Agenda

- Overview of DelDOT’s Safety Programs Section
  - Responsibilities and activities
- 2013 Accomplishments
- Crash data overview
- Overview of DelDOT’s Highway Safety Improvement Program
  - Changes to address MAP-21
- New safety initiatives
DelDOT’s Safety Programs Section

- Management of statewide highway safety programs
- Programs required by FHWA
- Work in collaboration with:
  - Delaware State Police
  - Delaware Office of Highway Safety
  - Delaware Office of Emergency Medical Services
  - Federal Highway Administration
  - National Highway Traffic Safety Services Administration
DelDOT’s Safety Programs Section

- Other responsibilities
  - Work Zone Safety & Mobility Program
    - Review of highway work zones statewide
      - Field and plan reviews of TTC layouts
    - Work Zone crash investigation
    - Development of Transportation Management Plans for significant projects
    - Identifying lane closure restriction timeframes
  - Planned Special Events
    - Permit approvals
    - Development and review of event TTC plans
    - Provide TTC for events, if requested and reimbursed by organizer
DelDOT’s Safety Programs Section

- **Other responsibilities**
  - Manual on Uniform Traffic Control Devices
    - Development of State specific manual
    - Provide official interpretations and interim guidance
    - Maintain Delaware MUTCD webpage
  - Oversize/Overweight Vehicle Permitting
    - Review routes for size restrictions/limitations for proposed moves
    - Provide special provision requirements
      - Time of move
      - Use of police escorts
      - Special move requirements
    - Mainly focus on superloads
    - Traffic control assistance
DelDOT’s Safety Programs Section

- **Other responsibilities**
  - Crash investigations
    - Fatal crash reviews
      - Staff on scene with State Police reconstruction unit
    - Investigation focuses on roadway elements
      - Signing and pavement markings
      - Sight distance
      - Pavement drop-offs
      - Clear zone/fixed objects
    - Results used to evaluate trends in crashes and address roadway deficiencies at locations with similar characteristics
  - Incident management
    - Work as part of Unified Command on major incidents
    - Emergency detour development and implementation
2013 Accomplishments

- I-495 High-Tension Cable Barrier
2013 Accomplishments

- US Route 113 @ Kruger Road/Alms House Road
  - Median closure
2013 Accomplishments

- First section of high-friction surface treatment installed
  - Pyle Center Road
2013 Accomplishments

- Developed roundabout educational video
- Approved 417 planned special event permits
- Reviewed and approved over 50 oversize/overweight load permits
- Managed to completion, the re-write of traffic signal/lighting specifications in support of Department wide effort
- Significant overhaul of Department’s Hauling Permits Manual
  - In conjunction with DMV Hauling Permits Office
- Instituted quarterly coordination meetings with Delaware State Police and Office of Highway Safety
Crash Data Overview

- **2013** – 100 fatalities
  - Lowest since 1963
- **Decrease from 2012**
  - 116 fatalities
- **Performance Goal**
  - Achieve a fatality rate of 1.0 crash/100 MVMT by 2018
  - Currently on pace to meet this target

The Delaware Strategic Highway Safety Plan "Toward Zero Deaths" aims to eliminate fatalities on Delaware roadways through a multi-agency approach that utilizes education, enforcement, engineering, and emergency services strategies. The goal is to achieve a fatality rate of 1.0 per 100 million vehicle-miles traveled by 2018. The current downward trend in fatality rates in Delaware indicates the fatality rate will reach 1.0 by 2018 if Delaware continues to make significant progress in reducing traffic fatalities. See the Delaware Strategic Highway Safety Plan.
Crash Data Overview

Delaware Fatality Trends
2003 - 2013

Fatality Rate (Crashes/100 MVMT)

Number of Fatalities


Fatalities

SHSP Goal

Fatality Rate

Current Fatality Trend

Current Fatality Rate Trend
Delaware Fatality Trends
1929 - 2013

1963 – the last year that our fatalities were at or below 100
Crash Data Overview

- The following preliminary trends were identifiable in 2013:
  - Thirty-four percent of the fatal crashes involved a roadway departure
    - Down from 39% the previous year
  - Four less pedestrian fatalities in 2013 than in 2012.
    - Twenty-six percent of the fatal crashes involved a pedestrian.
  - Two bicycle related fatalities compared to four in 2012.
  - First harmful events:
    - Striking a tree – 10%
    - Striking a utility pole – 5%
  - Of the 51 vehicle occupants killed in crashes in 2012, 24 of those people were unbelted.
  - Motorcycle fatalities increased by 3 in 2013.
    - Up from 17 the year before.
  - 18 intersection related fatal crashes in 2013.
Crash Data Overview

Fatal Crashes by Manner of Impact:
- Pedestrian: 24%
- Rear-End: 10%
- Angle: 11%
- Median Crossover: 6%
- Head-On: 39%
- Other: 3%

Fatal Crashes by Weather Condition:
- Clear: 68%
- Cloudy: 24%
- Fog: 1%
- Rain: 5%
- Sleet, Hail: 1%
- Snow: 1%
- Pending: 2%
- Unknown: 6%

Fatal Crashes by Alcohol Involvement:
- Yes: 40%
- No: 52%
DelDOT’s HSIP

- Traditionally hot-spot safety program
  - Address safety problems as they are identified by data review
  - Hazard Elimination Program (HEP)
- Moving towards a mixture of systemic and hot-spot treatments
  - Systemic improvements based on SHSP data review
  - Hot-spot improvements based on traditional HEP
- Changes to program structure based on MAP-21
  - SHSP is the basis of the entire program
  - No HRRRP or Transparency Report
  - Incorporating performance measures
DelDOT’s HSIP

- Current program structure (prior to MAP-21)
  - Mainly a hot spot improvement program

Diagram:
- Highway Safety Improvement Program (HSIP)
  - Strategic Highway Safety Plan (SHSP)
    - Hazard Elimination Program (HEP)
    - High Risk Rural Roads Program (HRRRP)
    - Transparency Report
    - Highway-Rail Grade Crossing Safety Program (HRGXi)
DelDOT’s HSIP

- New program structure (changes based on MAP-21)
  - Incorporating a systemic program

- Delaware Strategic Highway Safety Program
- Highway-Rail Grade Crossing Safety Program
- Automated Enforcement
- Crash Data Monitoring & Analysis
DelDOT’s HSIP

- Delaware Strategic Highway Safety Program
  - Roadway Departure Safety Program
  - Intersection Safety Improvement Program
  - Pedestrian Safety Improvement Program
  - Older Driver Safety Program
  - Work Zone Safety & Mobility Program
**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 services 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.
**Strategic Highway Safety Plan**

- **SHSP Initiatives**
  - High-Tension Cable Barrier
    - Successfully implemented two runs of cable barrier
    - Looking at additional locations on I-95 for future installation
  - Rumble Strip Installation
    - Expanding installation to rural collectors and locals
      - Based on SHSP data review
    - Open-end project awarded
  - High Friction Surface Treatment
    - Recently implemented test location in Sussex County
    - Open-end contract under development
  - Pedestrian/Bicycle Safety Working Group
    - Address continued increase in vulnerable users crashes
    - Identify corridors for pedestrian safety audits
    - Develop countermeasures for addressing pedestrian crashes
Systemic Improvements

- System Safety Improvement Program is currently under development
- Change in how we think about safety improvements
  - Identify problems based on system-wide data
    - Use SHSP to identify problem areas
    - Examples:
      - Road departure crashes
      - Pedestrian crashes
      - Wet weather related crashes
  - These types of crashes are spread across the road network, not clustered at specific locations
  - Look at roadway characteristics that are frequently present in severe crashes
    - Geometry
    - Traffic volume
    - Location
Systemic Improvements

- Focus on deploying one or more low-cost countermeasures to address specific types of crashes on specific types of roadways
  - Example improvements
    - Longitudinal rumble strips
    - Median barrier
    - Horizontal curve signage
- Program development/Next steps
  - Developed a draft process memorandum
    - Currently being finalized
  - Identify roadway types and crash types to be addressed
    - Road departures on locals and collectors
  - Identify low-cost safety improvements
    - Longitudinal rumble strips
    - High-friction surface treatment
  - Implement, implement, implement
Working Groups

- Inter-agency working groups, led by DelDOT to address high crash emphasis areas
  - Pedestrian/bicycle safety working group developed in 2013
  - Members include
    - DelDOT – Traffic and planning staff
    - Delaware State Police
    - Office of Highway Safety
    - City of Newark
    - City of Wilmington
    - WILMAPCO
    - Dover/Kent MPO
    - University of Delaware
    - Division of Alcohol & Tobacco Enforcement
    - Beebe Medical Center Trauma Group
    - Bike Delaware
  - Review crash data and develop ideas to improve pedestrian and bicycle safety
  - Pedestrian safety audits
    - SR 2 from St. James Church Road to SR 141
    - US 13 from SR 273 to Wilmington
DelDOT’s HSIP

Highway-Rail Grade Crossing Safety Program

Network Screening & Analysis

Implementation
HRGX Examples

- **SR 4 Rail Crossing**
  - Gates added to rail crossing
  - Implemented rail pre-emption
  - Queue detection

- **SR 100 Rail Crossing**
  - Gates added to rail crossing
  - Implemented rail pre-emption

- **West Main Street (Newark)**
  - Added gates to the crossing
  - Advance warning flashers
  - Pavement marking improvements
Crash Analysis Reporting System

Crash Occurs
• DSP or local police agency responds to collect data.
• Drivers, passengers and witnesses are interviewed

Report Approval
• Higher ranking officers within each troop review all crash reports for clarity and accuracy
• Reports are approved and then included in the database

Transfer of Data
• On a nightly basis, crash data is electronically transferred from DelJIS to DelDOT and stored in DelDOT’s crash database
• Database populates information into CARS for study purposes

Crash Data Review
• DelDOT staff utilizes database to review crash data
• Crash data can be viewed in the mapping program or specialized queries can be developed, depending upon need
Crash Analysis Reporting System
Crash Analysis Reporting System
Crash Analysis Reporting System
Crash Analysis Reporting System

• Current status
  o Programming for basic operation is completed and in production
    ▪ Intersection and road buffers
    ▪ Standardized queries
    ▪ Advanced query builder
  o Programming for HEP and other Safety Programs functions completed and in production
    ▪ HEP, crash rate generation
    ▪ Custom critical crash ratio tool (systemic analysis tool)
  o Next steps
    ▪ Upgrade platform for Arc GIS 10.1
    ▪ Incorporate road inventory parameters into query functions
Safety Programs Website

Delaware Strategic Highway Safety Plan

Overview
The Delaware Strategic Highway Safety Plan is a statewide coordinated safety plan that provides a comprehensive framework to reduce fatalities on Delaware’s roadways by identifying specific goals and objectives and integrating the four E’s: engineering, education, enforcement, and emergency medical services (EMS). The plan was developed in collaboration with representatives from DelDOT, Delaware Office of Highway Safety, Delaware State Police, Delaware Department of Justice, Delaware Office of Emergency Medical Services, Federal Highway Administration and the National Highway Traffic Safety Administration. The plan is updated on a three-year basis to review the success of the plan and to review crash data to ensure resources are being used appropriately to reduce the number of fatalities in Delaware. See the plan.

Primary Areas of Emphasis
- Reducing the frequency and severity of roadway departure crashes
- Clamping aggressive driving
- Increasing seatbelt usage
- Reducing impaired driving
- Improving the design and operation of highway intersections
- Making walking and street crossing safer
- Increasing motorcycle safety and increasing motorcycle awareness

Rumble Strips Reduce Highway Departure Crashes
A roadway departure crash is a non-intersection crash which occurs after a vehicle crosses an edge line, a center line or otherwise leaves the traveled way... read more

www.safety.delDOT.gov
Thank you!

Questions???

Contact Info:
Adam Weiser, P.E., PTOE
Safety Programs Manager
Delaware Department of Transportation
169 Brick Store Landing Road
Smyrna, DE 19977
P: (302) 659-4073
E: Adam.Weiser@state.de.us