



DELAWARE STRATEGIC HIGHWAY SAFETY PLAN: TOWARD ZERO DEATHS



Presentation to:
Pedestrian Council

February 23, 2016

Agenda

- What is the Strategic Highway Safety Plan?
- Pedestrian Crash Data
- Evaluation of 2010 To-Do List
- 2015 Strategies
- Next steps



Delaware's SHSP



DELAWARE STRATEGIC HIGHWAY SAFETY PLAN: TOWARD ZERO DEATHS



DECEMBER 2015



Delaware's SHSP History

SAFETEA-LU
(August 2005)

MAP-21
(July 2012)

FAST Act
(Dec. 2015)

2006

*First
Plan
Adopted*

2008

*First
Plan
Update*

2010

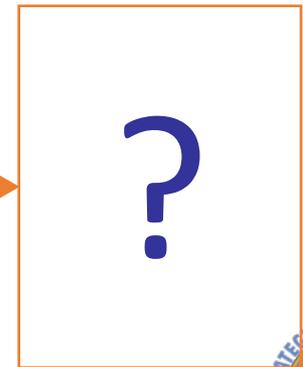
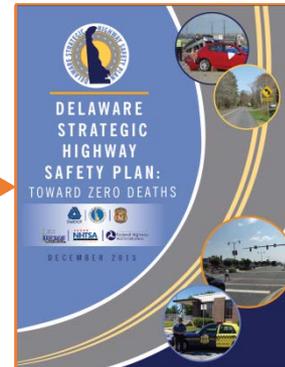
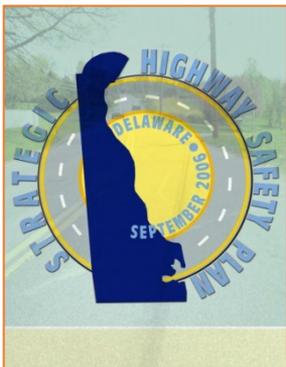
*New Plan
Adopted*

2015

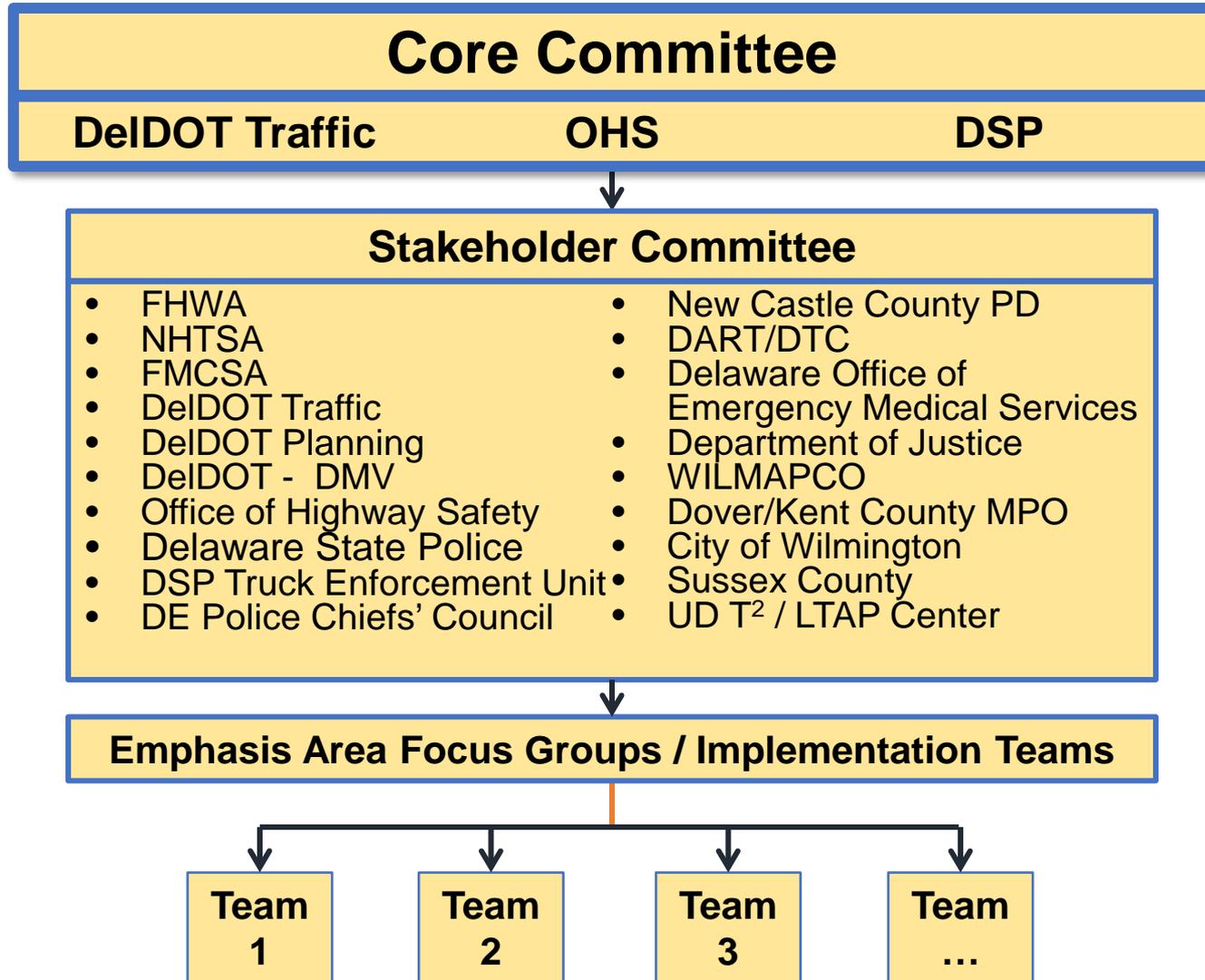
*New Plan
Adopted*

2020

*Update
Plan*



DE SHSP 2015 Committee Members



Mission Statement

The *Delaware Strategic Highway Safety Plan: Toward Zero Deaths* aims to eliminate fatalities **and serious injuries** on Delaware's roadways through a multi-agency approach that utilizes education, enforcement, engineering and emergency service strategies.



Overall Delaware Crash Trends

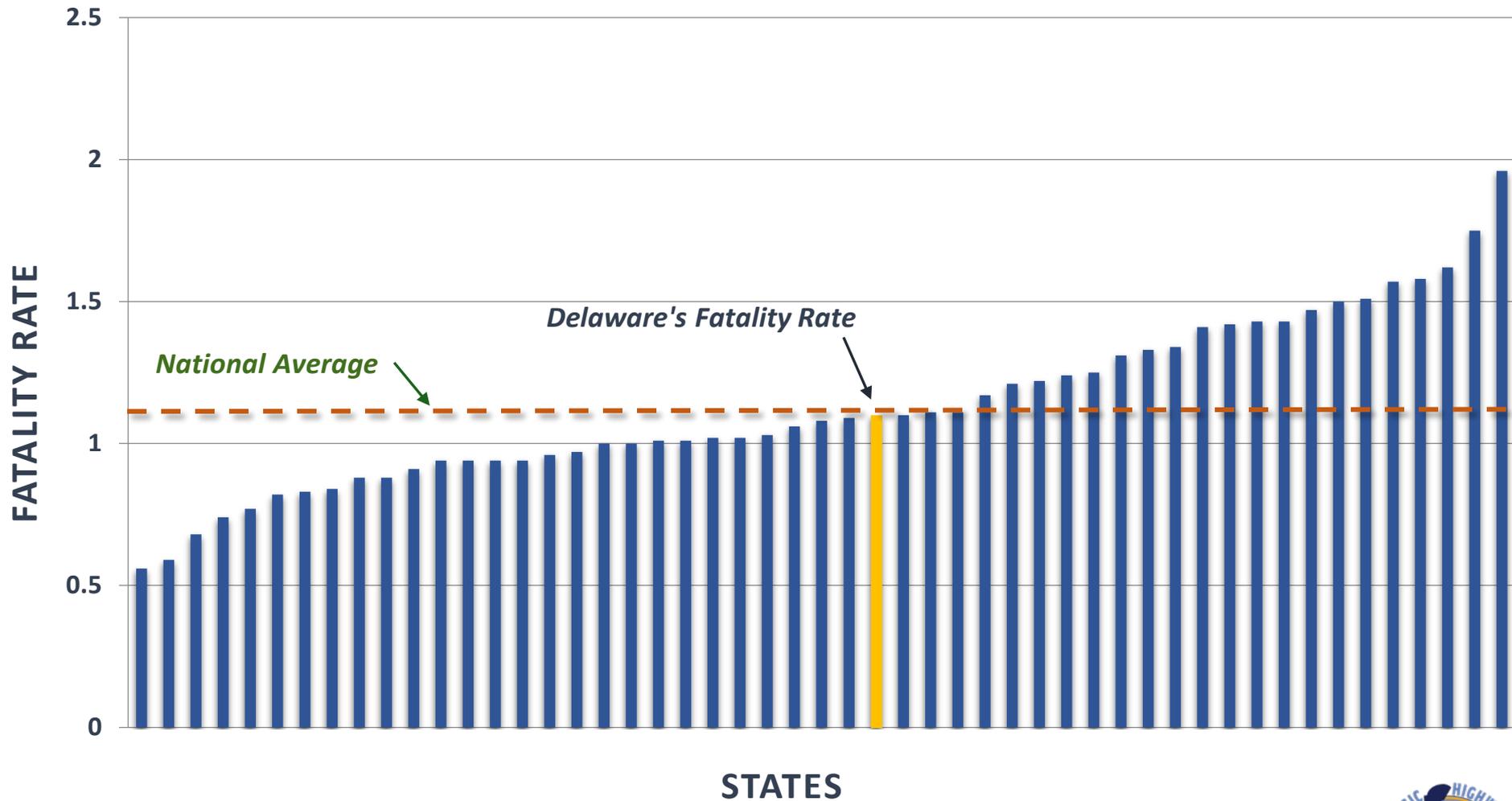
Delaware Highway Fatalities and Serious Injuries by Year



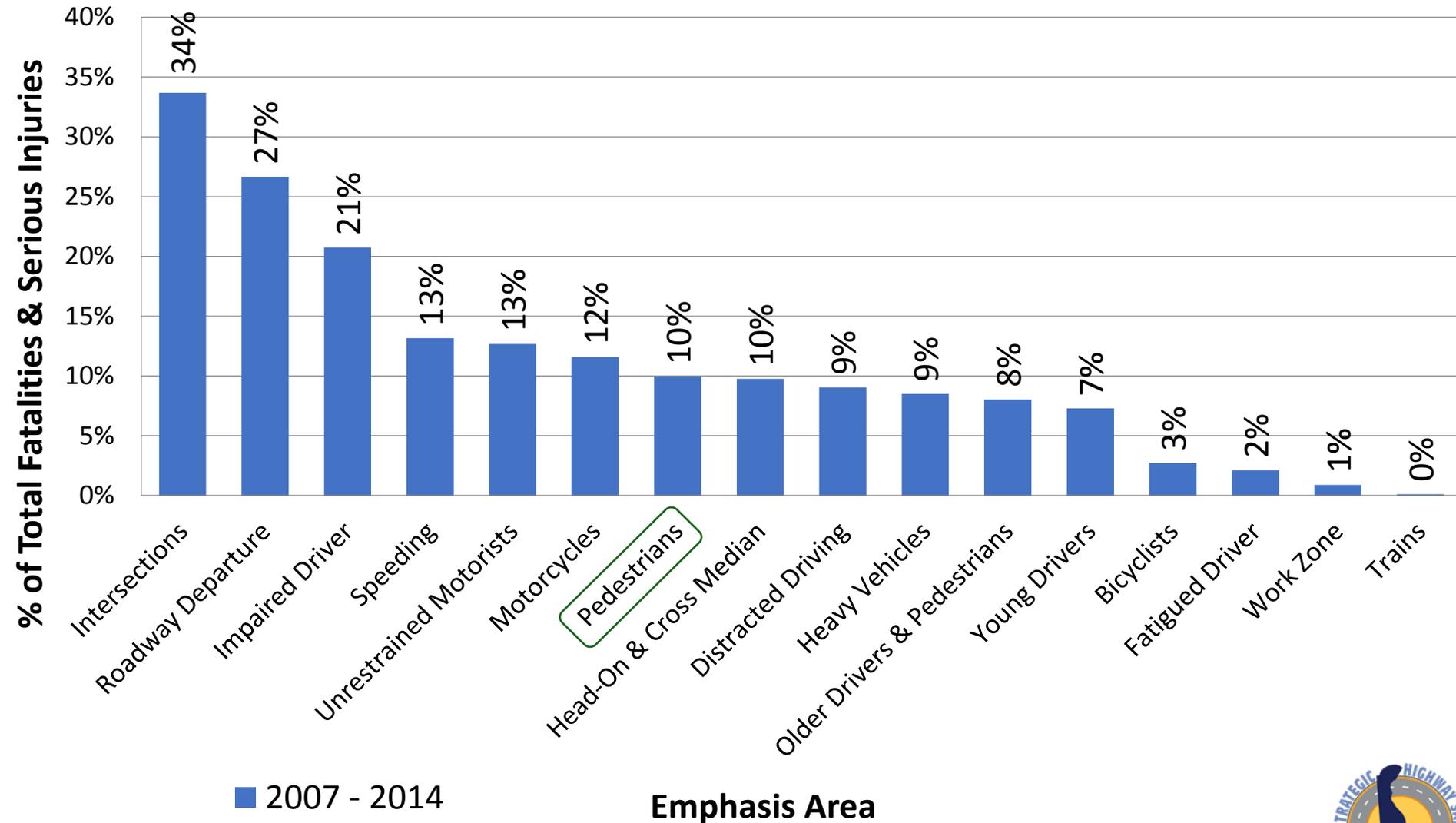
Serious Injury data not available prior to 2005



2013 Fatality Rates per 100 Million Vehicle Miles Traveled by State



Emphasis Areas Ranked by % of Fatalities & Serious Injuries



Pedestrian Data



DELAWARE STRATEGIC HIGHWAY SAFETY PLAN: TOWARD ZERO DEATHS

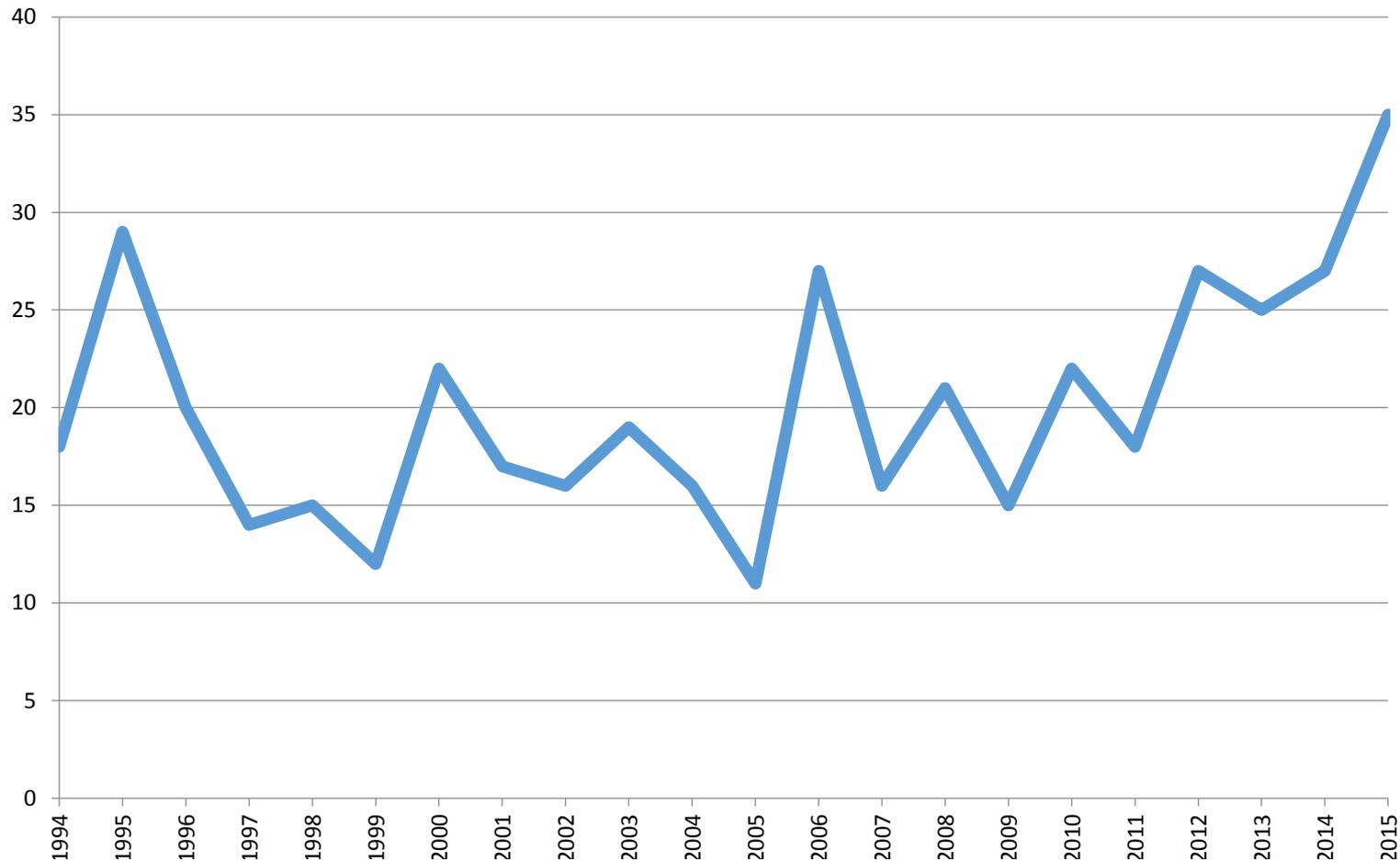


DECEMBER 2015



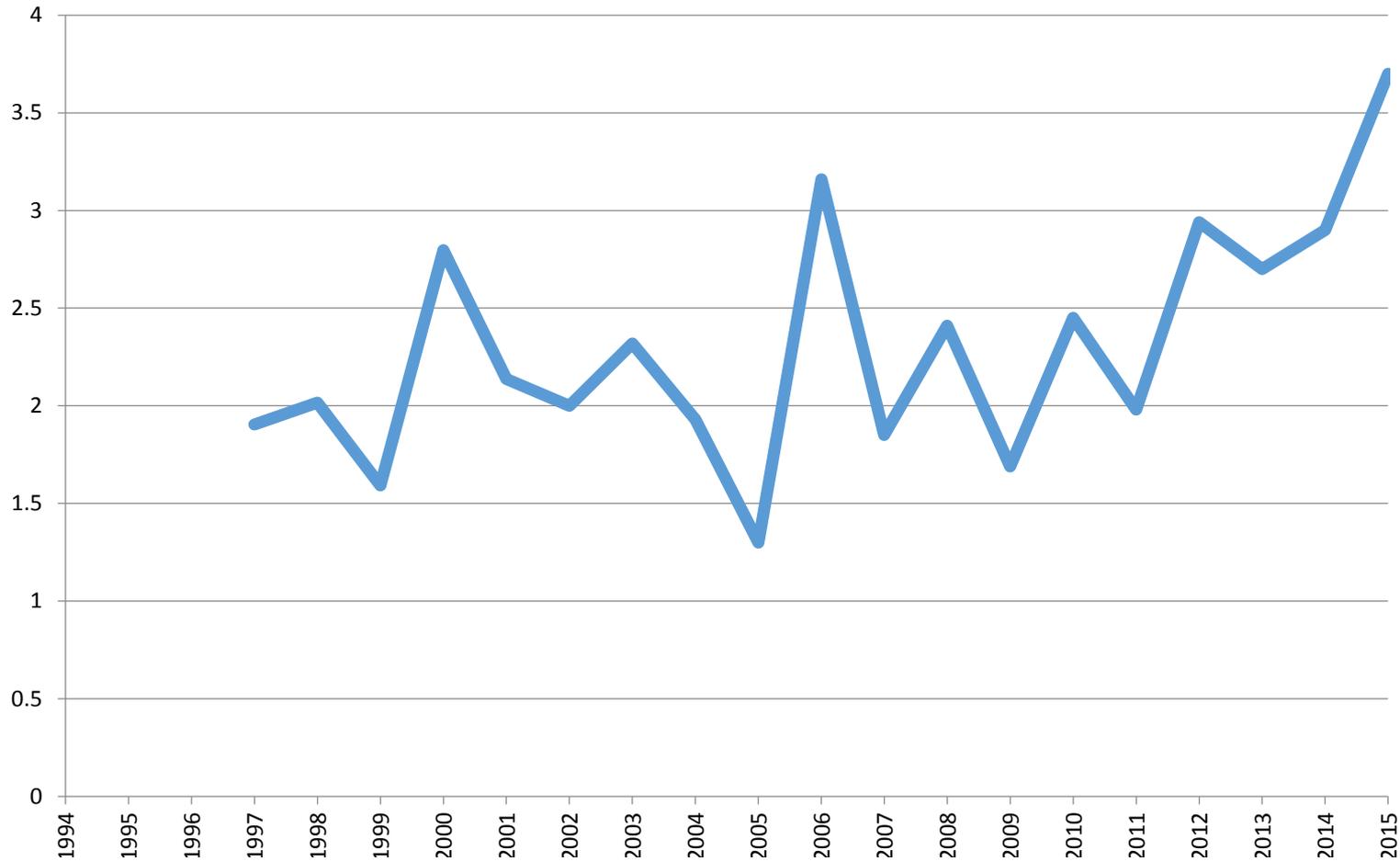
Delaware: Historical Trends

Fatalities

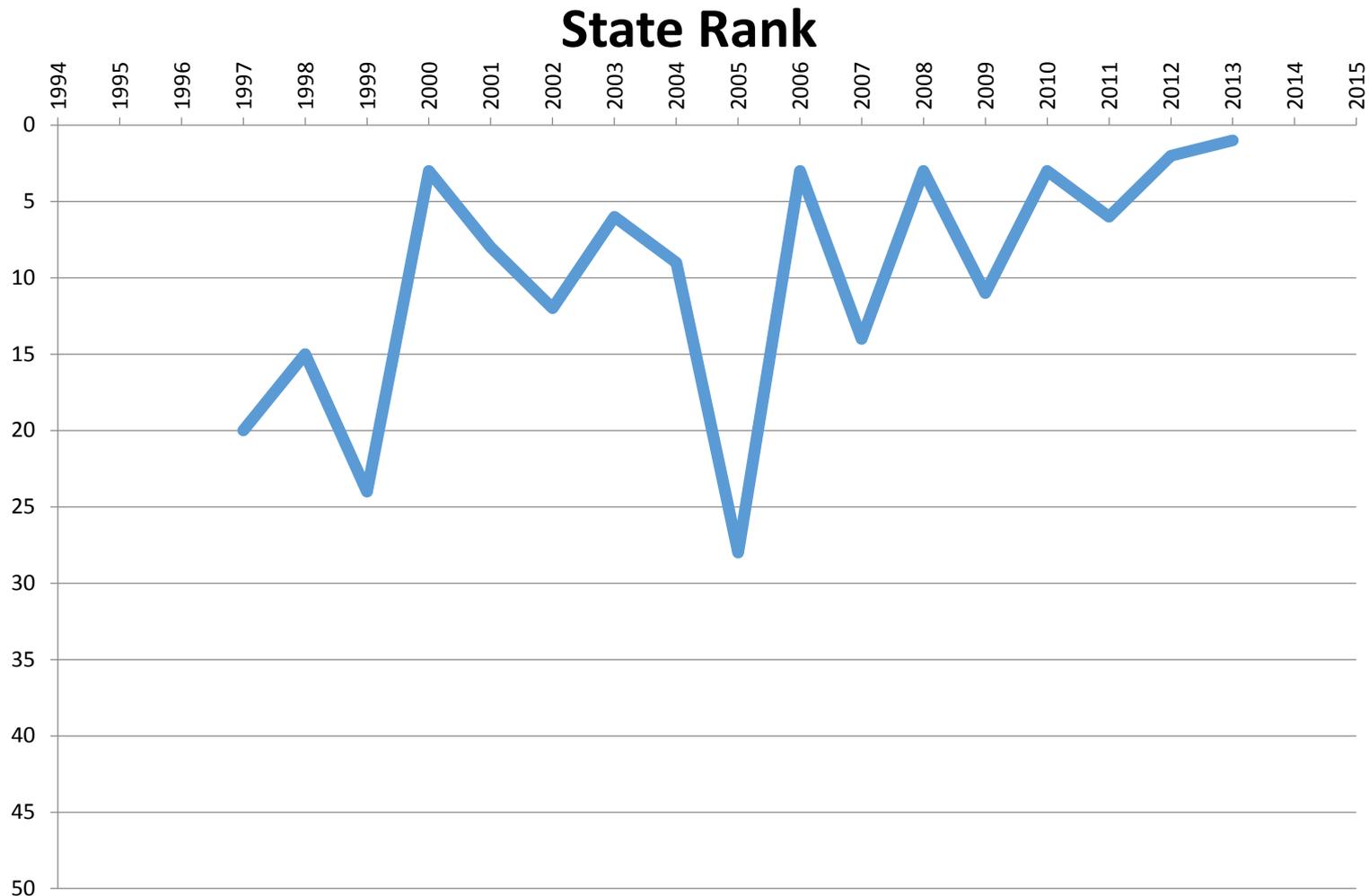


Delaware: Historical Trends

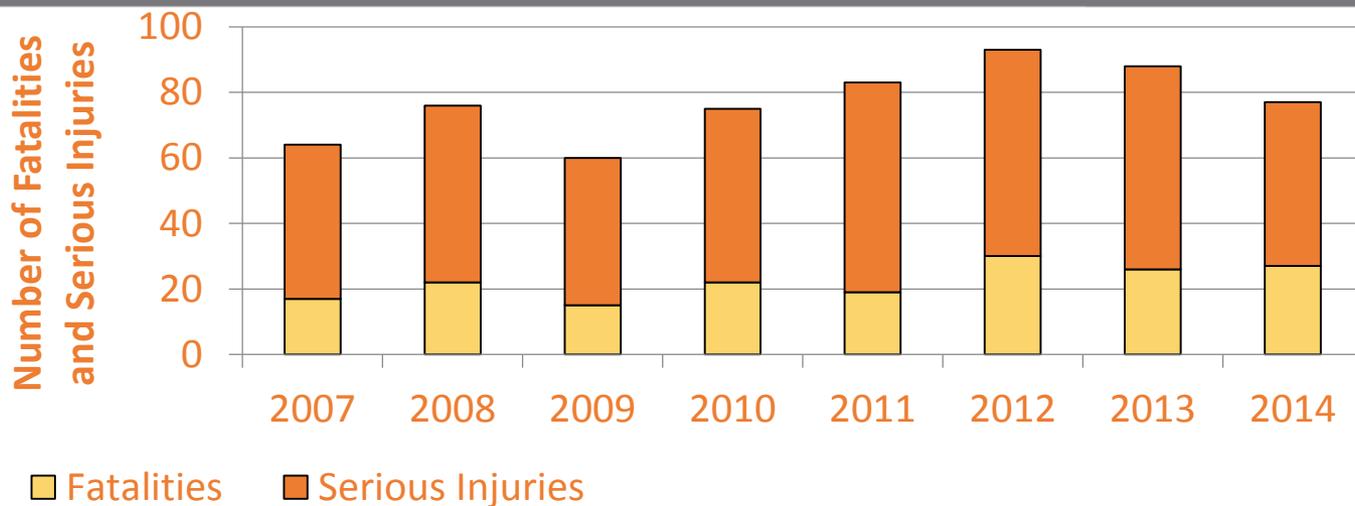
Rate Per 100,000 Population



Delaware: Historical Trends



Pedestrian Crashes: 2007 - 2014

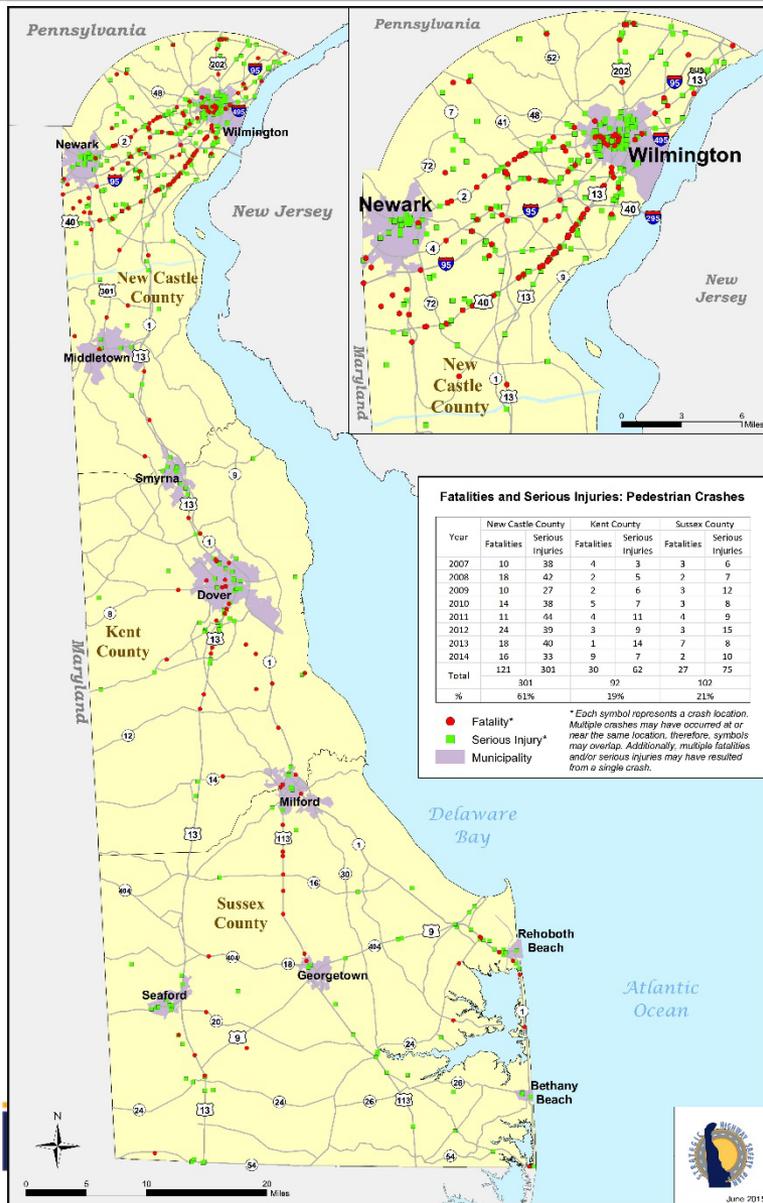


INJURY TYPE	Pedestrians									EA Rank
	2007	2008	2009	2010	2011	2012	2013	2014	TOTAL	
% of total fatalities	14%	18%	13%	21%	18%	26%	26%	22%	20%	5
% of total fatalities & serious injuries	8%	9%	8%	9%	11%	13%	12%	8%	10%	7
# of fatalities per 100,000 DE Residents	1.95	2.49	1.68	2.45	2.09	3.27	2.81	2.89	2.46	-

Highest State pedestrian fatality rate per 100,000 population



Pedestrians – Where?



Fatalities and Serious Injuries: Pedestrian Crashes

Year	New Castle County		Kent County		Sussex County	
	Fatalities	Serious Injuries	Fatalities	Serious Injuries	Fatalities	Serious Injuries
2007	10	38	4	3	3	6
2008	18	42	2	5	2	7
2009	10	27	2	6	3	12
2010	14	38	5	7	3	8
2011	11	44	4	11	4	9
2012	24	39	3	9	3	15
2013	18	40	1	14	7	8
2014	16	33	9	7	2	10
Total	121	301	30	62	27	75
%	61%	19%	21%			

● Fatality*
 ■ Serious Injury*
 ■ Municipality

* Each symbol represents a crash location. Multiple crashes may have occurred at or near the same location, therefore, symbols may overlap. Additionally, multiple fatalities and/or serious injuries may have resulted from a single crash.

Fatalities and Serious Injuries: Pedestrian Crashes

Year	New Castle County		Kent County		Sussex County	
	Fatalities	Serious Injuries	Fatalities	Serious Injuries	Fatalities	Serious Injuries
2007	10	38	4	3	3	6
2008	18	42	2	5	2	7
2009	10	27	2	6	3	12
2010	14	38	5	7	3	8
2011	11	44	4	11	4	9
2012	24	39	3	9	3	15
2013	18	40	1	14	7	8
2014	16	33	9	7	2	10
Total	121	301	30	62	27	75
%	61%	19%	21%			

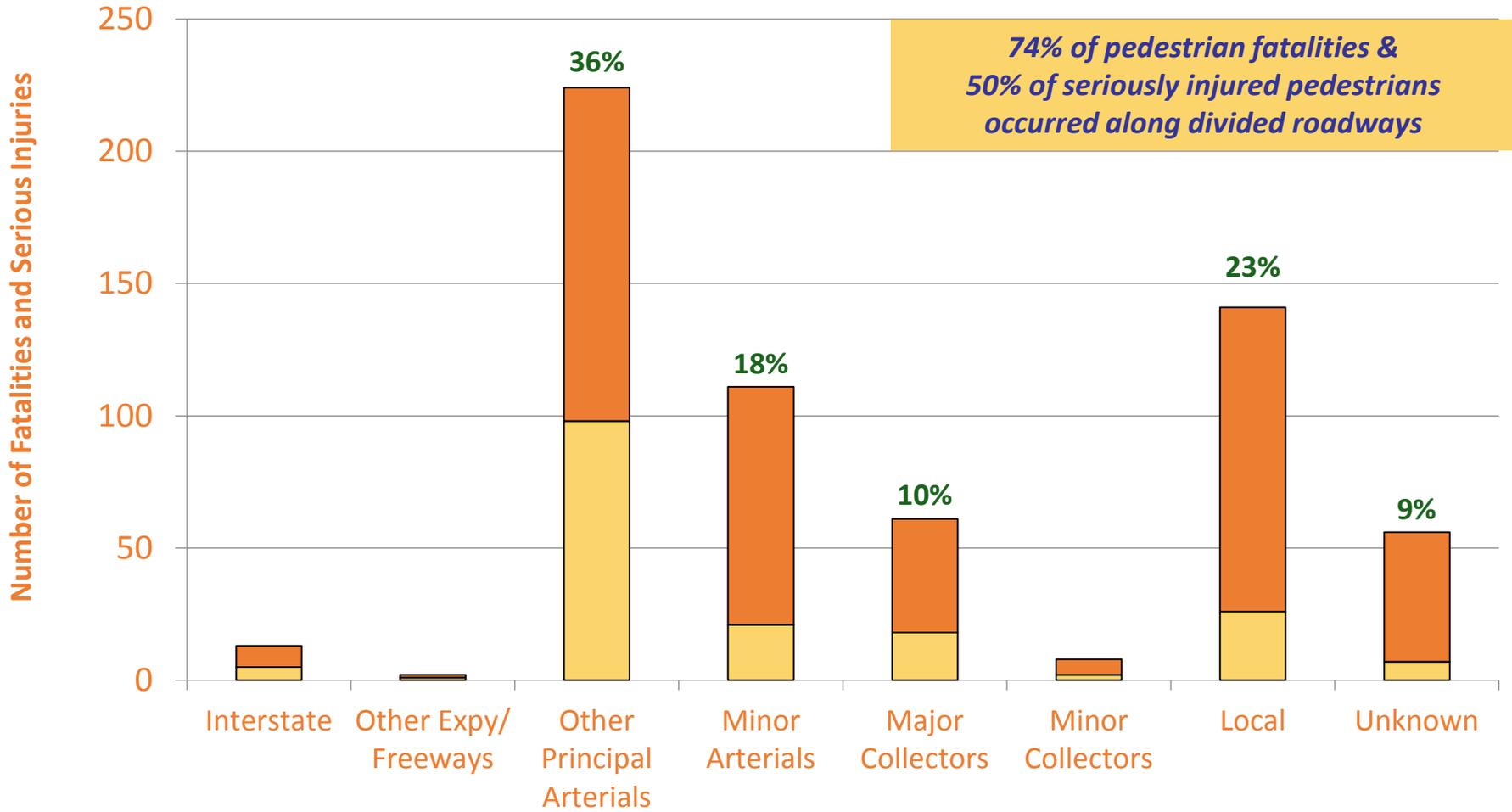
- Fatality*
- Serious Injury*
- Municipality

* Each symbol represents a crash location. Multiple crashes may have occurred at or near the same location, therefore, symbols may overlap. Additionally, multiple fatalities and/or serious injuries may have resulted from a single crash.

- Significant clusters of pedestrian fatalities:**
- US 40/US 13 in NCC
 - SR 2 in NCC
 - City of Wilmington
 - US 13 in Dover area
 - SR 1 in Lewes/Rehoboth Beach area
 - US 113 between Milford and Georgetown



Pedestrians – Where?

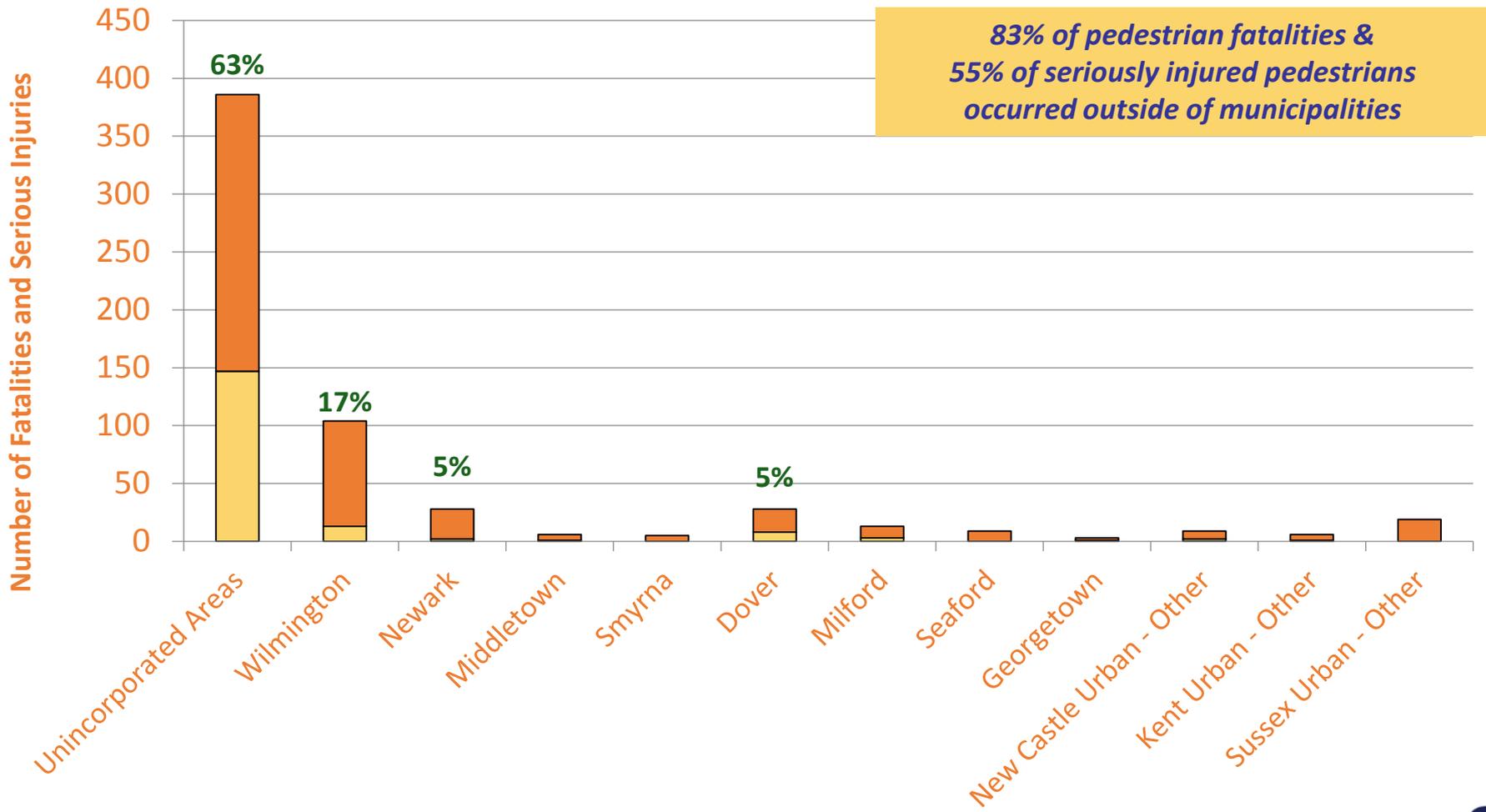


■ Fatalities
■ Serious Injuries

Roadway Functional Classification



Pedestrians – Where?



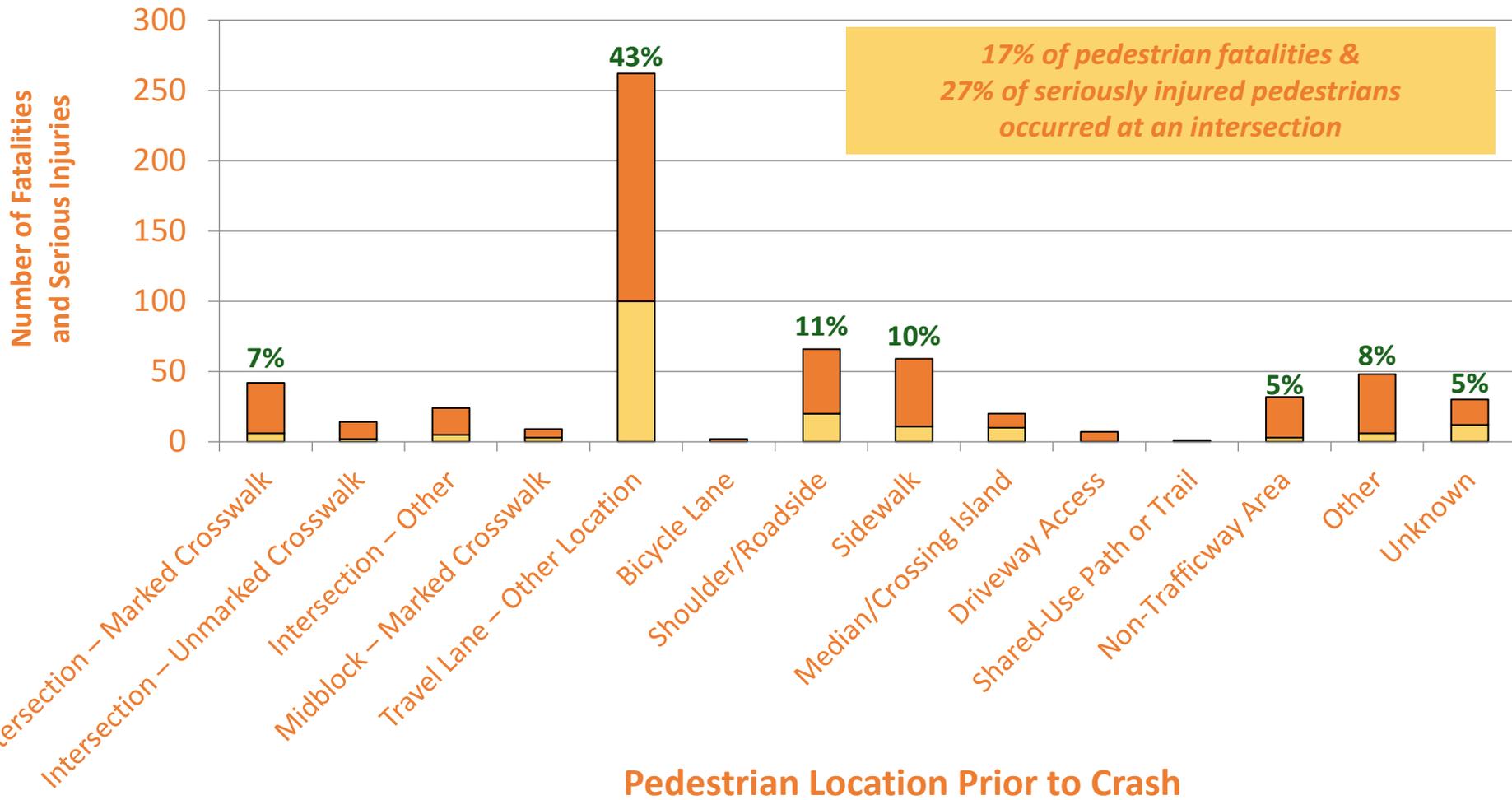
83% of pedestrian fatalities & 55% of seriously injured pedestrians occurred outside of municipalities

■ Fatalities
■ Serious Injuries

Municipality

% of Total Pedestrian Fatalities & Serious Injuries

Pedestrians – Where?

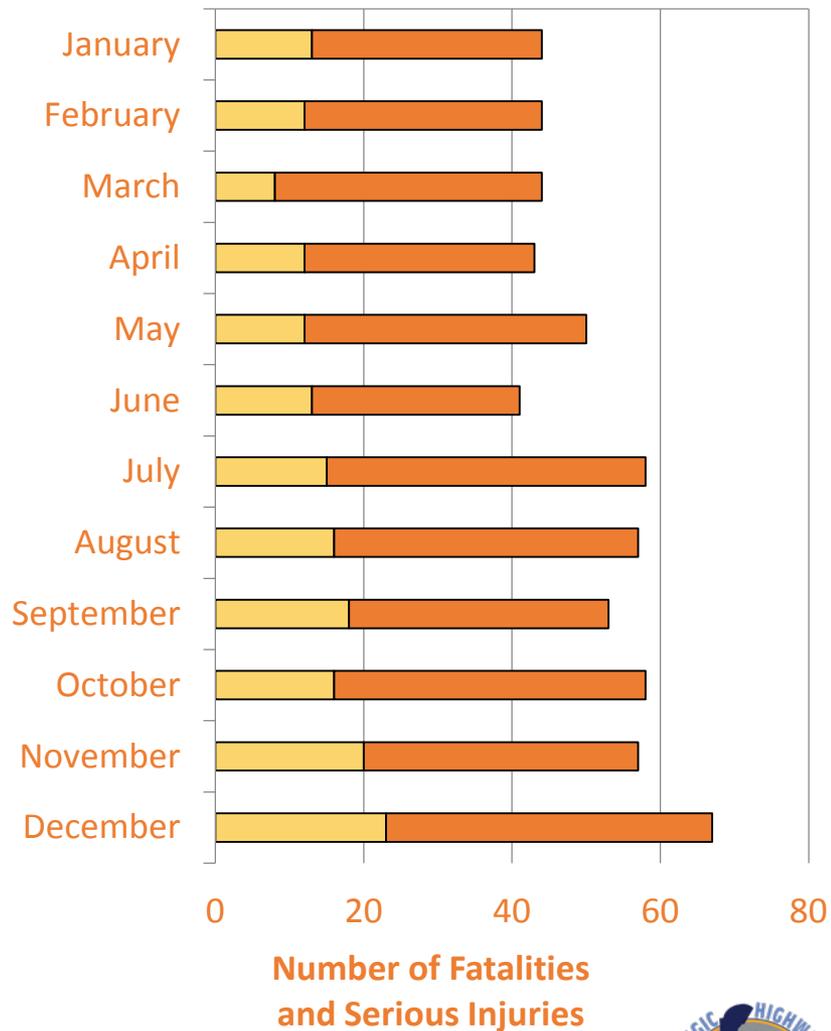
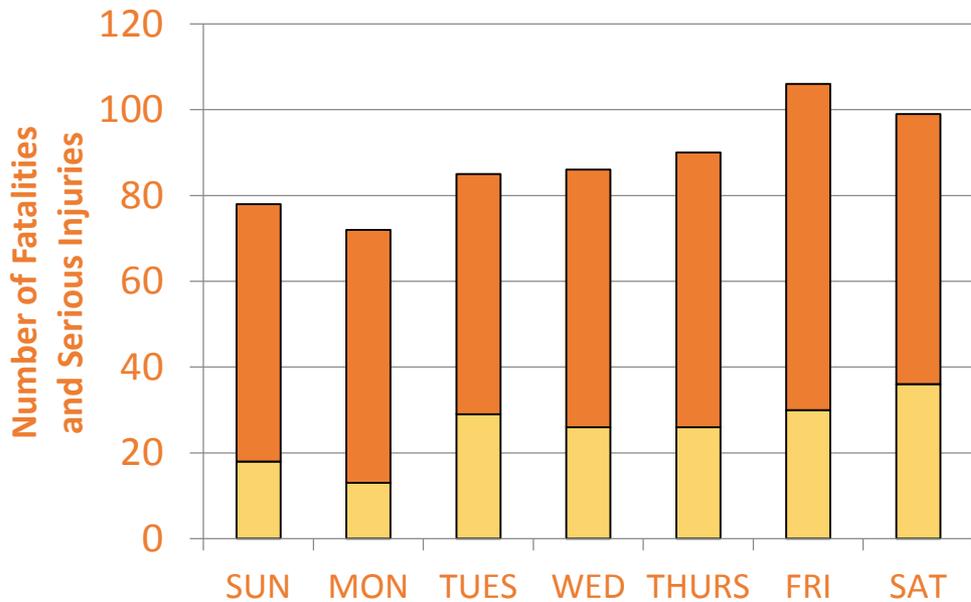


■ Fatalities
■ Serious Injuries

% of Total Pedestrian Fatalities & Serious Injuries



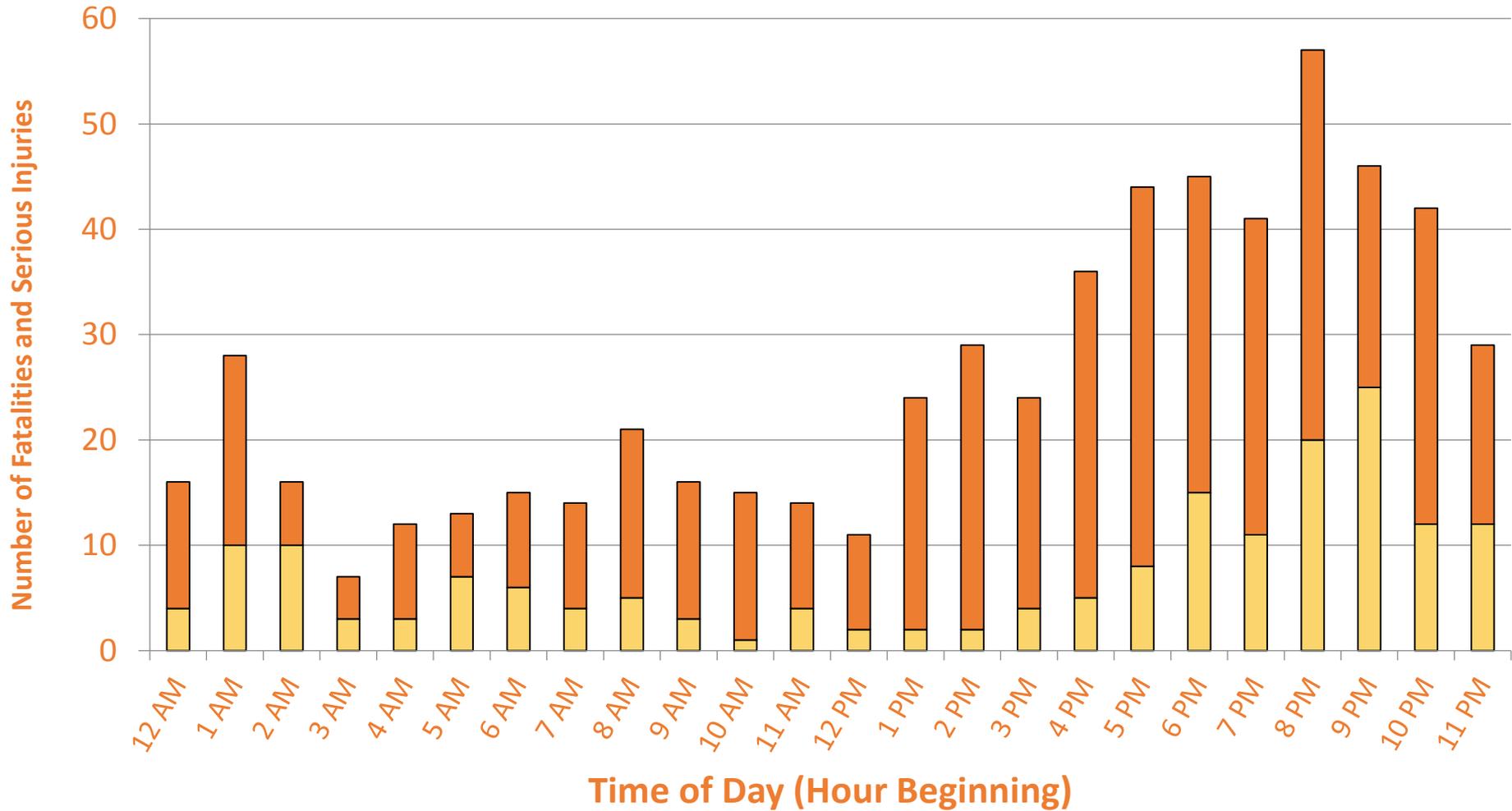
Pedestrians - When?



■ Fatalities
■ Serious Injuries



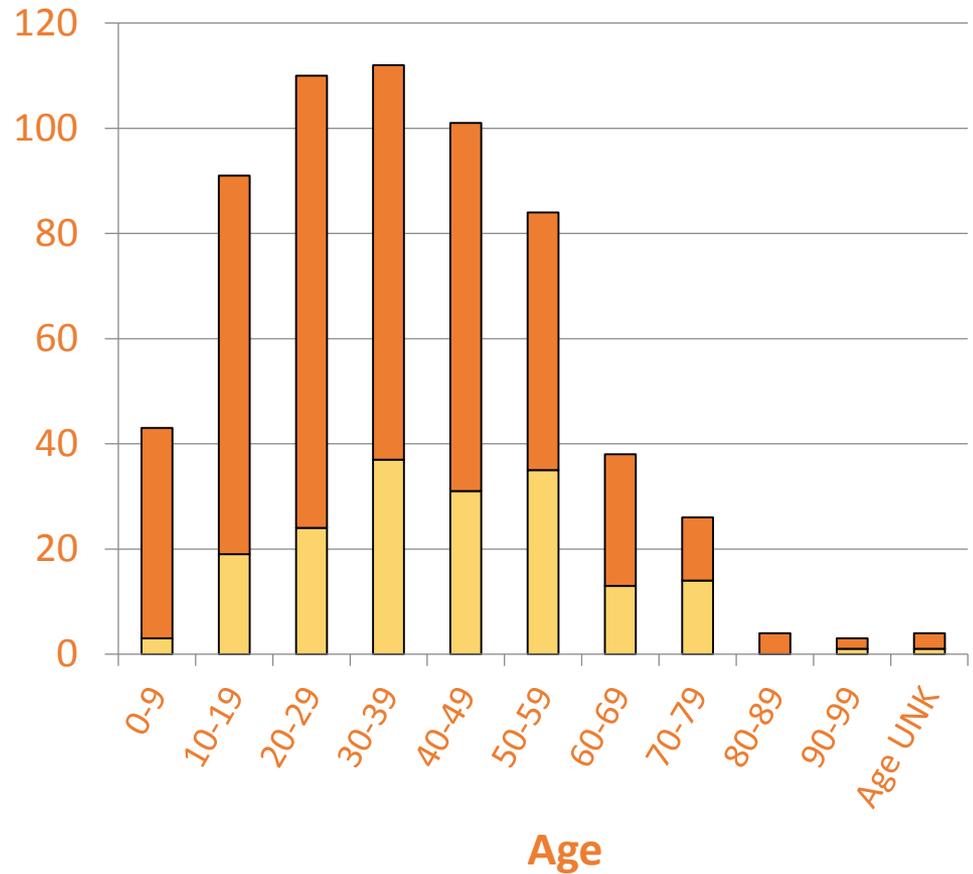
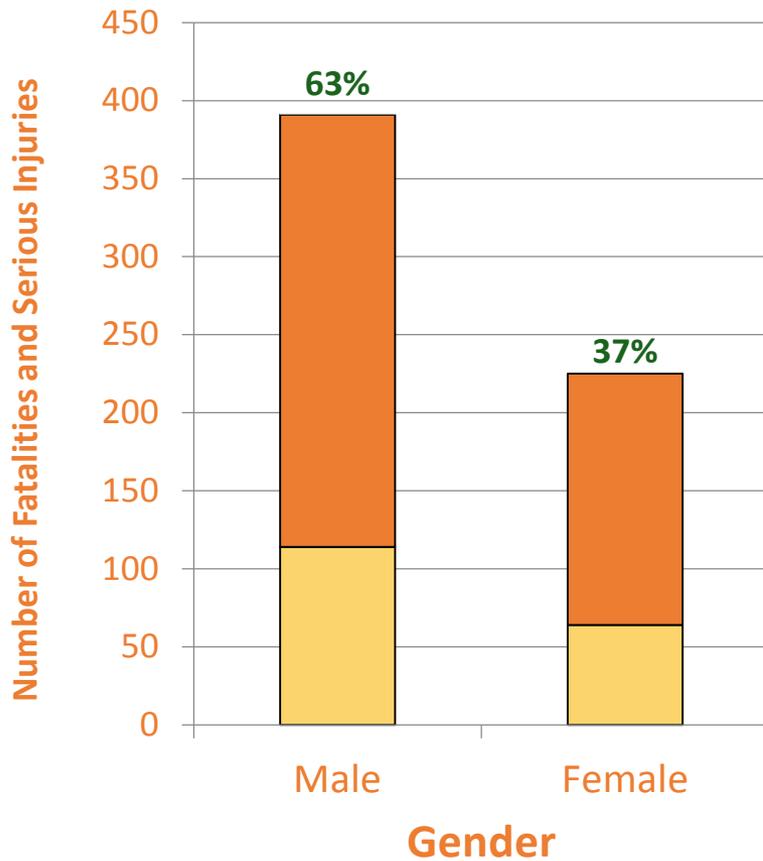
Pedestrians – When?



Fatalities
Serious Injuries



Pedestrians – Who?

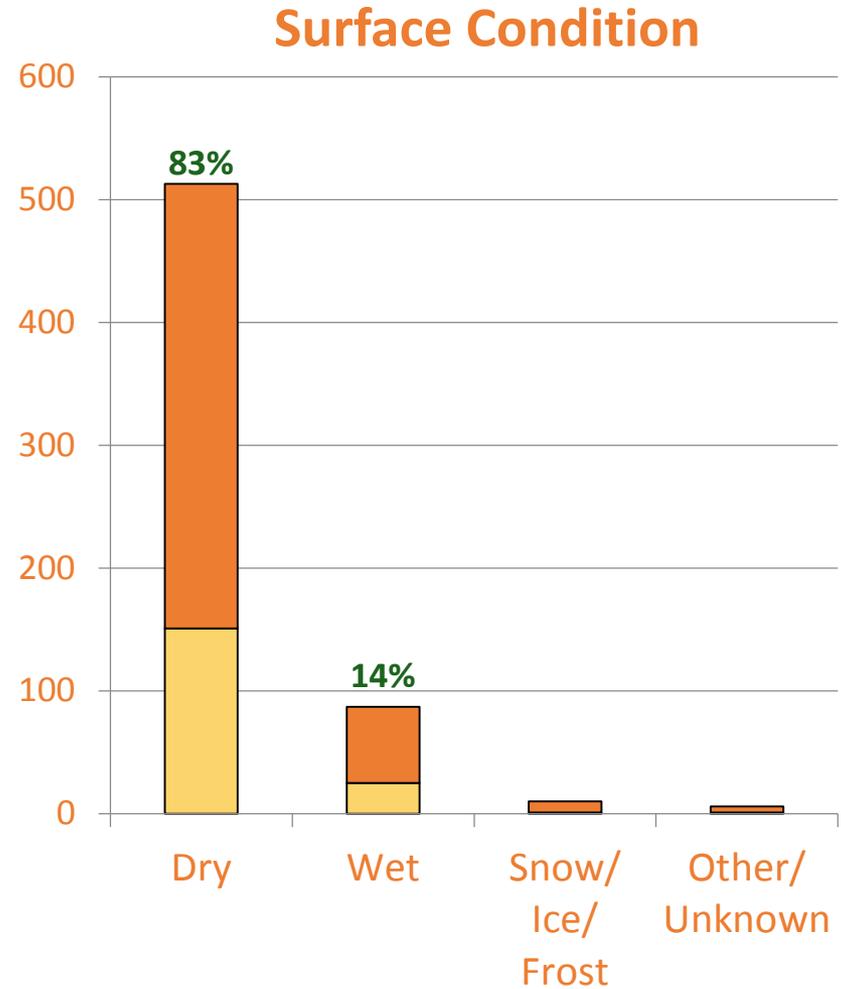
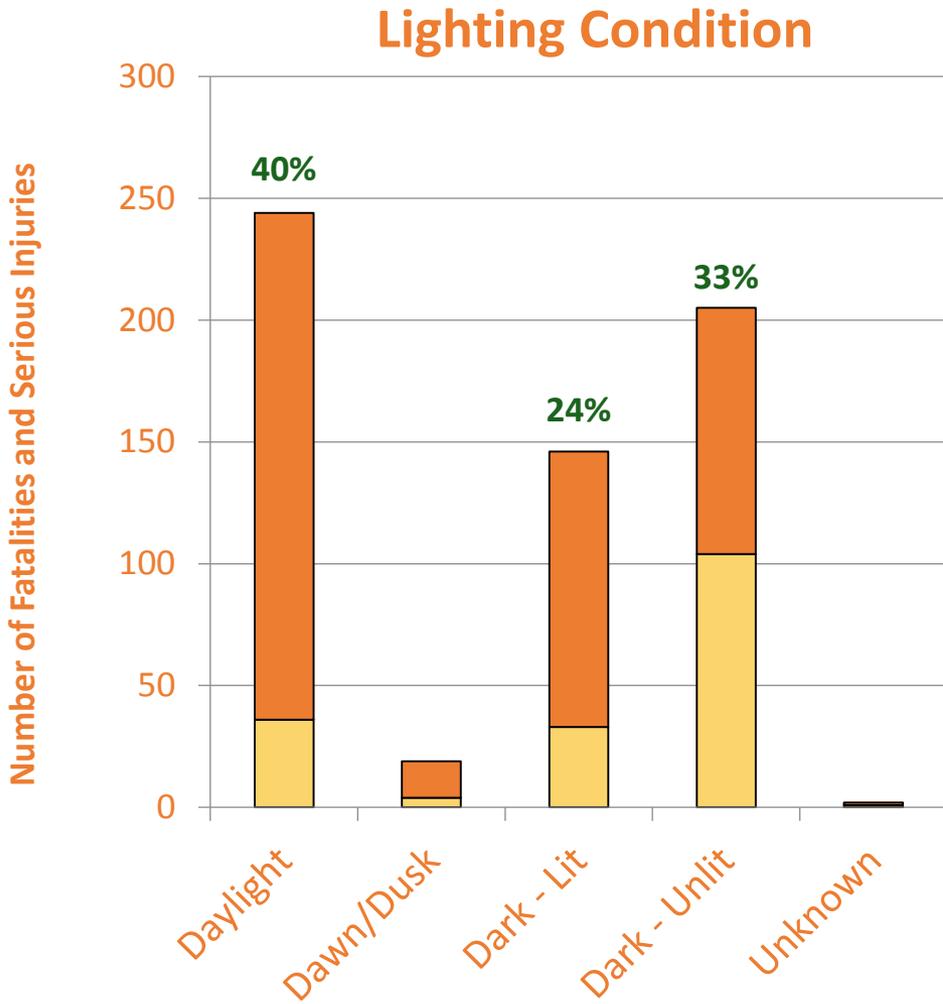


36% of pedestrian fatalities & 17% of seriously injured pedestrians were impaired

- Fatalities
- Serious Injuries

% of Total Pedestrian Fatalities & Serious Injuries

Pedestrians - Crash Conditions

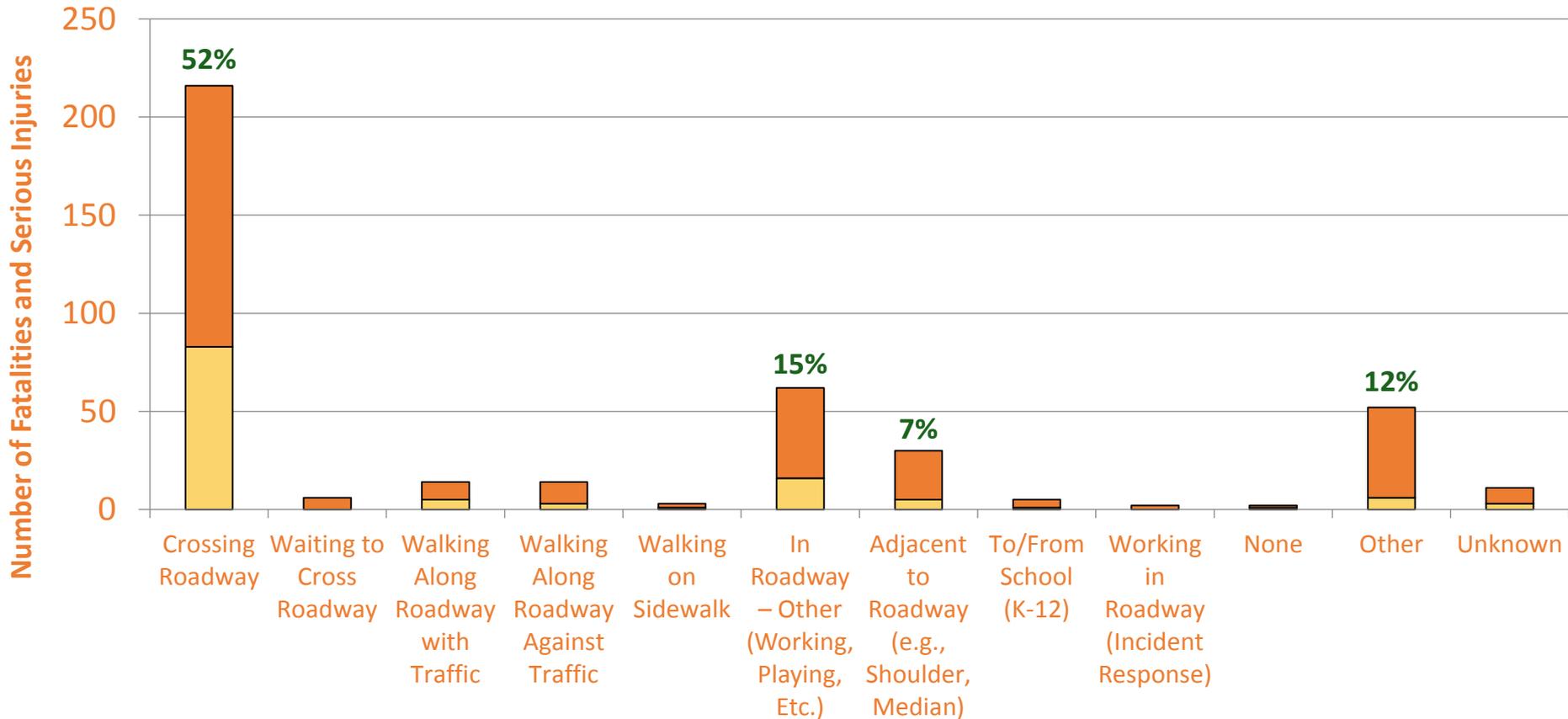


■ Fatalities
■ Serious Injuries

% of Total Pedestrian Fatalities & Serious Injuries

Pedestrian Action Prior to Crash

2010 – 2014 Pedestrian Crashes*



■ Fatalities
■ Serious Injuries

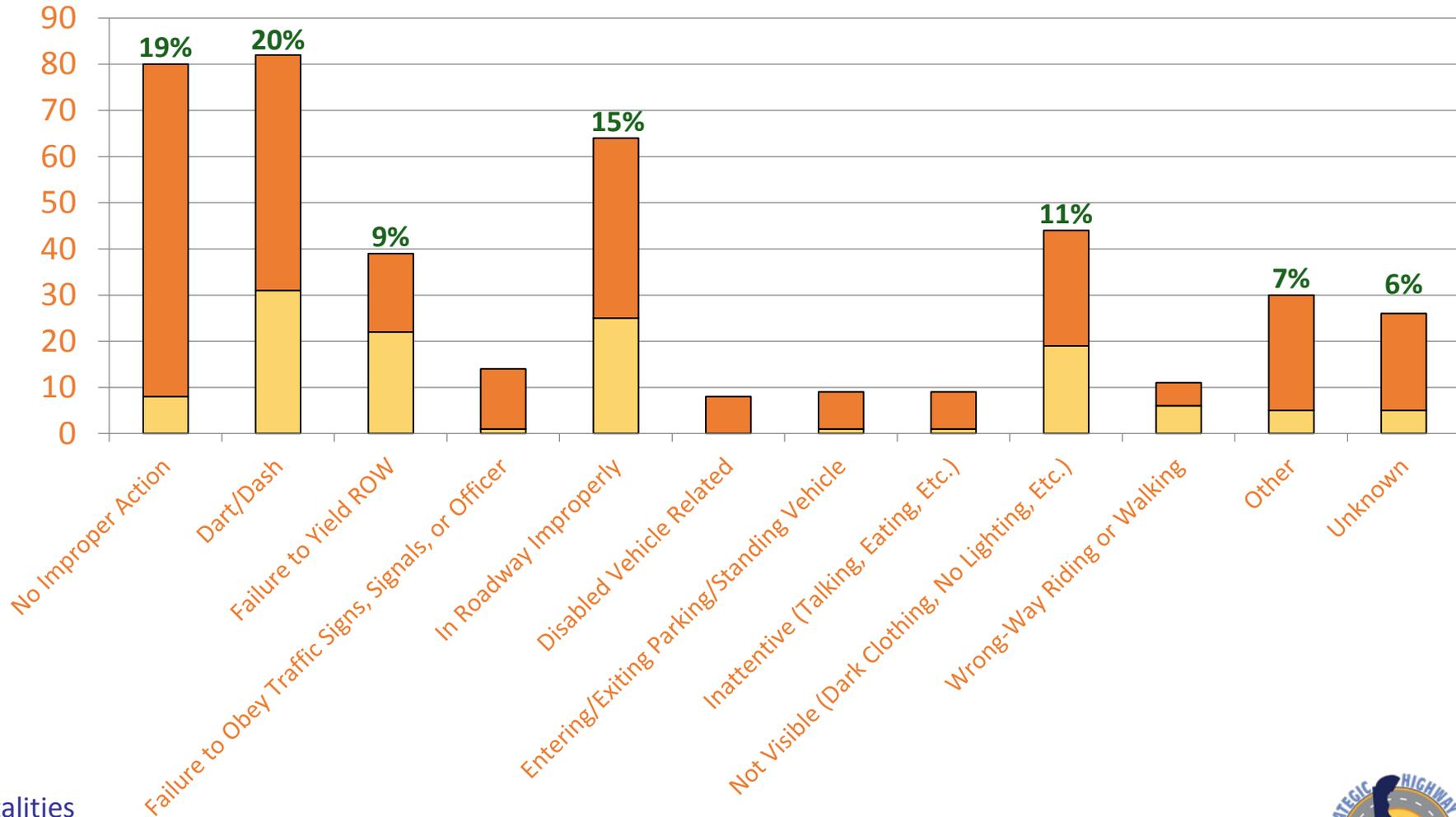
* Data not available prior to 2010

% of Total Pedestrian Fatalities & Serious Injuries

Pedestrian Action at Time of Crash

2010 – 2014 Pedestrian Crashes*

Number of Fatalities and Serious Injuries

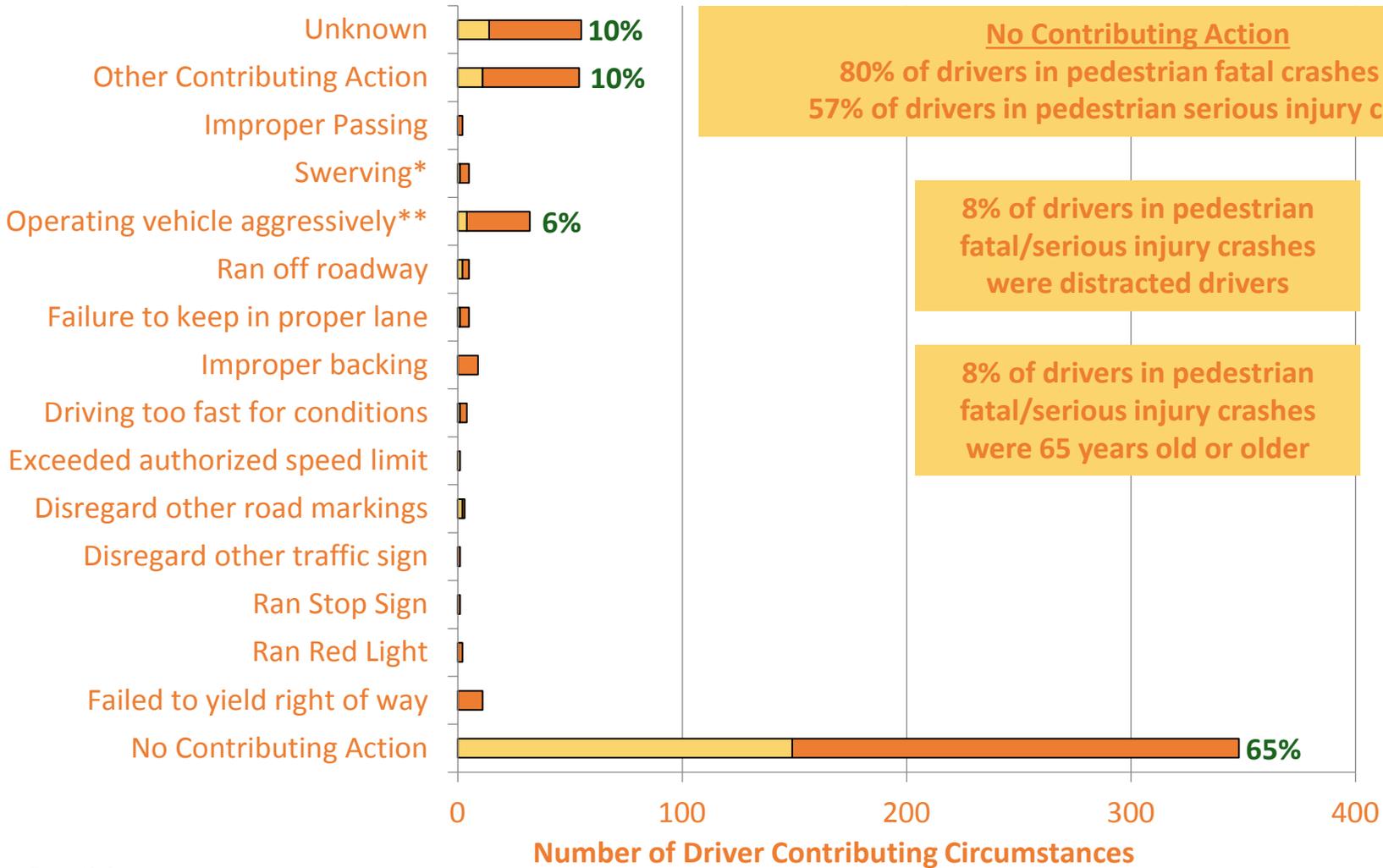


■ Fatalities
■ Serious Injuries

* Data not available prior to 2010



Driver Contributing Circumstances



No Contributing Action
 80% of drivers in pedestrian fatal crashes and
 57% of drivers in pedestrian serious injury crashes

8% of drivers in pedestrian
 fatal/serious injury crashes
 were distracted drivers

8% of drivers in pedestrian
 fatal/serious injury crashes
 were 65 years old or older

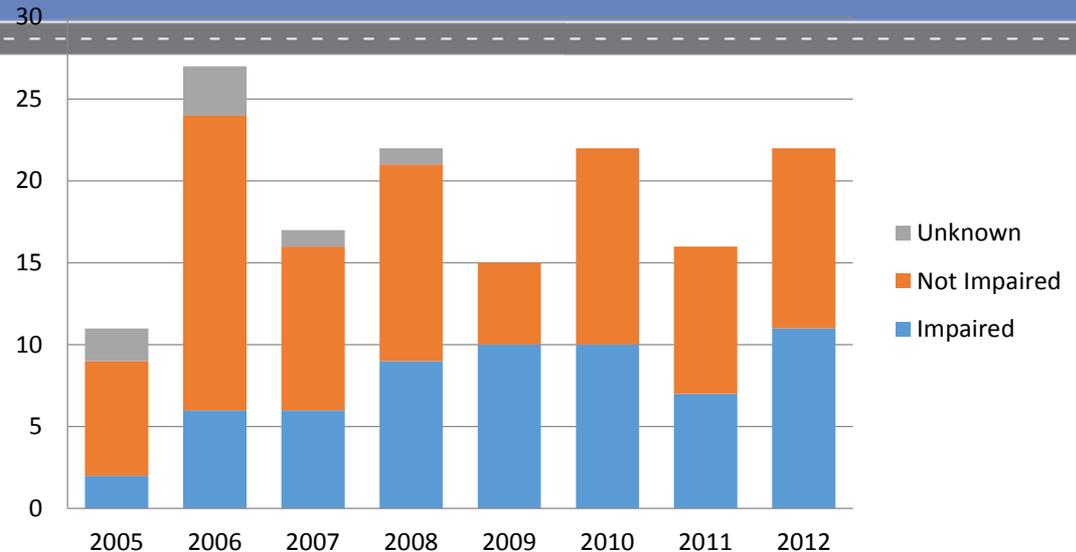
■ Fatalities
■ Serious Injuries

% of Total Driver Contributing Circumstances

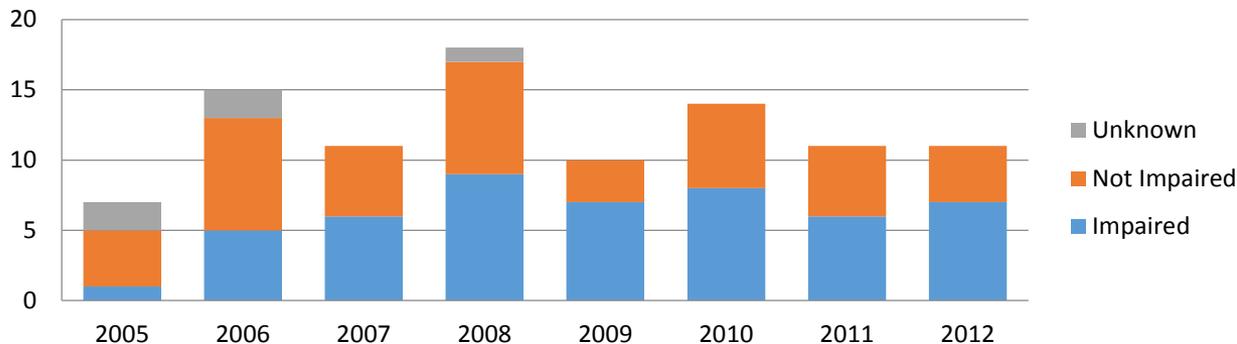
Pedestrian Data:

- 40% of pedestrian fatal crashes involved an impaired pedestrian; however, the pedestrian sobriety was unknown in 5% of pedestrian fatal crashes.
- 51% of pedestrian fatal crashes between 6PM and 3AM involved an impaired pedestrian.

Pedestrian Fatal Crashes by Year and Pedestrian Impairment



Pedestrian Fatal Crashes by Year and Pedestrian Impairment between 6PM and 3AM



2010 SHSP To-Do List



DELAWARE STRATEGIC HIGHWAY SAFETY PLAN: TOWARD ZERO DEATHS



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2010 SHSP: Our Plan & Progress

Strategies and Programs to Improve Pedestrian Safety

	<p>What did we plan to do? (2010 SHSP Strategies)</p>	<p>What did we do?</p>
<p>Education</p>	<p>Conduct media outreach</p> <ul style="list-style-type: none"> ✓ Emphasize pedestrian safety, vehicle-pedestrian right-of-way, pedestrian responsibilities and the dangers of walking while impaired ✓ Participate in health and safety fairs ✓ Develop consistent messages to the public ✓ Increase high visibility education, especially among high-risk groups ✓ Increase risk perception by publicizing information about enforcement initiatives ✓ Use billboard, radio, and TV advertisements ✓ Encourage drivers to slow down and look for pedestrians, particularly in commercial and residential corridors ✓ Educate pedestrians on the dangers of walking along or crossing roadways while under the influence of alcohol and/or drugs 	<p>Walk Smart</p> <ul style="list-style-type: none"> •Zombie/Walking Dead campaign •Happy Crab campaign <p>Summer Wave Pedestrian outreach <i>(DE OHS partnership with Ocean City, MD)</i></p> <p>Live pedestrian safety demonstrations (NCC & SC)</p> <p>Safe Routes to School Program</p>
	<p>Implement driver’s education improvements to emphasize vehicle-pedestrian right-of-way and laws</p>	



2010 SHSP: Our Plan & Progress

Strategies and Programs to Improve Pedestrian Safety

	<p>What did we plan to do? (2010 SHSP Strategies)</p>	<p>What did we do?</p>
<p>Enforcement</p>	<p>✓ Conduct high visibility enforcement campaigns to ensure pedestrians and drivers alike are obeying pedestrian safety laws</p>	<p>Targeted enforcement campaigns</p> <ul style="list-style-type: none"> • SR 2 • US 13 • SR 1
	<p>✗ Evaluate the use of automated speed enforcement in school zones</p>	
	<p>✓ Increased penalties for drivers convicted of inattentive or careless driving resulting in injury to a “vulnerable user”</p>	<p>Passed Senate Bill 269 (August 2010)</p>



2010 SHSP: Our Plan & Progress

Strategies and Programs to Improve Pedestrian Safety

	What did we plan to do? (2010 SHSP Strategies)	What did we do?
Engineering	<p>System and policy initiatives</p> <ul style="list-style-type: none"> ✓ Consider pedestrian accommodations early in the planning process for all new projects & review crossings at existing locations ✓ Provide consistent pedestrian crossing design ✓ Improve design to focus on sight distance to crosswalks and warning signs ✓ Provide adequate crossing times for older pedestrians ✓ Improve maintenance of pedestrian accommodations ✗ Consider revising DeIDOT's street lighting guidance to include guidance for installing street lighting to address pedestrian concerns 	<ul style="list-style-type: none"> • Implemented Complete Streets policy • Pedestrian accommodations considered in all DeIDOT projects • Safe Routes to School Program • Sidewalk and Multi-Use Path Maintenance Policy (effective July 17, 2013) • Pedestrian/Bicycle Working Group • Updated Traffic Calming Design Manual (2012) • Governor's Pedestrian Council
	<p>Spot or target location improvements</p> <ul style="list-style-type: none"> ✓ Eliminate conflict between pedestrians and left-turning vehicles by installing protected-only left-turn phasing ✓ Where appropriate, install traffic calming devices ✓ Install raised crosswalks ✓ Install pedestrian-hybrid signals ✓ Provide leading pedestrian phases to enhance visibility ✓ Install curb extensions to improve visibility and reduce pedestrian crossing time ✓ Perform pedestrian safety audits for roadways and intersections ✓ Install street lighting at locations with a high number of nighttime pedestrian crashes 	<p>Pedestrian Safety Audits along High-Risk Corridors</p> <ul style="list-style-type: none"> • US 13/US 40 • SR 2 • US 13 <p>Pedestrian Signalization-Related Improvements</p> <ul style="list-style-type: none"> • Accessible pedestrian signals • Pedestrian Hybrid Beacons (HAWK) • Pushbutton Activated Warning Beacons • Lead pedestrian intervals • Rectangular Rapid Flashing Beacons (RRFB) (planned) <p>Traffic calming through TE/TAP projects and the Traffic Calming Program</p>



NCHRP Strategies to Address Crashes Involving Pedestrians

- Reduce Pedestrian Exposure to Vehicular Traffic
 - Provide sidewalks/walkways and curb ramps
 - Install or upgrade traffic and pedestrian signals
 - Construct pedestrian refuge islands and raised medians
 - Provide vehicle restriction/diversion measures
 - Install overpasses/underpasses
- Improve Sight Distance and/or Visibility Between Motor Vehicles and Pedestrians
 - Provide crosswalk enhancements
 - Implement lighting/crosswalk illumination measures
 - Eliminate screening by physical objects
 - Signals to alert motorists that pedestrians are crossing
 - Improve reflectorization/conspicuity of pedestrians
- Reduce Vehicle Speeds
 - Implement road narrowing measures
 - Install traffic calming – road sections & intersections
 - Provide school route improvements
- Improve Pedestrian and Motorist Safety Awareness and Behavior
 - Provide education, outreach, and training
 - Implement enforcement campaigns



2015 SHSP Strategies



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Pedestrian: Emphasis Area Fact Sheet

Emphasis Area #

7

Pedestrians

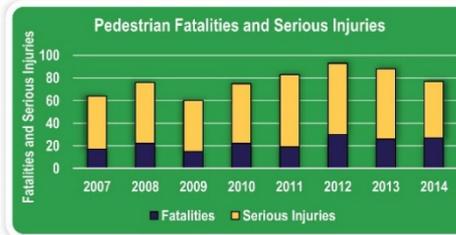
EMPHASIS AREA GOAL: Reduce the combined number of pedestrian fatalities and serious injuries by 10 every 5 years (2 per year) to achieve the overall goal of a 50 percent reduction by 2035.

Emphasis Area Goal

Brief Background / Description of Emphasis Area

Background

Due to their complexity, addressing pedestrian-involved crashes is a challenge. In Delaware, a large portion of pedestrian crashes occur on high-speed, multi-lane suburban corridors that are surrounded by commercial and residential land uses and significant transit usage which combine to create an unsafe environment for pedestrian crossings. Pedestrian safety is evaluated and engineered as part of most transportation projects; however, infrastructure improvement projects require significant resources. Delaware officials recognize that the use of education and enforcement techniques may have the greatest potential for reductions in pedestrian fatalities and serious injuries. Improving driver awareness of pedestrians is critical to increasing pedestrian safety. In Delaware, pedestrian fatalities accounted for 20 percent of all fatalities and 8 percent of all serious injuries from 2007 through 2014. In 2012 and 2013, Delaware had the highest pedestrian fatality rate per 100,000 population of all the states.



EA Fatalities & Serious Injuries by Year

Strategies

Strategies to Reach Goal

- Continue a multi-agency approach to addressing pedestrian safety issues
- Develop and distribute consistent public information messages to increase public awareness and laws on pedestrian safety
- Conduct high-visibility enforcement campaigns targeting both pedestrians and drivers to promote pedestrian safety
- Improve infrastructure (e.g., sidewalks, crosswalks, lighting, transit facilities) to reduce pedestrian exposure and the potential for pedestrian/vehicle conflicts, and increase pedestrian visibility and awareness
- Research and implement the latest pedestrian safety "best practice" treatments and devices
- Conduct pedestrian safety audits at high-crash locations
- Install effective countermeasures to improve pedestrian safety at high crash locations and consider pedestrians when installing roadway improvements
- Perform before/after studies to evaluate and identify the most effective pedestrian safety treatments
- Ensure drivers education instructors emphasize vehicle-pedestrian laws in their lesson plans
- Support legislative action to strengthen pedestrian safety laws and enforcement efforts
- Develop policies and/or guidelines to support pedestrian safety measures

Data Trends: 2007 to 2014 Pedestrian Fatalities & Serious Injuries

- 90% occurred in urban areas
- 69% were in New Castle County
- 63% were male
- 58% involved no contributing factor on the part of the vehicle driver
- 52% were 20 to 49 years old
- 51% occurred between 4 PM and 11 PM
- 42% occurred along divided roadways
- 36% occurred on principal arterials
- 33% of pedestrian fatalities were impaired
- 33% occurred during dark (unlit) conditions
- 33% occurred on a Friday or Saturday
- 25% occurred at an intersection

Crash Data Highlights



Pedestrians

Strategies to Reach Goal

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Next Steps



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DECEMBER 2015



Next Steps

- **March 2016 – Review SHSP action item list**
- **Spring 2016 – Start barrier planning/design**
- **Spring 2016 – Implement first RRFB**
- **Summer 2016 – Begin next Pedestrian Safety Audit**
- **Spring 2017 – Formal SHSP stakeholder update meeting**
- **On-Going:**
 - **Support Pedestrian Council**
 - **Continue Pedestrian Working Group**
 - **Support Walkable / Bikeable Delaware Summit**
 - **Focus on Implementation of Pedestrian Audit Recommendations**



Thank You

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