



*Delaware*  
**STRATEGIC HIGHWAY  
SAFETY PLAN:**  
Toward Zero Deaths

***Presentation to  
Transportation Management Team  
February 8, 2011***

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# Agenda

- ◆ Federal SHSP
  - The Plan and Purpose
  - AASHTO's 22 Emphasis Areas
- ◆ Overall Crash Trends
- ◆ Delaware's Program
  - Coordinating Agencies and Stakeholders
  - Development Process
  - Mission and Vision Statements
  - Emphasis Area Selection and Goals
  - Strategy Selection
  - Crash Data, Strategies and Evaluation by Emphasis Area
  - Implementation

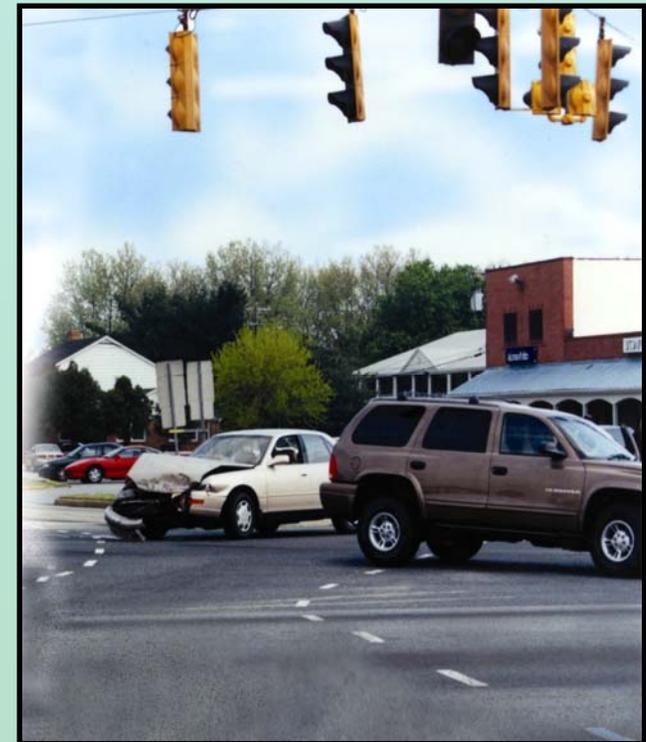


# Federal SHSP



# The Plan and Purpose

- ◆ Required as part of SAFETEA-LU, an SHSP is a comprehensive safety plan with a goal of reducing highway fatalities and serious injuries on all public roads
- ◆ Establishes consistent statewide goals, objectives, emphasis areas, priorities, and countermeasures with stakeholders and other transportation plans
- ◆ Makes effective use of State, regional, and local crash data and determines priorities based on crash data
- ◆ Addresses engineering, management, operation, education, enforcement, and EMS



# AASHTO's 22 Emphasis Areas

## ◆ Drivers

- Instituting Graduated Licensing for Young Drivers
- Ensuring Drivers are Fully Licensed, Competent, and Insured
- Sustaining Proficiency in Older Drivers
- Curbing Aggressive Driving
- Reducing Impaired Driving
- Keeping Drivers Alert
- Increasing Driver Safety Awareness
- Increasing Seatbelt Usage and Improving Airbag Awareness

## ◆ Emergency Response & Other Users

- Making Walking and Street Crossing Safer
- Ensuring Safer Bicycle Travel
- Enhancing Emergency Response Capabilities to Increase Survivability



# AASHTO's 22 Emphasis Areas cont'd.

## ◆ Vehicles

- Improving Motorcycle Safety and Increasing Motorcycle Awareness
- Making Truck Travel Safer
- Increasing Safety Enhancements in Vehicles

## ◆ Highways

- Reducing Train-Vehicle Crashes
- Keeping Vehicles on the Roadway
- Minimizing the Consequences of Leaving the Road
- Improving the Design and Operation of Highway Intersections
- Reducing Head-on and Across-Median Crashes
- Designing Safer Work Zones

## ◆ Planning and Management

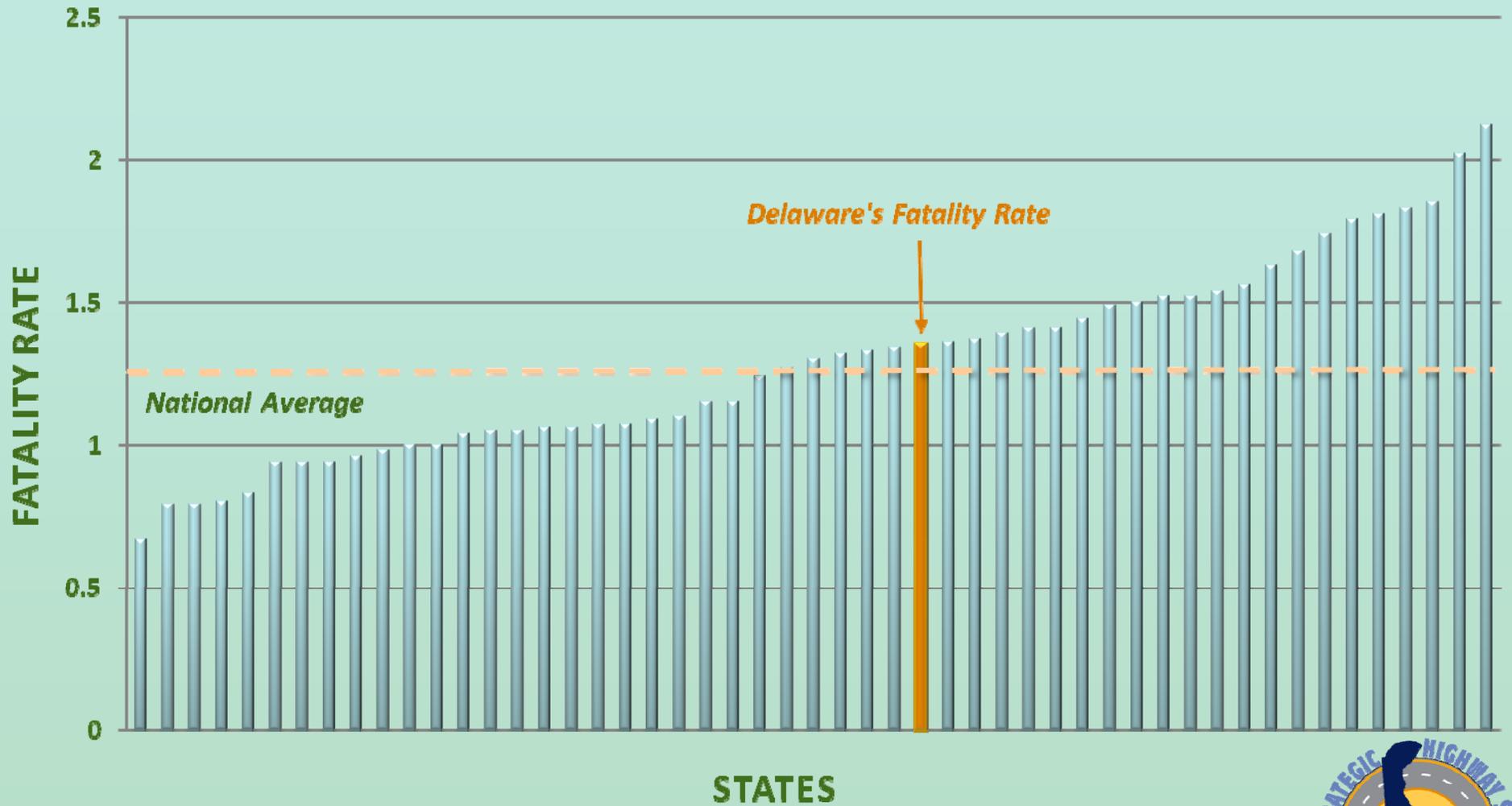
- Creating More Effective Processes and Safety Management Systems
- Improving Information and Decision Support Systems



# Overall Crash Trends



# 2008 Fatality Rates per 100 MVMT by State



Sources: FARS



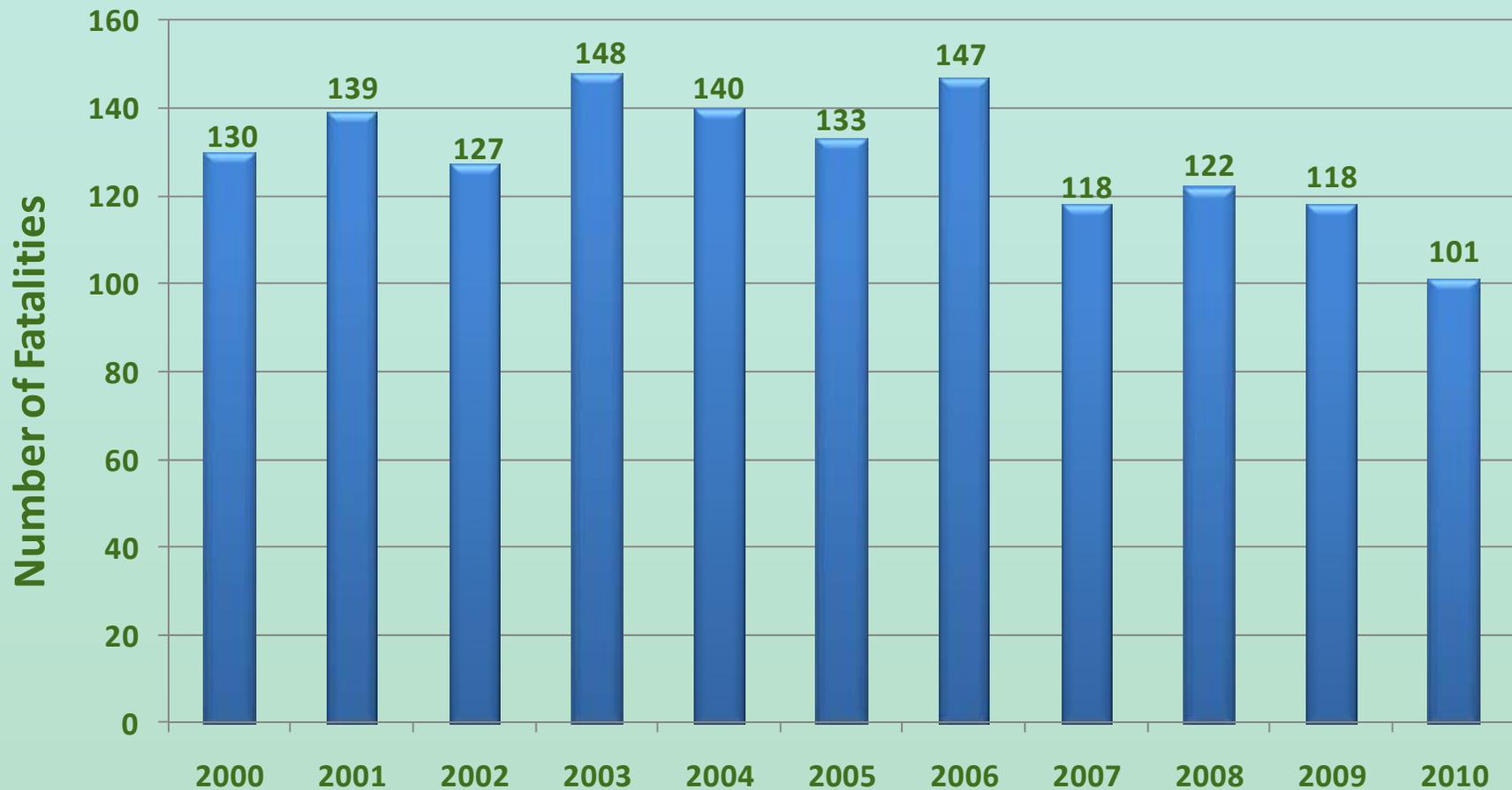
# Delaware vs. National Fatality Rates (2000 – 2009)



Sources: FARS/NHTSA for national rates; DSP for Delaware rates



# Total Fatalities in Delaware by Year (2000 – 2009)





# Delaware's Program



# Delaware's SHSP Coordinating Agencies and Stakeholders

## ◆ Core Group

- FHWA
- NHTSA
- Delaware Department of Transportation
- Delaware Office of Highway Safety
- Delaware State Police
- Department of Justice
- Delaware Office of Emergency Medical Services



## ◆ Other Stakeholders

- Division of Motor Vehicles
- Dover/Kent County MPO
- WILMAPCO
- Trucking Industry
- Operation Lifesaver
- Department of Education



# Delaware's SHSP Process

- ◆ Define Mission and Vision for Plan
- ◆ Data-driven Emphasis Area Selection
  - Fatal crash data used to develop emphasis areas
- ◆ Select Strategies
- ◆ Evaluate Progress
- ◆ Develop and Adopt Plan
- ◆ Present Plan to Key Stakeholders
- ◆ Implement Plan
- ◆ Review and Update Plan
  - First plan adopted in 2006
  - First update prepared in 2008
  - Rewrote plan in 2010
  - Next update in 2013 (every 3 years)



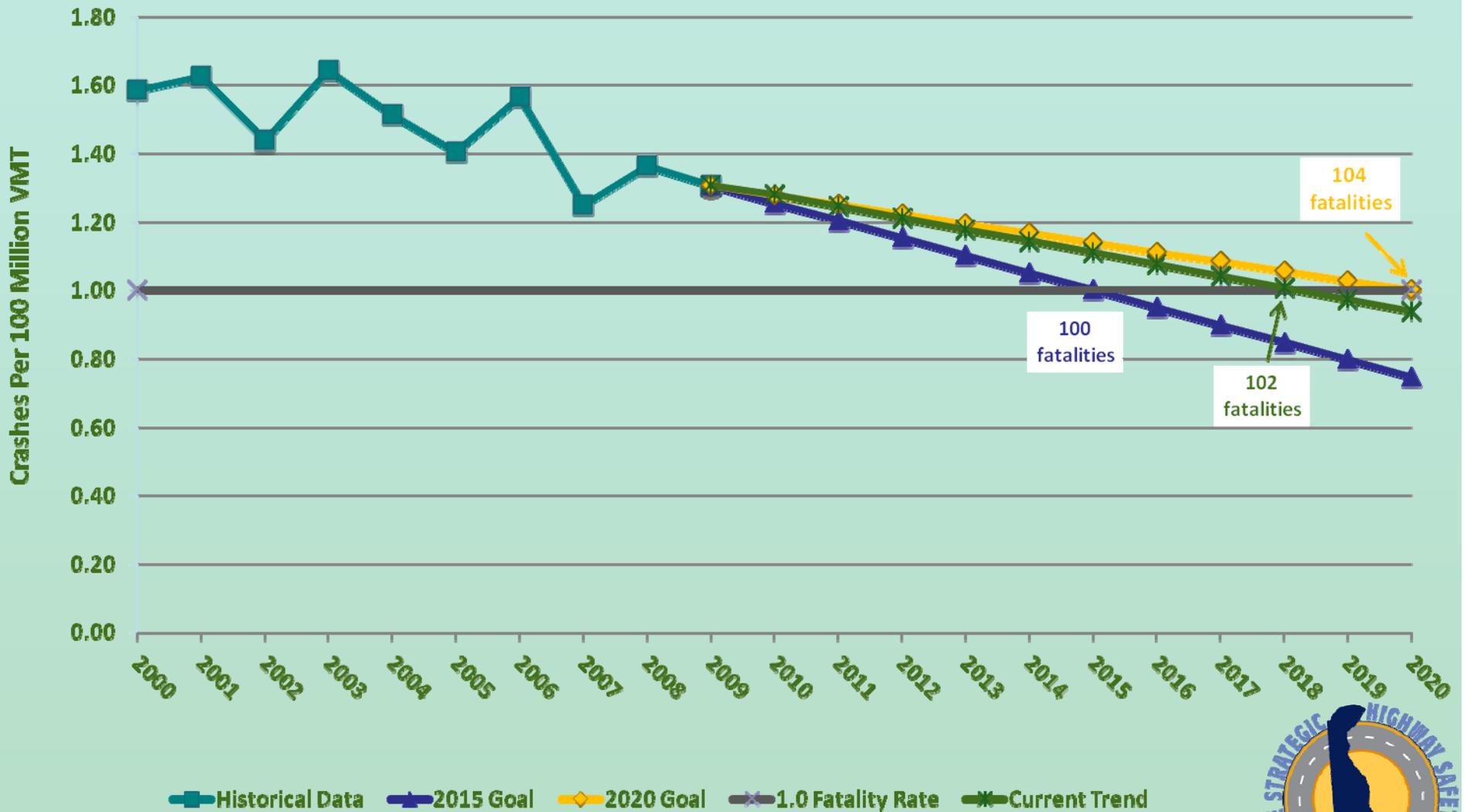
# Delaware's 2010 SHSP

## Mission and Vision Statements

- ◆ Mission Statement: The *Delaware Strategic Highway Safety Plan: Toward Zero Deaths* aims to eliminate fatalities on Delaware's roadways through a multi-agency approach that utilizes education, enforcement, engineering and emergency service strategies.
- ◆ Vision Statement: The goal of Delaware's *Strategic Highway Safety Plan* is to achieve a fatality rate of 1.0 per 100 million vehicle miles traveled per year by 2018.



# Delaware Fatality Rates Per Year (2000 – 2020)



Source: DeIDOT/DSP



# 2010 Emphasis Area Selection

## ◆ Data Review

- Compared 2007 - 2008 national and statewide fatal crash data for each of AASHTO's emphasis areas
- Compared 2007 - 2008 statewide fatal crash data to 2001 – 2006 data

## ◆ Selected Emphasis Areas

- A higher fatal crash percentage in DE as compared to national averages (e.g., Curbing Aggressive Driving)
- One of the highest fatal crash percentages in DE (e.g., Increasing Seat Belt Usage)
- An increasing concern in the near future (e.g., Sustaining Proficiency in Older Drivers)

*Note: Fatality data (rather than fatal crash data) was used for the emphasis area related to seat belt usage; 2009 data was not available at the time 2010 emphasis areas were selected*



# Changes to Emphasis Areas in the 2010 Plan

- ◆ Eleven total emphasis areas, including 7 primary and 4 secondary emphasis areas
- ◆ The two emphasis areas related to roadway departures were combined into one
- ◆ Emphasis areas were prioritized based on crash data (listed in priority order)



# Delaware's 2010 Emphasis Areas (listed in priority order)

## ◆ Primary Emphasis Areas

### ■ Data Driven

- Reducing the Frequency and Severity of Roadway Departure Crashes
- Curbing Aggressive Driving
- Increasing Seatbelt Usage
- Reducing Impaired Driving
- Improving the Design and Operation of Highway Intersections
- Making Walking and Street Crossing Safer
- Improving Motorcycle Safety and Increasing Motorcycle Awareness

## ◆ Secondary Emphasis Areas

### ■ Data Driven

- Sustaining Proficiency in Older Drivers
- Making Heavy Vehicle Travel Safer
- Designing Safer Work Zones

### ■ Non-Data Driven

- Improving Traffic Records



# Data Summary (2007 – 2008)

PRIMARY EMPHASIS AREA	NATIONAL PERCENTAGE	DELAWARE PERCENTAGE
1 - Reducing the Frequency and Severity of Roadway Departure Crashes	53%	47%
2 - Curbing Aggressive Driving	53%	55%
3 - Increasing Seatbelt Usage	50%	40%
4 - Reducing Impaired Driving	31%	37%
5 - Improving the Design and Operation of Highway Intersections	22%	25%
6 - Making Walking and Street Crossing Safer	12%	17%
7 - Improving Motorcycle Safety and Increasing Motorcycle Awareness	14%	15%
SECONDARY EMPHASIS AREA	NATIONAL PERCENTAGE	DELAWARE PERCENTAGE
1 - Sustaining Proficiency in Older Drivers	15%	12%
2 - Making Heavy Vehicle Travel Safer	12%	7%
3 - Designing Safer Work Zones	2%	2%
4 - Improving Traffic Records	N/A	N/A



Delaware percentage is greater than national percentage



# Performance-Based Goals for Each Primary Emphasis Area

- ◆ Intermediate (i.e., 2012, 2015, and 2018) performance-based goals for each primary emphasis area have been established
- ◆ Goals are based on the overall goal and vision statement, which equates to a 5% reduction in fatal crashes (fatalities) every 3 years
- ◆ Performance-based goals can be used to evaluate progress within each emphasis area during the 2013, 2016, and 2019 plan updates



# 2012, 2015, and 2018 Primary Emphasis Area Goals

EMPHASIS AREA	NUMBER OF FATAL CRASHES (FATALITIES)			
	2009	2012 GOAL	2015 GOAL	2018 GOAL
1 - Reducing the Frequency and Severity of Roadway Departure Crashes	50	48	45	43
2 - Curbing Aggressive Driving	40	38	36	34
3 - Increasing Seat Belt Usage	41 (fatalities)	39 (fatalities)	37 (fatalities)	35 (fatalities)
4 - Reducing Impaired Driving	28	27	25	24
5 - Improving the Design and Operation of Highway Intersections	18	17	16	15
6 - Making Walking and Street Crossing Safer	14	13	12	11
7 - Improving Motorcycle Safety	13	12	11	10

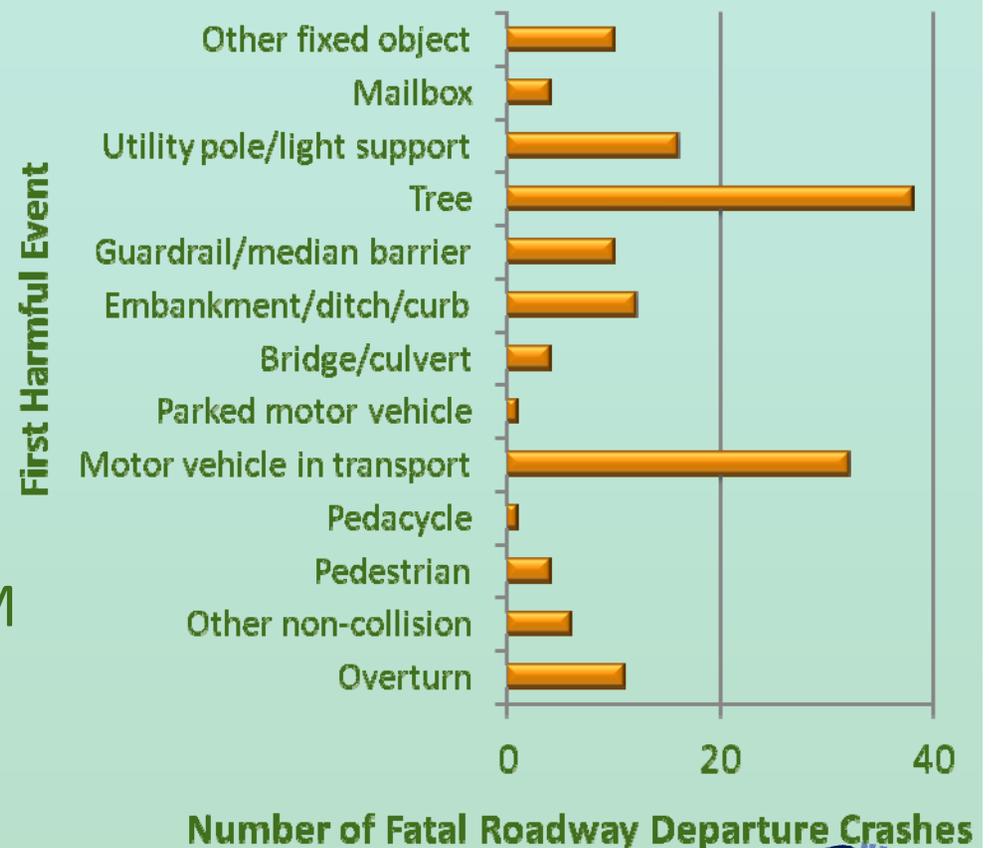
*Note: Intermediate goals are based on an overall goal of reducing the total number of fatalities from 118 in 2009 to 102 in 2018 (i.e., a 5% reduction every three years)*



# Primary Emphasis Area 1: Reducing the Frequency and Severity of Roadway Departure Crashes

## ◆ Characteristics of fatal roadway departure crashes:

- Driving under the influence
- Unrestrained motorists
- Speeding
- Rural, collector roadways
- Males, 15 to 24 years old
- Weekends, Midnight to 3 AM
- Trees



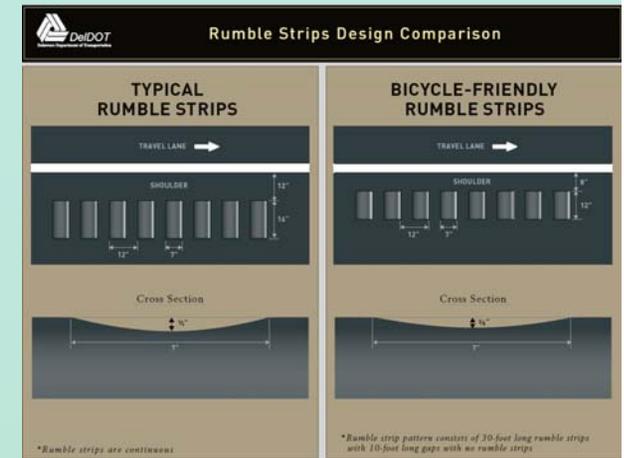
# Primary Emphasis Area 1: Reducing the Frequency and Severity of Roadway Departure Crashes

## ◆ System and policy initiatives

- Currently updating the DGM for installing rumble strips
- Developed a DGM for safety edge and have begun installation of safety edge on projects
- Updating and training on the *Delaware MUTCD*

## ◆ Target location improvements

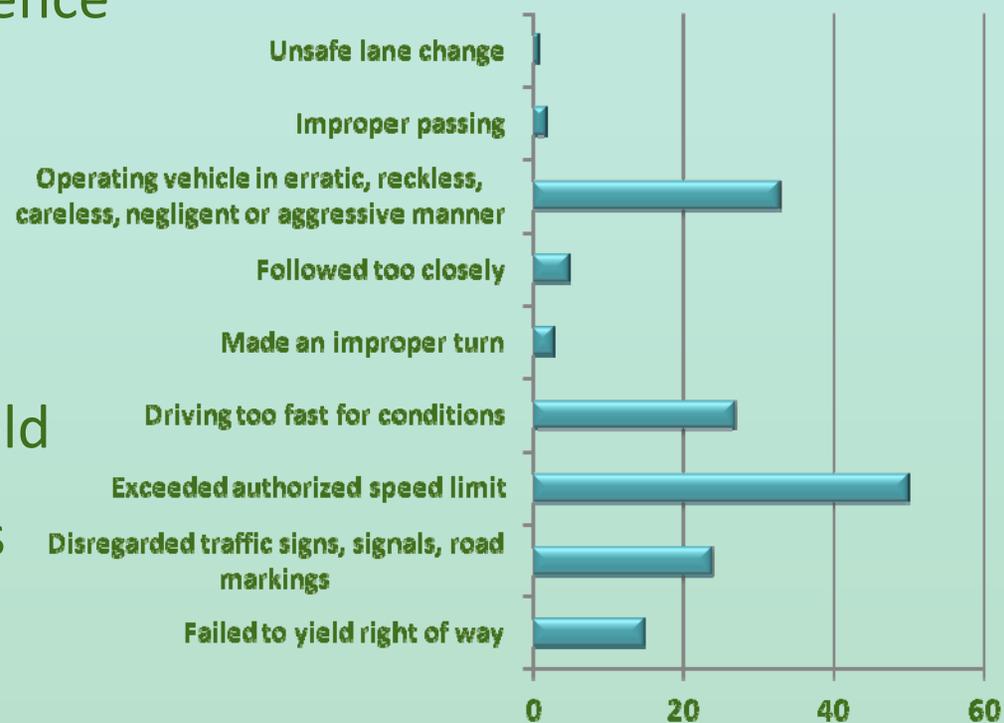
- Implementing HSIP site-specific improvements
  - Installing delineators, RPMs, and other signing, striping and traffic control device improvements
  - Providing skid-resistant or grooved pavement surfaces
- Installed rumble strips
  - SR 1 from US 113 to Christiana Mall
  - US 301
  - SR 1 between Dewey Beach and Fenwick Island
  - I-495 in the vicinity of the US 13 (Claymont) interchange
- Installed barrier
  - High tension cable barrier installed along SR 1 from SR 299 to north of SR 896
  - Installed W-beam within the median of SR 1 from north of SR 273 to Tybouts



# Primary Emphasis Area 2: Curbing Aggressive Driving

## ◆ Characteristics of fatal aggressive driving crashes:

- Driving under the influence
- Speeding
- Roadway departures
- Rural roadways
- Males, 15 to 24 years old
- Unrestrained motorists



Number of Aggressive-Driving Related Driver Contributing Circumstances



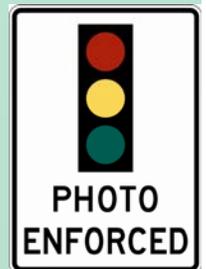
# Primary Emphasis Area 2: Curbing Aggressive Driving

## ◆ Education and Enforcement

- Running annual “Stop Aggressive Driving” and “120 Days of Summer HEAT” campaigns
- “Driver Personality Survey” created
- Electronic Red Light Safety Program (ERLSP) continues to monitor red light violations
- DeIDOT ran a campaign to emphasize the dangers of speeding in residential areas

## ◆ Engineering

- System and policy initiatives
  - Updating and training on the *Delaware MUTCD*
  - MAP trucks are providing monitoring and assistance
  - Utilizing real-time detection and video and aerial traffic monitoring to provide traffic updates and travel time messages via WTMC 1380 AM, dynamic message signs, and FTTA and improve incident management
  - Considering “511” implementation
- Target location improvements
  - Traffic control device improvements are being implemented through the HSIP
  - Coordinating traffic signals, providing traffic responsive signals, and adding signals to ACTRA



# Primary Emphasis Area 3: Increasing Seat Belt Usage

## ◆ Characteristics of unrestrained fatalities :

- Collectors and local roadways
- Rural roadways
- Males, 15 to 24 years old
- Roadway departures
- Midnight to 3 AM
- Impaired and/or aggressive drivers



# Primary Emphasis Area 3: Increasing Seat Belt Usage

## ◆ Education and Enforcement

- Running annual “Click It or Ticket” and “120 Days of Summer HEAT” campaigns
- Completed a statewide enforcement and awareness mobilization program in 2009
- SmartDrive program is implementing a phase aimed towards teens



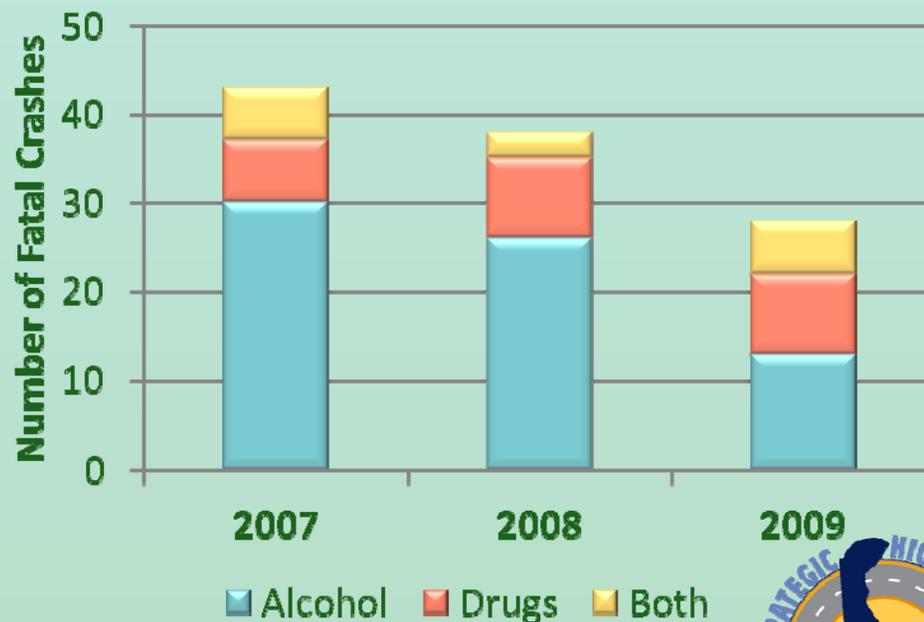
Source: Delaware OHS FY 2011 Highway Safety Plan



# Primary Emphasis Area 4: Reducing Impaired Driving

## ◆ Characteristics of fatal impaired driving crashes:

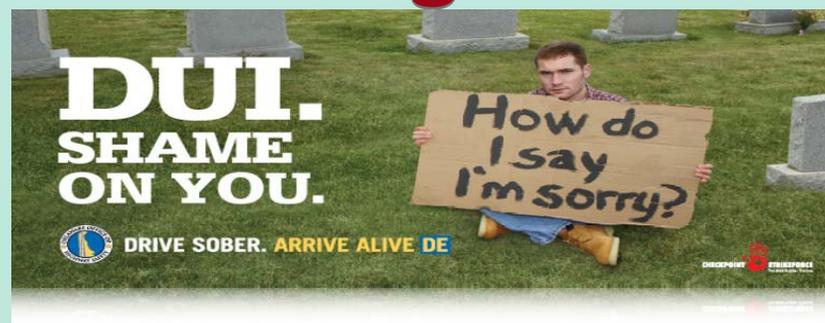
- Rural roadways
- Collector and local roadways
- Saturdays, Midnight to 3 AM
- Males, 15 to 34 years old
- Roadway departures
- Aggressive driving
- Unrestrained motorists



# Primary Emphasis Area 4: Reducing Impaired Driving

## ◆ Education and Enforcement

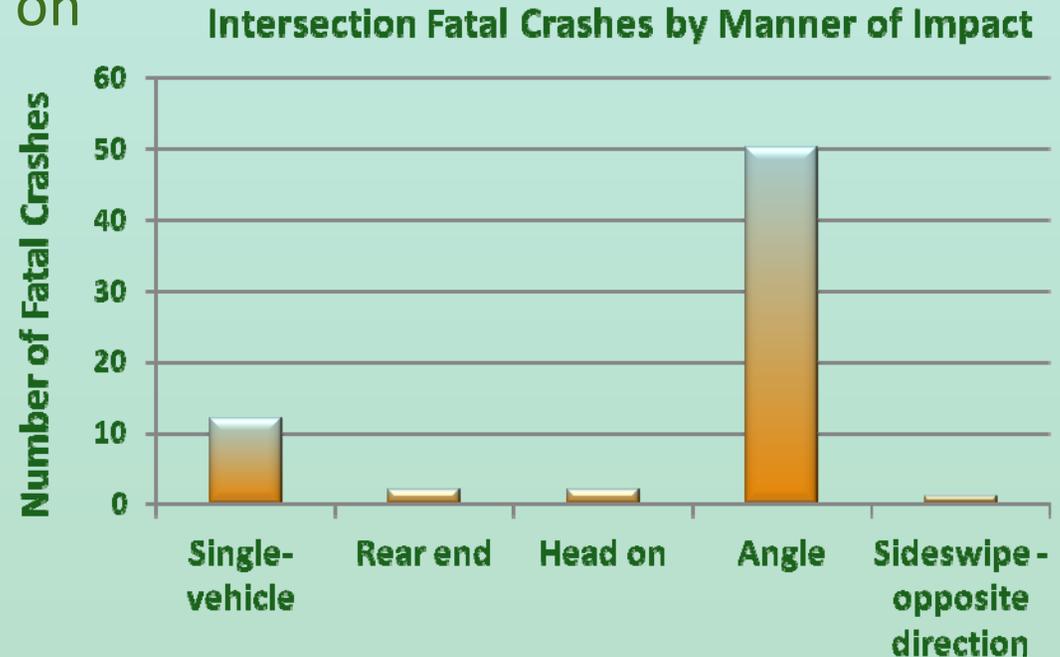
- In 2009, HB 152 and SB 177 increased penalties for DUI offenses
- Running annual Checkpoint Strikeforce and “120 Days of Summer HEAT” campaigns
- Underage Drinking and Cops-in-Shops programs deter minors from drinking
- Hero designated driver campaign promotes the use of designated drivers
- The DUI tracking system provides real-time data post-arrest
- Delaware’s First Offense Election program requires ignition interlock
- DUI offenders must be evaluated through DERP
- Delaware’s Drug Recognition Expert program was initiated in 2005
- Role of Traffic Safety Resource Prosecutor was assumed in FY 2008



# Primary Emphasis Area 5: Improving the Design and Operation of Highway Intersections

## ◆ Characteristics of fatal intersection crashes:

- Principal arterial roadways
- 33% of crashes occurred on dark, unlit roadways
- Aggressive driving
- Angle crashes



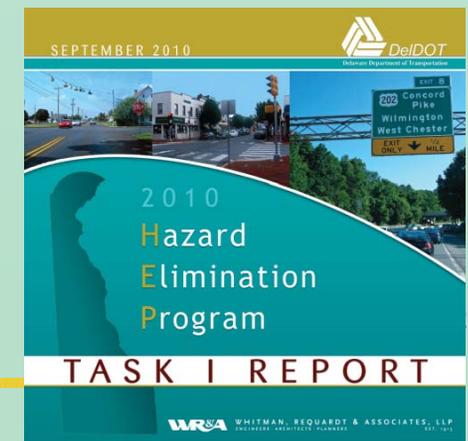
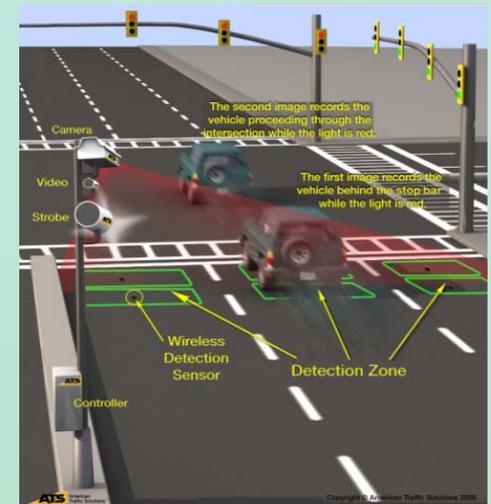
# Primary Emphasis Area 5: Improving the Design and Operation of Highway Intersections

## ◆ Education and Enforcement

- Outreach brochures, fliers and emails to educate the public on pedestrian count-down signals, HAWK signals and roundabouts
- ERLSP

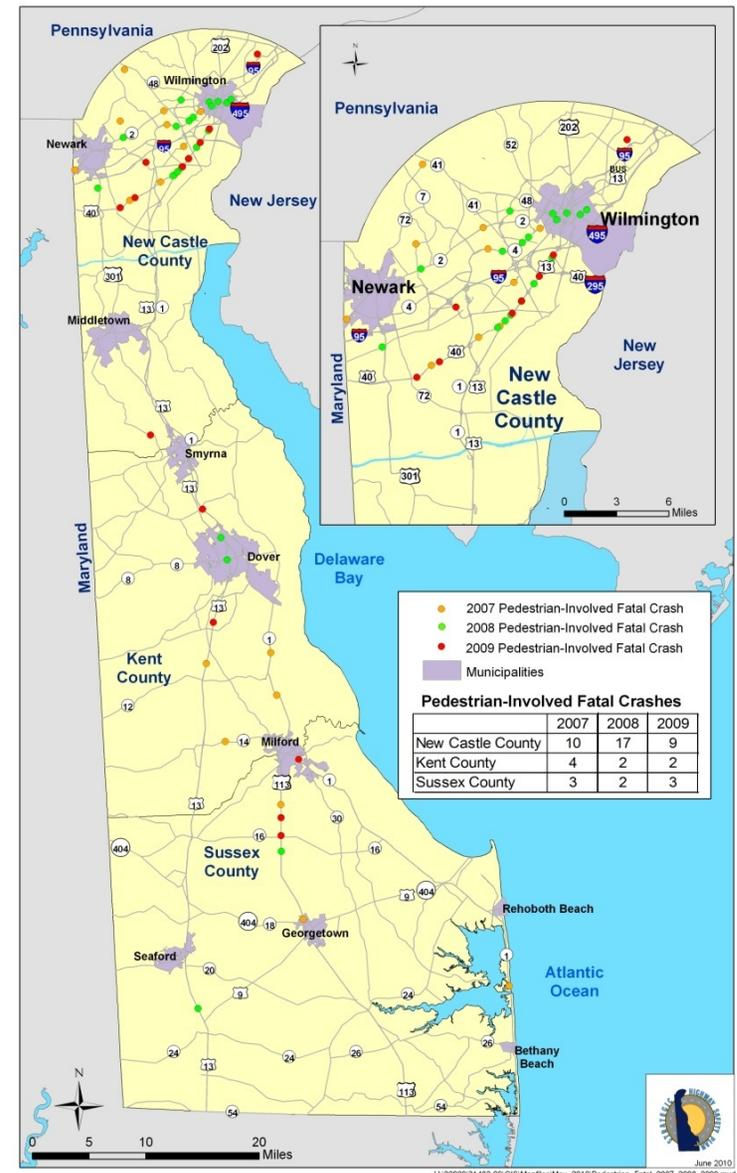
## ◆ Engineering

- HSIP site-specific improvements at high-crash locations
  - Hazard Elimination Program (HEP)
  - High Risk Rural Roads Program (HRRRP)
  - Transparency Report
- Traffic signal improvements (e.g., coordination, box spans, new guidelines for protected-only left-turn phasing, etc.)
- Reevaluation of lighting warrants
- Pedestrian and bicycle improvements
- Updating the *Delaware MUTCD*
- DeIDOT Flashing Red Arrow Study



# Primary Emphasis Area 6: Making Walking and Street Crossing Safer

- ◆ Characteristics of fatal pedestrian crashes:
  - Urban, principal arterial roadways
  - Males, 45 to 54 years old
  - Saturdays, 9 PM to midnight
  - US 40/US 13 corridors in New Castle County
  - Mid-block locations
  - Impaired pedestrians
  - Pedestrian is generally at-fault



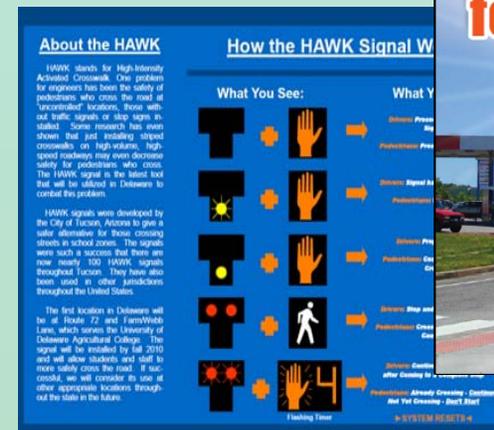
# Primary Emphasis Area 6: Making Walking and Street Crossing Safer

## ◆ Education and Enforcement

- Running annual Walk Smart campaigns
- Educational materials explain the proper use of pedestrian signals, crosswalks and HAWK signals
- Safe Routes to Schools program
- SB 269 for “vulnerable users”

## ◆ Engineering

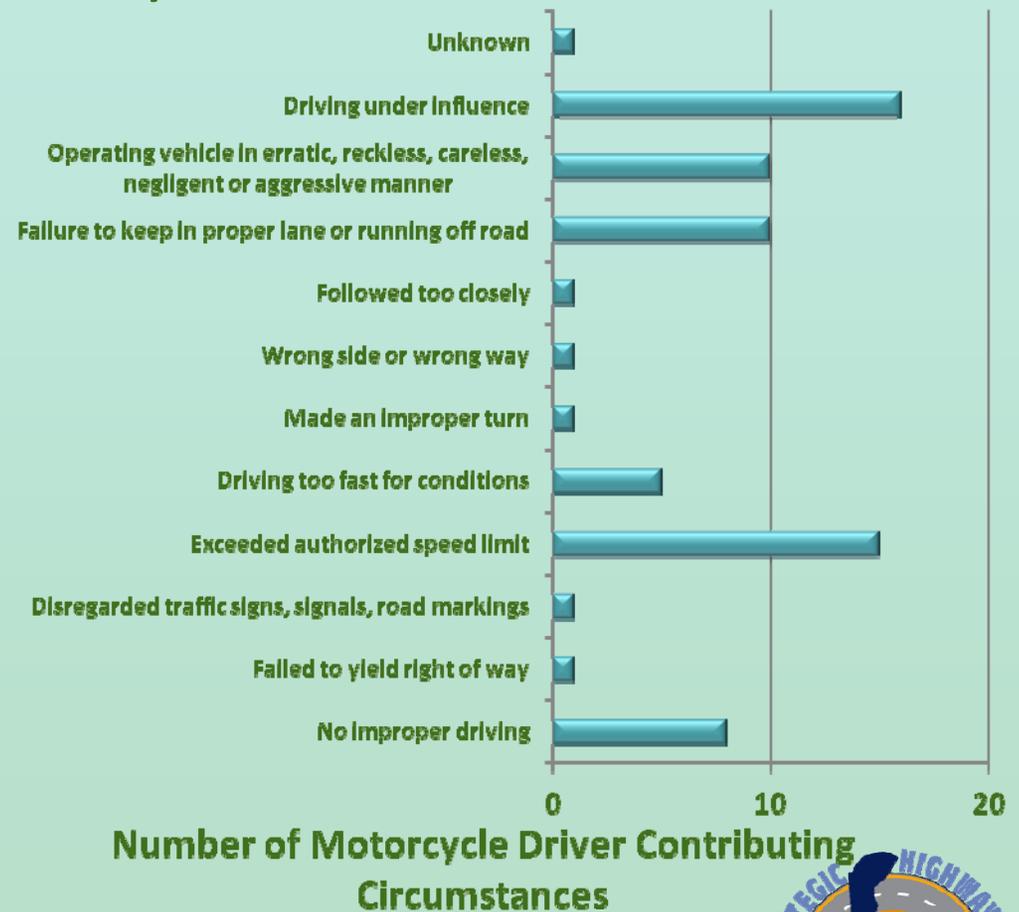
- System and policy initiatives
  - Count-down pedestrian signals
  - Complete Streets policy
  - Review of all unsignalized pedestrian crossings
  - Audible pedestrian signals
  - HAWK signals
- Target location improvements
  - Pedestrian improvements through HSIP projects
  - Numerous improvements along US 40, US 13, SR 273, and SR 4



# Primary Emphasis Area 7: Improving Motorcycle Safety and Increasing Motorcycle Awareness

## ◆ Characteristics of fatal motorcycle crashes:

- 3 PM to 6 PM
- Males, 35 to 54 years old
- Roadway departures
- Impaired driving
- Speeding
- Not wearing a helmet



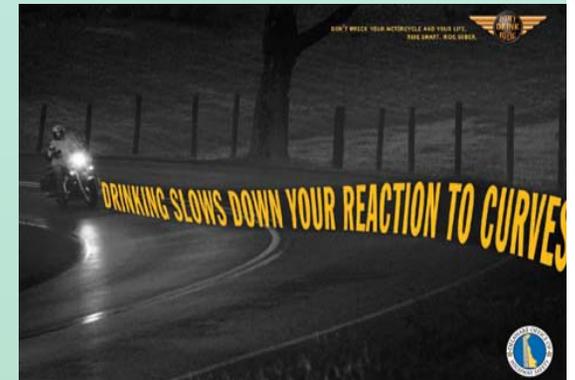
# Primary Emphasis Area 7: Improving Motorcycle Safety and Increasing Motorcycle Awareness

## ◆ Education and Enforcement

- 2009 *Ride Safe. Ride Smart* campaign launched in conjunction with May's Motorcycle Safety Awareness Month
- OHS formed a partnership with Delaware's Motorcycle Rider Education Advisory Committee
- Motorcycle training courses offered through the DMV
- SB 269 for "vulnerable users"

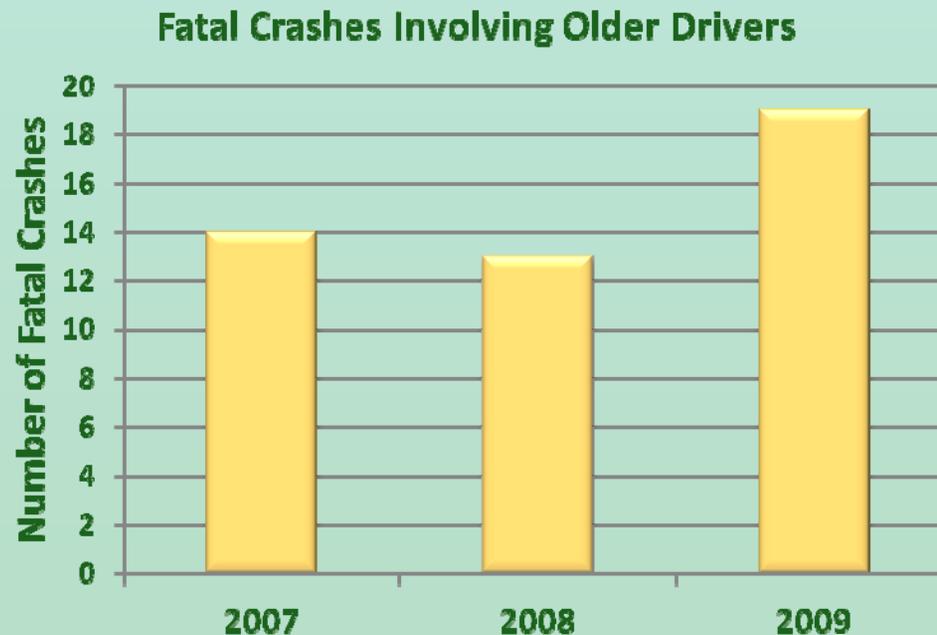
## ◆ Engineering

- System and policy initiatives
  - Developing a DGM for safety edge
  - Updating and training on the *Delaware MUTCD*
  - Recently developed motorcycle-friendly standards for vertical differences in work zones
- Target location improvements
  - HSIP site-specific improvements at high-crash locations
  - Constructing paved shoulders where feasible
  - Installing skid resistant overlays
  - Installing motorcycle hazard warning signs



# Secondary Emphasis Area 1: Sustaining Proficiency in Older Drivers

- ◆ Characteristics of older driver crashes:
  - Collector and local roadways
  - 12 PM to 3 PM
  - The older driver was not at-fault in approximately half the crashes



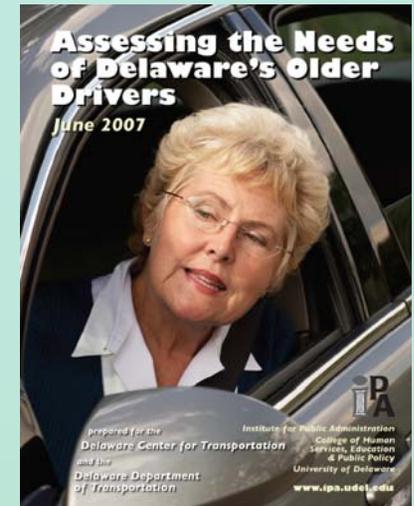
# Secondary Emphasis Area 1: Sustaining Proficiency in Older Drivers

## ◆ Education and Outreach

- Delaware's Older Driver Task Force was launched in 2010
- "Safe and Mobile Delaware" campaign educates older drivers
- Certified Driver Rehabilitation School
- DMV launched first "Senior Driver Day" in October 2010

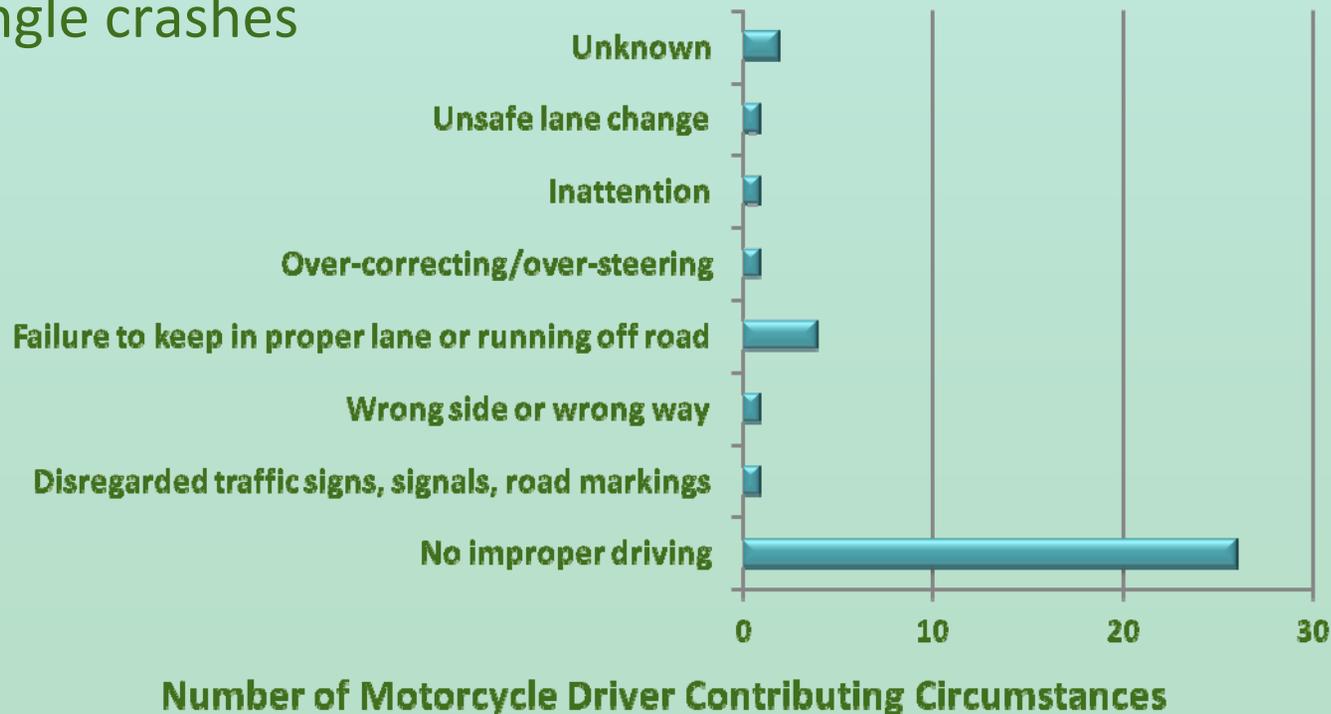
## ◆ Engineering

- Installing larger signs, overhead street name signs, and using Clearview font
- A striping management program is under development to ensure proper retroreflectivity
- Many intersection improvements are being implemented (as noted previously)
- Many updates to the *Delaware MUTCD* are specifically related to older driver research and recommendations



# Secondary Emphasis Area 2: Making Heavy Vehicle Travel Safer

- ◆ Characteristics of heavy vehicle fatal crashes:
  - Rural roadways
  - 12 PM to 3 PM and Midnight to 3 AM
  - Angle crashes
  - The driver of the heavy vehicle was not at-fault in 70% of crashes



# Secondary Emphasis Area 2: Making Heavy Vehicle Travel Safer

## ◆ Education and Outreach

- DSP's CVEU activities aimed at improving truck travel safety:
  - Vehicles in violation of inspections or authority are declared "out of service" until violations are corrected
  - Enforcement targeting aggressive truck drivers and those not wearing seat belts are performed along roadways identified as a high crash corridor for commercial vehicles
  - Education and outreach activities include motor carrier safety meetings and educating young drivers and others on "No Zones" (blind spots)
  - A second scale house was constructed on US 301 in June 2009
  - Additional inspectors have been trained in HazMat inspections
  - Continued improvements are being made to data collection, quality, and reporting

## ◆ Engineering

- Implementing HSIP site-specific improvements at high-crash locations (e.g., warning signs to indicate proper ramp speeds, rumble strips)
- Updating the *Delaware MUTCD*



# Secondary Emphasis Area 3: Designing Safer Work Zones

- ◆ Characteristics of work zone fatal crashes – 3 total crashes:
  - All occurred at nighttime
  - All occurred in 2008
  - Workers were not present
  - 2 crashes occurred on I-95; 1 crash occurred on SR 141
  - All involved alcohol



# Secondary Emphasis Area 3: Designing Safer Work Zones

- ◆ Education and Outreach
  - Work Zone Safety Awareness Week runs every April
  - Speed enforcement continues to be used during construction
  - Move Over law became effective in 2007
- ◆ Engineering
  - In response to FHWA's Final Rules, DeIDOT developed:
    - *Work Zone Safety and Mobility Procedures and Guidelines*
    - *Guidelines for the Use of Uniformed Law Enforcement Officers in Work Zones*
    - DGM for the use of temporary traffic barrier in work zones
  - Adopted ATTSA's *Quality Guidelines for Work Zone Traffic Control Devices*
  - Updating and training on the *Delaware MUTCD*
  - Real-time detection and traffic monitoring
  - WTMC 1380 AM traffic updates
  - Real-time travel time messages and advisories
  - New requirements for sheeting of channelizing devices
  - Evaluating new traffic control device technologies



WORK ZONE SAFETY AND MOBILITY

PROCEDURES AND  
GUIDELINES



September 10, 2007

# Secondary Emphasis Area 4: Improving Traffic Records

- ◆ Traffic Records Coordinating Committee (TRCC) Mission
  - Make information needed to effectively manage transportation safety available to the transportation safety community
- ◆ Traffic Records Coordinating Committee (TRCC) goals:
  - Facilitate the comprehensive collection, maintenance, and dissemination of traffic safety related data to set the direction for traffic safety improvement measures
  - Improve the timeliness, accuracy, completeness, uniformity, and accessibility of data that is needed to identify priorities for traffic safety programs
  - Strive to ensure that all Traffic Safety Information System projects funded by and under the direction of the TRCC, move forward on schedule and within budget. For projects outside of this scope, use the authority of the TRCC to ensure that these projects move forward in a timely manner, recognizing budgetary and staffing constraints.



# Secondary Emphasis Area 4: Improving Traffic Records

- ◆ E-Crash System
  - Implemented a new crash system contained within DelJIS's LEISS system
  - Replaces TraCS
  - Implemented new Incident Locator Tool
  - Currently developing a QA/QC program to improve accuracy
- ◆ CARS (Crash Analysis Reporting System)
  - Under development to replace the current crash system (SDM) and allow for spatial mapping and querying of crash data
- ◆ CHAMPS (Criminal and Highway Analysis Mapping for Public Safety)
  - GIS-based mapping tool
  - Available to all police agencies, DelDOT, and OHS
- ◆ E-Ticket System
  - Electronic citation tool in used by all law enforcement agencies statewide



# Implementation

- ◆ The goals and strategies included in the plan should be incorporated into other safety programs and initiatives, when possible
- ◆ Programs and projects should be prioritized based on their consistency with the *SHSP*
- ◆ Development of Implementation Teams is underway
  - Teams will meet quarterly or semi-annually to discuss implementation and evaluate and monitor safety initiatives and their effectiveness



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