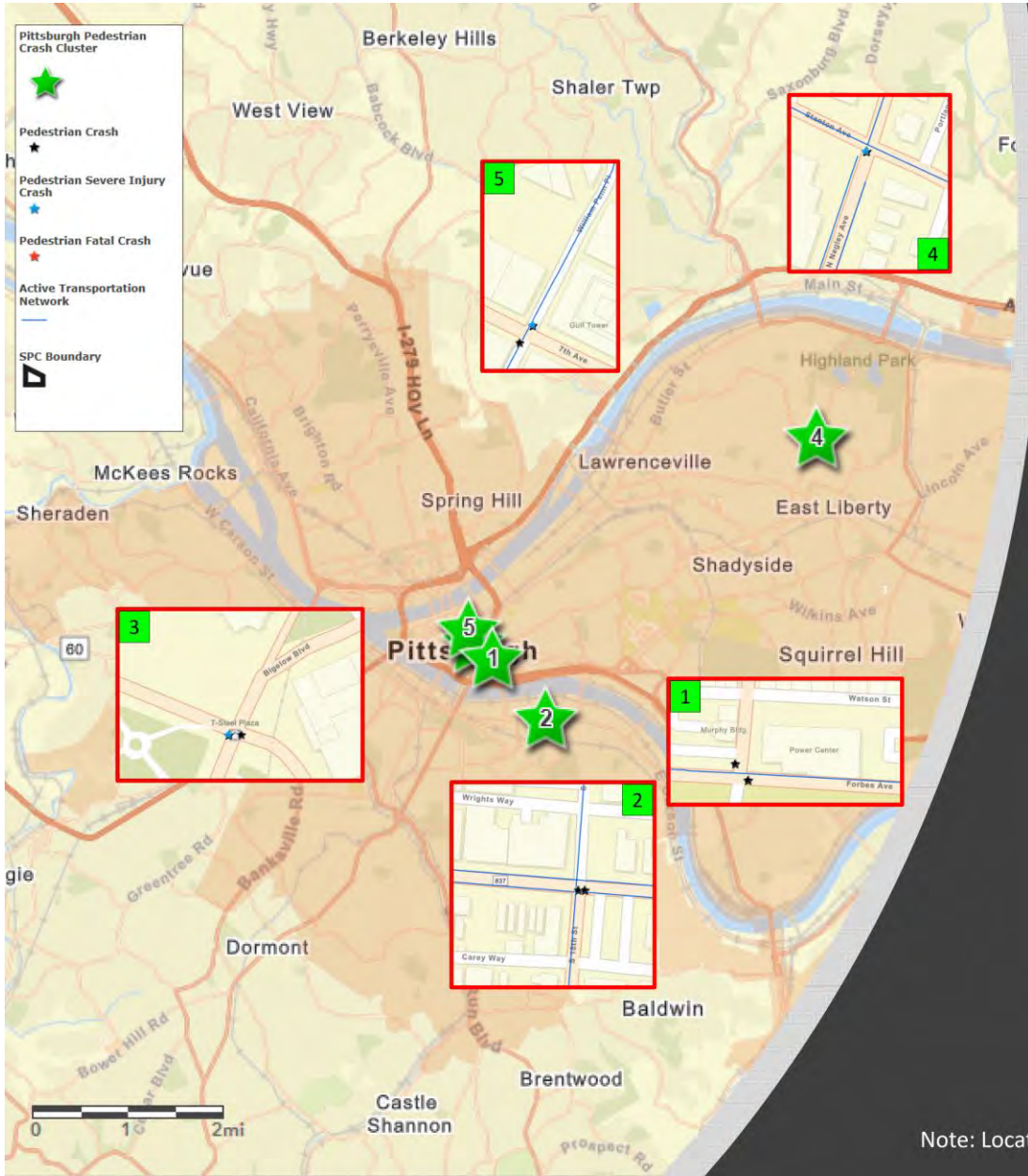
Location 5: Eden Park Blvd @ O'Neil Blvd, McKeesport

Total Crashes	4	Severe Injury	0	Fatal	2

Note: Locations are based on the number of crashes within a 200 ft. cluster length.

Location-Specific Safety Hot Spots

City of Pittsburgh Pedestrian Safety Hot Spots



Pittsburgh Pedestrian Crash Priority Locations

2014-2018 Crash Data

Location 1: Forbes Ave @ Chatham Square, Bluff

Total Crashes	10	Severe Injury	0	Fatal	0

Location 2: Carson St @ 18th St, South Side Flats

Total Crashes	9	Severe Injury	0	Fatal	0

Location 3: 6th Ave @ Bigelow Blvd, Downtown

Total Crashes	8	Severe Injury	1	Fatal	0

Location 4: Stanton Ave @ Negley Ave, Highland Park

Total Crashes	7	Severe Injury	2	Fatal	0

Location 5: William Penn Place @ 7th Ave, Downtown

Total Crashes	7	Severe Injury	1	Fatal	0

Note: Locations are based on the number of crashes within a 100 ft. cluster length.

Network Level Trends

D11 Pedestrian & Bike Network-Level Analysis (2014-2018)

- 175 bicycle crashes and 874 pedestrian crashes resulted in 61 fatalities and 139 severe injuries
  - Accounts for over 30% of the SPC Regional total
- Ped crashes are split 50/50 between intersection and “non-intersection” locations
  - Intersections are split 50/50 between signal / unsignalized
- Bicycle crashes are split 64/36 between intersections / non-intersections.
  - Fatal bicycle crashes tended to be in high volume / speed / stress conditions
- Bicycle crashes overrepresented in river valleys / next to bicycle trails

IMPORTANT: Data above does NOT include crashes in the City of Pittsburgh

Network Level Trends

D11 Pedestrian & Bike Network-Level Analysis (2014-2018)

- Key Observations
  - Bicycle crashes were overrepresented:
    - Around bike trails and on PA Bicycle Route A
    - In subareas including Aliquippa, Bridgeville, Dormont, Ellwood City, Homestead/Munhall, New Castle, and North Park
    - Along corridors including Frankstown Rd, Mt Royal Blvd, and Perry Hwy
  - Top 5 municipalities for ped crashes were McKeesport (73), Mount Lebanon (44), Penn Hills (40), New Castle (38), and Monroeville (36)
    - 8 of top 9 are in Allegheny County

IMPORTANT: Data above does NOT include crashes in the City of Pittsburgh

Network Level Trends

Pittsburgh Pedestrian & Bike Network-Level Analysis (2014-2018)

- 279 bicycle crashes and 1,227 pedestrian crashes resulted in 28 fatalities and 129 severe injuries
- Crash severity is low compared to the rest of the SPC Region, but half of all the SPC Regions ped/bike crashes occur in the City
- ~70% of ped and bike crashes are in intersections, much higher than SPC Regional trends
  - 44% of ped crashes are at signals; 26% are at unsignalized intersections (Total=70%)
  - 38% of bike crashes are at unsignalized int.; 32% are at signals (Total=70%)
- Some corridors and subareas standout for bike crashes, but ped crashes tend to be widespread
- 17 school-zone pedestrian crashes
- Less than 60% of pedestrian crashes in daylight conditions

Network Level Trends

Pittsburgh Pedestrian & Bike Network-Level Analysis (2014-2018)

- Key Observations
  - Bicycle crashes were overrepresented in the following areas:
    - Corridors
      - Liberty Avenue, Downtown through Bloomfield
      - Carson Street in the South Side
      - Neville Ave, 5th Ave to Stanton Ave
      - Fifth Ave, Downtown through Shadyside
    - Neighborhoods
      - Downtown
      - Oakland
      - Shadyside
      - East Liberty

Safety Strategies & Improvement Identification

Wiki-Map Exercise

- Developed 2 Wiki-Maps to solicit feedback regarding location-specific safety hot spots
  - Map 1: HSM Network Screened Locations
  - Map 2: Bicycle & Pedestrian Priority Locations
- Attendees to review after meeting and provide feedback prior to July 10th

Wiki-Map Demo

Safety Strategies & Improvement Identification

Safety solution roundtable exercise

- Presenter to go around the room asking each participant for suggestions
- Participants may type directly into the chat box
- Presenter will take “live notes” during discussion

Programmatic Improvements

- *BOMO is reworking bicycle signs/markings & design standards at intersections*
- *Evaluation of connections to/from bike trails*
- *District Road Safety Audit Program*
- *Leverage HSIP funding for safety projects*
- *Grant opportunities to aid local municipalities to conduct studies & improve non-motorized safety*
- *Better design to physically eliminate/mitigate speeding*
- *Complete bike and sidewalk networks*
- *Road diets to add bike/transit lanes*
- *Comp/regional planning for bikes*
- *No standards/process for designated bike routes*
- *Automated enforcement to aid with speed reduction and transit lane only utilization*
- *Re-evaluate lane widths to find happy medium for transit and ped/bikes*
- *Condition/maintenance of sidewalks, crosswalks, and curb ramps*

Soft-side Improvements

- *Increase drug related enforcement*
- *Education/safety campaigns for vehicle-bike conflicts at intersections*
- *Touch base w/ D11 Press Officer (has several existing programs)*
- *Public health grants for traffic/safety programs & expanding partnerships (Nicole Barnett)*
- *Policies on RTOR*
- *Expand ARLE into Pitt*
- *Adopt new speed limit setting policy (use new system not 85th percentile)*
  - *Safe Systems Approach*

Infrastructure Improvements

- *Deploy near-miss technology for high volume ped/bike locations*
- *Carson Street Safety Project*
- *Protected bike lanes*
- *Separate bike signals @ intersections*
- *Sidewalks*

SAP 2020 Next Steps

- Incorporate today's feedback
- Distribute Wiki-Maps and interactive map links
- Incorporate stakeholder feedback
- Develop SAP Draft Report
- Schedule Steering Committee Meeting 3 (*August timeframe*)

Open Discussion

Consultant Contact Info:

Project Manager:

Ross Buchan, PE

rbuchan@wrallp.com

Safety Analyst:

Jim French, PhD, PE, ENV SP jfrench@frenchengr.com

MEMORANDUM of MEETING

Date: June 24, 2020

Date of Meeting: June 22, 2020
Time of Meeting: 1 PM
Meeting Location: Skype
Meeting Description: District 11-0 Stakeholder Meeting

CC: File

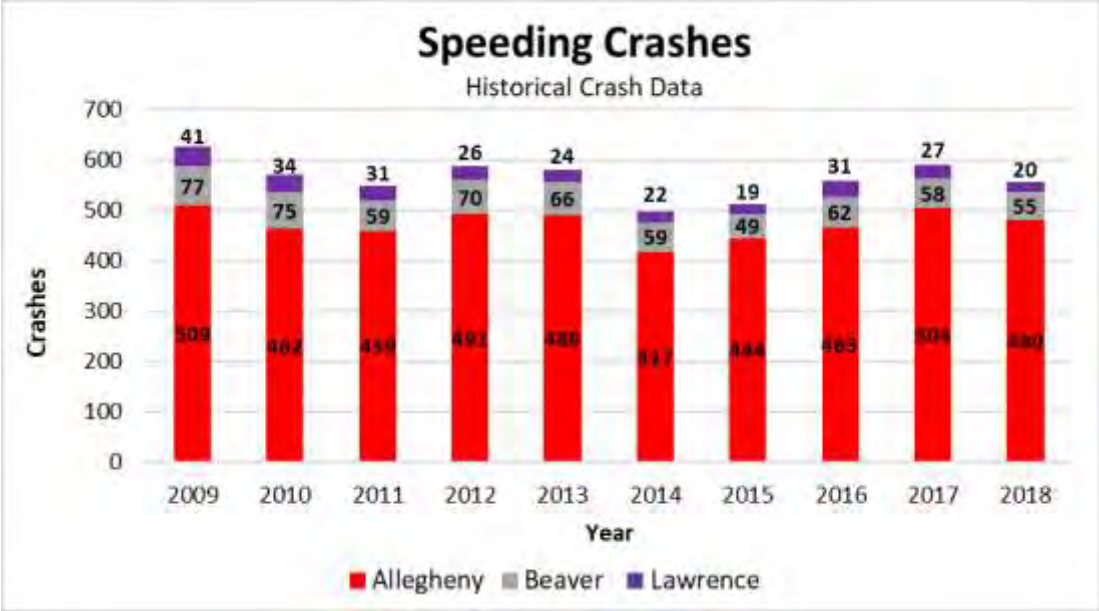
Work Order Number: 95
Contract Number: SPC On Call
Project: Safety Action Plan

Participants:

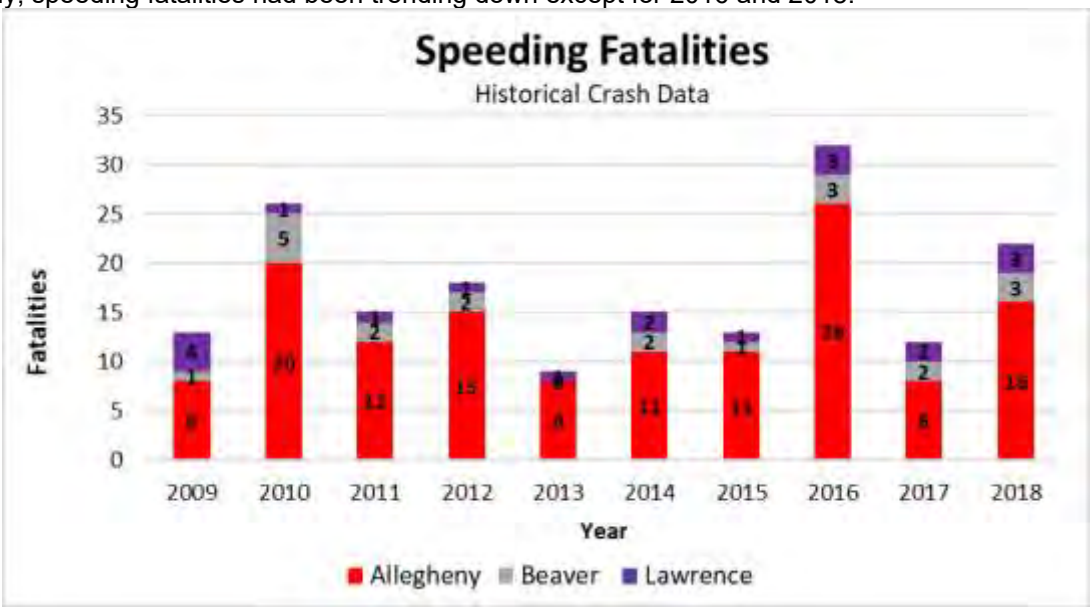
Name	Company	Phone	Email
Josh Spano	SPC	412-391-5590 x 362	jspano@spcregion.org
Domenic D'Andrea	SPC	412-391-5590 x 341	ddandrea@spcregion.org
Evan Schoss	SPC	412-391-5590 x 338	eschoss@spcregion.org
Andy Waple	SPC	412-391-5590 x 310	awaple@spcregion.org
Ross Buchan	WRA	717-514-8916	rbuchan@wrallp.com
Jim French	French	724-569-8555	jfrench@frenchengr.com
Adam Weinschenker	French	724-569-8555	aweinschenker@frenchengr.com
Johnny Balay	PennDOT District 11-0	412-429-4979	jbalay@pa.gov
Nicole Barnett	Allegheny County Health Department	412-687-2243	Nicole.barnett@alleghenycounty.us
Scott Bricker	Bikes Pittsburgh	412-325-4334	scott@bikepgh.org
Jonathan Ferensic	PennDOT District 11-0	412-429-4873	jfrersic@pa.gov
Todd Kravits	PennDOT District 11-0	412-429-4975	TKRAVITS@pa.gov
William Lesterick	PennDOT District 11-0	412-429-4803	wlesterick@pa.gow
Lynn Manion	Airport Corridor Transportation Assoc.	412-533-4601	Lynn.manion@actapgh.org
Ruth McClelland	PennDOT District 11-0	412-429-4985	rmcclelland@pa.gov
Kathryn Power	PennDOT District 11-0	412-475-1862	kpower@pa.gov
Katy Sawyer	City of Pittsburgh	412-225-8622	katy.sawyer@pittsburghpa.gov
Anthony Schneider	Allegheny County	502-741-4500	Anthony.Schneider@AlleghanyCounty.US
Meghan Sexton	Allegheny County Public Works	412-598-0427	Meghan.Sexton@AlleghanyCounty.US
Amy Silbermann	Port Authority	412-566-5500	ASolbermann@PortAuthority.org

The presentation entitled “SPC Safety Action Plan Updated – District 11-0 Stakeholder Meeting” was given by Josh Spano, Domenic D’Andrea, and Ross Buchan. The following discussion ensued during the presentation:

- Scott Bricker of Bike PGH asked if “aggressive driving” was the same as “speeding.” It was noted that the 2016 FHWA definition of “aggressive driving” was used, in which at least two factors reflecting aggression (e.g., speeding, tailgating, etc) must have contributed to the crash. Mr. Bricker asked to be provided with the statistics for the speeding crashes and fatalities. Nicole Barnett provided a link to the PCIT website, https://crashinfo.penndot.gov/PCIT/welcome.html, that provided this information.
  - In response to Mr. Bricker’s question, speeding was analyzed from a District 11 perspective below. The overall speeding crashes have been decreasing slightly when examining the 10 year analysis period. However, speeding crashes did increase in 2016/2017 and it appears that speeding crashes have remained relatively stagnant within Allegheny County over the years.



Generally, speeding fatalities had been trending down except for 2016 and 2018.



- It was proposed to add speeding as an additional District Safety Focus Area by Bricker. It was later noted by Domenic after some investigation that speeding-related fatalities represented about 19-20% of all fatalities in the region and District 11-0. Further research is needed to determine how that factors into "aggressive driving."
    - Based on the conversation during the presentation and the data above, "Speeding" will be added as one of the District Specific Safety Focus Areas. However, a more detailed evaluation of speeding crash data will need to be conducted when examining the bicycle and pedestrian crash locations and severity.

- Of the three additional proposed District Safety Focus Areas:
    - Unbelted Crashes was accepted as an additional focus area with a suggestion to look at how the unbelted crashes broke out into adults versus children under 8. A preliminary investigation of the data in District 11-0 revealed that of the 7,616 unbelted crashes in District 11 from 2014 to 2018, only 8% (592) were tagged as involving children. However, it was also noted in national statistics on the CDC website that unbelted crashes represent a significant risk factor for children, and that in 2017, 35% of the children who died in car crashes were unbuckled. As such, it is recommended that while the overwhelming majority of unbelted crashes did not involve children, child restraint must remain a priority as well.
    - Stop-Controlled Intersections Crashes was accepted as an additional focus area.
    - Work Zone Crashes was also accepted with a suggestion to investigate Automated Work Zone Enforcement on current and future crash trends.

- As part of the HSM-Screened Hot Spots discussion, Todd Kravits stated that the City had recently installed split phasing at the top location of Carson Street at SR 51 / West End Bridge. Investigation of more recent (2019) crash data will be required to assess the impacts of that change and determine if more improvements are needed.

- It was explained that Wiki-Maps for District 11 would be made available to the stakeholder group to make comments in the near future. A demonstration was provided on how to use it. Those comments will be compiled and provided under separate cover.

- Suggestions for safety improvement strategies followed the end of the formal presentation. Ideas were recorded in real-time on a slide.
    - On behalf of District 11, William Lesterick noted that the District has also been working with the crash data to identify areas for future improvements. He also noted that BOMO is working on developing and revising PennDOT's bicycle standards. Additionally, Yasmeen Manyisha, the District 11 Safety Press Officer, works with soft-side improvements such as school bus safety, seat belts, bicycle safety, and DUI education. Due to covid-related declines in driving and gas tax revenue, the District anticipates pursuing more HSIP funds moving forward.
    - Domenic noted that Carson Street in the City has multiple ongoing projects to improve bicycle and pedestrian safety.
    - Nicole Barnett of Allegheny County Health encouraged collaboration between agencies on safety projects.
    - Meghan Sexton of Allegheny County Public Works is working on a project on Pearce Mill Road (North Park) in the area that includes the number one hot spot for bicycles.
    - Scott Bricker of Bike PGH proposed numerous programmatic, soft-side, and infrastructure safety improvement recommendations. The infrastructure improvement recommendations included protected bicycle lanes, bicycle signals at intersections, completing bicycle and pedestrian networks, and sidewalk improvements. Soft-side improvement recommendations included right turn on red policies, lane diets, designing roads to reduce speeding, the Safe Systems Approach to setting speed limits, creating bike plans, and changing the bike routing systems to avoid high-speed areas. Recommended conducting a full-scale audit of the bicycle routing system. A programmatic improvement that was recommended was using automatized speed enforcement.

  - Amy Silbermann of Port Authority discussed improvements related to transit. Lane width should be evaluated as narrow lanes make the buses more intrusive and difficult to operate, while wide lanes encourage speeding and passing. She also mentioned automated speed enforcement as a solution. As most transit patrons are also pedestrians as part of their trip, she reiterated concerns with missing and degraded sidewalks and pedestrian infrastructure.
  - Throughout the discussion most agreed that bicycle and pedestrian safety was a priority.

- Domenic D'Andrea ended the meeting by stating that the District and region remain committed to the goals of Vision Zero and remain on the course set in 2006 to reduce fatalities by half by the year 2030.

The above is a summary between the parties regarding the topics discussed and the decisions reached. Any participants desiring to add to, or otherwise amend the minutes, are requested to put their comments in writing to the writer within seven (7) days; otherwise, the minutes will stand as written.

Ross Buchan
Sender's name

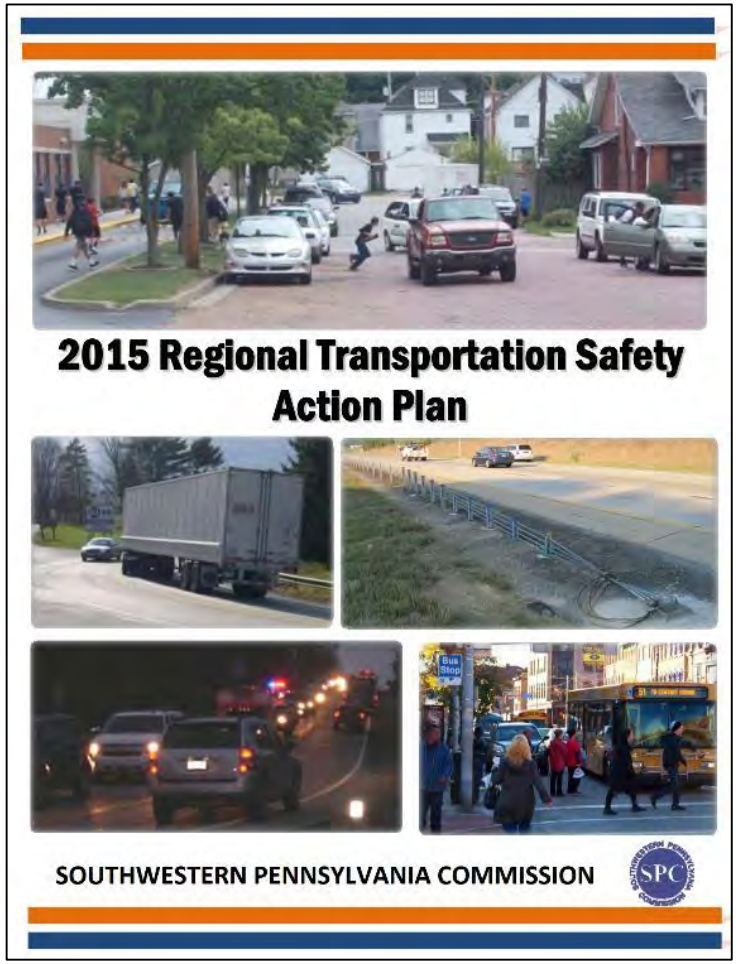
SPC SAFETY ACTION PLAN UPDATE

District 12-0 Stakeholder Meeting

June 22, 2020

Agenda

- Introductions
- Schedule
- Meeting Purpose & Objectives
- District Safety Analytics
  - Safety Focus Area Performance
  - District-Specific Safety Trends
  - Location-Specific Safety “Hot Spots”
  - Network Level Trends
- Safety Strategies & Improvement Identification
- Next Steps/Open Discussion



Schedule

Tasks	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
1. Safety System Performance-Data Analysis									
2. Steering Committee/Stakeholder Group Mtg 1									
3. Trends, Emphasis Areas, & Safety Strategies									
4a. Steering Committee Mtg 2									
4b. Stakeholder Group Mtgs (1 in each District)									
5a. Draft SAP Findings/Document Development									
5b. Steering Committee Mtg 3									
6. Final SAP Document									

Meeting Purpose & Objectives

Meeting Purpose:

- Verify District systemic, network level, and location-specific safety areas of concern and to engage stakeholders on potential solutions

Specific Objectives:

- Solicit feedback on current District crash trends
- Solicit feedback on potential District-specific safety hot spots
- Solicit feedback on potential improvement strategies/solutions
  - Soft-side and programmatic solutions
  - Infrastructure-specific solutions

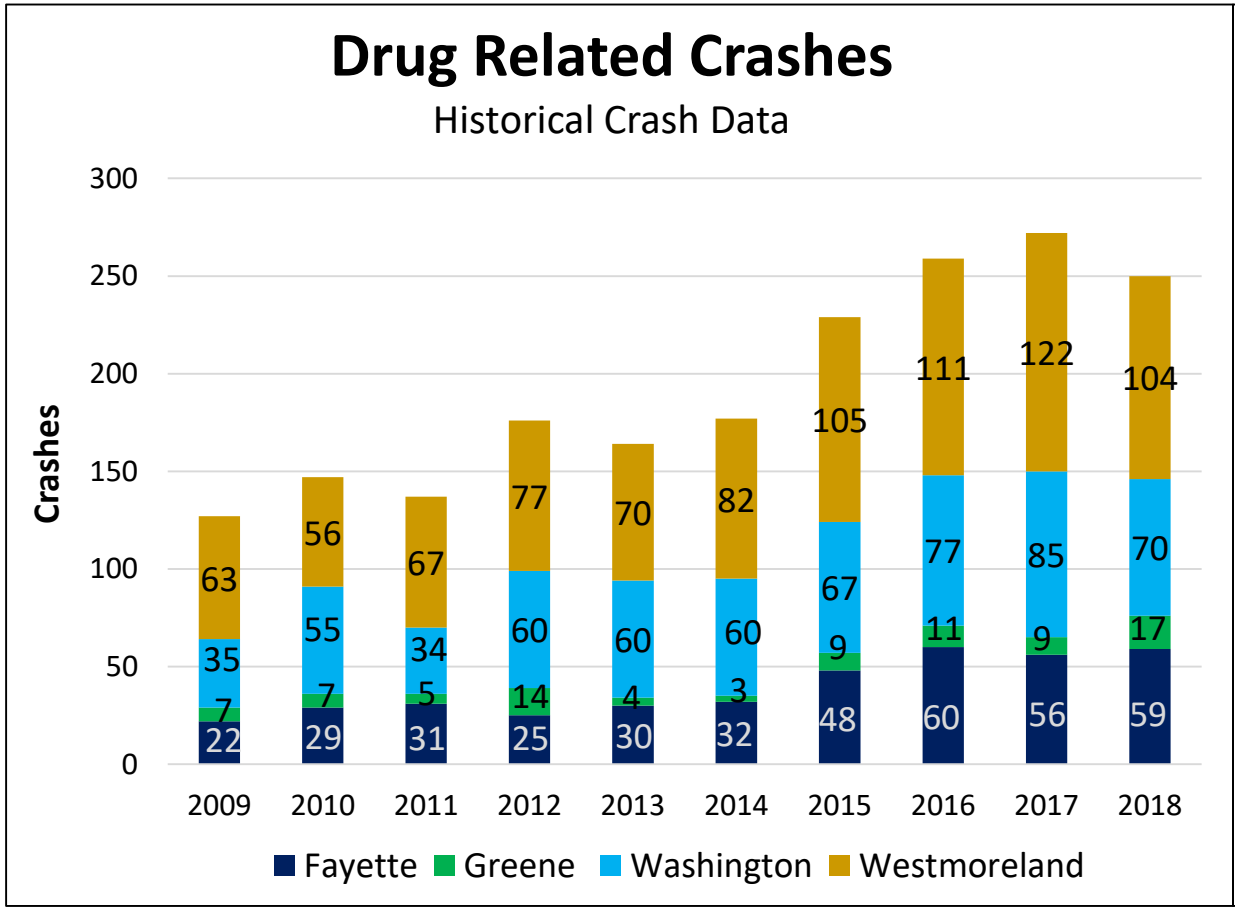
Safety Focus Area Performance

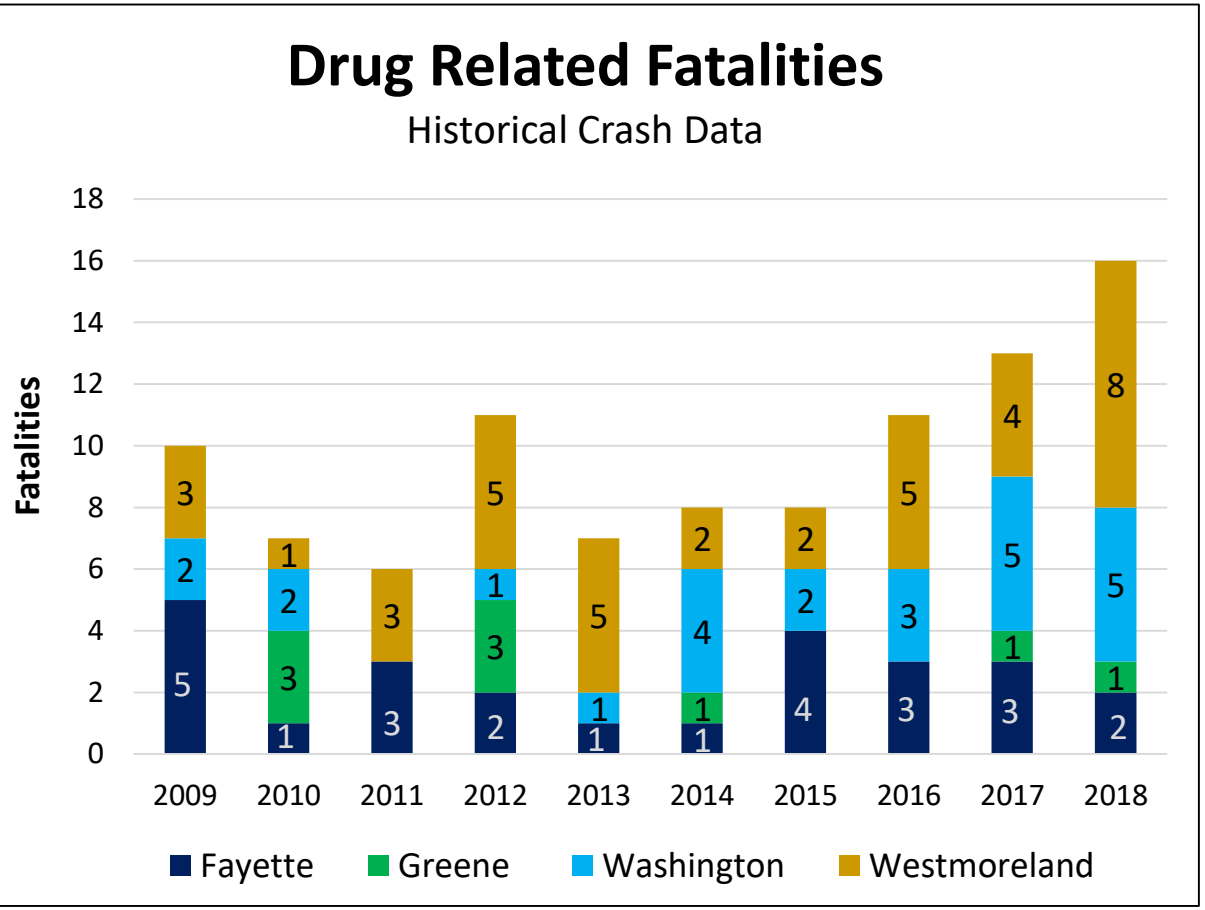
Safety Focus Areas

- 13 Safety Focus Area were identified by the Steering Committee for the 2020 SAP Update
  1) Drug related crashes
  2) Distracted driving crashes
  3) Run-off-road crashes
  4) Head-on crashes
  5) Signalized intersection crashes
  6) Aggressive driving crashes
  7) Secondary crashes
  8) Mature driver crashes
  9) Non-motorized (ped/bike) crashes
  10) Intersection crashes
  11) Transit-related crashes
  12) Heavy truck crashes
  13) Drowsy driver crashes
- Confirm District/County performance (i.e. total crashes and fatalities) in each of the 13 Safety Focus Areas

Safety Focus Area Performance

Safety Focus Area: Drug Related Crashes

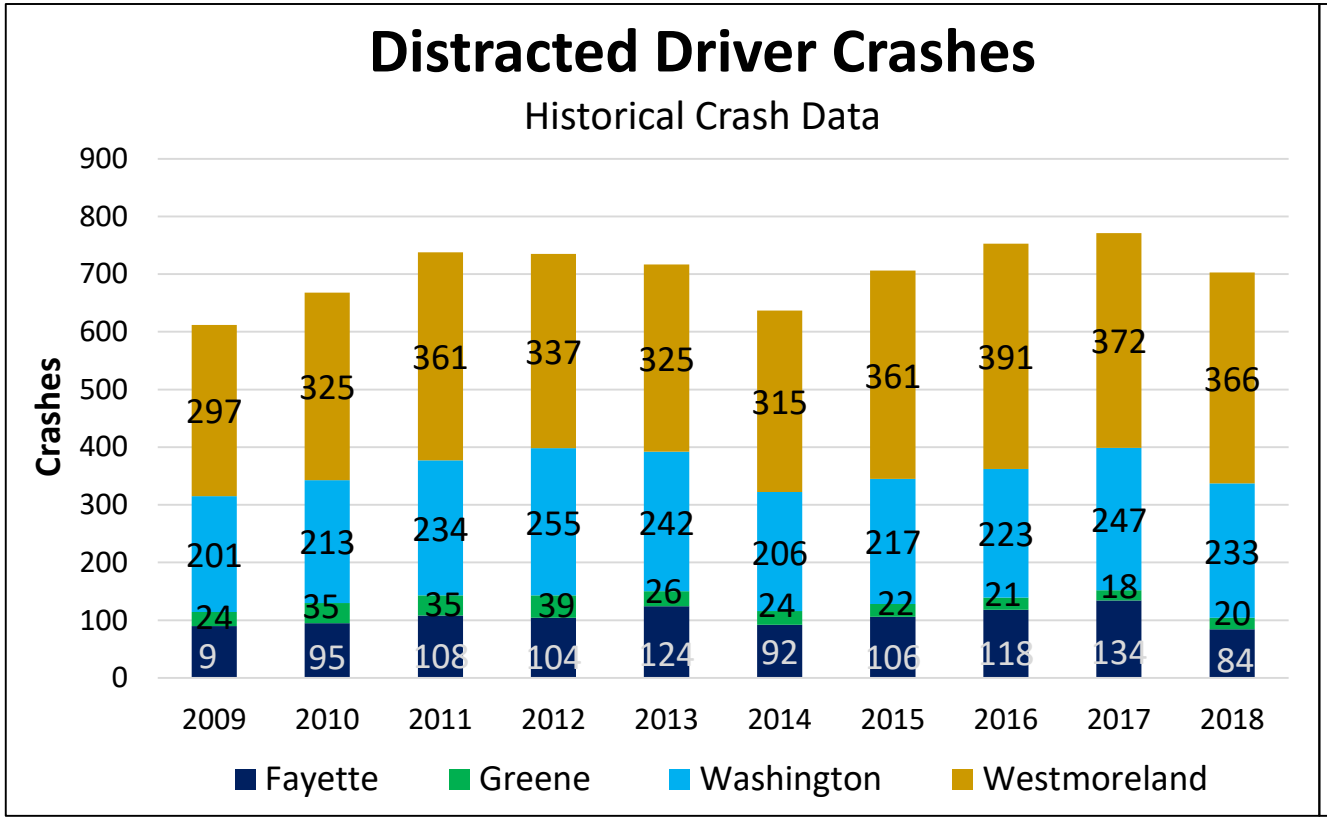


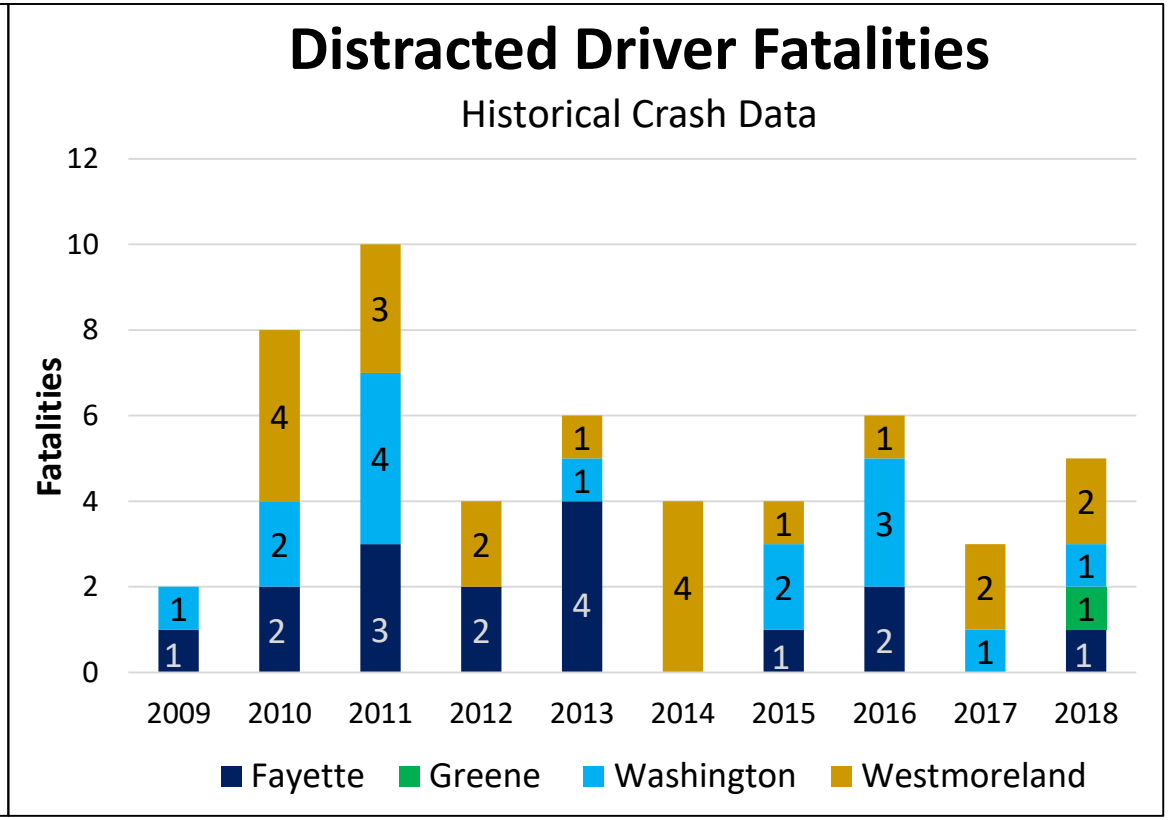


Upward Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Distracted Driver Crashes



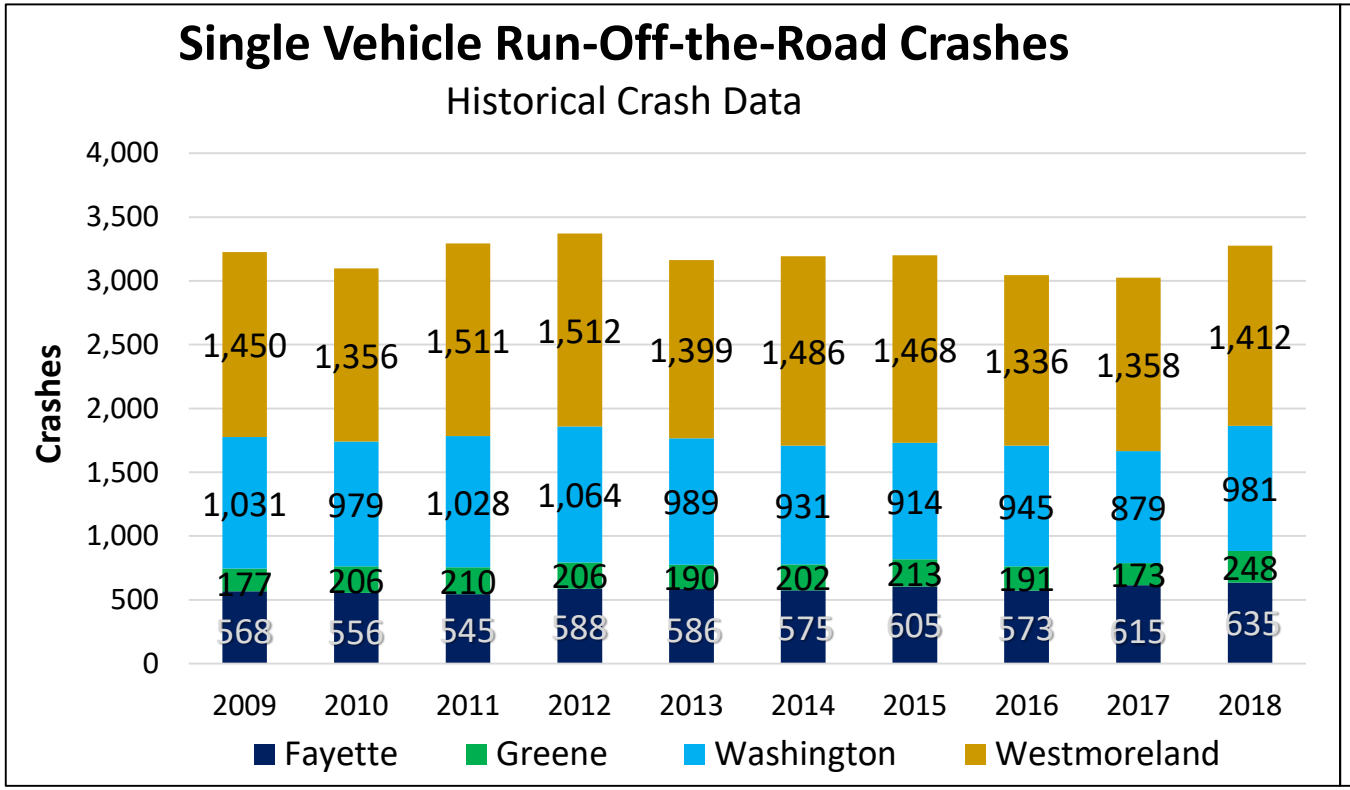


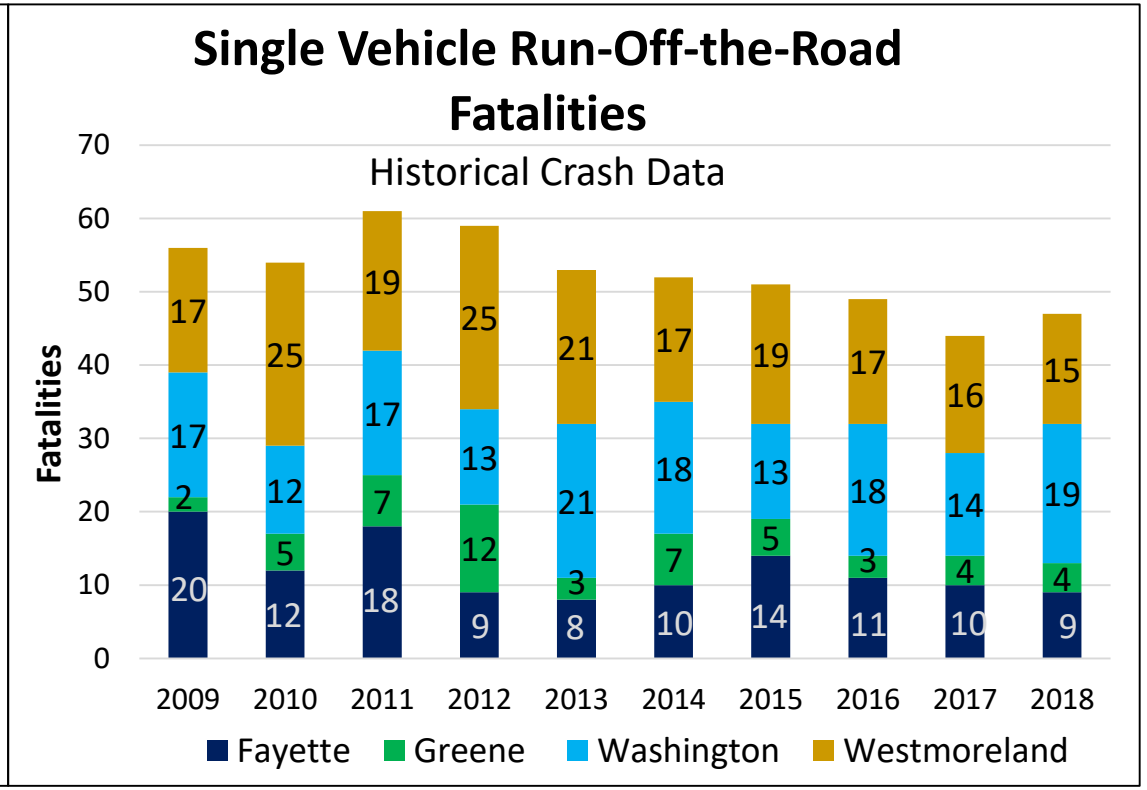
Upward Trend in Crashes

Downward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Single Vehicle Run-Off-The-Road Crashes



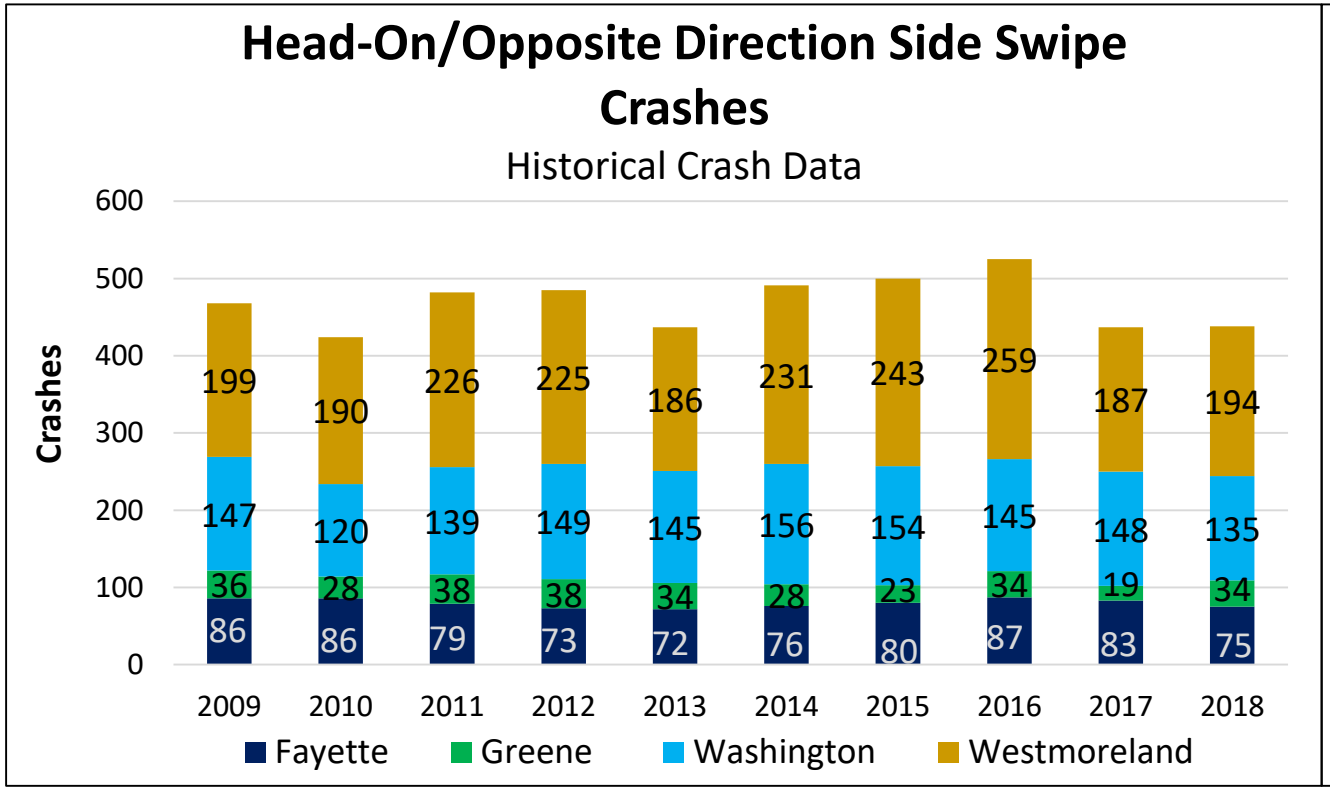


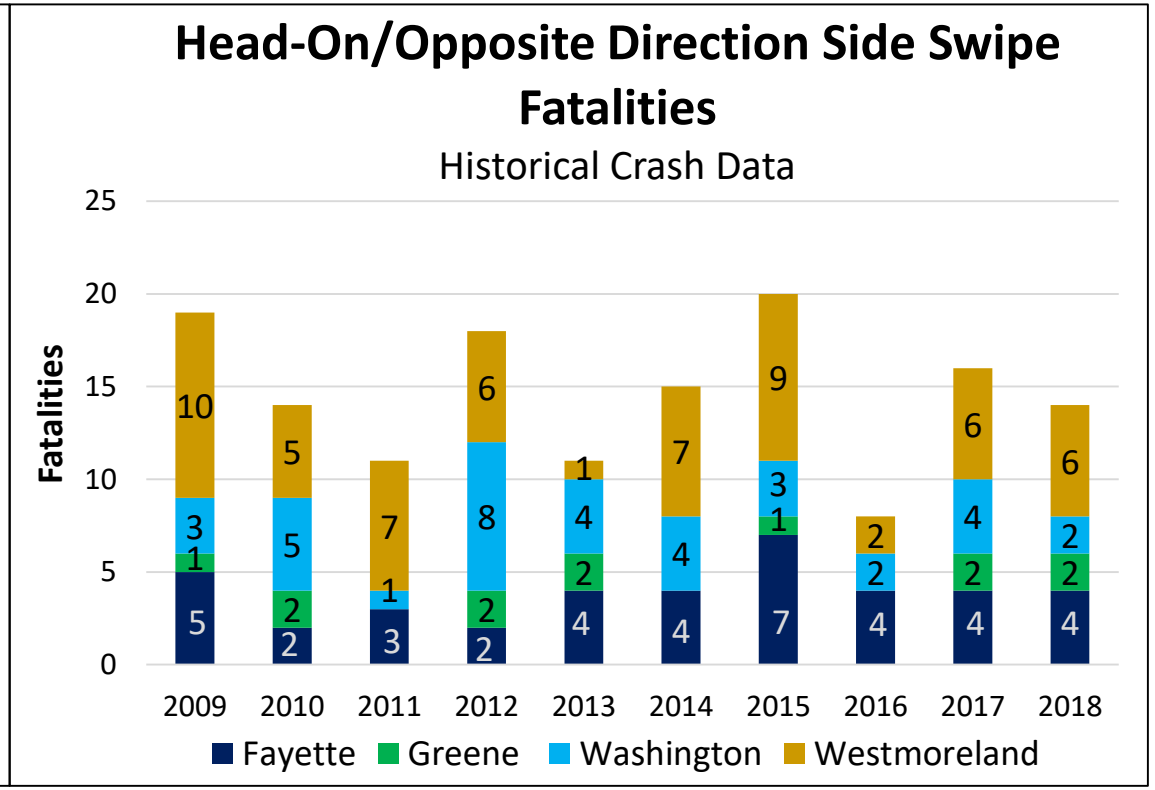
Stagnant Trend in Crashes

Downward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Head-On/Opposite Direction Side Swipe Crashes

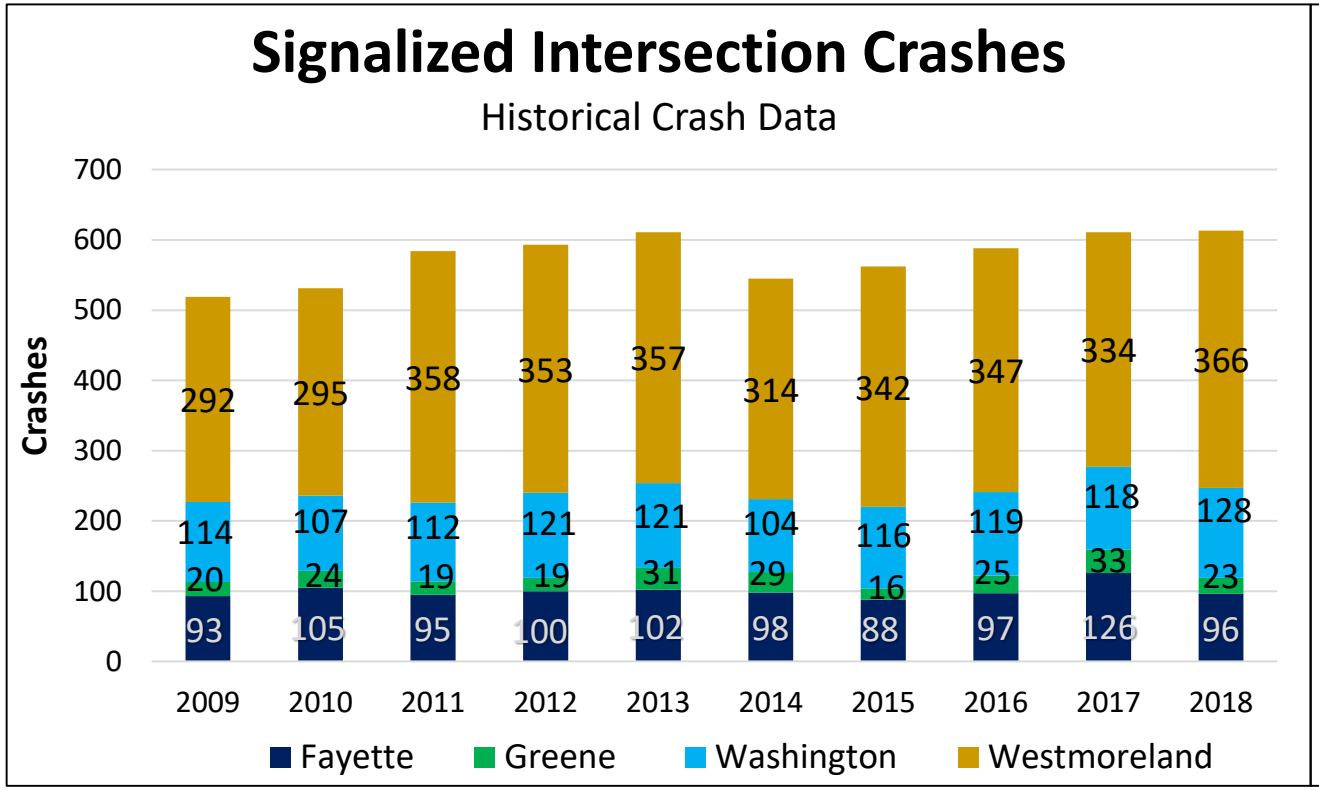


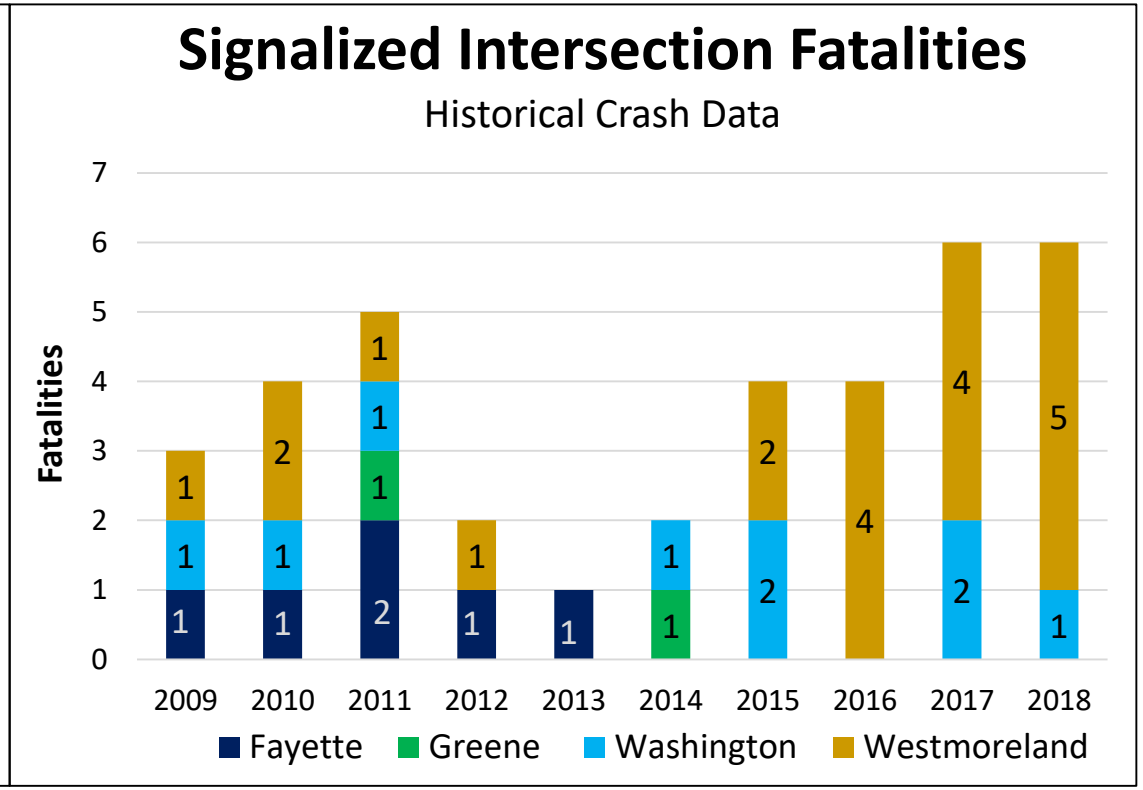


Stagnant Trend in Crashes\Fatalities

Safety Focus Area Performance

Safety Focus Area: Signalized Intersection Crashes

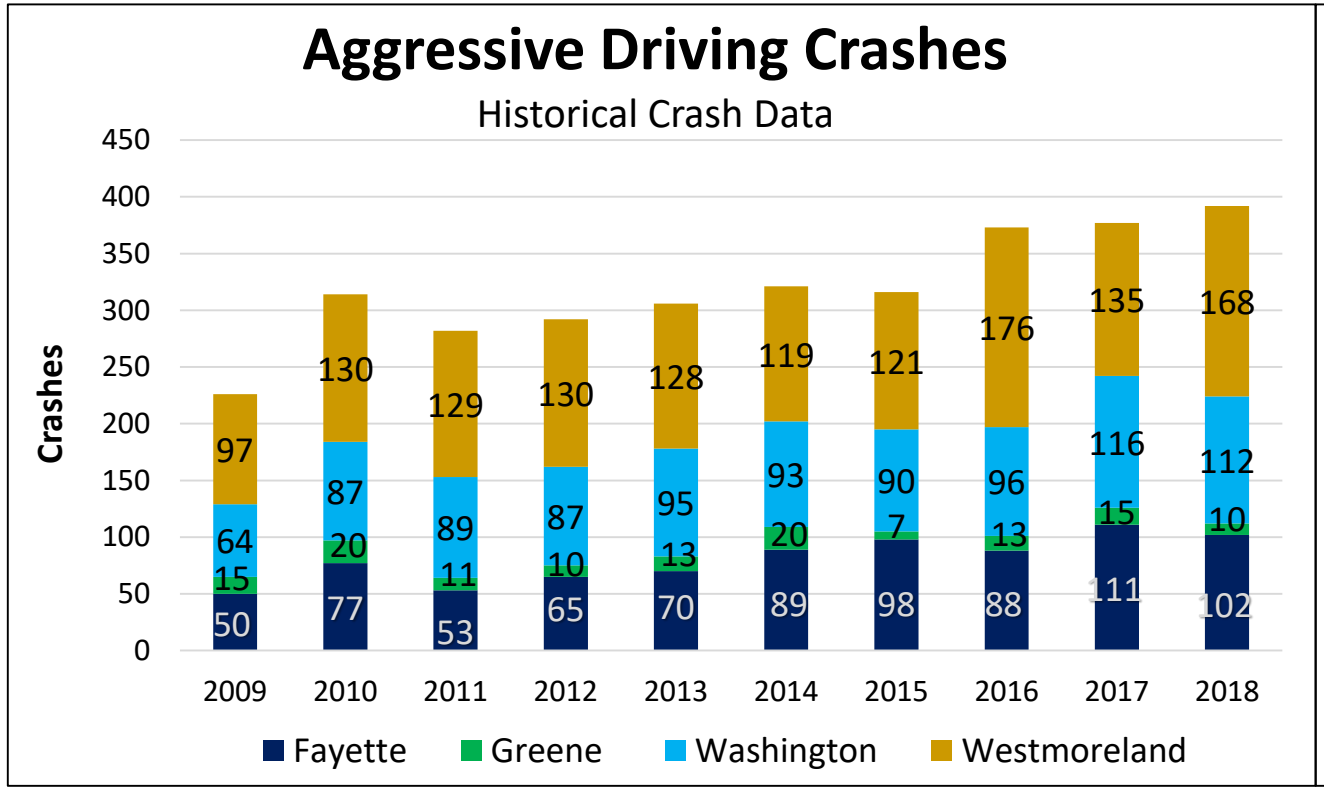


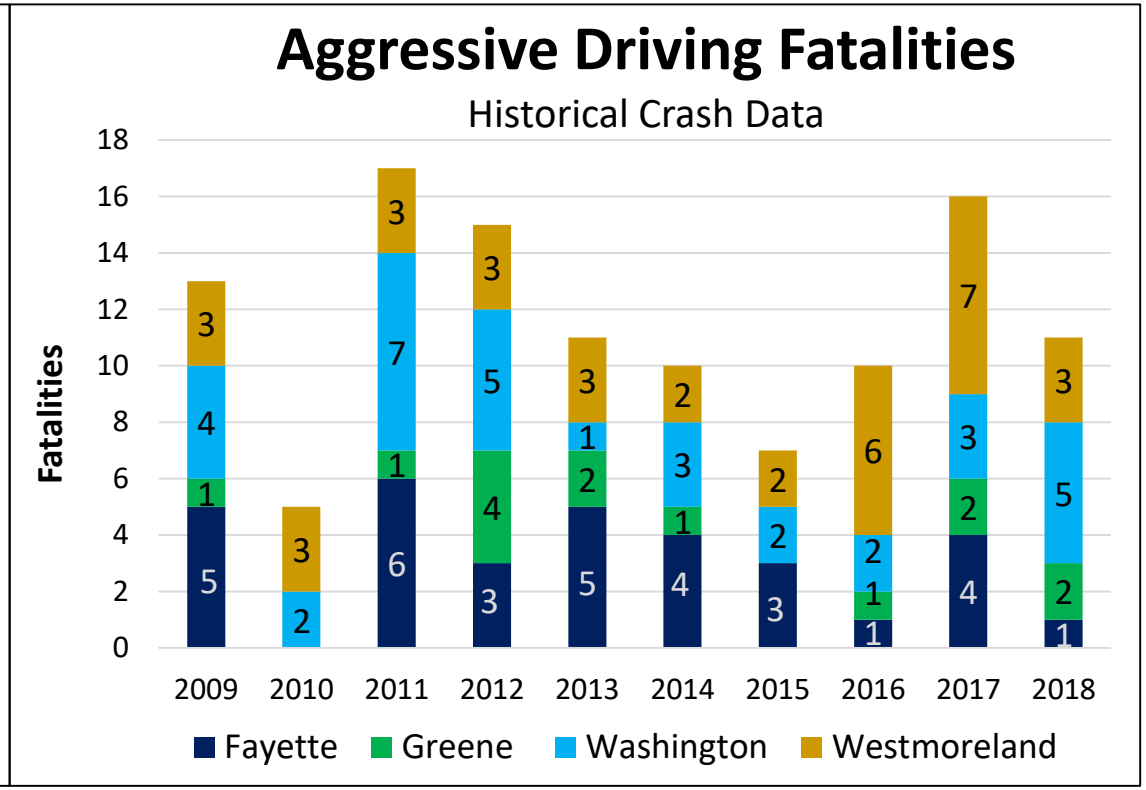


Upward Trend in Crashes/Fatals

Safety Focus Area Performance

Safety Focus Area: Aggressive Driving Crashes



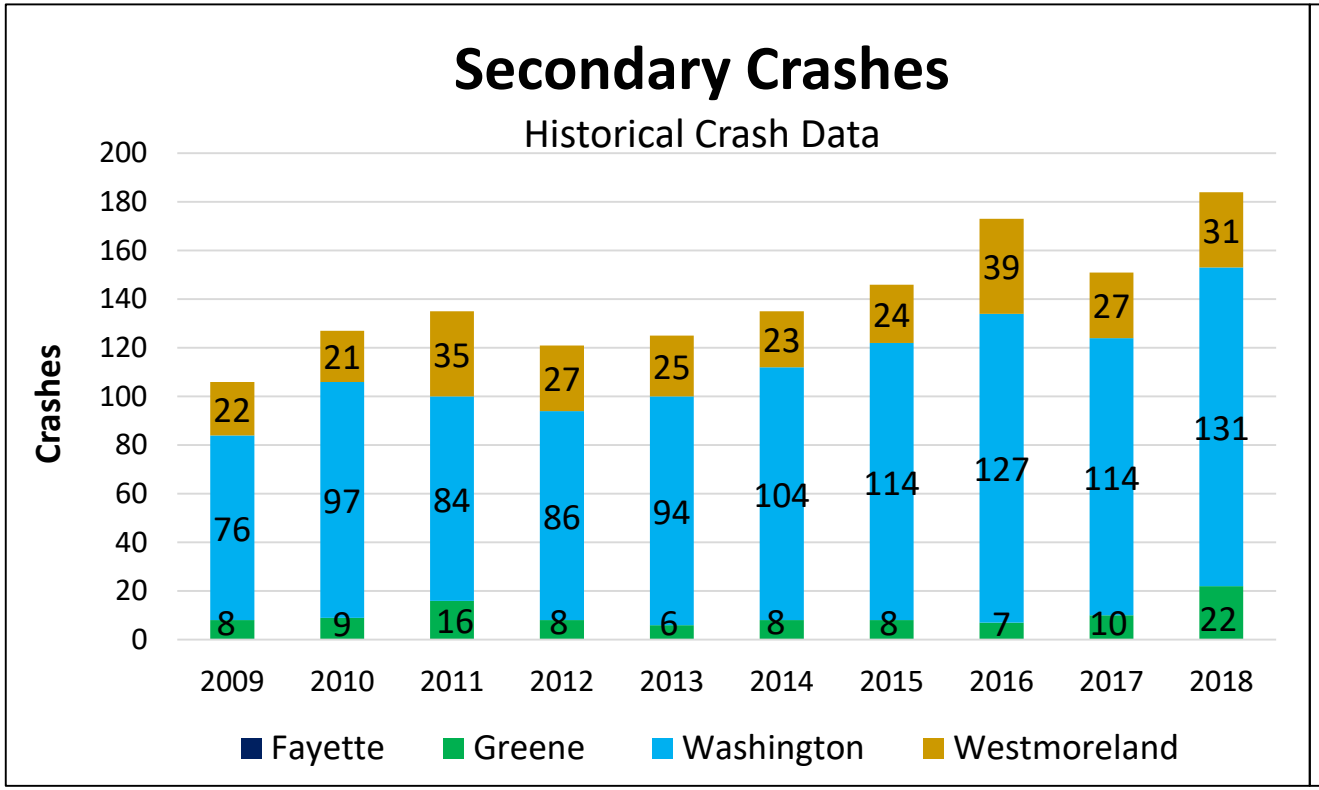


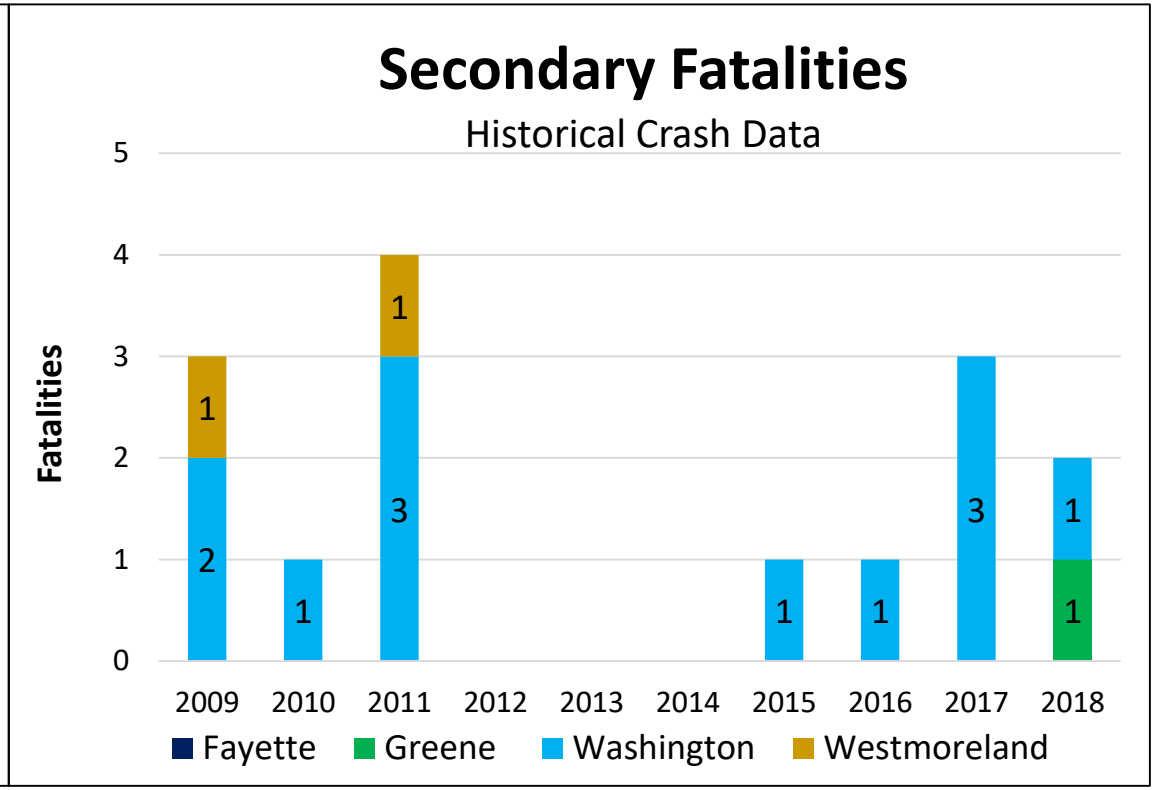
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Secondary Crashes



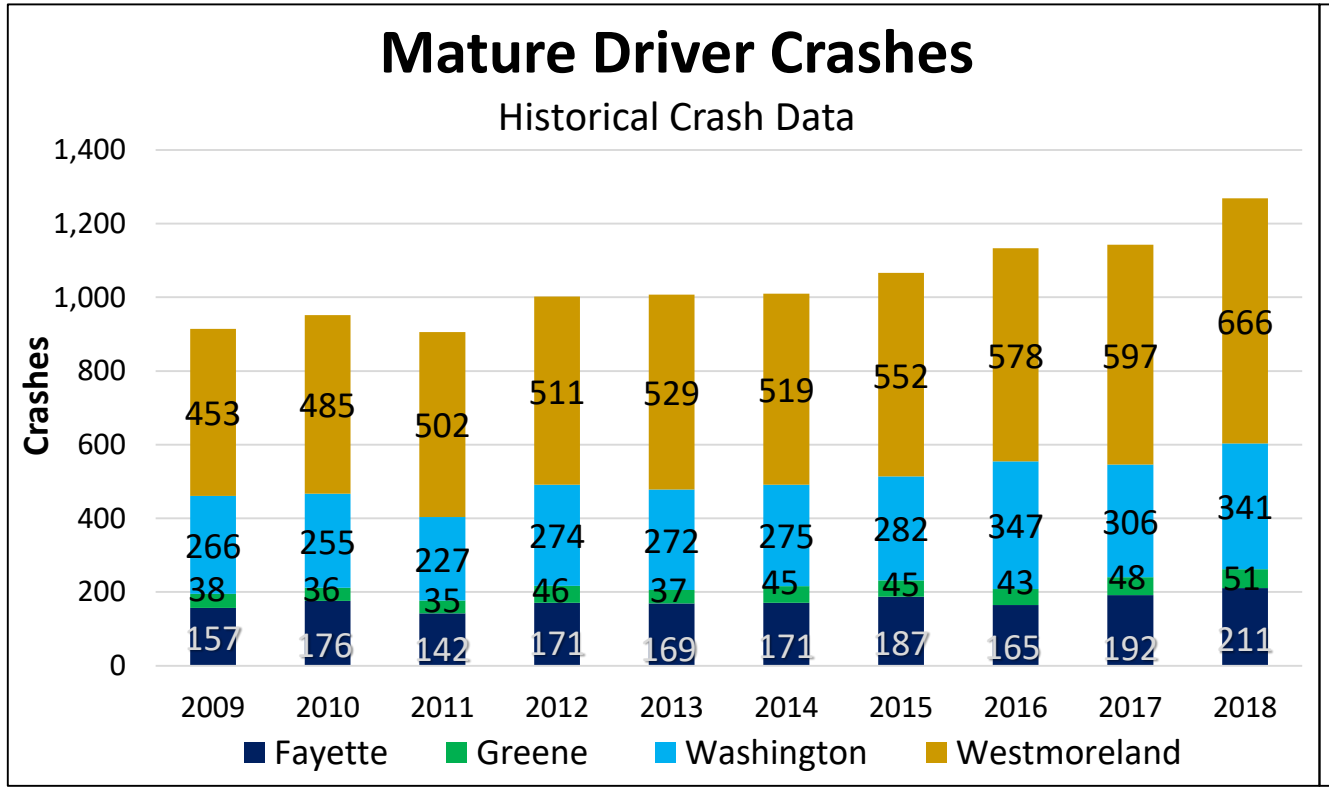


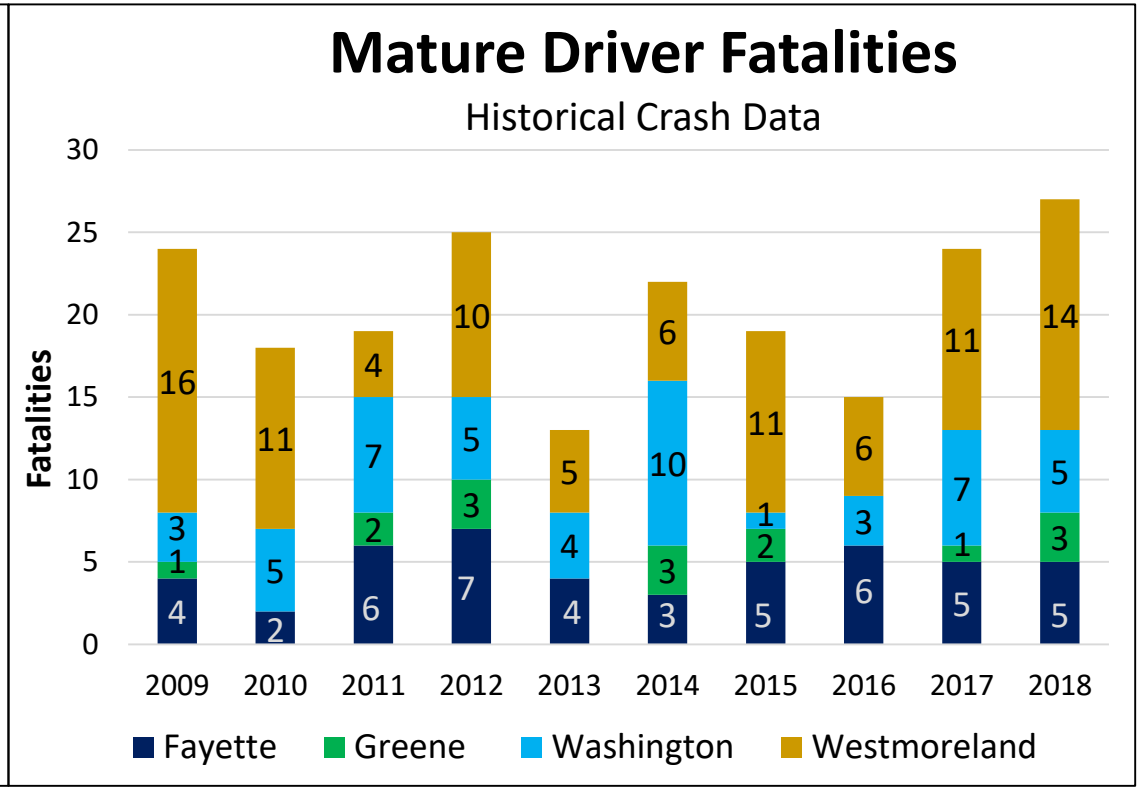
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Mature Driver Crashes

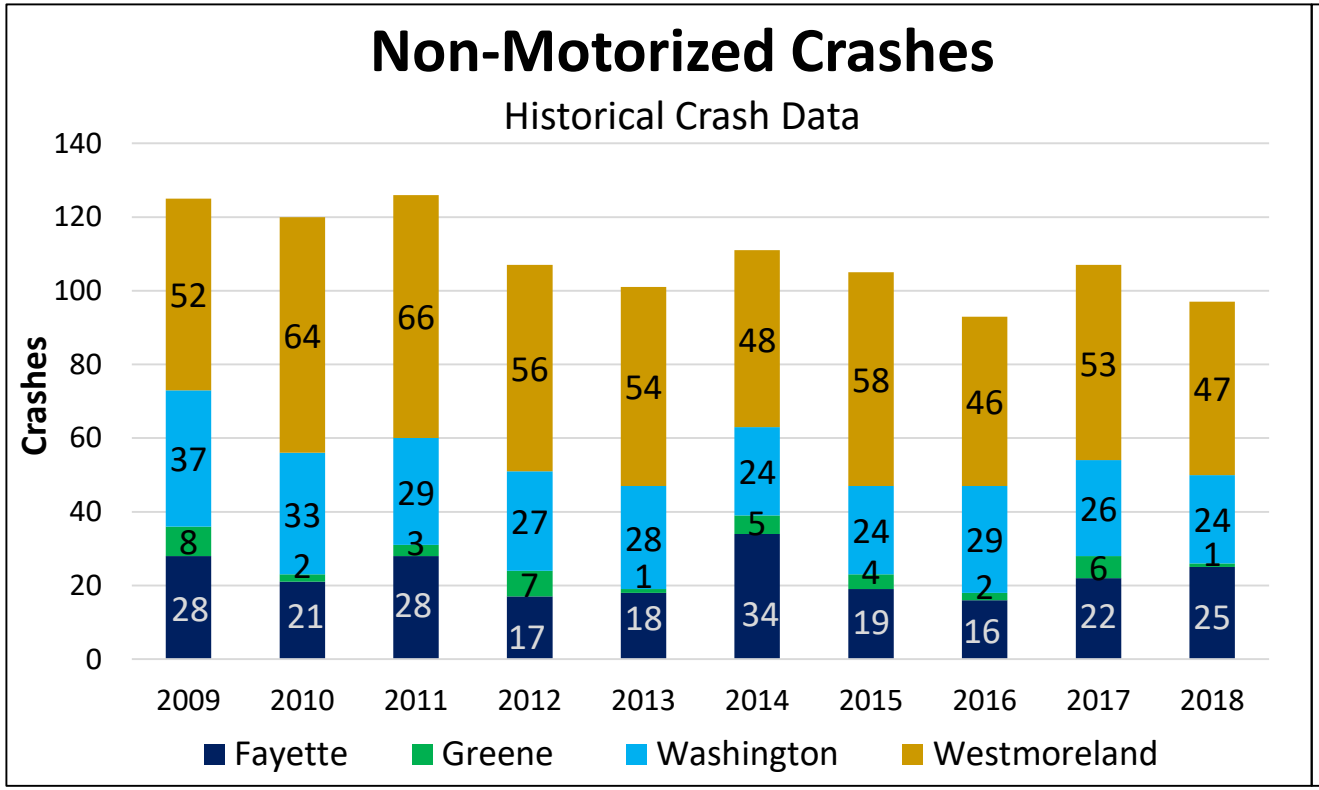


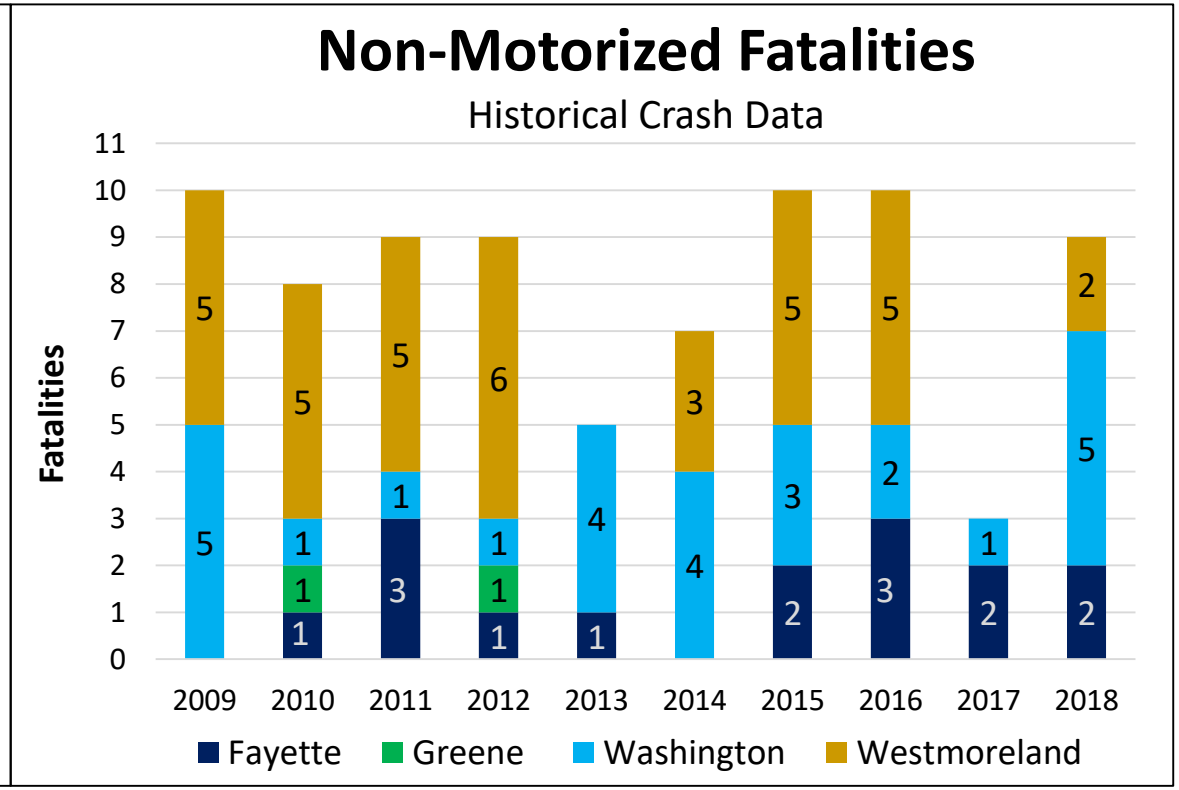


Upward Trend in Crashes/Fatalities

Safety Focus Area Performance

Safety Focus Area: Non-Motorized (Ped/Bike) Crashes



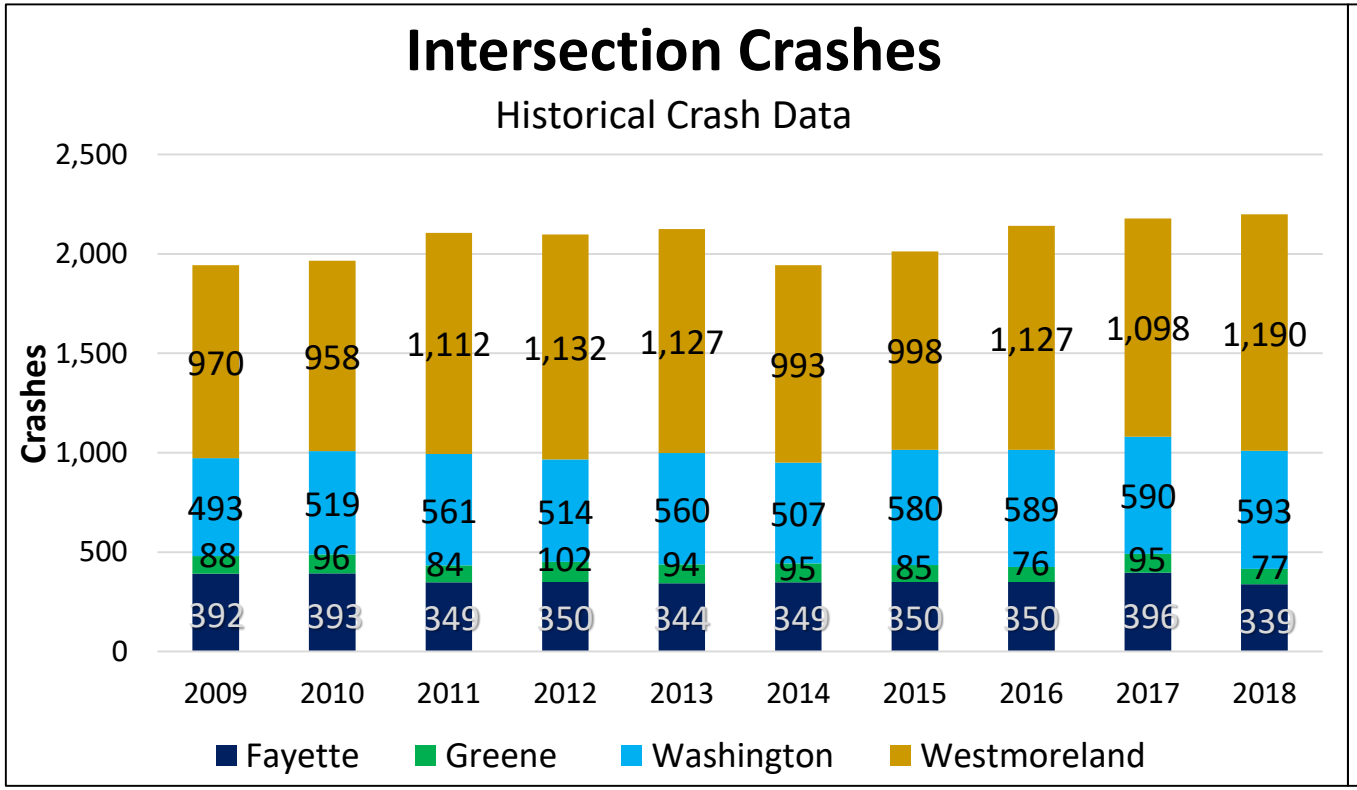


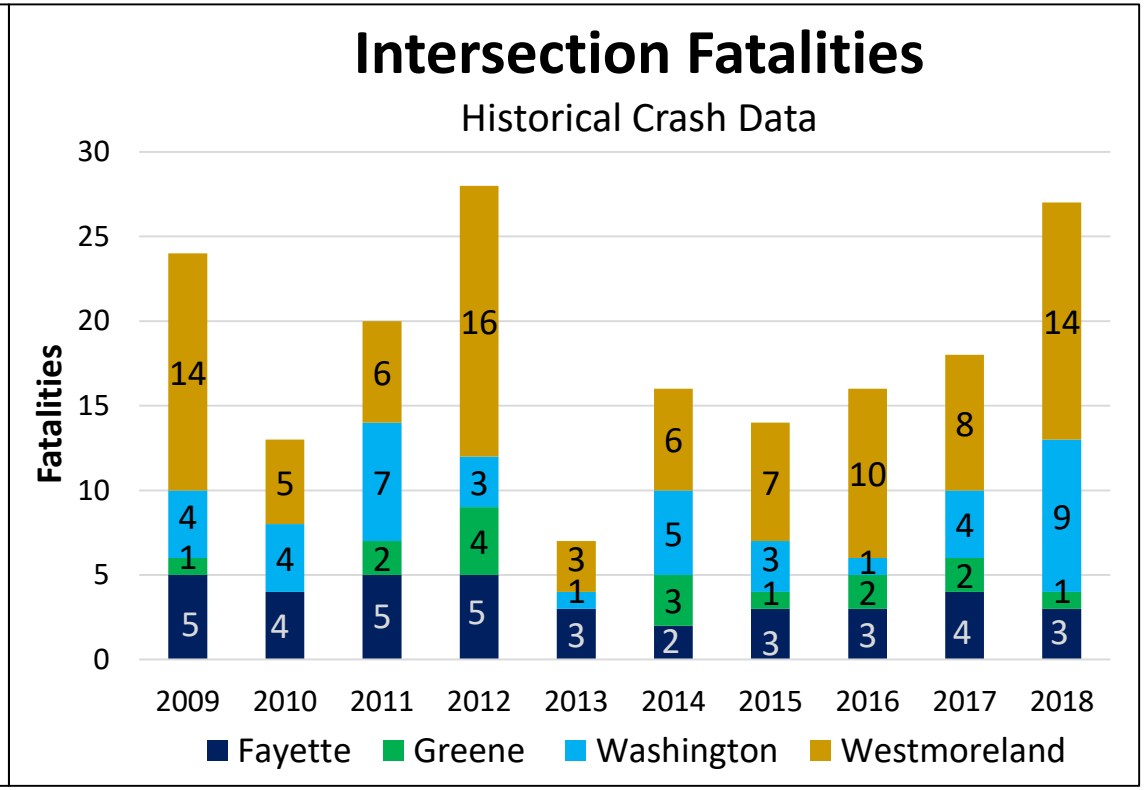
Downward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Intersection Crashes



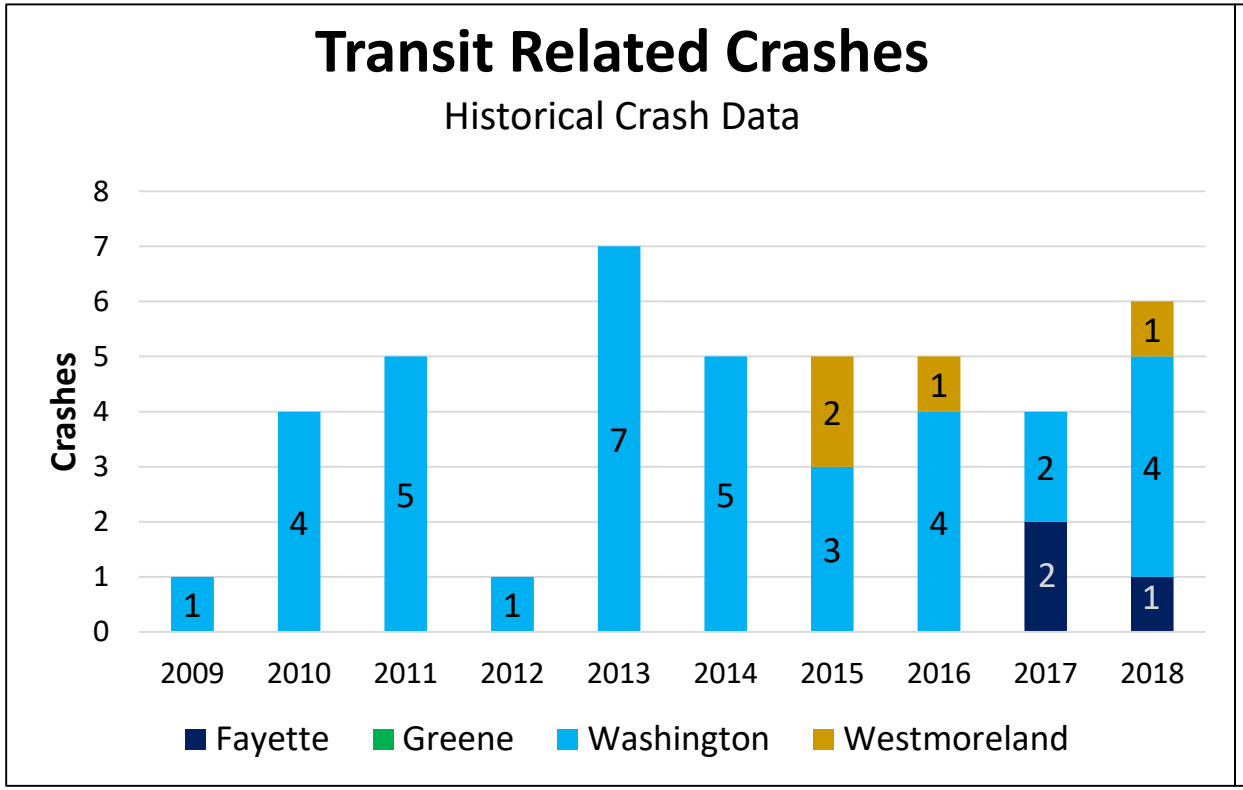


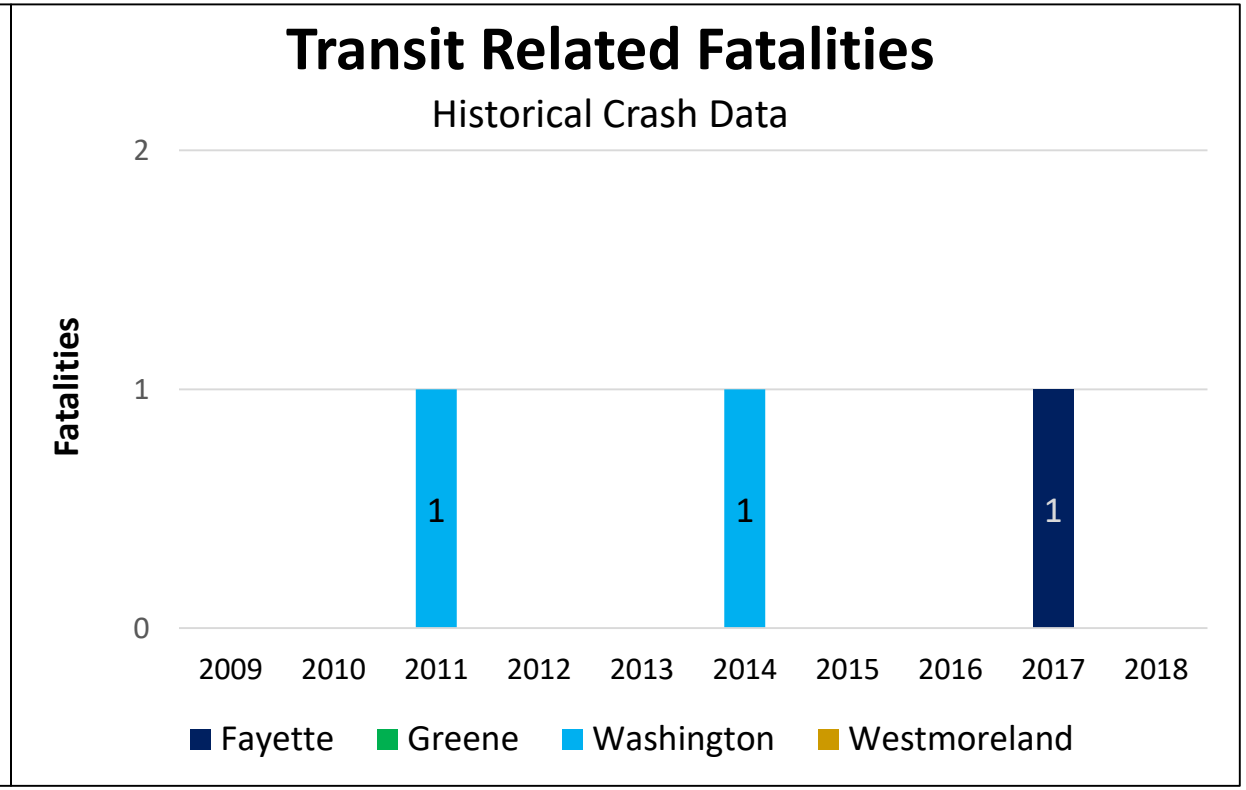
Upward Trend in Crashes

Upward Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Transit Related Crashes



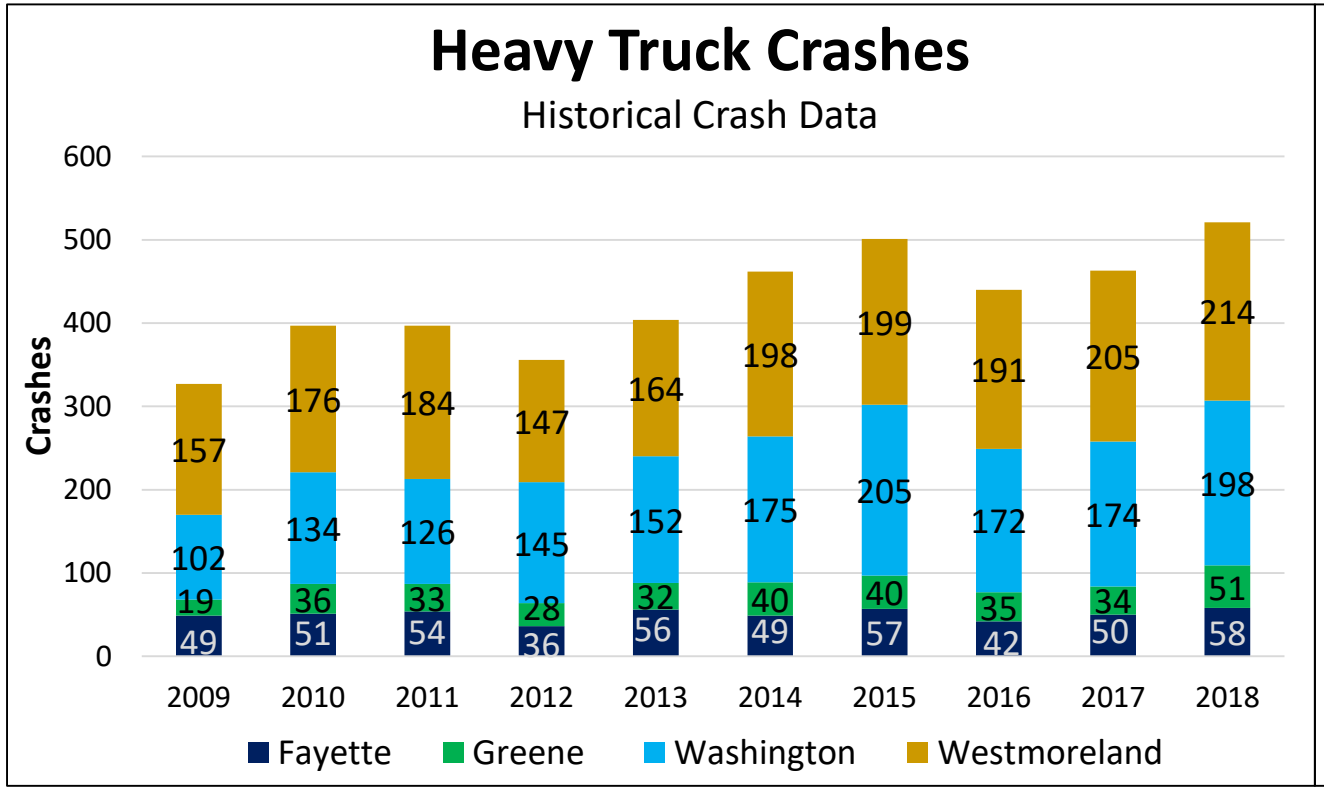


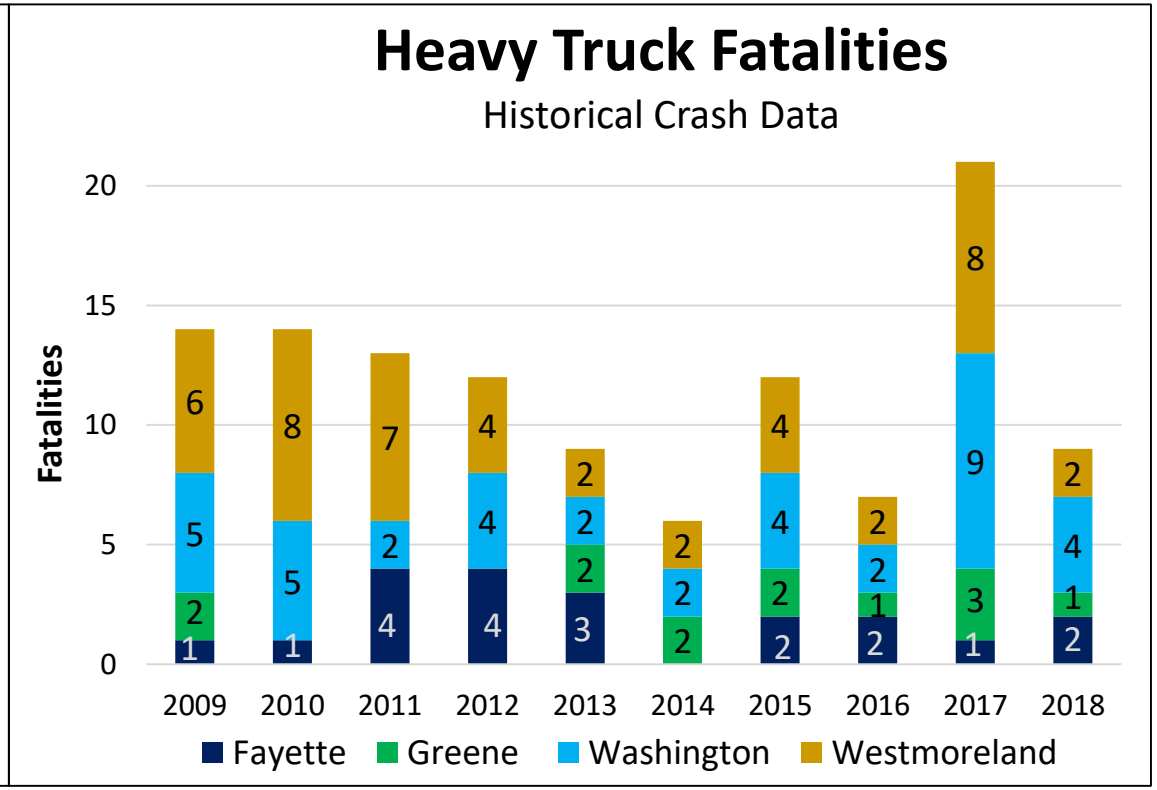
Source: Federal Transit Administration Database

Stagnant Trend in Crashes\Fatalities

Safety Focus Area Performance

Safety Focus Area: Heavy Truck Crashes



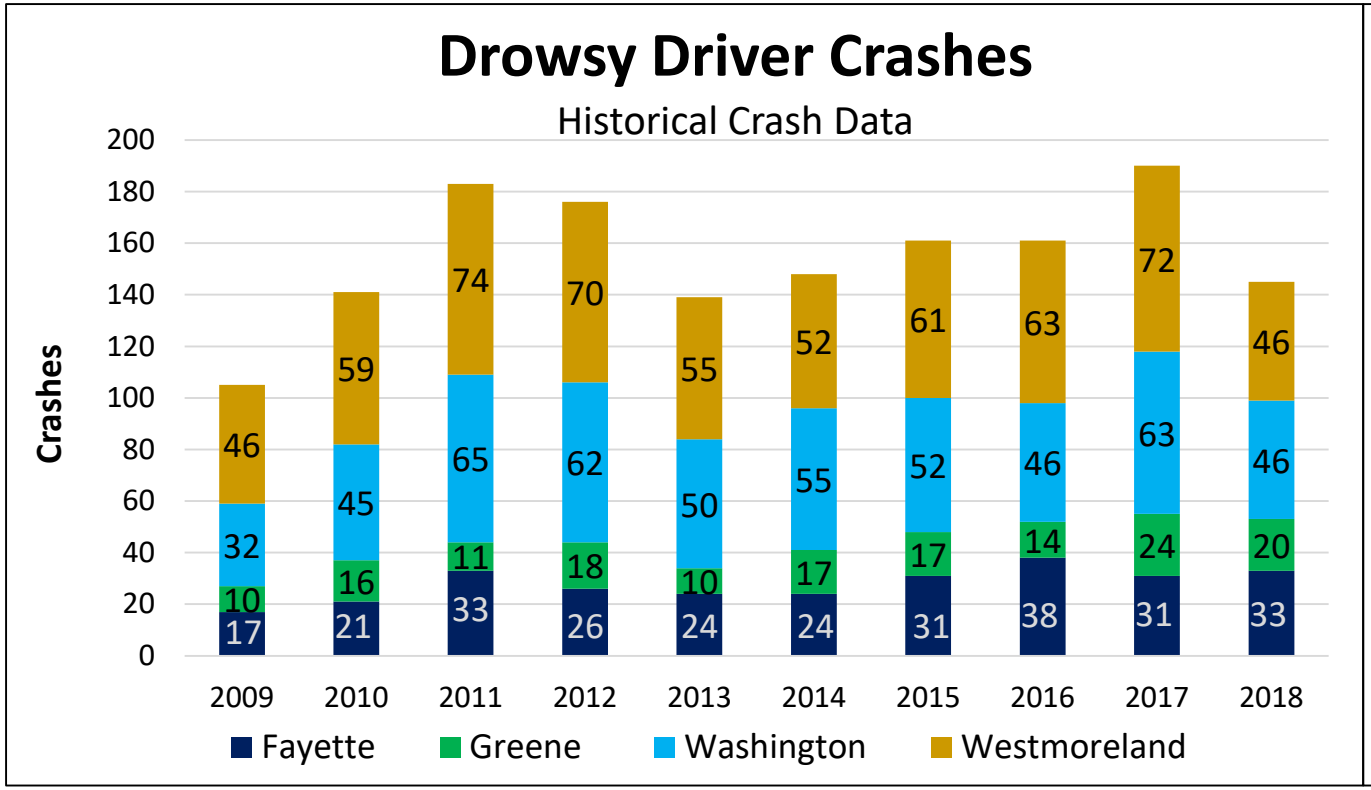


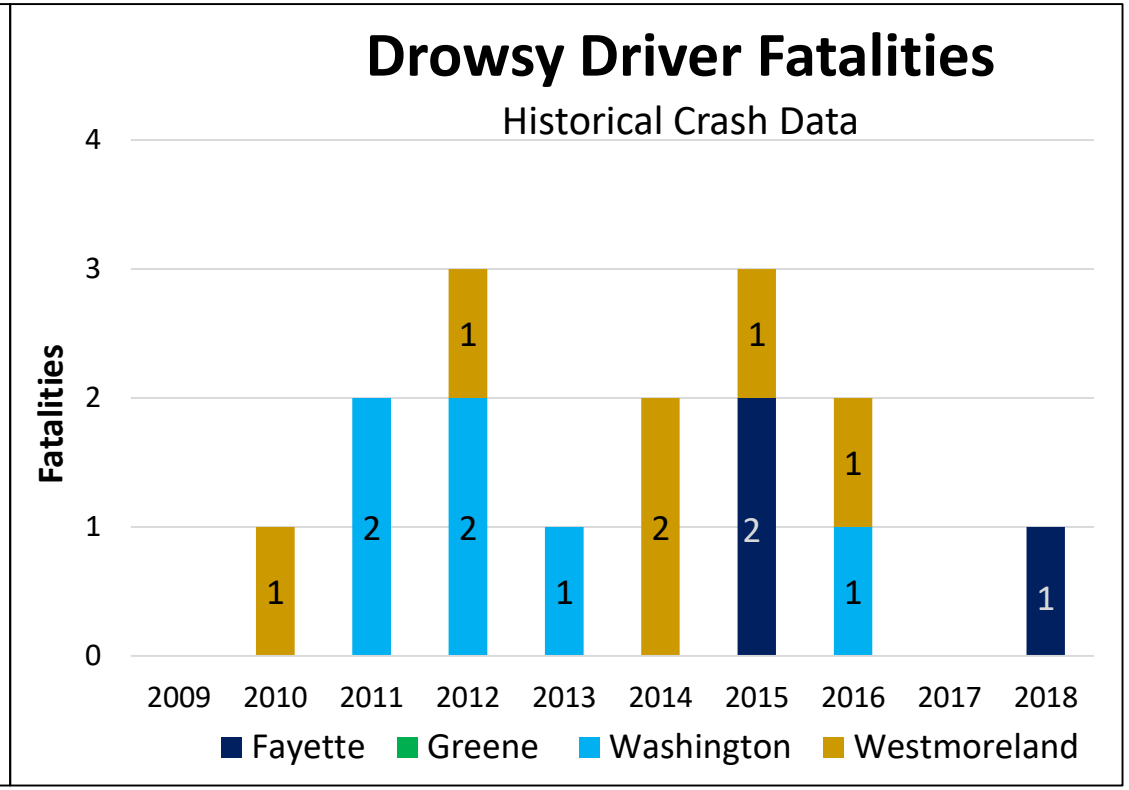
Upward Trend in Crashes

Stagnant Trend in Fatalities

Safety Focus Area Performance

Safety Focus Area: Drowsy Driver Crashes





Upward Trend in Crashes

Stagnant Trend in Fatalities

District-Specific Safety Trends

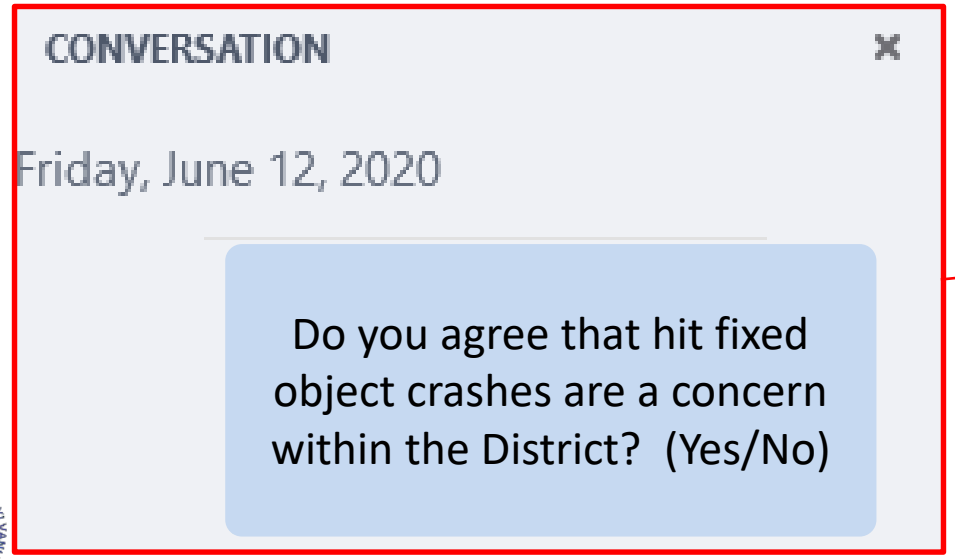
District Safety Focus Areas

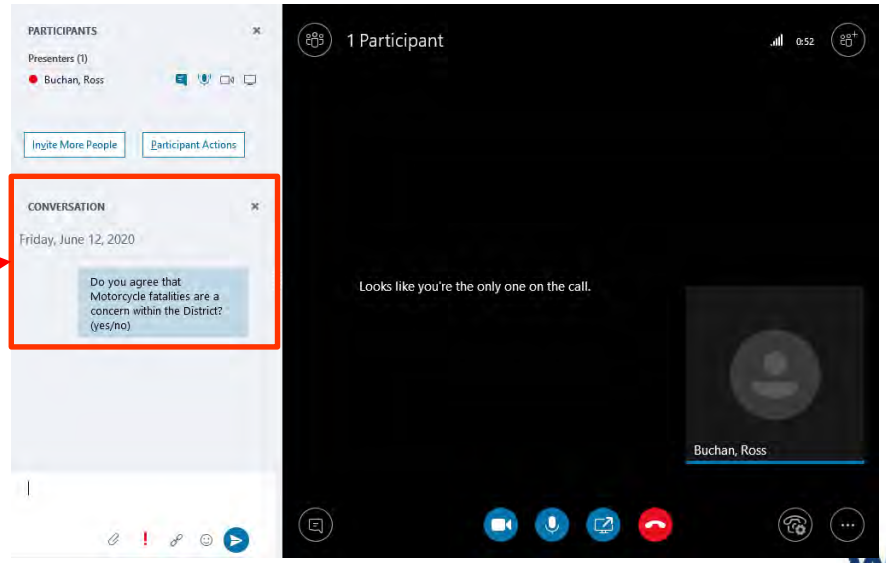
- PennDOT monitors an additional 21 crash categories in addition to the 13 Safety Focus Areas
- Investigated the other 21 categories for disconcerting trends (stagnant or increasing crash trends)
  - Only flagged crash categories where crash frequency and/or fatals are increasing comprehensively within the District (*not per County*)
- Final report will provide data for all 34 PennDOT crash categories

District-Specific Safety Trends

District Safety Focus Area Exercise

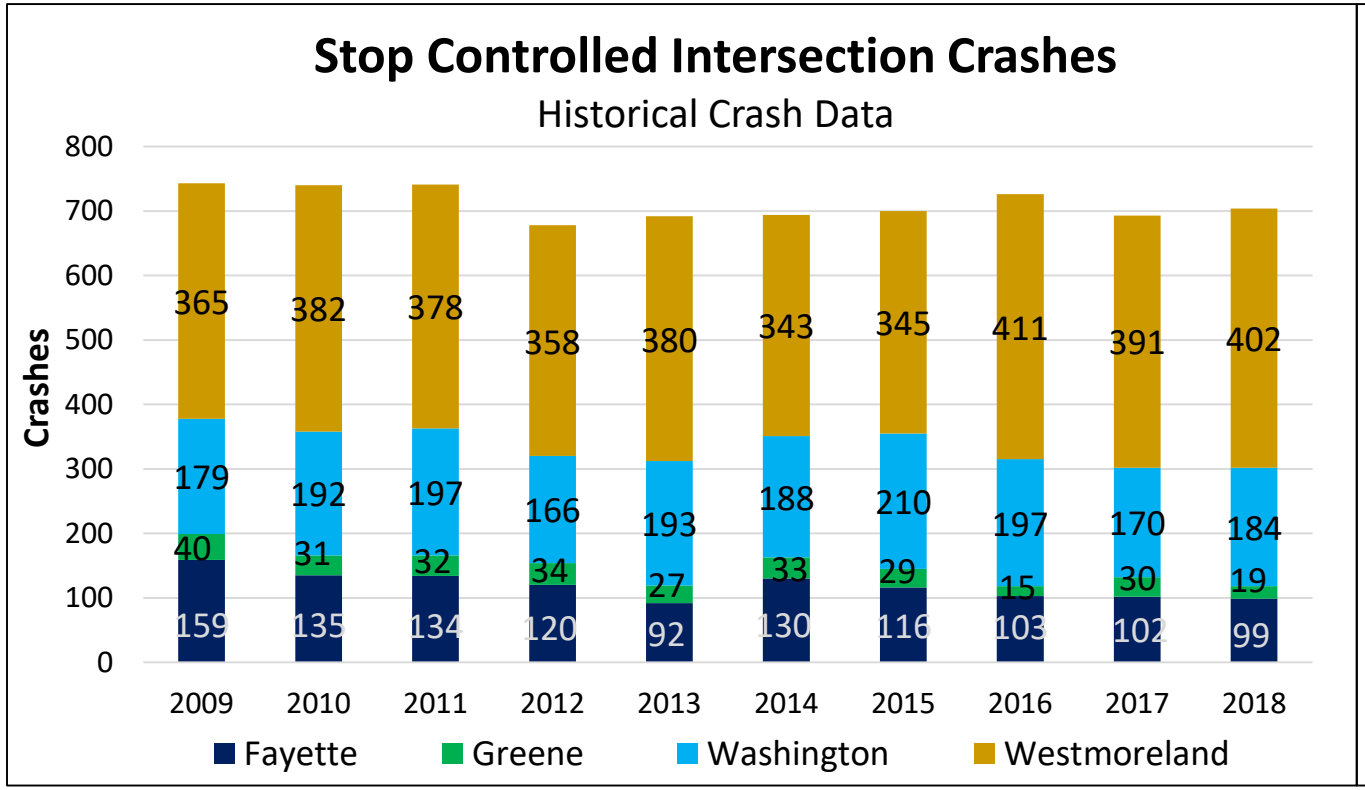
- Presenter to review stagnant or increasing Districtwide crash trends not discussed on the previous slides
- Presenter will prompt attendees to provide feedback in the Skype chat box during review of slide
  - Presenter will type question into chat box requesting “yes” or “no” response to make the crash trend a District Safety Focus Area

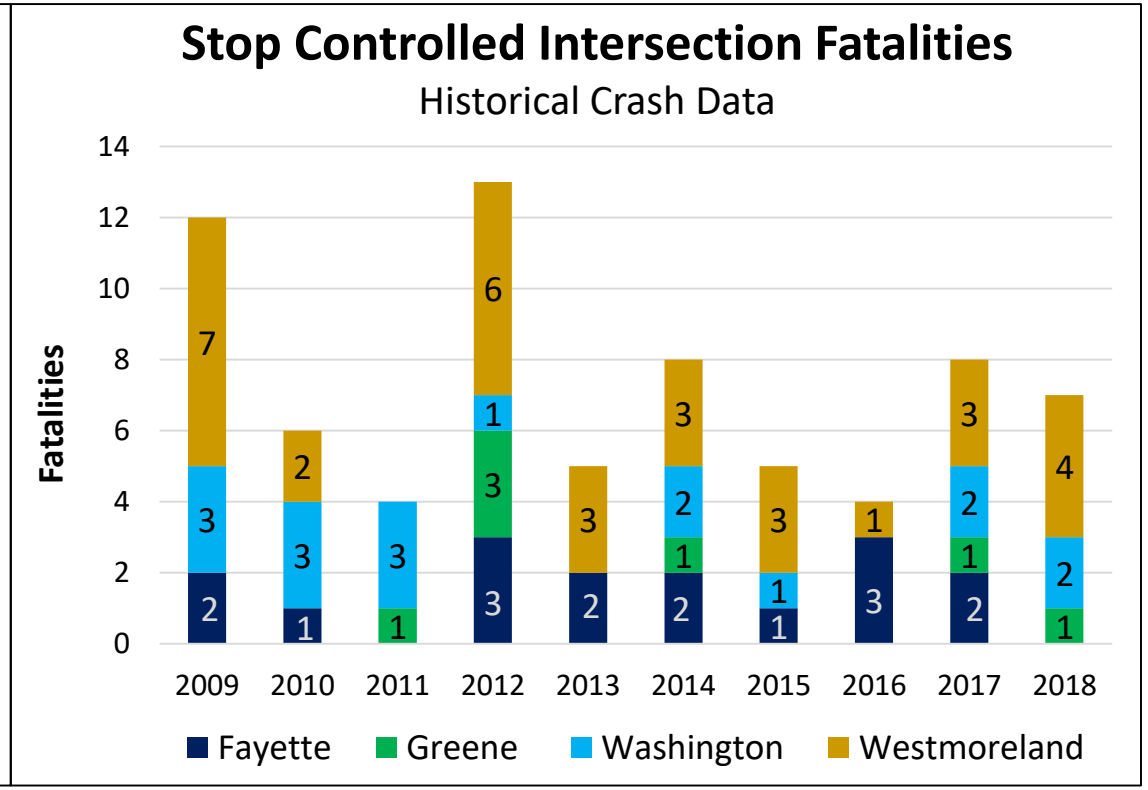




District-Specific Safety Trends

District Safety Focus Area: Stop Controlled Intersection Crashes

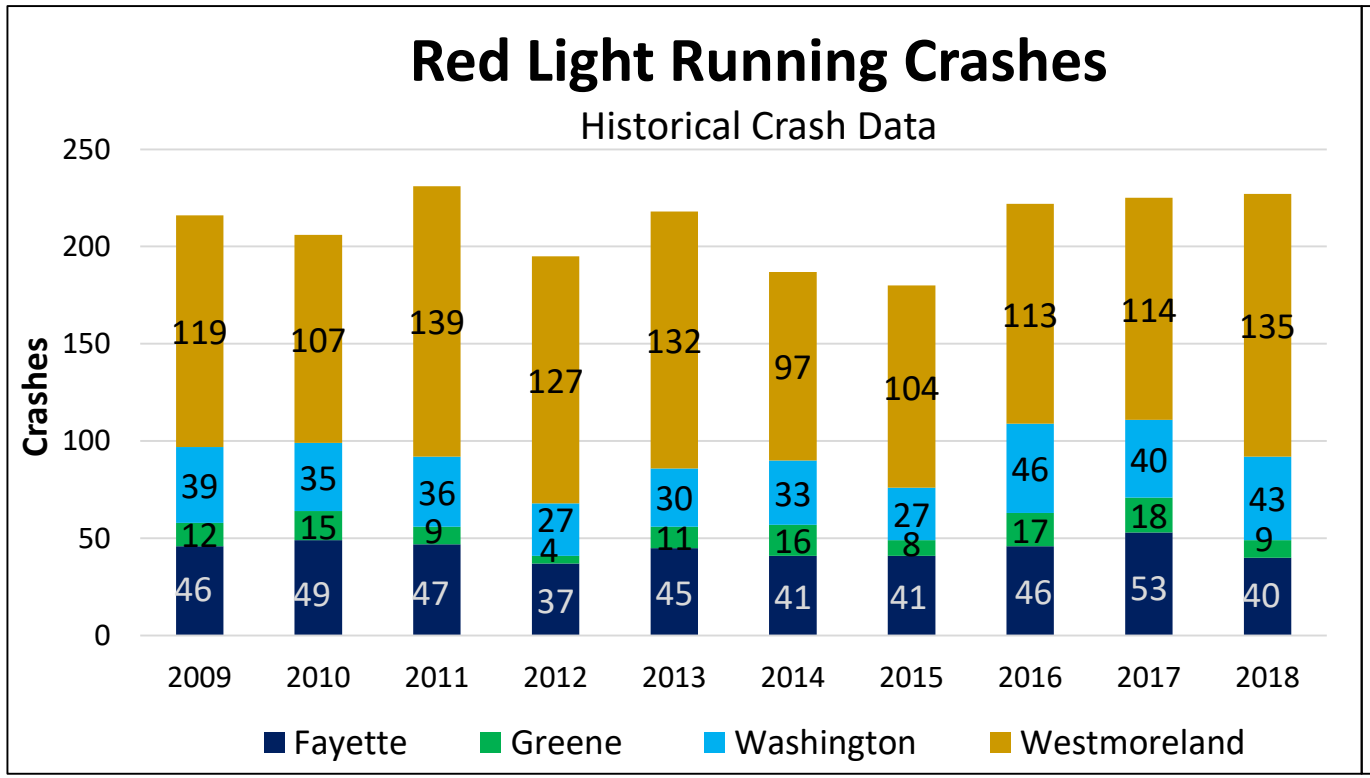


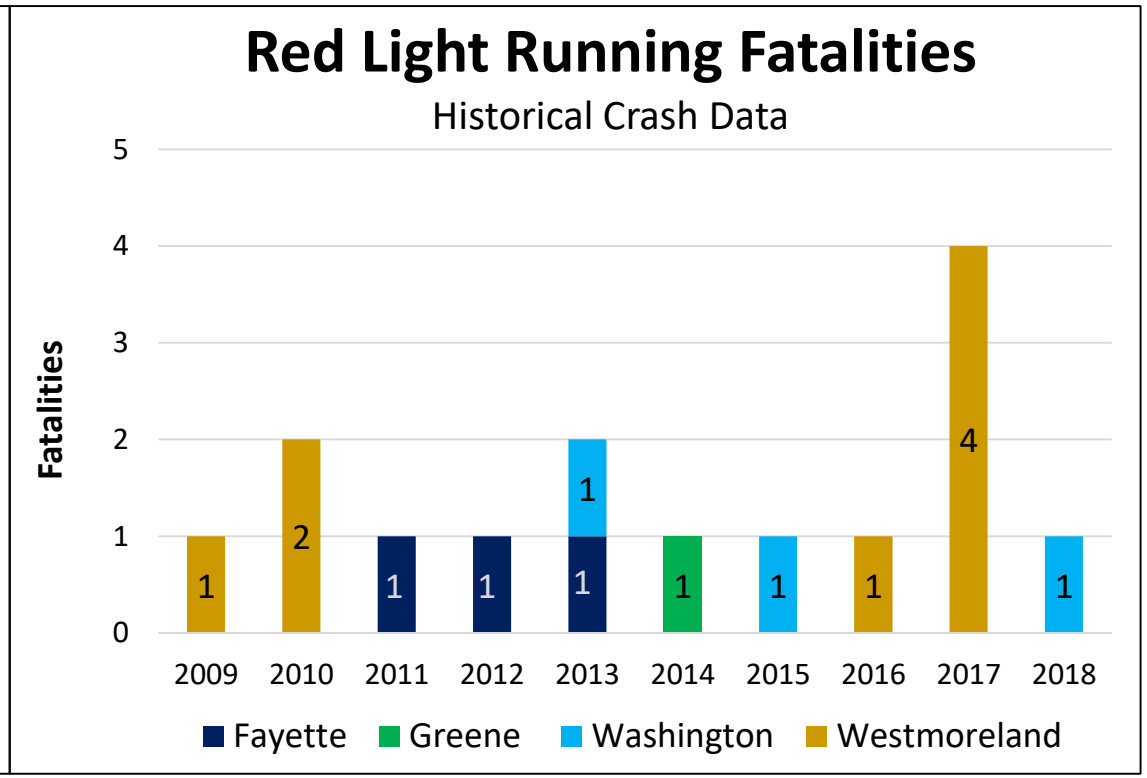


Stagnant Trend in Crashes\Fatalities

District-Specific Safety Trends

District Safety Focus Area: Red Light Running Crashes



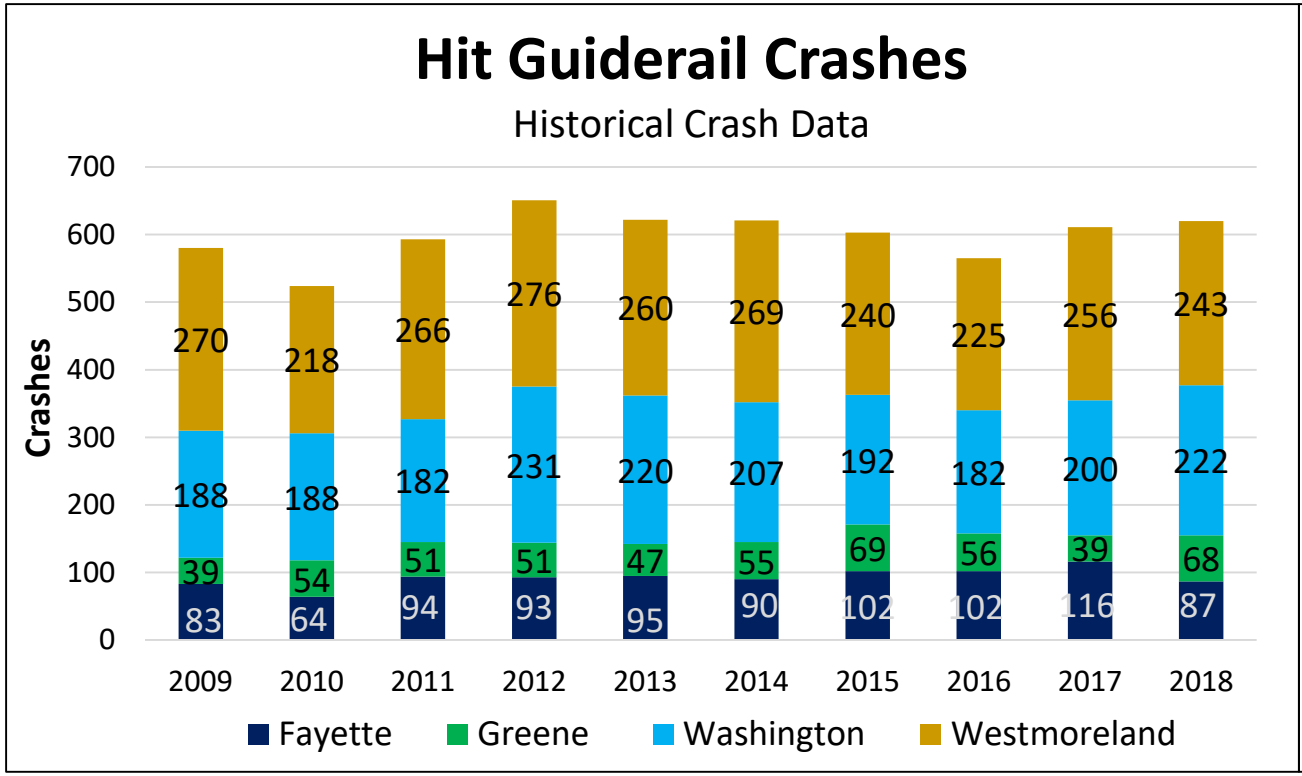


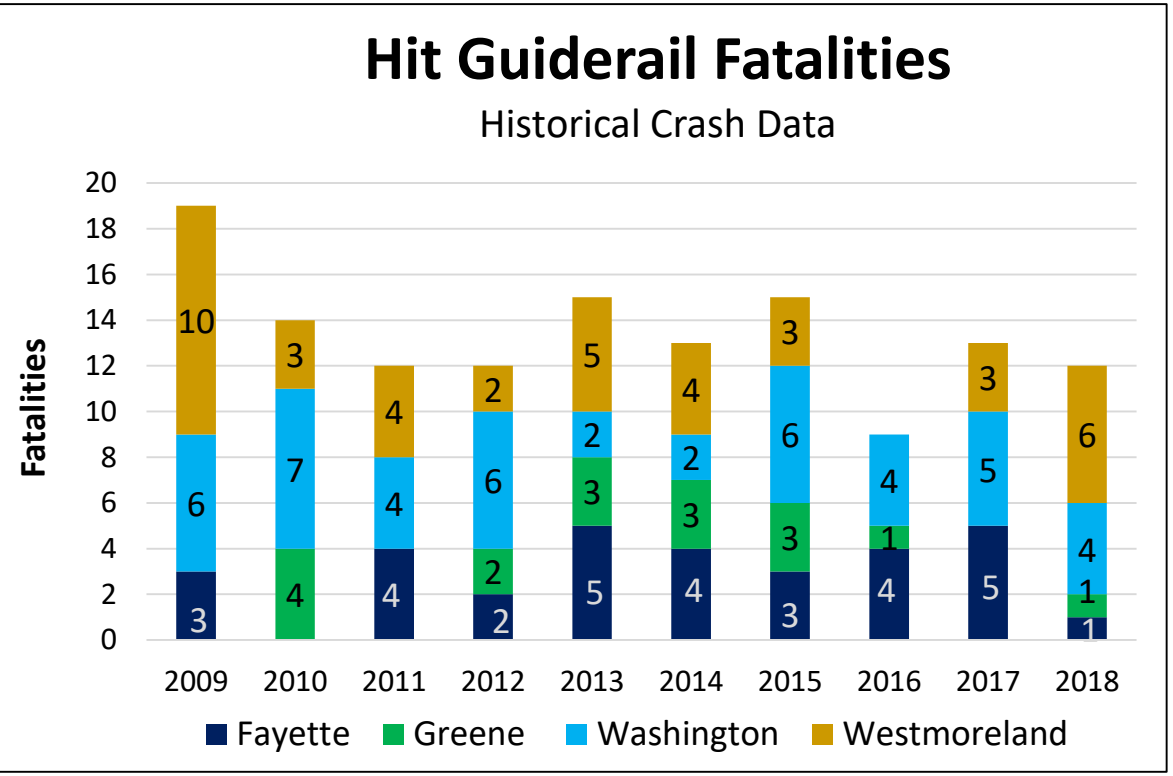
Upward Trend in Crashes

Stagnant Trend in Fatalities

District-Specific Safety Trends

District Safety Focus Area: Hit Guiderail Crashes



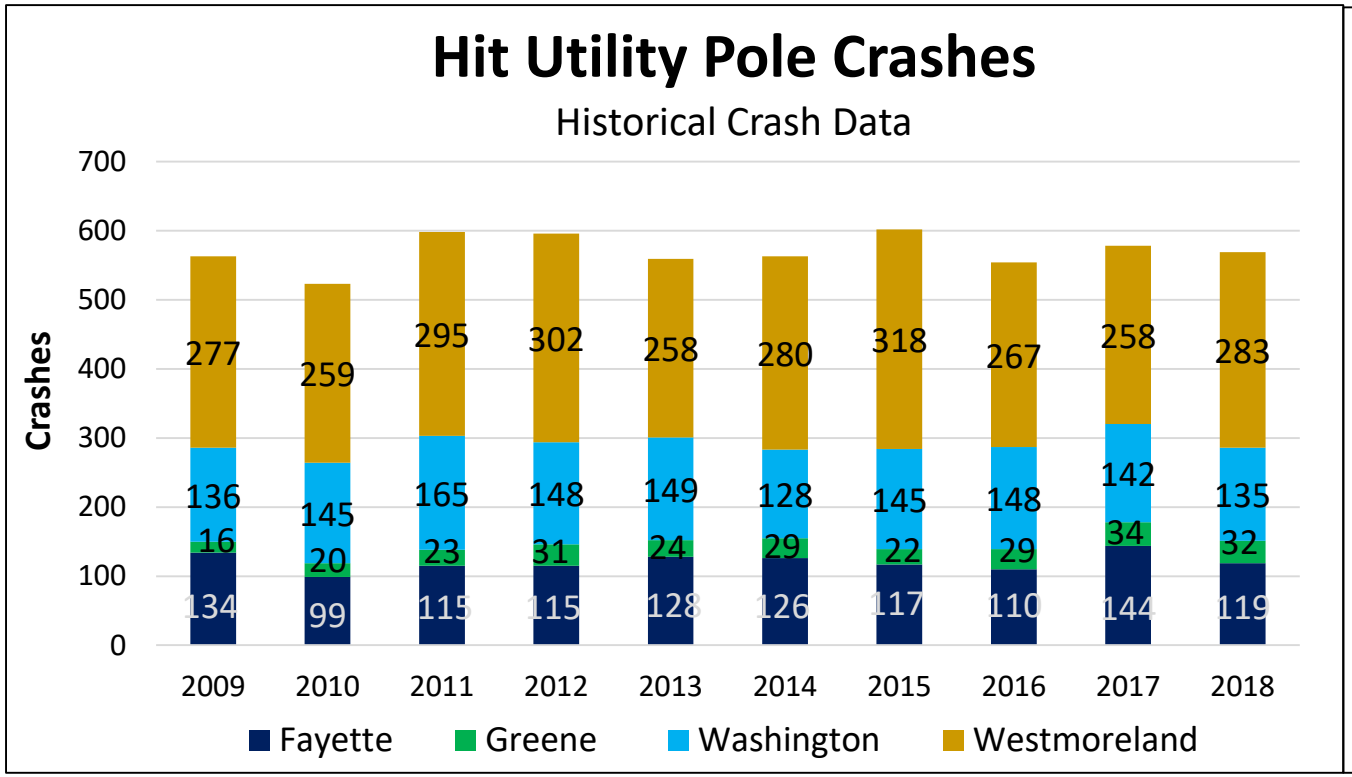


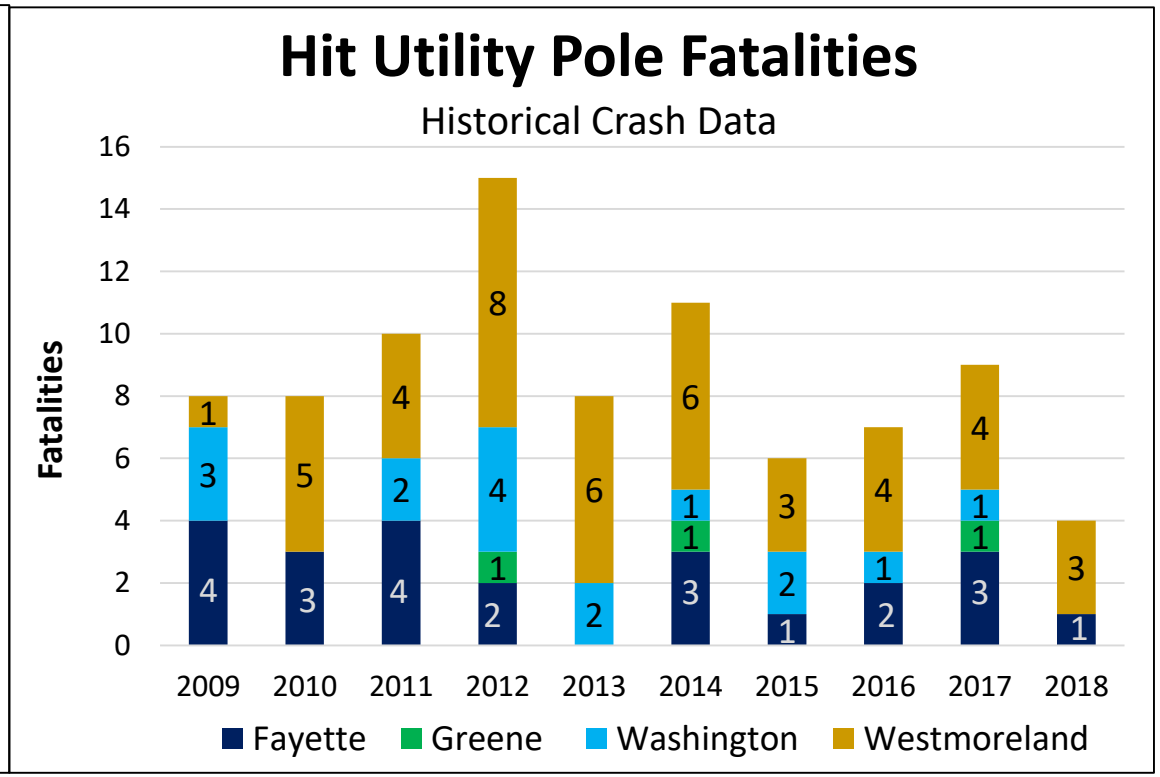
Stagnant Trend in Crashes

Downward Trend in Fatalities

District-Specific Safety Trends

District Safety Focus Area: Hit Utility Pole Crashes





Stagnant Trend in Crashes\Fatalities

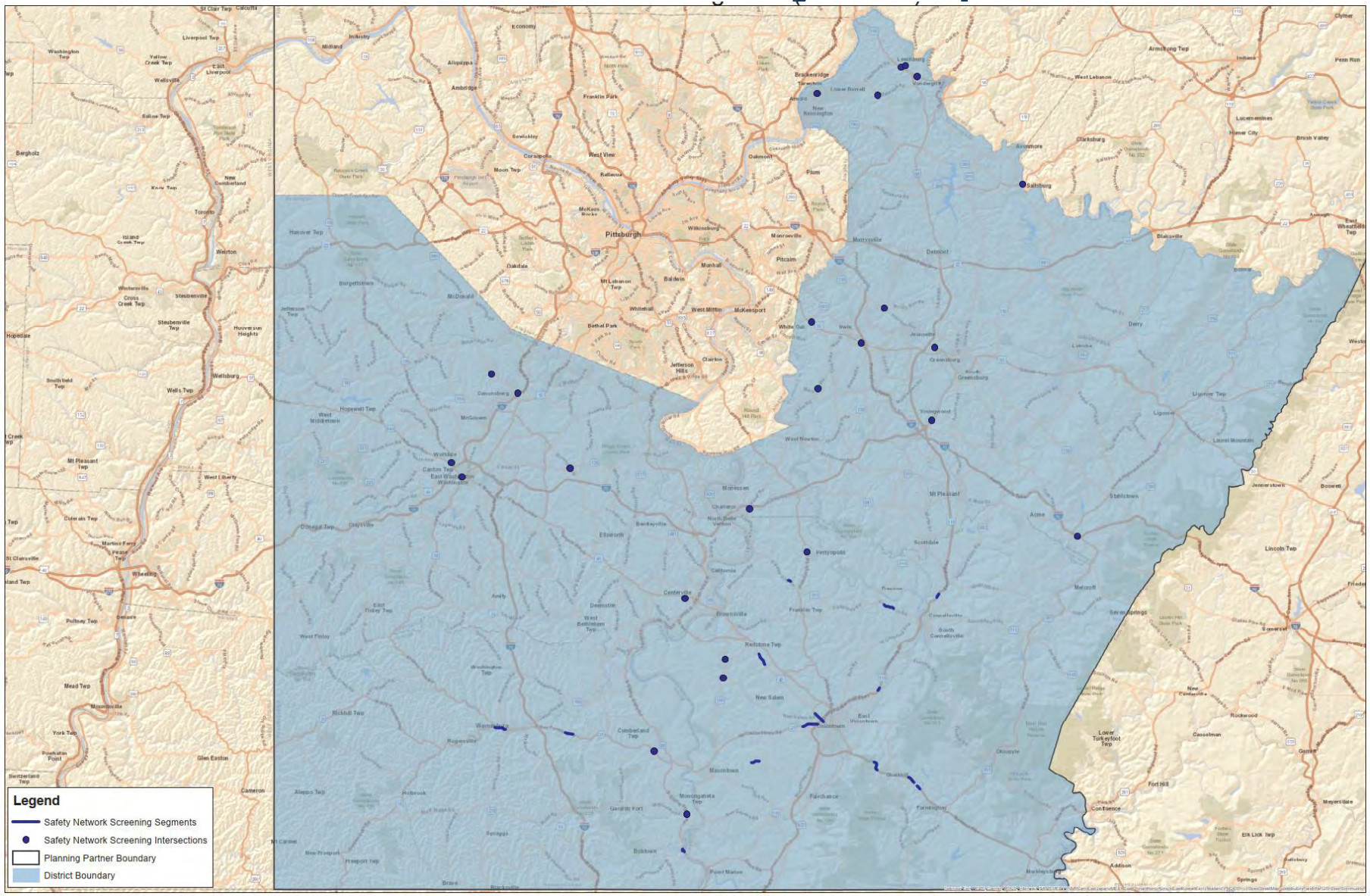
Location-Specific Safety Hot Spots

Safety Hot Spot Analysis

- HSM network screening data from 2012-2016
  - Mapped every location within GIS
  - Identified the top-40 initially ranked locations based on “Excess” value to develop interactive and static maps
  - Methodology for maps
    - Used BOMO developed HSM network screening data
      - 2012-2016 is most recent data set
    - Combined urban/rural and segment/intersection data sets to determine top-40 ranking list
    - Locations only considered if positive “Excess” value

Location-Specific Safety Hot Spots

HSM Network Screen Location Safety Hot Spots



Legend
Safety Network Screening Segments
Safety Network Screening Intersections
Planning Partner Boundary
District Boundary

Location-Specific Safety Hot Spots

HSM Network Screen Location Safety Hot Spots

District 12 HSM Network Screened Locations Initial Ranking (2012-2016 Data)					
Rank	Location	Observed Crashes	Predicted Crashes	Expected Crashes	Excess
1	Main St, from seg 260 off 214 to seg 270 off 1535	11.4	5.54	10.52	4.98
2	Memorial Blvd, from seg 680 off 872 to seg 690 off 1019	5.4	2.12	4.84	2.72
3	Route 0980 At Chartiers Run Rd / Ohare Rd	4.8	2.11	4.1	1.99
4	Main St At Brownlee Rd	4.2	1.73	3.46	1.73
5	Rostraver Rd At Tri County Ln				
6	Morganza Rd At Bobby Vinton Blvd				
7	Leechburg Rd At Serpinetine Rd				
8	Route 0130 At Walnut St	5.2	2.07	3.38	1.31
9	Mcclellandtown Rd, from seg 270 off 1642 to seg 300 off 230	6.6	4.37	5.62	1.25
10	National Pk, from seg 400 off 500 to seg 410 off 1163	5	3.39	4.61	1.22
11	Lincoln Hwy At Colonial Manor Rd	5.2	2.93	4.13	1.2
12	National Pk At Old National Pk / Daisytown Rd	3	1.19	2.31	1.12
13	Jefferson Ave At Chestnut St	5.4	3.59	4.6	1.01
14	Saltsburg Rd At Avonmore Rd	3.2	1.71	2.69	0.98
15	High St, from seg 350 off 0 to seg 360 off 1758	4.6	2.82	3.76	0.94
16	Vanderbilt Rd, from seg 60 off 1055 to seg 80 off 755	4.4	2.66	3.58	0.92
17	University Dr, from seg 494 off 25 to seg 494 off 1131	2.4	1.35	2.23	0.88
18	Blue Star Rd/Gillespie Rd, from seg 240 off 3247 to seg 250 off 497	2.4	0.39	1.27	0.88
19	Main St, from seg 10 off 406 to seg 10 off 727	1.6	0.69	1.52	0.83
20	Lincoln Hwy At Rocky Rd / Ronda Ct	6.6	5.4	6.19	0.79

KEY Segments
Intersections

Location-Specific Safety Hot Spots

HSM Network Screen Location Safety Hot Spots

District 12 HSM Network Screened Locations Initial Ranking (2012-2016 Data)					
Rank	Location	Observed Crashes	Predicted Crashes	Expected Crashes	Excess
21	Henderson Ave At Allison Ave	3.6	1.28	2.05	0.77
22	Hartley Hill Rd At Academy Rd / Stone Church Rd	2.4	1.13	1.89	0.76
23	Roy E Furman Hwy At Glade Run Rd	2.4	1	1.74	0.74
24	National Pk, from seg 470 off 2770 to seg 480 off 693	2.4	0.91	1.64	0.73
25	Chestnut Ridge Rd At Main St / Kings Way	3	2.01	2.73	0.72
26	Hartley Hill Rd At New Salem Rd / Kenney Rd	2.6	1.53	2.25	0.72
27	PA War Veterans Memorial Hwy At Hyde Park Rd	5.2	3.51	4.22	0.71
28	Melwood Rd At Markle Rd	2.4	1.15	1.85	0.7
29	Leckrone Highhouse Rd, from seg 60 off 921 to seg 70 off 1531	3	1.15	1.85	0.7
30	Greengate Rd At Radebaugh Rd	3.2	1.08	1.76	0.68
31	National Pk, from seg 140 off 464 to seg 160 off 177	4.8	3.64	4.31	0.67
32	Leechburgh Rd / Leechburg Hill Rd At PA War Veterans Memorial Hwy	2.6	1.5	2.16	0.66
33	Mars Hill Rd At Guffey Rd / Dick Station Rd	2.2	1.08	1.74	0.66
34	Leechburg Rd At Craigdell Rd	4.2	2.9	3.56	0.66
35	Dilliner Pt Marion Rd At Diamond St / Mapletown Rd	2	0.79	1.42	0.63
36	Pittsburgh Rd At Constitution St / Barneys Rd	3.6	2.25	2.87	0.62
37	Dilliner Rd/Dilliner Pt Marion Rd, from seg 50 off 1971 to seg 66 off 671	2.2	0.65	1.27	0.62
38	National Pk, from seg 460 off 307 to seg 470 off 889	3.2	2.11	2.72	0.61
39	4th St At Hillis St	3.6	2.25	2.84	0.59
40	Roy E Furman Hwy, from seg 440 off 2019 to seg 450 off 1270	2.6	1.19	1.77	0.58

KEY Segments
Intersections

Location-Specific Safety Hot Spots

Safety Hot Spot Analysis (cont'd)

- Supplemented HSM screening data with crash cluster data from 2014-2018
  - Overlaid HSM maps with top-20 crash cluster segments and top-20 crash cluster intersections
  - Methodology for maps
    - Used CDART generated crash clusters for 2014-2018
      - 2014-2018 is most recent data set
    - Ranked 40 crash cluster locations to match HSM network screened location total (40 to 40)
    - Crash cluster locations were ranked by highest delta value for each cluster category
      - Delta value is calculated using crash rate and PennDOT's homogenous reports

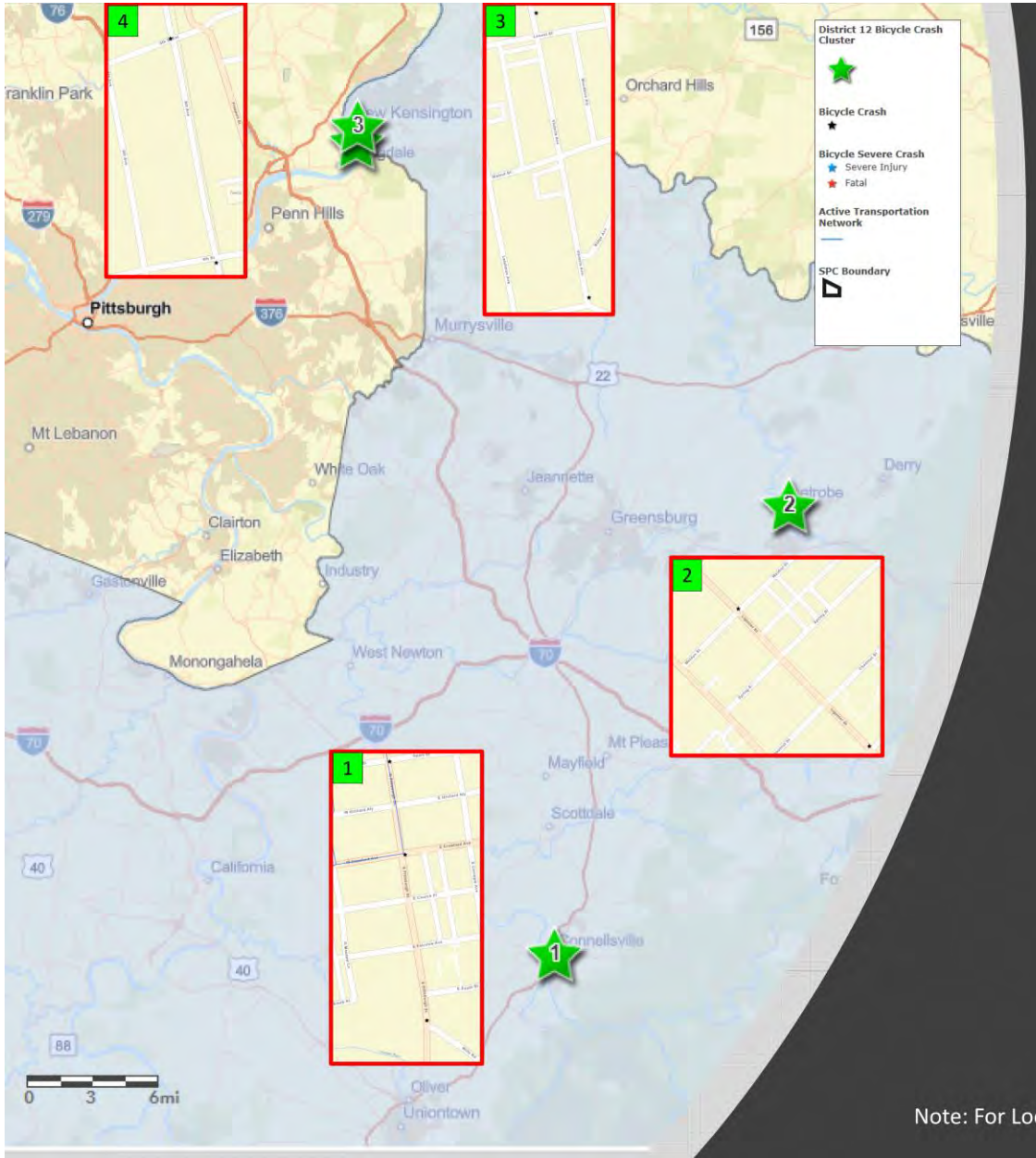
Location-Specific Safety Hot Spots

District-Specific Bicycle Safety Hot Spots

- Bicycle crash data 2014-2018
  - Mapped every bicycle crash in GIS
  - Developed maps with top-4 initially ranked locations
  - Methodology for maps
    - Used most recent bicycle crash data from PCIT (reportable crashes)
      - Includes severe injury and fatals
    - Plotted all bicycle crashes in GIS and used cluster analysis tool
      - Automated and manual cluster analysis
        - » Automated analysis to drill down to 3-4 square block range
        - » Manual analysis to obtain intersection/block level locations

Location-Specific Safety Hot Spots

Bicycle Safety Hot Spots



D12 Bicycle Crash Priority Locations

2014-2018 Crash Data

Location 1: Pittsburgh St from Apple St to Wills Rd, Connellsville

Total Crashes	3	Severe Injury	0	Fatal	0

Location 2: Ligonier St from Weldon St to Walnut St, Latrobe

Total Crashes	2	Severe Injury	0	Fatal	0

Location 3: Victoria Ave from Locust St to McCargo St, New Kensington

Total Crashes	2	Severe Injury	0	Fatal	0

Location 4: 6th Ave from 5th St Ext to 4th St, New Kensington

Total Crashes	2	Severe Injury	0	Fatal	0

Note: For Locations 2, 3, and 4, the distances between the crashes are over 700 ft.

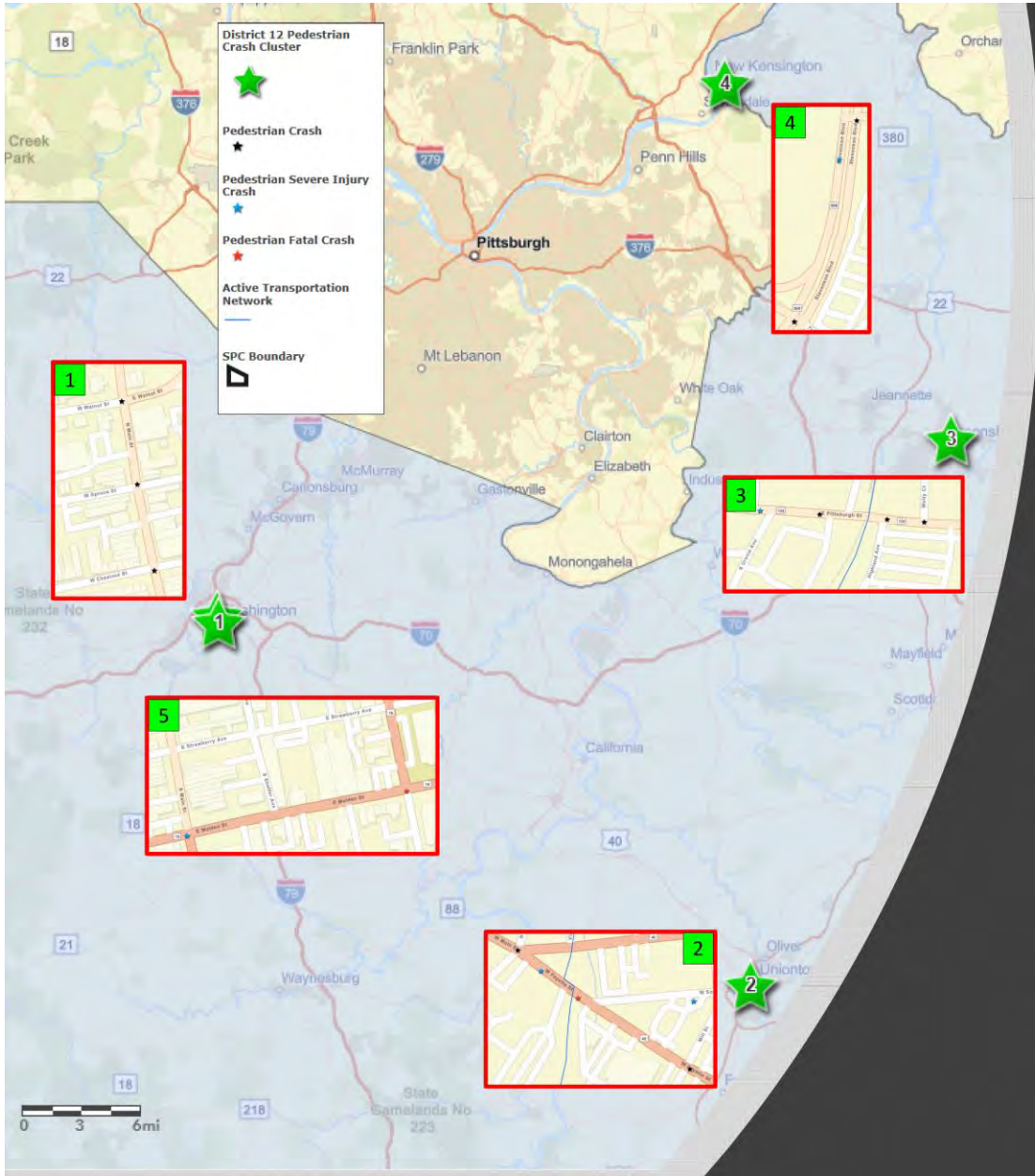
Location-Specific Safety Hot Spots

District-Specific Pedestrian Safety Hot Spots

- Pedestrian crash data 2014-2018
  - Developed maps with top-5 initially ranked locations
  - Utilized same methodology from the bicycle maps to create pedestrian maps

Location-Specific Safety Hot Spots

Pedestrian Safety Hot Spots



D12 Pedestrian Crash Priority Locations

2014-2018 Crash Data

Location 1: Main St from Chestnut St to Walnut St, Washington

Total Crashes	5	Severe Injury	0	Fatal	0

Location 2: Fayette St from Mount Vernon Ave to Mill St, Uniontown

Total Crashes	4	Severe Injury	1	Fatal	1

Location 3: Pittsburgh St from Urania Ave to Welty Ct, Greensburg

Total Crashes	4	Severe Injury	1	Fatal	0

Location 4: SR 366 from SR 56 to SR 780, New Kensington

Total Crashes	4	Severe Injury	1	Fatal	0

Location 5: Maiden Street from Main Street to College Street, Washington

Total Crashes	3	Severe Injury	1	Fatal	1

Network Level Trends

Pedestrian & Bike Network-Level Analysis (2014-2018)

- 83 bicycle crashes and 421 ped crashes resulted in 39 fatalities and 68 severe injuries.
- Bicycle fatality rate of 6% is the highest in the SPC Region (~2%)
- Pedestrian fatality rate of 8% is also high compared to SPC Region (~5%)
- Bicycle crashes are split 55%/45% between intersections / non-intersections
  - More urban areas have a higher percentage in intersections
  - 4 of 5 fatals were at “non-intersection” locations
- Only 14% of ped crashes were at signals, with 66% at non-intersections
- Major urban areas account for less than half the ped crashes

Network Level Trends

Pedestrian & Bike Network-Level Analysis (2014-2018)

- Key Observations
  - Bicycle crashes were overrepresented in the following areas:
    - Around bike trails and on PA Bicycle Routes A and S
    - Connellsville
    - New Kensington
  - Pedestrian crashes were overrepresented in the following urban areas:
    - Connellsville (top of bicycle and ped crashes)
    - Washington
    - Greensburg
    - Uniontown
  - To what extent is a dispersed, non-intersection ped crash pattern related to missing sidewalk?

Safety Strategies & Improvement Identification

Wiki-Map Exercise

- Developed 2 Wiki-Maps to solicit feedback regarding location-specific safety hot spots
  - Map 1: HSM Network Screened Locations
  - Map 2: Bicycle & Pedestrian Priority Locations
- Attendees to review after meeting and provide feedback prior to July 10th

Wiki-Map Demo

Safety Strategies & Improvement Identification

Safety solution roundtable exercise

- Presenter to go around the room asking each participant for suggestions
- Participants may type directly into the chat box
- Presenter will take “live notes” during discussion

Programmatic Improvements

- *Improved bicycle signs/markings & design standards at intersections*
- *Evaluation of connections to/from bike trails*
- *District Road Safety Audit Program*

Soft-side Improvements

- *Increase drug related enforcement*
- *Education/safety campaigns for vehicle-bike conflicts at intersections*

Infrastructure Improvements

- *Deploy near-miss technology for high volume ped/bike locations*

SAP 2020 Next Steps

- Incorporate today's feedback
- Distribute Wiki-Maps and interactive map links
- Incorporate stakeholder feedback
- Develop SAP Draft Report
- Schedule Steering Committee Meeting 3 (*August timeframe*)

Open Discussion

Consultant Contact Info:

Project Manager:

Ross Buchan, PE

rbuchan@wrallp.com

Safety Analyst:

Jim French, PhD, PE, ENV SP jfrench@frenchengr.com

MEMORANDUM of MEETING

Date: June 23, 2020

Date of Meeting: June 22, 2020
Time of Meeting: 9 AM
Meeting Location: Skype
Meeting Description: District 12-0 Stakeholder Meeting

CC: File

Work Order Number: 95
Contract Number: SPC On Call
Project: Safety Action Plan Update

Participants:

Name	Company	Phone	Email
Josh Spano	SPC	412-391-5590 x 362	jspano@spcregion.org
Domenic D'Andrea	SPC	412-391-5590 x 341	ddandrea@spcregion.org
Evan Schoss	SPC	412-391-5590 x 338	eschoss@spcregion.org
Andy Waple	SPC	412-391-5590 x 310	awaple@spcregion.org
Ross Buchan	WRA	717-514-8916	rbuchan@wrallp.com
Jim French	French Engineering	724-569-8555	jfrench@frenchengr.com
Adam Weinshenker	French Engineering	724-569-8555	aweinshenker@frenchengr.com
Gary Barber (On behalf of Rachel Duda)	PennDOT District 12-0	724-439-5517	gabarber@pa.gov
Eric Bell	PennDOT District 12-0	724-439-7271	erbell@pa.gov
Daniel Carpenter	Westmoreland County	724-830-3604	dcarpen1@co.westmoreland.pa.us
Cory Craft	PennDOT District 12-0	724-439-7370	ccraft@pa.gov
Robb Dean	PennDOT District 12-0	724-439-7256	robdean@pa.gov
Jeremy Kelly	Greene County Planning	724-852-5300	jkelly@co.greene.pa.us
William Kovach	PennDOT District 12-0	724-439-7137	wkovach@pa.gov
Jeff Leithauser	Washington County	724-228-6811	LeithauJ@co.washington.pa.us
Austin McDaniel	Green County Planning	724-852-5300	amcdaniel@co.greene.pa.us
John Ofsanik	PennDOT District 12-0	(724) 627-6131	jofsanik@pa.gov
Connor Shapiro	Westmoreland County Planning	724-830-3600	CSHAPIRO@co.westmoreland.pa.us
Joe Szczur	PennDOT District 12-0	724-439-7340	jszczur@pa.gov
Jason Theakston	Washington County	724-228-6811	theakstj@co.washington.pa.us
Bryan Walker	PennDOT District 12-0	724-439-7345	brywalker@pa.gov

The presentation entitled “SPC Safety Action Plan Updated – District 12-0 Stakeholder Meeting” was given by Josh Spano, Domenic D’Andrea, and Ross Buchan. The following discussion ensued during the presentation:

- Domenic noted that all nine non-motorized fatalities in 2018 were pedestrians.
- Of the four additional proposed District Safety Focus Areas, Red-Light Running and Stop-Controlled Intersection crashes were unanimously considered to be concerns. Guiderail Crashes and Utility Poles crashes were not considered to be concerns at this time. The District noted that they have focused on these crash types recently with projects and improvements and would like to monitor future crash data before taking additional action in this regard. With respect to guiderails, it was noted that regardless of the overall frequency at which they are being hit, the fatalities were down. This could be an indicator that they are located where they are needed and that they are operating properly.
- There were no additional focus areas recommended for consideration by the stakeholder group.
- As part of the pedestrian and bicycle safety discussion, Daniel Carpenter indicated that safety for bicycles and pedestrians should be a priority, and suggested that overall pedestrian and bicycle activity is depressed by the current level of safety afforded to potential cyclists or pedestrians.
- It was explained that Wiki-Maps would be made available to the stakeholder group to make comments in the near future. A demonstration was provided on how to use it. Those comments will be compiled and provided under separate cover.
- Suggestions for safety improvement strategies followed the end of the formal presentation. Ideas were recorded in real-time on a slide.
    - PennDOT identified mature drivers and heavy vehicle crashes as current focus areas. It was also noted that they are currently deploying Red Light Signal Ahead signs on US 22 and may consider other areas in the future. With respect to the HSM-Screened Hot Spots, they noted that the SR 21 corridor was recently improved and that the US 40 / Business 40 corridor near the Uniontown Bypass interchange is high on their list as well.
    - It was reiterated that bike/ped crashes should continue as a focus area.
    - During the discussion it was noted that a Roadway Safety Audit will be conducted on US Route 40 next month, beginning near the crest of Summit Mountain and extending 12 miles to the east to the Yough Lake.
- Domenic noted that any safety improvements from the last year and a half would not be reflected in the data since the cutoff for the analysis conducted thus far is 2018.

The above is a summary between the parties regarding the topics discussed and the decisions reached. Any participants desiring to add to, or otherwise amend the minutes, are requested to put their comments in writing to the writer within seven (7) days; otherwise, the minutes will stand as written.

Ross Buchan
Sender’s name

SPC SAFETY ACTION PLAN UPDATE

Steering Committee Meeting 3

October 2, 2020

Agenda

- Introductions/Roll-call
- Progress and Schedule Updates
- Meeting Objectives
- Confirm Safety Needs
  - District Safety Focus Areas
  - Site Specific Locations
- Proposed Safety Solution Discussion
- Next Steps
- Open Discussion

Progress & Schedule

Tasks	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
~~1. Safety System Performance-Data Analysis~~									
~~2. Steering Committee/Stakeholder Group Mtg 1~~									
~~3. Trends, Emphasis Areas, & Safety Strategies~~									
~~4a. Steering Committee Mtg 2~~									
~~4b. Stakeholder Group Mtgs (1 in each District)~~									
~~5a. Draft SAP Findings/Document Development~~									
5b. Steering Committee Mtg 3									
6. Final SAP Document									

Today's Meeting Objectives

- Confirm District specific safety focus areas and priority locations
- Discuss proposed safety solutions/strategies
- Verify responsible parties and partners

Safety Needs

Regional Safety Focus Areas

Previous 2015 SAP Safety Focus Areas

- Drug related crashes
- ~~Unbelted crashes~~
- Distracted driving crashes
- Run-off-road crashes
- ~~Hit fixed object crashes~~
- Head-on crashes
- Signalized intersection crashes
- Aggressive driving crashes
- Secondary crashes
- Mature driver crashes
- Non-motorized (ped/bike) crashes

New 2020 SAP Safety Focus Areas

- Intersection crashes
- Transit-related crashes
- Heavy truck crashes
- Drowsy driver crashes

Safety Needs

District Specific Safety Focus Areas

District 10

- Hit fixed object crashes
- Hit tree crashes
- Speeding crashes
- Hit utility pole crashes*
- Motorcycle crashes

District 11

- Speeding crashes
- Unbelted crashes
- Stop-controlled crashes
- Work zone crashes

District 12

- Red-light running crashes
- Stop-controlled intersections

*Need confirmation on addition as District Specific Safety Focus Area

Safety Needs

District Priority Locations (Motorized)

- No revisions to the original Top-40 motorized safety locations for all Districts per feedback
  - District 12: Included 2 additional locations to be monitored in the future via Wikimap feedback
- Incorporated site specific feedback for each location

Safety Needs

District Priority Locations (Motorized)

DISTRICT 12-0 SUMMARY TABLE EXAMPLE

Rank	Location	Observed Crashes	Predicted Crashes	Expected Crashes	Excess Crashes	District Feedback
1	Route 040 (Main St), seg 260/214 to seg 270/1535	11.4	5.54	10.52	4.98	Project in preliminary design
2	Memorial Blvd, seg 680/872 to seg 690/1019	5.4	2.12	4.84	2.72	
3	Route 0980 At Chartiers Run Rd/Ohare Rd	4.8	2.11	4.1	1.99	Poor sight distance from O'hare Rd. Speeding on SR 980. Implemented all-way stop 2018
38	Route 040 (National Pk), seg 460/307 to seg 470/889	3.2	2.11	2.72	0.61	Completed RSA August 2020
39	4th St At Hillis St	3.6	2.25	2.84	0.59	Project for traffic calming and new signals
40	Roy E Furman Hwy, seg 440/2019 to seg 450/1270	2.6	1.19	1.77	0.58	
Additional Safety Hot Spots within Allegheny Township						
N/A	Route 056 (Leechburg Rd) At West Leechburg Township Line	N/A	N/A	N/A	N/A	Priority safety area for Allegheny Twp. Stormwater/ drainage issues and poor visibility from SR 56 to bridge.
N/A	Route 056 (Leechburg Rd) At Route 356	N/A	N/A	N/A	N/A	Priority safety area for Allegheny Twp. Need turn lane SR 56 and signal upgrade.

Safety Needs

District Priority Locations (Non-Motorized)

- No revisions to the District or City of Pittsburgh pedestrian and bicycle priority locations per feedback
- Incorporated pedestrian and bicycle connectivity needs for LRTP and TIP consideration

Safety Needs

District Priority Locations (Non-Motorized)

DISTRICT 11-0 PEDESTRIAN SUMMARY TABLE EXAMPLE

Rank	Location		Total Crashes	Severe Injury Crashes	Fatal Crashes
	Locale	Road Segment/Intersection			
1	City of McKeesport	Lysle Boulevard at Evans Street	7	3	0
2	City of McKeesport	Lysle Boulevard at Coursin Street	6	0	1
3	Mount Lebanon Twp	Washington Road at Cedar Boulevard	5	0	0
4	Penn Hill Twp	Frankstown Road at Verona Road	5	0	0
5	City of McKeesport	Eden Park Boulevard at O'Neil Boulevard	4	0	2

Safety Needs

Non-motorized Connectivity Needs

CONNECTIVITY NEEDS SUMMARY TABLE EXAMPLE

Location	Scale	Crash History (Pedestrian & Bike)	Suggested Improvement
City of Pittsburgh			
Chateau Trail, Northside of Pittsburgh	1-2 miles	0 crashes	Trail is falling into the river and needs repaired.
Perrysville Avenue from Lafayette Ave to Bascom Ave	2.5 miles	10 total crashes (2 severe injuries)	Need bicycle accommodations. Important connector for bicyclists north of the city.
North Shore Trail Millvale/Etna	2 miles	0 crashes	Need trail connection to Etna.
Butler St from Stanton Ave to Allegheny River Blvd	3 miles	12 total crashes	Poor conditions for bikes and pedestrians. Need a connection to the zoo and highland park along Butler St.
District 12			
Route 0030 (E. Pittsburgh St) from Greensburg Line to Georges Station Rd	1.5 miles	5 total crashes (1 severe injury)	Need sidewalks along US 30 from Greensburg Line to Georges Station Rd.
Route 0030 (Lincoln Highway) between St Vincent Dr and Theatre St	3.5 sq. miles	3 total crashes	Need pedestrian accessibility/ connection between Airport/Walmart/ Lowes at Colony Lane/St Vincent College and into City of Latrobe.

Proposed Safety Solutions & Responsibilities

Safety Solution/Strategy Discussion Exercise

- Developed initial strategies/solutions based on feedback from stakeholder meetings, Wikimaps, and safety analysis
- Ask committee members to confirm/revise proposed solutions and responsible parties
- Encourage discussion and brainstorming to address programmatic, soft-side, and infrastructure solutions
- Provide feedback through phone or chat box
- Presenter will take “notes” during discussion

Programmatic Improvements

- Improved bicycle signs/markings & design standards at intersections
- Evaluation of connections to/from bike trails
- District Road Safety Audit Program

Soft-side Improvements

- Increase drug related enforcement
- Education/safety campaigns for vehicle-bike conflicts at intersections

EXAMPLES

Infrastructure Improvements

- Deploy near-miss technology for high volume ped/bike locations

Proposed Safety Solutions & Responsibilities

Regional Solutions

Safety Focus Area	Strategy	Responsible Party
Drug related crashes	1) Increase drug related enforcement activities. 2) Expand DUI educational/safety campaigns to include drug related crashes.	1-2: PennDOT (Central Office & Districts), PSP, Local Police Depts
Distracted driving crashes	1) Expand distracted driving educational/safety campaigns. 2) Increase distracted driver enforcement activities. 3) Work with legislators to increase penalties and improve enforceability of the existing distracted driving law.	1-2: PennDOT (Central Office & Districts), PSP, Local Police Depts

Proposed Safety Solutions & Responsibilities

Regional Solutions

Safety Focus Area	Strategy	Responsible Party
Run-off-road crashes	1) Expand edgeline rumble strip program. 2) Improve delineation and curve warning signage along state and local roads. 3) Widen shoulders and/or increase recoverable roadside area. Consider implementation of Safety Edge where appropriate, per FHWA guidelines.	1-3: PennDOT Districts, Local Municipalities, & SPC
Head-on crashes	1) Expand centerline rumble strips program. 2) Investigate/deploy access management strategies to reduce opportunities for head-on crashes.	1-2: PennDOT Districts, Local Municipalities, & SPC

Proposed Safety Solutions & Responsibilities

Regional Solutions

Safety Focus Area	Strategy	Responsible Party
Signalized intersection crashes	1) Expand SPC's Regional Traffic Signal and PennDOT's Green Light Go Programs to improve signal delineation, signing, markings, and operation. 2) Investigate/deploy RED SIGNAL AHEAD signs and supplemental signal heads on appropriate intersection approaches. 3) Investigate/deploy Flashing Yellow Arrows (FYAs) in lieu of standard protect/permitted 5-section heads. 4) Review potential at high crash locations for implementation of roundabouts. 5) Investigate feasibility to expand/deploy Automated Red Light Running program infrastructure in Cities/ Municipalities within the region.	1-5: PennDOT Districts, Local Municipalities, & SPC
Intersection crashes	1) Incorporate innovative designs, countermeasures (i.e. delineators, signs, markings, rumble strips), or technologies to eliminate or improve warning of stop controlled intersections. 2) Investigate opportunities to improve sight distance beyond minimum requirements. 3) Investigate opportunities to modify left turns to include positive offset.	1: PennDOT Districts & Local Municipalities 2-3: PennDOT Districts, Local Municipalities, & SPC

Proposed Safety Solutions & Responsibilities

Regional Solutions

Safety Focus Area	Strategy	Responsible Party
Aggressive driving crashes	1) Expand aggressive driving educational/safety campaigns 2) Increase aggressive driving enforcement on documented aggressive driving corridors. 3) Investigate/deploy road diets to reduce the number of passing lanes on suburban/urban corridors where high volumes of turning traffic exists without dedicated turn lanes. 4) Reassess speed limits regularly to ensure the appropriate speed limit is set to minimize speed variability.	1-2: PennDOT (Central Office & Districts), PSP, Local Police Depts 3-4: PennDOT Districts, Local Municipalities, & SPC
Drowsy driver crashes	1) Expand the centerline and edgeline rumble strip programs.	1: PennDOT Districts, Local Municipalities, & SPC

Proposed Safety Solutions & Responsibilities

Regional Solutions

Safety Focus Area	Strategy	Responsible Party
Transit-related crashes	1) Review design practices and current standards for lane widths and curb radii where transit vehicles are present. 2) Investigate/deploy road diets to deploy transit only or transit-bike shared lanes.	1-2: PennDOT Districts, Local Municipalities, SPC, & Transit Authorities
Mature driver crashes	1) Collaborate with transit and ride-sharing providers to improve ease of mobility for mature drivers. 2) Promote insurance benefits for PennDOT's Mature Driver Improvement Courses and work with insurers to increase benefits. 3) Work with legislators on guidelines and requirements with regard to periodically monitoring vision, cogitative abilities, and physical abilities for mature drivers of a certain age. 4) Ensure signing and pavement marking minimum retroreflectivity is met. Review minimum font size standards.	1: PennDOT Districts, Local Municipalities, SPC, & Transit Authorities 2-4: PennDOT Districts, Local Municipalities, & SPC

Proposed Safety Solutions & Responsibilities

Regional Solutions

Safety Focus Area	Strategy	Responsible Party
Heavy truck crashes	1) Expand deployment of ITS devices and radio alert systems to alert truck drivers of work zone queues and traffic incidents. Potential to equipment radio alert systems on freeway service patrol vehicles. 2) Collaborate with trucking companies to continue to advance lane departure systems. 3) Collaborate with trucking and GPS companies to ensure trucks are only utilizing designated truck routes.	1: PennDOT Districts & Local Municipalities 2-3: PennDOT (Central Office & Districts), Local Municipalities, & SPC
Secondary crashes	1) Promote the use of PA511 and WAZE for real-time travel information. 2) Expand deployment of ITS devices related to active traffic management to alert motorists of traffic or weather incidents and advise as to safe movements. 3) Continue to support and expand Traffic Incident Management within the region through SPC's TIM Teams. 4) Continue to monitor, develop, and deploy strategies to reduce incident response/clearance times.	1-4: PennDOT Districts, Local Municipalities, & SPC

Proposed Safety Solutions & Responsibilities

Regional Solutions

Safety Focus Area	Strategy	Responsible Party
Non-motorized (ped/bike) crashes	1) Evaluate pedestrian/bicycle connections to/from bike trails. 2) Review and incorporate bike and sidewalk connections into existing and programmed projects. 3) Investigate/deploy road diets to add bike lanes where appropriate on corridors. 4) Investigate/deploy traffic calming solutions to mitigate vehicle speeds and shorten crossing distances. 5) Review design practices and current standards for lane widths, shoulders, and curb radii where pedestrians and bicycles are present. 6) Develop policies for right turn on red in high pedestrian/bicycle locations. 7) Develop educational/safety campaigns for vehicle/bike conflicts at intersections. 8) Deploy more of the safety countermeasures outlined in FHWA's Every Day Counts Initiative STEP (Safe Transportation for Every Pedestrian) where appropriate. STEP includes countermeasures such as rectangular rapid flashing beacons (RRFBs), leading pedestrian intervals, crosswalk visibility enhancements, raised crosswalks, pedestrian crossing/refuge islands, pedestrian hybrid beacons, and road diets. 9) Collaborate with pedestrian/bicycle advocacy groups to refine PA's signing, pavement marking, and signal standards to better accommodate non-motorized users. 10) Review and revise the current process for designating PA bike routes. 11) Improve enforcement of maintenance of sidewalks, crosswalks, and curb ramps.	1-4: PennDOT Districts, Local Municipalities, SPC, & Bicycle Advocacy Organizations 5-10: PennDOT (Central Office & Districts), SPC, Bicycle Advocacy Organizations 11: Local Municipalities

Proposed Safety Solutions & Responsibilities

Regional Solutions

- Non-motorized safety study locations

District 10

- City of Butler: Central Business District
- Indiana Borough: Central Business District

District 11

- City of McKeesport: Lysle Boulevard from Gibson Way to Evans Street
- City of Pittsburgh: Liberty Avenue from Stanwix Street to Aiken Avenue
- City of Pittsburgh: Butler Street from Lawrenceville to Morningside
- City of Pittsburgh: Carson Street from Smithfield Street to Hot Metal Street (*Safety Project Under construction/continue to monitor*)

District 12

- City of Greensburg: Central Business District
- City of Uniontown: Central Business District
- City of Washington: Central Business District

Proposed Safety Solutions & Responsibilities

City of Pittsburgh Solutions

Safety Focus Area	Strategy	Responsible Party
Non-motorized (ped/bike) crashes	1) Review of school zone traffic control and education efforts to encourage compliance. 2) Review intersection/street lighting for dark areas where non-motorized crashes are occurring during dark conditions. 3) Review of pedestrian crossing safety at known high use unsignalized locations. 4) Pilot/deploy separate bicycle signals at intersections. 5) Investigate deployment of protected bicycle lanes where high volumes of bicycles are anticipated. 6) Pilot/deploy near-miss technology for high volume/bike locations (opportunity to integrate into City of Pittsburgh's Smart Spines Project).	1: PennDOT District 11, City of Pittsburgh, Allegheny County Health Dept (ACHD), & SPC 2-6: PennDOT District 11, City of Pittsburgh, & SPC

Proposed Safety Solutions & Responsibilities

District 10 Solutions

Safety Focus Area	Strategy	Responsible Party
Hit fixed object crashes	1) Investigate opportunities to remove, redesign, relocate, reduce impact, shield, or better delineate hit fixed objects within hit fixed object problem corridors. 2) Consider expanding dead and problematic tree removal program to include additional fixed objects.	1: PennDOT District 10 & Local Municipalities 2: PennDOT District 10
Hit tree crashes	1) Expand dead and problematic tree removal program.	1: PennDOT District 10
Hit utility pole crashes	*1) Investigate opportunities to remove, redesign, relocate, reduce impact, shield, or better delineate utility poles.*	*1: PennDOT District 10*
Motorcycle crashes	1) Expand motorcycle educational/safety campaigns and encourage wearing helmets. 2) Investigate new materials to minimize the use of binder/gravel during inclement weather over the winter. 3) Work with legislators to require motorcyclist to wear helmets.	1-2: PennDOT (Central Office & District 10) 3: PennDOT (Central Office & Districts), SPC, Community Traffic Safety Projects (CTSP), IUP, & PSP

Proposed Safety Solutions & Responsibilities

District 10 & 11 Solutions

Safety Focus Area	Strategy	Responsible Party
Speeding crashes	1) Review design practices to ensure traffic calming is considered on appropriate corridors. Incorporate desired design/posted speeds into PennDOT connects process. 2) Deploy proven speed reduction countermeasures on appropriate corridors where known speed issues are documented. 3) Investigate opportunities to expand automated speed enforcement to corridors of concern within the District (i.e. currently deployed on Roosevelt Blvd in District 6)	1-2: PennDOT (Central Office & Districts), Local Municipalities, & SPC 3: PennDOT Central Office

Proposed Safety Solutions & Responsibilities

District 11 Solutions

Safety Focus Area	Strategy	Responsible Party
Unbelted crashes	1) Increase seatbelt enforcement activities. 2) Expand seatbelt educational/safety campaigns.	1-2: PennDOT District 11, Allegheny County Health Dept (ACHD), PSP, Local Police Depts
Work zone crashes	1) Expand work zone educational/safety campaigns. 2) Request the deployment of Automated Work Zone Speed Enforcement within the district. 3) Work with PA State Police and local jurisdictions to provide additional work zone enforcement support.	1-3: PennDOT (Central Office & District 11), Local Municipalities, PSP, Local Police Depts., & PA Turnpike

Proposed Safety Solutions & Responsibilities

District 11 & 12 Solutions

Safety Focus Area	Strategy	Responsible Party
Stop-controlled crashes	1) Incorporate innovative designs, countermeasures (i.e. delineators, signs, markings, rumble strips), or technologies to eliminate or improve warning of stop controlled intersections. 2) Investigate opportunities to improve sight distance beyond minimum requirements.	1-2: PennDOT District 11 & 12, Local Municipalities

Proposed Safety Solutions & Responsibilities

District 12 Solutions

Safety Focus Area	Strategy	Responsible Party
Red-light running crashes	1) Investigate change and clearance intervals at known red-light running crash safety areas. 2) Investigate feasibility to expand/deploy Automated Red Light Running program infrastructure in cities/ municipalities within the District.	1: PennDOT District 12 2: PennDOT Central Office & District 12

SAP 2020 Next Steps

- Incorporate today's feedback
- Revise report
- SPC Executive Committee Review
- Finalize Report (Nov 1)

Open Discussion

Consultant Contact Info:

Project Manager:

Ross Buchan, PE

rbuchan@wrallp.com

Safety Analyst:

Jim French, PhD, PE, ENV
SP jfrench@frenchengr.com

MEMORANDUM of MEETING

Date: October 7, 2020

Date of Meeting: October 2, 2020
Time of Meeting: 10 AM
Meeting Location: Virtual
Meeting Description: Steering Committee Meeting #3

Work Order Number: 95
Contract Number: SPC On-Call Contract
Project: SPC On-Call: 2020 Safety Action Plan

Participants:

Name	Company	Phone	Email
Josh Spano	SPC	412-391-5590 x 362	jspano@spcregion.org
Domenic D'Andrea	SPC	412-391-5590 x 341	ddandrea@spcregion.org
Tom Klevan	SPC	412-391-5590 x 316	tklevan@spcregion.org
Evan Schoss	SPC	412-391-5590 x 338	eschoss@spcregion.org
Andy Waple	SPC	412-391-5590 x 310	awaple@spcregion.org
Ross Buchan	WRA	717-514-8916	rbuchan@wrallp.com
Jim French, Ph.D	French	724-569-8555	jfrench@frenchengr.com
Douglas Barch	PennDOT District 11-0	412-429-4980	dobarch@pa.gov
Cory Craft	PennDOT District 12-0	724-439-7370	ccraft@pa.gov
Gavin Gray	PennDOT BOMO	717-783-1190	gagray@pa.gov
Bill Houpt	FHWA	717-221-3411	william.houpt@dot.gov
Burt Jennings	Port Authority of Allegheny County	412-566-5500	BJennings@PortAuthority.org
Todd Kravits	PennDOT District 11-0	412-429-4975	tkravits@pa.gov
Bill Lesterick	PennDOT District 11-0	412-429-4803	wlesterick@pa.gov
Ruth McClelland	PennDOT District 11-0	412-429-4985	rmcclelland@pa.gov
Ann Ogoreuc	Allegheny County	412-865-8181	Ann.ogoreuc@alleghenycounty.us
Jeff Thompson	PennDOT District 11-0	412-429-4929	jefthompso@pa.gov
Dave Tomaswick	PennDOT District 10-0	724-357-1904	dtomaswick@pa.gov
Bryan Walker	PennDOT District 12-0	724-439-7345	brywalker@pa.gov
Terry Wolford	PennDOT District 10-0	724-357-3016	twolford@pa.gov

The presentation outlining the findings of the SPC Safety Action Plan Update was given by Josh Spano, Domenic D'Andrea, and Ross Buchan. The following discussion ensued:

Terry Wolford of District 10-0 indicated that the pedestrian and bicycle crashes in the SPC database looked high compared to their databases. It was noted that the SPC source was PCIT imported into a GIS. Josh Spano will send the SPC data to PennDOT so that they can cross check the two datasets.

Bill Lesterick of District 11-0 asked whether the North Shore Trail bicycle extension to Millvale / Etna was feasible in a railroad right-of-way. Ann Ogoreuc of Allegheny County indicated that the project is currently in design.

Bill Lesterick of District 11-0 indicated that the Butler Street corridor in the City would be difficult to install a dedicated bicycle facility due to on-street parking and the overall narrowness of the corridor. A Road Safety Audit (RSA) was recently conducted there by the District. The findings of the RSA with respect to bicycles will be reviewed and incorporated into the SAP as appropriate.
A slide was dedicated to missing connectivity links in what would be a lower stress connected bicycle network in and around the City. It was noted that not all links identified by the bicycle stakeholders were shown on the slide but that

the report contains the full list. Dom D'Andrea of SPC noted that each link would need to be evaluated individually to determine if it was beneficial to pursue improvements.

Gavin Gray of PennDOT Central Office noted that many of the educational programs identified in the SAP are ongoing and asked that any new initiates undertaken by local or regional agencies be coordinated with his office for consistent messaging. Josh Spano followed-up to note that all educational programs identified as ongoing in the SAP were recently verified as such.

Todd Kravits of District 11-0 indicated that widening lanes, shoulders, and roadside recovery areas is very difficult at most places in the region due to topography and roadside development. It was suggested to modify these recommendations to indicate "where possible."

A very lengthy discussion involving many participants ensued about the role of local roads in safety at a regional level. In short, it was noted that there are many safety needs on local roads while regional HSIP funding goes unused.

- District 11-0 noted a recent failed effort in which they agreed to pay for the installation of safety countermeasures on a local road if the municipality agreed to maintain them.
- The 10+ year time gap between the Liberty Avenue (Grant Street to Herron Avenue) RSA and the project to implement the improvements was identified as problematic.
- Noting that HSIP funding can be used for local roads but recognizing that other federal funds could not be used for the match, several ideas for promoting the use of HSIP funding among local municipalities were discussed. These included: using Green Light Go funding for the match, modeling a new program after other successful programs such as CMAQ and SINC-UP, and using ARLE funding.
- It was established that Community Development Block Grants could not be used as a match for HSIP funds because they are both federal programs.

In summary, there appears to a significant disconnect between safety issues on local roads, which can account for approximately 20% of all crashes, and the ability of local municipalities to recognize and address them.

Gavin Gray of Central Office noted that for many traffic signal projects, proposed improvements are mismatched with safety needs, and crashes can end up increasing.

Todd Kravits of District 11-0 indicated that the SINC-UP program had addressed many of the easily correctable traffic signal issues in the region. He suggested SPC expand the program to address signalized intersection problems of a greater magnitude.

Gavin Gray of Central Office indicated that motor vehicle licensing already has relatively strict requirements for older drivers that are not likely to be increased. He recommended focusing more on the educational initiatives in this regard.

Todd Kravits of District 11-0 discussed making sign text larger on street name signs for mature drivers.

Todd Kravits of District 11-0 pointed out the tradeoffs between larger turning radii on corners to accommodate trucks and buses and the need to keep pedestrian crossing distances short. He also mentioned the need to carefully consider the locations of bus stops (e.g., near-side versus far-side of intersections) based on the origins / destinations of the patrons once they leave the bus to reduce pedestrian-vehicle conflicts/crashes. It was also noted that a near side bus stop followed by a right-turn is a key concern for the curb radius in that corner.

With respect to secondary crashes, Dom D'Andrea noted a recent initiative on the Parkway East to use traffic and lane management to reduce crashes. Bill Lesterick of District 11-0 noted a recent experience in which they tried to use HSIP funds to procure changeable message boards but lacked the crash modification factors (CMF) to support the safety improvement. It was noted that there are some CMFs for ITS devices and that a current NCHRP project is developing for certain Transportation Systems Management and Operations (TSMO) strategies.

With respect to heavy truck crashes, Gavin Gray of Central Office indicated via chat that statewide, heavy truck fatalities appear to be going down but with Pennsylvania being a major connecting state for the northeast, we have a high number of trucks traveling through the state. Consequently, our commercial vehicle fatalities are among the highest in the country, which attracts the attention of the Federal Highway Administration (FHWA).

With respect to non-motorized safety, the recent project to develop a bicycling route one block from Carson Street in the South Side was identified as a good way to manage competing transportation interests in a constrained corridor. Future monitoring is needed to determine to what extent bicyclists divert to the alternative route versus continuing to use Carson Street.

Gavin Gray of Central Office indicated that they are evaluating data from 2018 to determine how "gray" conditions impact pedestrian activity. 2018 was a rainy year in Pennsylvania, so they are using the data to determine the extent that cloudy / rainy weather impacts pedestrian safety, much like dark / nighttime conditions might.

Todd Kravits of District 11-0 noted an increase in crashes on Banksville Road and McKnight Road where pedestrians are hopping over median barriers and being struck. He also noted a need to consider sidewalk expansions and bus stop establishment / relocation when new developments are planned.

With respect to motorcycle safety, Gavin Gray of Central Office indicated that the Pennsylvania legislature is not likely to require helmet usage. The statewide highway safety plan lists it as a strategy to improve safety, so the SAP will as well.

Terry Wolford of District 10-0 asked what new materials could be considered for winter maintenance that would not cause motorcycles to slide. It was noted that the suggestion is likely more focused on cleaning up anti-skid material used in the winter before motorcycle season. It was also noted to broaden this suggestion to include other maintenance activities, such as tar and chip.

A discussion of speed management in Districts 10-0 and 11-0 ensued. The following was noted:

Roosevelt Boulevard was identified as a pilot corridor in the original automated speed enforcement legislation, but it has not been implemented.

There is now a chapter devoted to traffic calming in PennDOT's design manuals in lieu of the Traffic Calming Handbook.

Gavin Gray of Central Office noted that FHWA developed a speed management plan for Pennsylvania in 2016. There is a link to it on PennDOT's website (link is as follows)
https://www.penndot.gov/TravelInPA/Safety/Documents/PA%20Speed%20Management%20Action%20Plan%20Final%20Version%2011-2-2016.pdf

Todd Kravits of District 11-0 discussed the disparity between 85th percentile speeds and speed limits and noted that if speed limits were set at the 85th percentile speeds, in many cases they would be raised. He also noted ongoing investigations about whether it is proper to set speed limits at the 50th percentile speed.

Terry Wolford of District 10-0 asked whether Automated Speed Enforcement has been successful. There have not been any formal evaluations of the systems in Pennsylvania, but anecdotally it appears to be working.

With respect to the proposed safety solutions in District 11-0, Todd Kravits noted that Automated Work Zone Enforcement was already underway. Gavin Gray of Central Office noted that Pennsylvania is already seeing high seat belt usage rates, and that they are continuing to increase, albeit very slowly. He anticipates that little more can be done with additional education, and that a change in law might be required to make a significant impact on seat belt usage rates.

Todd Kravits of District 11-0 noted that the bulk of the low-cost safety improvements that they already do are focused on stop-controlled intersections.

Red light running was identified as a safety target area for District 12-0. It was noted that Pittsburgh is the only place in the SPC region that is currently permitted to install Automated Red Light Enforcement (ARLE). Todd Kravits of District 11-0 noted that they are currently piloting a project to install a four-section signal head with two red balls side-by-side at the top. It is currently permitted in PA and they are working with a municipality to get it installed at a location with high speeds and long signal spacing. Ed Miller of District 11-0 is the contact for additional information.

Via chat, Burt Jennings of Port Authority indicated that the report looked good and offered no further comments.

The above is a summary between the parties regarding the topics discussed and the decisions reached. Any participants desiring to add to, or otherwise amend the minutes, are requested to put their comments in writing to the writer within seven (7) days; otherwise, the minutes will stand as written.

Ross Buchan

Sender's name

Appendix J – COVID-19 Impacts on the Region

At the time of this writing in September 2020, the United States was in a midst of the covid-19 pandemic. This has had an impact on surface transportation travel and safety, which is being summarized below so that data and trends from 2020 can be put in proper context during future revisions of the Safety Action Plan. As will be seen, even though overall economic activity decreased, some types of travel were impacted more significantly than others, and some types of travel may have increased. Significant attention will need to be paid to the 2020 (and potentially 2021) crash data on a disaggregated basis, as the pandemic is likely to have different impacts depending on the mode of transportation and / or crash type under investigation. This will be an important consideration to the SPC Safety Action Plan since it examines trends in fairly specific detail. While it may be possible to rely on some national level guidance on the interpretation of crash data from the pandemic, each state developed their own response to the pandemic, leading to different conditions from state-to-state and even region-to-region. Also, while it may be tempting to anticipate that data from 2020 will be disregarded as atypical in future safety analyses, this is not likely to be the case, as (1) the pandemic is likely to stretch through at least the middle of 2021, eliminating much more than one year as not useful; (2) the post-pandemic transportation situation is likely to retain some of the attributes of the pandemic, and as such will not be able to be fully disregarded; and (3) there may be some important safety lessons to be learned by contrasting the crash experience during the pandemic against the pre- and post-pandemic conditions.

A description of key events impacting transportation in southwestern Pennsylvania are as follows:

- The first case of covid-19 in the United States was confirmed by the CDC on January 21, although covid-19 was not reported heavily in the popular media until late February and early March.
- On March 13, the federal government declared a National Emergency in response to covid-19.
- On March 19, Pennsylvania issued a statewide shutdown of all non-life sustaining businesses. including the closure of all non-essential businesses, schools, and special events. Any person capable of telework was asked to do so.
    - The result was a dramatic decrease in vehicular volumes. During this time, it was anecdotally expected that speeding increased due to the increased opportunities provided by lower traffic volumes.
    - Transit ridership plunged due to fears of contracting the disease on the transit vehicle.
    - There was also an increased reliance on deliveries as opposed to in-store shopping, thus impacting truck travel.
    - Nationally, it was anticipated that pedestrian and bicycle activity increased as alternatives such as transit or ride-sharing became less attractive.
    - Rest areas were ordered closed on March 17. Thirteen of PennDOT's 30 rest areas were reopened the next day with portable restrooms. On March 24, indoor facilities were reopened at 23 locations. Some rest areas remained closed until May. This could have led to increased drowsy driving.
- On May 8, Pennsylvania began to lift stay-at-home restrictions in some parts of the state, but generally not in the SPC region. On May 15, Pennsylvania lifted the shutdown order and moved to the "yellow" phase in most of SPC region, including Allegheny County, but excluding Beaver County. On June 5, the counties in the SPC region were moved to the "green" phase which eased more restrictions but did not alleviate all restrictions. In May and June, travel began to increase on roadways as businesses began to reopen.

- On July 15, restaurants and bars were forced to reduced occupancy and closure in response to a second wave of the virus. Restaurants and bars were permitted to set up tables outside in sidewalks and on-street parking stalls as a means of serving more customers, which posed additional obstacles in the sidewalks and streets for those users.
- With the decrease in air travel due to fears of contracting the disease, some potential travelers canceled trips, while other travelers elected to drive long distances.
- Due to limitations on the size of gatherings, there were virtually no special events such as concerts or sporting events. The Pittsburgh Penguins played their last game in Pittsburgh on March 8, while the Pittsburgh Pirates did not allow in-person spectators to their games played in PNC Park. High school sports began the school year with very limited to no in-person spectators.
- It is anticipated that traffic patterns were back to near-normal by mid-summer in the less-dense portions of the outlying counties, where infection rates remained relatively low and most travel is by personal automobile. However, patterns in these areas will be impacted by fall 2020 school reopening school plans.
- Office workers that could telecommute continued to do so in large numbers throughout the transition to the yellow and green phases of reopening. Business travel for meetings was also expected to be impacted, as a large proportion of business meetings were also held virtually.
- School reopening plans for the fall of 2020 were prepared by each individual school district. Many elected to remain online only or use a hybrid model in which only part of the student body attends each day, with students typically attending in person two days per week and attending online three days per week. City of Pittsburgh schools started the year with 100% virtual learning on September 8.
- The University of Pittsburgh brought students back to campus for an August 19 start date. However, they began the school year with 92% of courses being offered virtually. On September 14, the University began offering more in-person learning while still allowing the virtual option for those that choose it.

For a graphic illustrating trends in the spread in the virus, please see the **FIGURE A** on the next page from the official Pennsylvania website, which shows the number of cases per day in Allegheny County from the beginning of the pandemic to the date of this writing, September 17, 2020.

Figure A – Covid-19 Cases per Day in Allegheny County (Source: pa.gov)

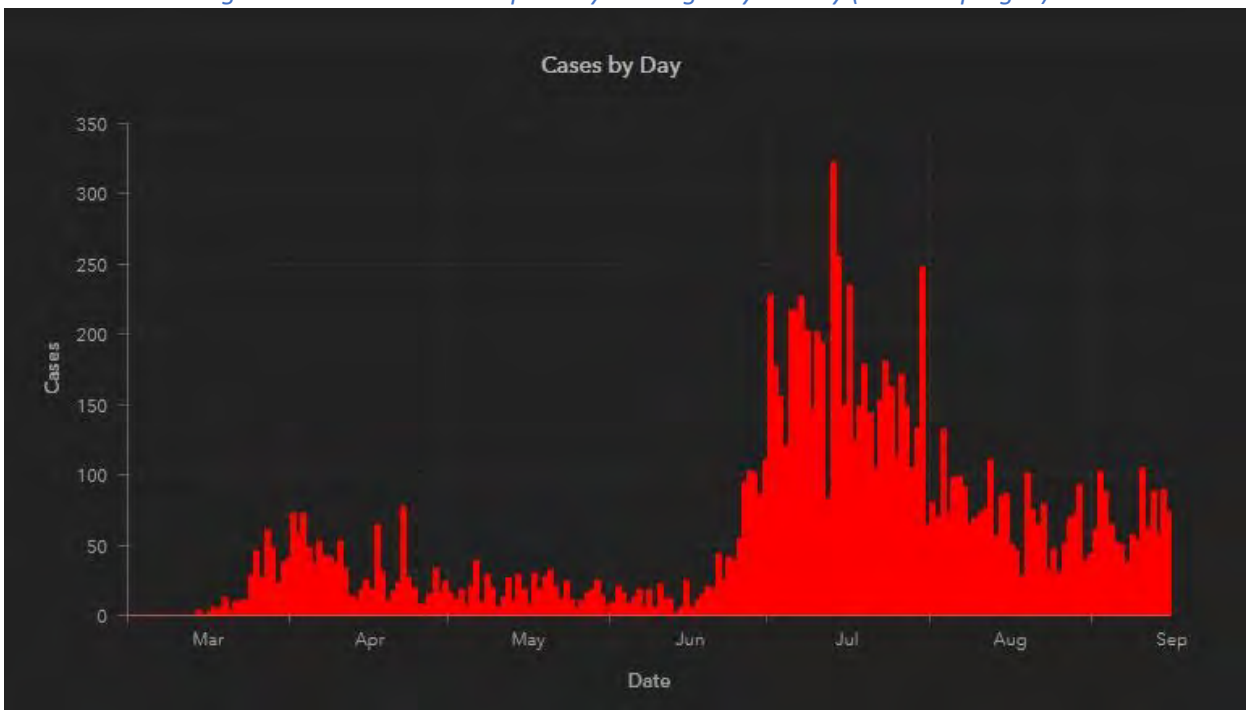


TABLE A gives a sample of how vehicular travel was impacted throughout the pandemic using data from four permanent count stations in the region. It compares travel on a certain date to the same time in 2019 to provide a rough assessment of the impacts on vehicular travel. As can be seen, the impacts on travel depended on time and the location in the region. Additional study will be required in the future to provide a more complete and detailed assessment of the impact on vehicular travel demand. Impacts on other modes, such as pedestrian and bicycle travel, will likely need to be estimated anecdotally due to lack of data.

Table A – Sampling of 24-Hour Traffic Volumes During the Pandemic from PennDOT Continuous Count Stations

Location	I-279 N of Pittsburgh	US 40 West of Uniontown	I-70 West of Monongahela River	US 22 at New Alexandria
April 15, 2020 (Wednesday)	23,820 (-59%)	5,656 (-36%)	20,633 (-43%)	11,851 (-50%)
April 17, 2019	57,559	8,832	36,032	23,572
May 21, 2020 (Thursday)	37,105 (-35%)	7,305 (-14%)	27,846 (-4%)	18,113 (-23%)
May 23, 2019	57,435	8,509	29,112	23,613
June 26, 2020 (Friday)	47,955 (-22%)	8,726 (-1%)	32,537 (-19%)	22,253 (-17%)
June 28, 2019	61,714	8,827	40,271	26,951
August 15, 2020 (Saturday)	40,641 (-28%)	6,507 (-14%)	12,167 (-58%)	19,688 (-15%)
August 17, 2019	56,726	7,569	29,087	23,197
September 8, 2020 (Tuesday)	43,708 (-24%)	7,557 (-13%)	Not Available	19,512 (-11%)
September 10, 2019	57,780	8,701		22,000

In addition, covid-19 is having an impact on transportation safety, and funds have been expended to mitigate the risks of contracting the disease as part of the transportation system. Transit is the most prominent example of this but there are others as well, such as interstate rest areas. This SAP acknowledges that improving transportation safety includes addressing covid-19 concerns, and that future funds will likely need to be devoted to this effort. However, identifying what strategies are appropriate is beyond the scope of this document, as it is subject to future research and guidance from Federal and State leadership, as well as future developments in the pandemic.

Appendix K – SPC Transportation and Community Funding Programs

SUMMER 2020
Two Chatham Center
Suite 500, 112 Washington Place
Pittsburgh, PA 15219
(412) 391-5590 (P)
(412) 391-9160 (F)
comments@spcregion.org
www.spcregion.org

TRANSPORTATION & COMMUNITY
FUNDING PROGRAMS

Grant and Reimbursement Programs to Advance and Guide Effective Investment of Public Funds

The Southwestern Pennsylvania Commission (SPC) serves the 10-county Pittsburgh region as the official Metropolitan Planning Organization, Local Development District, and Economic Development District. SPC's Transportation Department meets federal mandates with the publication of a long-range (20-year) transportation plan and the establishment of a short-range (4-year) Transportation Improvement Program (TIP). Planning activities range from data systems and modeling to special transportation studies and air quality analysis.

SPC is committed to assisting our local governments and agencies in the preparation, planning, and execution of their community's priority projects and investments. The information within this document will provide local project sponsors a guide to available resources that can assist with the implementation of a community's shared goals.

Summer 2020 Note: Given the impacts of the COVID-19 pandemic on state revenues, the status of many of the regular state funded grant programs are in doubt and in general future application windows are yet to be determined.

Inside this Issue:

Act 13 Programs (Marcellus Legacy Fund)

The Marcellus Legacy Fund was created by Act 13 of 2012 to provide for the distribution of unconventional gas well impact fees to counties, municipalities, and commonwealth agencies. Pursuant to Section 2315 (a) (6) (i) of the Act, a portion of the fee revenue will be transferred to the Commonwealth Financing Authority for the statewide initiatives listed on pages 2 & 3:

Abandoned Mine Drainage (AMD) Abatement and Treatment Program

Purpose: Funding for projects that involve the reclamation of Abandoned Mine Well(s); construction of a new AMD site; remediation and repair of existing AMD project sites; operation and maintenance maintaining current AMD remediation sites; establishment of trust fund to ensure ongoing maintenance is achieved; and, monitoring of water quality to track or continue to trace non-point source load reductions resulting from AMD remediation projects.

Eligibility: Municipalities; Councils of Governments; Authorized Organizations; Institutions of Higher Education; Watershed Organizations; For-Profit Businesses

Deadline: Applications accepted between February 1, 2020 and July 31, 2020

Match/Funding: 15% match of the total project cost; grants do not exceed $1,000,000

Website: https://dced.pa.gov/programs/abandoned-mine-drainage-abatement-treatment-program-amdatp/

Baseline Water Quality Data Program

Purpose: Funding for projects that involve practices for water sample collection and analysis to document existing groundwater quality conditions on private water supplies.

Eligibility: Municipalities; Councils of Governments; Authorized Organizations; Institutions of Higher Education; Watershed Organizations; For-Profit Businesses

Deadline: Applications accepted between February 1, 2020 and July 31, 2020

Match/Funding: 15% match of the total project cost; grants do not exceed $250,000

Website: https://dced.pa.gov/programs/baseline-water-quality-data-program/

Flood Mitigation Program

Purpose: Funding for flood mitigation projects authorized by a flood protection authority, the Department of Environmental Protection, the U.S. Army Corps of Engineers, the U.S. Department of Agriculture's Natural Resources Conservation Service, or identified by a local government. Grants are awarded to eligible applicants for projects with a total cost of $50,000 or more.

Eligibility: Municipalities; Councils of Governments; Authorized Organizations; Institutions of Higher Education; Watershed Organizations; For-Profit Businesses

Deadline: Applications accepted between February 1, 2020 and July 31, 2020

Local Match Requirement: 15% match of the total project cost; grants do not exceed $500,000

Website: https://dced.pa.gov/programs/flood-mitigation-program-fmp/

Greenways, Trails and Recreation Program

Purpose: Funding for planning, acquisition, development, rehabilitation and repair of greenways, recreational trails, open space, parks and beautification projects. Projects can involve development, rehabilitation and improvements to public parks, recreation areas, greenways, and trails, as well as river conservation.

Eligibility: Municipalities; Councils of Governments; Authorized Organizations; Institutions of Higher Education; Watershed Organizations; For-Profit Businesses

Deadline: Applications accepted between February 1, 2020 and July 31, 2020

Match/Funding: 15% match of the total project cost; grants do not exceed $250,000

Website: https://dced.pa.gov/programs/greenways-trails-and-recreation-program-gtrp/

Orphan or Abandoned Well Plugging Program

Purpose: Funds for orphaned or abandoned well plugging projects, including the cleaning out and plugging of abandoned and orphan oil and gas wells; stray gas mitigation systems; and well venting projects.

Eligibility: Municipalities; Councils of Governments; Authorized Organizations; Institutions of Higher Education; Watershed Organizations; For-Profit Businesses

Deadline: Applications accepted between February 1, 2020 and July 31, 2020

Match/Funding: No match required; grants do not exceed $1,000,000

Website: https://dced.pa.gov/programs/orphan-abandoned-well-plugging-program-oawp/

Sewage Facilities Program

Purpose: Funding for costs associated with the planning work required under the Pennsylvania Sewage Facilities Act (Act 537).

Eligibility: Municipalities; Councils of Governments; Authorized Organizations; Institutions of Higher Education; Watershed Organizations; For-Profit Businesses

Deadline: Applications accepted between February 1, 2020 and July 31, 2020

Match/Funding: 50% match of the total project cost; grants do not exceed $100,000

Website: https://dced.pa.gov/programs/sewage-facilities-program-sfp/

Watershed Restoration and Protection Program

Purpose: Funding for watershed restoration and protection projects that involve the construction, improvement, expansion, repair, maintenance or rehabilitation of new or existing watershed protection BMPs. The overall goal of the program is to restore and maintain restored stream reaches impaired by the uncontrolled discharge of nonpoint source polluted runoff, and ultimately to remove these streams from the DEP's Impaired Waters list.

Eligibility: Municipalities; Councils of Governments; Authorized Organizations; Institutions of Higher Education; Watershed Organizations; For-Profit Businesses

Deadline: Applications accepted between February 1, 2020 and July 31, 2020

Match/Funding: 15% match of the total project cost; grants do not exceed $300,000

Website: https://dced.pa.gov/programs/watershed-restoration-protection-program-wrpp/

Funding Programs

SPC and PennDOT Transportation Alternatives Set-Aside Program

Purpose: The Transportation Alternatives Set-Aside (TASA) Program provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities; infrastructure projects for improving non-driver access to public transportation and enhanced mobility; environmental mitigation; recreational trail program projects; and, safe routes to school projects. Key criterion in the review of applications will be readiness for implementation and delivery, safety, consistency with local or regional plans; collaboration with stakeholders; and, statewide or regional significance.

Eligibility:

- Local governments
- Regional transportation authorities
- Transit agencies
- Natural resource or public land agencies, including federal agencies
- School districts, local education agencies, or schools
- Tribal governments
- A nonprofit entity responsible for the administration of local transportation safety programs
- Any other governmental entity with responsibility for oversight of transportation or recreational trails

Deadline: Next Application Period of PennDOT TA is yet to be determined. Next Application Period of SPC TA Program anticipated Fall 2021.

Local Match Requirement: There is no match requirement; however, local sponsors pay all costs for pre-construction activities (design, environmental clearance, right of way, utilities, etc.) and PennDOT provides 100% cost reimbursement for the construction phase (including construction inspection).

DCED Multimodal Transportation Fund (MTF)

Purpose: Provides grants to encourage economic development and ensure that a safe and reliable system of transportation is available to Pennsylvania residents. The program is intended to provide financial assistance to improve transportation assets that enhance communities, pedestrian safety, and transit revitalization. The program is under the direction of the Commonwealth Financing Authority.

Eligibility: Local Governments; Counties; Councils of Governments; Businesses & Non-Profits; Economic Development Organizations; Public Transportation Agencies (including but not limited to an airport authority, public airport, port authority, or similar public entity); and, Rail and Freight Ports

Deadline: Applications accepted between March 1, 2020 and September 30, 2020

Local Match Requirement: 30% match of requested amount (state/federal grants do not count as match); Grants must be between $100,000 and $3,000,000.

Website: http://community.newpa.com/programs/multimodal-transportation-fund/

PennDOT Pennsylvania Infrastructure Bank (PIB)

Purpose: A PennDOT program that provides low-interest loans to accelerate priority transportation projects. Loan emphasis is on construction projects, but other project phases such as design, right-of-way acquisition, and transportation equipment purchases will be considered. Projects financed by the PIB include: aviation, high-way/bridge, rail freight, and transit.

Eligibility: Local Governments; Counties; Transportation Authorities; Economic Development Agencies; Non-Profit Organizations; and Private Corporations

Deadline: Always accepting applications

Website: http://www.penndot.gov/ProjectAndPrograms/Planning/Pages/PA-Infrastructure-Bank.aspx

PennDOT Automated Red Light Enforcement Program (ARLE)

Purpose: The program provides opportunities to improve safety and reduce congestion. ARLE intends to reduce violations and crashes, provide additional safety benefits to highway users, and improve pedestrian safety. The types of eligible projects are wide ranging when considering highway safety or mobility. It is the intent of the ARLE Program to fund worthwhile projects that can be completed at a relatively low cost, and award grants to projects that will be fully funded at the execution of the grant agreement date.

Eligibility: Local Governments; Planning Organizations; and Commonwealth Agencies

Deadline: Applications accepted between June 1, 2020 and July 1, 2020

Local Match Requirement: No matching funds are required for eligibility in the ARLE program

Website: http://www.dot.state.pa.us/Portal%20Information/Traffic%20Signal%20Portal/FUNDARLE.html

SPC Congestion Mitigation Air Quality Improvement Program (CMAQ)

Purpose: The CMAQ Program provides funds for transportation projects and programs that will contribute to attainment or maintenance of the national ambient air quality standards for ozone, carbon monoxide, and particulate matter; and supports goals of the U.S. Department of Transportation: improving air quality, and relieving congestion. Project types include: traffic flow and signal improvements, transportation demand management, transit improvements and programs, commuter bicycle and pedestrian improvements, and diesel emission reductions.

Eligibility: Any qualified government entity, including local governments, regional transit agencies, port authorities, and state agencies, is eligible to apply for CMAQ funding. Non-profits and private sector entities may partner with an eligible applicant to apply for CMAQ funding.

Deadline: Next CMAQ application period anticipated Fall 2021

Local Match Requirement: 20% match of total project cost (by phase) from local, state, or other non-federal sources

DCNR Community Conservation Partnerships Program (C2P2)

Purpose: DCNR's Bureau of Recreation and Conservation provides a single point of contact for communities and non-profit conservation agencies seeking state assistance through the C2P2 Program in support of local recreation and conservation initiatives and those that implement Pennsylvania's Comprehensive Outdoor Recreation Plan. This assistance can take the form of grants, technical assistance, information exchange, and training. All of DCNR's funding sources are combined into one annual application cycle and there is a single application format and process with one set of requirements and guidelines.

Eligibility: A wide range of grant and technical assistance programs are offered through C2P2 to help communities, land conservancies, and non-profit organizations plan, acquire, and develop:

- Recreation, park and conservation facilities
- Watersheds and rivers corridors
- Greenways and trails
- Heritage areas and facilities
- Critical habitat, natural areas & open space

Deadline: Next application period is yet to be determined.

Local Match Requirement: Generally, a 50% match by either cash or non-cash value is required

Website: http://www.dcnr.state.pa.us/brc/grants/

Department of Environmental Protection (DEP): Loan, Grant, and Rebate Programs

The DEP has grants and loans, as well as rebates to assist individuals, groups, and businesses with a host of environmental issues. Due to the fact that many of DEP's programs are dependant on annual funding from the commonwealth's budget, program availability and application dates can vary widely and are historically inconsistent. Interested program applicants should use DEP's Grant and Loan Programs Center website to view available grants and loans. Some of the most utilized DEP Programs are:

- County and Municipal Recycling Financial Assistance Programs
- Alternative Fuels Incentive Grant Program
- Small Business Ombudsman's Grants and Loans
- Driving PA Forward
- Growing Greener Grants
- Environmental Education Grants

PennDOT Multimodal Transportation Fund

Purpose: Provides grants to ensure that a safe and reliable system of transportation is available to the residents of this commonwealth. The program is intended to provide financial assistance to municipalities, councils of governments, businesses, economic development organizations, public transportation agencies, rail freight, passenger rail, and ports in order to improve transportation assets that enhance communities, pedestrian safety, and transit revitalization.

Eligibility: Municipalities; Council of Governments; Business/Non-profit; Economic Development Organization; Public Transportation Agency; Ports or Rail / Freight Entity

Deadline: Next application period yet to be determined.

Local Match Requirement: 30% match of the amount awarded; grants normally do not exceed $3,000,000

Website: https://www.penndot.gov/ProjectAndPrograms/MultimodalProgram/Pages/default.aspx

Green Light - Go

Purpose: The Green Light - Go: Pennsylvania's Municipal Signal Partnership Program is a competitive state grant program designed to improve the efficiency and operation of existing traffic signals located in the Commonwealth of Pennsylvania. Established by Act 89 of 2013 and revised by Act 101 of 2016, the program is administered by the Pennsylvania Department of Transportation and is purposed to improve mobility and safety at signalized intersections.

Eligibility: Municipalities and Planning Organizations

Deadline: Next application period yet to be determined.

Local Match Requirement: Minimum 20% match/reimbursement

Website: http://www.dot.state.pa.us/portal%20information/traffic%20signal%20portal/fundglg.

PA WalkWorks

Purpose: WalkWorks helps with funding to assist municipal entities with the development of active transportation plans and related polices. WalkWorks continues its aim to establish new or improved pedestrian, bicycle and transit transportation systems – activity-friendly routes – that are combined with land use and environmental design, thereby increasing connectivity to everyday destinations.

Eligibility: Municipalities and Planning Organizations

Deadline: Applications are open until July 2, 2020

Local Match Requirement: No matching funds are required for eligibility.

Website: https://www.health.pa.gov/topics/programs/WalkWorks/Pages/WalkWorks.aspx

2020 Calendar of Programs Anticipated Application Opening & Closing Dates*

Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	Act 13 Programs	Act 13 Programs	Act 13 Programs	Act 13 Programs	Act 13 Programs	Act 13 Programs					
							SPC TASA Application Period Anticipated Fall 2021				
		DCED MTF	DCED MTF	DCED MTF	DCED MTF	DCED MTF	DCED MTF	DCED MTF			
PennDOT PIB	PennDOT PIB	PennDOT PIB	PennDOT PIB	PennDOT PIB	PennDOT PIB	PennDOT PIB	PennDOT PIB	PennDOT PIB	PennDOT PIB	PennDOT PIB	PennDOT PIB
					PennDOT ARLE						
							CMAQ Application Period Anticipated Fall 2021				
				DCNR C2P2 Application Period TBD							
				PennDOT MTF Application Period TBD							
					GreenLight-Go (Deadline Varies)						
					PA WalkWorks						

*Funding programs and the agencies that administer them often times will alter anticipated application periods. Contact these agencies or SPC for up-to-date application information.

SPC Transportation Department Planning and Programming Contact Information:

Ryan Gordon
Transportation Program Development Manager
412-391-5590 x333
rgordon@spcregion.org

Lillian Gabreski
Project Development Planner
412-391-5590 x327
lgabreski@spcregion.org