

# DELAWARE HIGHWAY SAFETY SUMMIT

## Safer People Workers and Work Zones

Presented by:  
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# OUR MISSION – EXCELLENCE IN TRANSPORTATION

## ■ Every Trip

- We strive to make every trip taken in Delaware safe, reliable and convenient for people and commerce.

## ■ Every Mode

- We provide safe choices for travelers in Delaware to access roads, rails, buses, airways, waterways, bike trails, and walking paths.

## ■ Every Dollar

- We seek the best value for every dollar spent for the benefit of all.

## ■ Everyone

- We engage our customers and employees with respect and courtesy as we deliver our services.

September 10, 2019



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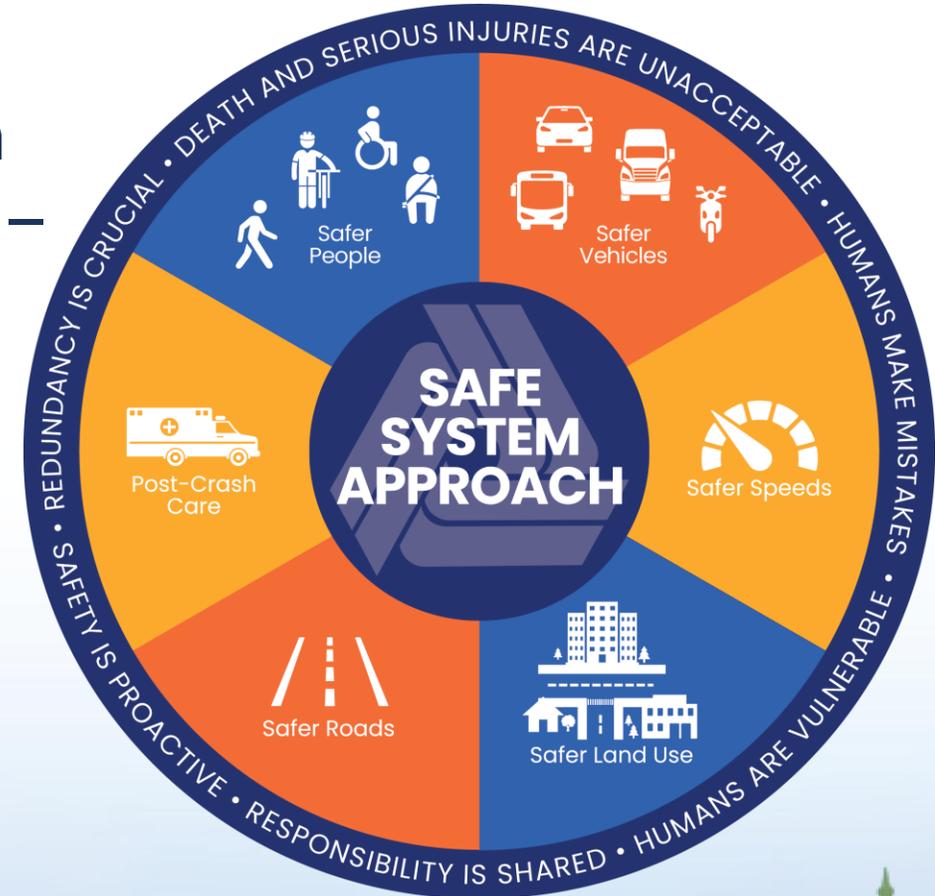
# Delaware Traffic Fatalities

2025 Delaware Total Fatalities									
as of 09/24/25									
	2025	2024			2023				
	Year-to-date	Year-to-Date		Total	Year-to-Date			Total	
Fatalities	81	96	↓	-16%	130	107	↓	-24%	137
Delaware Residents	60	80	↓	-25%	110	85	↓	-29%	110
Person Types									
Vehicle Occupant	41	49	↓	-16%	65	74	↓	-45%	89
Pedestrian	20	20		0%	34	16	↑	+25%	28
Bicyclist	3	3		0%	5	3		0%	5
Motorcyclist	16	19	↓	-16%	21	13	↑	+23%	14
Other Person Type	1	5	↓	-80%	5	1		0%	1
Crash Types									
Curve Related	11	17	↓	-35%	23	25	↓	-56%	28
Roadway Departure	36	33	↑	+9%	42	58	↓	-38%	69
Intersection Related	26	39	↓	-33%	48	27	↓	-4%	37
Median Crossover	1	0	↑	+100%	0	8	↓	-87%	8
Wrong Way	3	3		0%	4	1	↑	+200%	1
Work Zone	4	5	↓	-20%	5	8	↓	-50%	9



# Safe System Approach

- The transportation profession is moving from a **reactive** to a **proactive** approach to safety – the **Safe System Approach**
- Principles around the circle
- Objectives in the center
- Goal is to improve safety for all road users, regardless of age, ability, or how they are traveling



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# Presentation Outline

## Safer People – approaching the work zone

- Proper work zone setup
- Work zone ingress/egress
- Redundancy to prevent work zone incidents
- Positive protection, escape routes, buffer lanes

## Safer people – within the work zone

- High-visibility safety apparel
- Additional Personal Protective Devices
- Movement of equipment within the work zone
- Safe excavations

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# Keeping road users and workers safe: Approaching the work zone

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# Temporary Traffic Control Setups

## Advance warning and transition areas: road user perspective

- **Advance warning** areas alert **road users** to road conditions ahead
- **Transition areas** move **road users** out of the current path and into a temporary path
  - Lane closure
  - Lane shift
  - Road closure



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# Temporary Traffic Control Setups

## Advance warning and transition areas: Worker Perspective

- Proper installation and removal
  - Setup in direction of travel
  - Removal is typically done in reverse
  - Never cross live lanes of traffic
    - Setup one side, turn around and setup the other side of the road
  - Shadow vehicles with Truck Mounted Attenuator (TMA)



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# Work Zone Ingress and Egress

- **Goal** – keep road users out of the work zone and provide for safe areas for workers and work vehicles to enter and exit work zone
- Project specific needs
  - Advance warning of locations
  - Spotters
  - Acceleration and deceleration areas



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# Redundancy

- Crucial for Safe System Approach
- Work zones
  - Static warning signs
  - Directional arrow under Arrow Board
  - Changeable message signs
  - Speed
  - Active work zone vehicles
  - Pavement markings



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# Keeping Road Users out of the Work Zone

- **Buffer lanes**
  - Allows for road user error
- **Escape Routes**
  - Always have an escape route for your workers
- **Positive protection**
  - Temporary barriers
  - Truck Mounted Attenuators (TMA)



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# Within the work zone

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# High Visibility Safety Apparel

## Class 1 Vest – Do Not Wear

- Vest provides smaller amounts of material to make workers stand out from their background, which makes them less visible.



Class 1

## Class 2 Vest – Required

- Provides more visibility than Class 1 vests because of the additional coverage of the chest and back.
- Helps protect workers exposed either to traffic or to construction equipment within the work area.
- Typical use on lower speed, lower volume, and secondary road environments.



Class 2

## Class 3 Vest – Recommended

- Allows workers to be easily seen through a full range of body motions at a minimum of 1/4 mile
- High-risk environments including high-speed roads, highly-congested areas, bad weather, and/or in complex work zones.



Class 3

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# Personal Protective Equipment

- Safer people – keeping workers safe
  - Hard hats
    - Advantages to Type II Safety Helmets
      - Protects from impact top and sides of the head
      - Distributes impact evenly around the head
      - Chin strap keeps helmet secured to the worker
      - Lowers likelihood of a traumatic brain injury



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# Personal Protective Equipment

- Safer people – keeping workers safe
  - Hand protection
    - Type is dictated on the type of job being performed
    - Always consider hand protection as part of a basic PPE kit for any work on the roads!

## TYPES OF PROTECTIVE WORK GLOVES



### Disposable Gloves

Disposable gloves, usually made of light-weight plastic, can help guard against mild irritants.



### Fabric Gloves

These gloves are made of cotton or fabric blends. They're generally used to improve grip when handling slippery objects. They also help insulate hands from mild heat or cold.



### Leather Gloves

These gloves are used to guard against injuries from sparks or scraping against rough surfaces. They are also used in combination with an insulated liner when working with electricity.



### Metal Mesh Gloves

These gloves are used to protect hands from accidental cuts and scratches. They are used most commonly by persons working with cutting tools or other sharp instruments.



### Aluminized Gloves

These gloves made of aluminized fabric are designed to insulate hands from intense heat. These gloves are most commonly used by persons working with molten materials.



### Chemical Resistance Gloves

Crafted from materials like rubber, neoprene, polyvinyl alcohol, or vinyl, shield hands from corrosives, oils, and solvents. When choosing gloves, follow the manufacturer's guidelines, especially for immersions in chemicals.

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# Personal Protective Equipment

- Safer people – keeping workers safe
  - Safety shoes
  - Eye Protection



**IMPORTANCE OF SAFETY SHOES**

The use of safety shoes protects workers on site from injuries. Other footwear like trainers or sports shoes cannot protect you from such injuries

**INJURIES INCLUDE**

- BROKEN TOES OR FEET
- SPRAINED ANKLE
- SHARP OBJECTS
- FALLS
- BURNS
- TRIPS
- SLIPS
- HIGH TEMPERATURE

**SAFETY SHOE**

- 1 Protects your feet while working in extreme hot and cold temperatures.
- 2 Thick rubber soles work boots protect from sharp objects or nails you might stand on while on site.

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# Moving Within the Work Zone

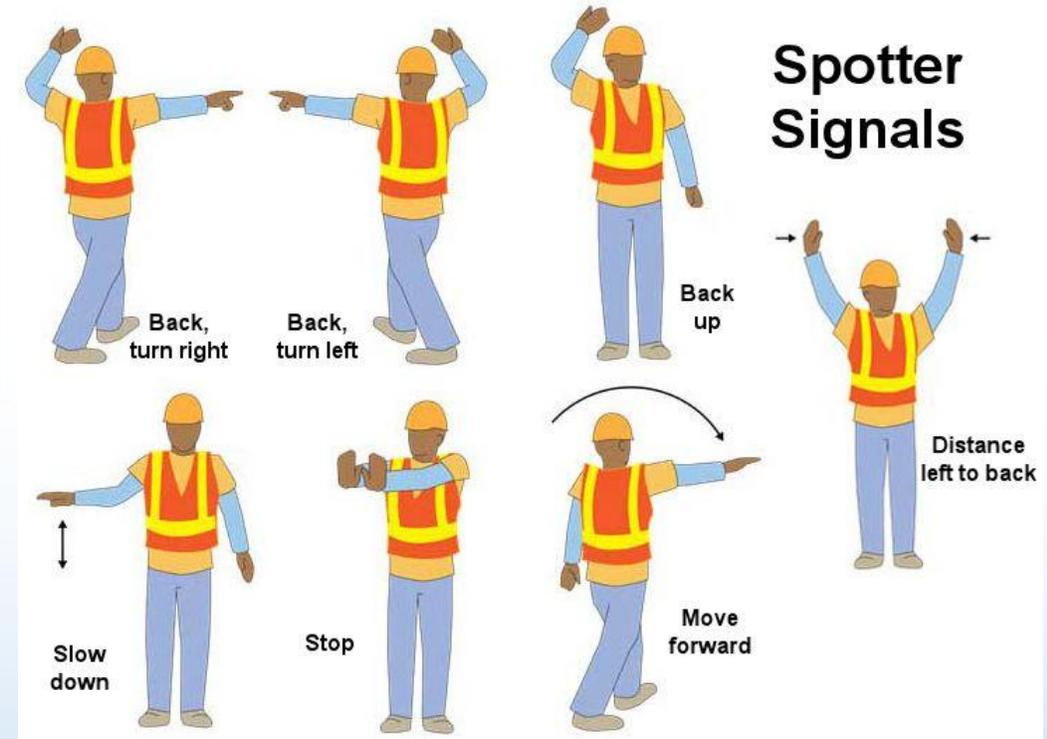
- Safe backing and use of spotters

## The Smith5Keys<sup>®</sup>

- **Look, Think and Plan Ahead**
- **Remain Aware of Blind Areas**
- **Check Front, Sides and Rear**
- **Back No Further than You Must**
- **Back Slowly and Seek Eye Contact**

To Safe Backing

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# Safe Excavations

- Call before you dig
  - Ensure markouts are present
  - Know the color of each mark out
  - Hand dig around locations that are marked, three feet on each side
  - Always excavate with caution!



<b>APWA UNIFORM COLOR CODE</b>	
<b>WHITE :</b>	Proposed Excavation
<b>PINK :</b>	Temporary Survey Markings
<b>RED :</b>	Electric Power Lines, Cables, Conduit and Lighting Cables
<b>YELLOW :</b>	Gas, Oil, Steam, Petroleum or Gaseous Materials
<b>ORANGE :</b>	Communication, Alarm or Signal Lines, Cables or Conduit
<b>BLUE:</b>	Potable Water
<b>PURPLE :</b>	Reclaimed Water, Irrigation and Slurry Lines
<b>GREEN:</b>	Sewer and Drain Lines

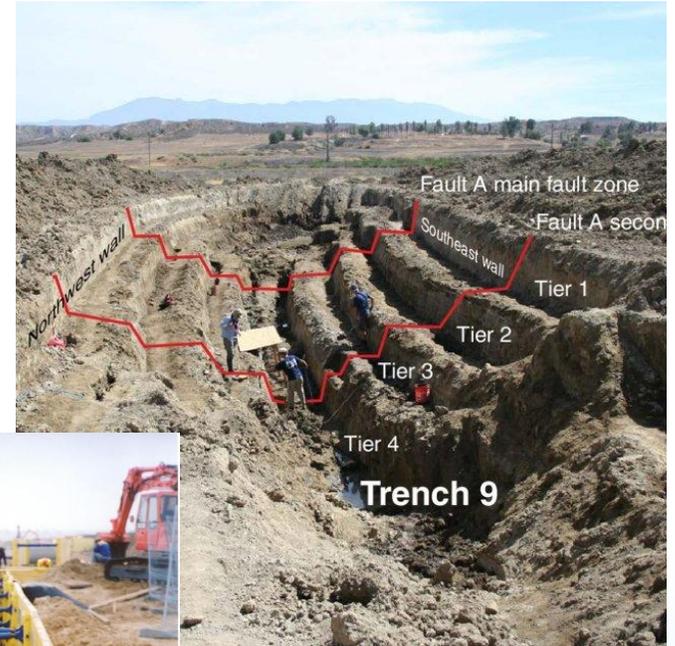
**KNOW  
THE COLOR CODE!**

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# Safe Excavations

- Protective measures
  - Sloping system
  - Benching system
  - Shield system



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# Safer People

- Overall goal – keep people safe
  - Includes road users approaching the work zone or traveling through the work zone
    - Motorists
    - Pedestrians, including those with disabilities
    - Bicyclists
  - Includes workers within the work zones
    - Highway workers
    - Inspection staff
    - Material deliveries



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# Questions?

## Thank you!

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