TDOT
Department of Transportation

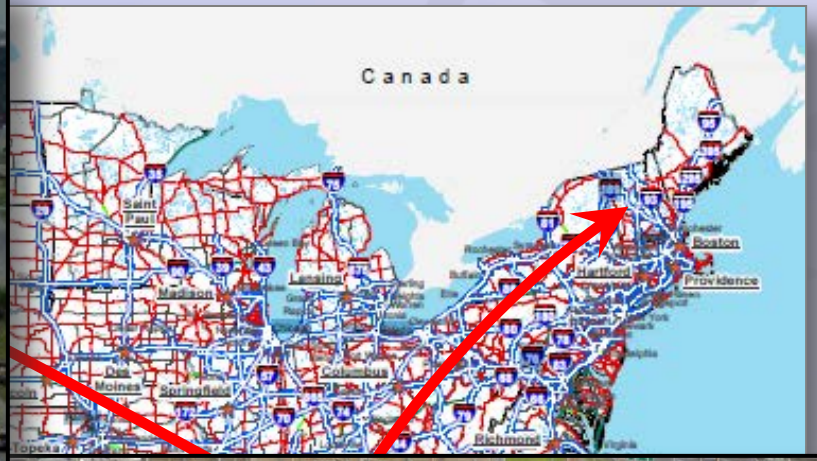
NOCoE Safety Service Patrol Idea-Sharing Network

SafeHighways.org

Region III HWY. RSP. SUPV. 1 John M. Sullivan

October 13, 2021

Common Concern



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2013

U.S. Department of Transportation
National Highway Traffic Safety Administration

TRAFFIC SAFETY FACTS
Research Note

NHTSA
www.nhtsa.gov

DOT HS 812 101 December 2014

2013 Motor Vehicle Crashes: Overview

5.5 MILLION Traffic Accidents Per Year!!

2013 – 2.3 MILLION Injured

2013 Roadway Fatalities

32,719

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2015

U.S. Department of Transportation
National Highway Traffic Safety Administration

TRAFFIC SAFETY FACTS
Research Note

NHTSA

DOT HS 812 318 August 2016

2015 Motor Vehicle Crashes: Overview

6.3 MILLION Traffic Accidents Per Year!!

5.5 MILLION - 2013

2015 – 2.44 MILLION Injured

2.3 MILLION - 2013

2015 Roadway Fatalities

35,092

32,719 - 2013

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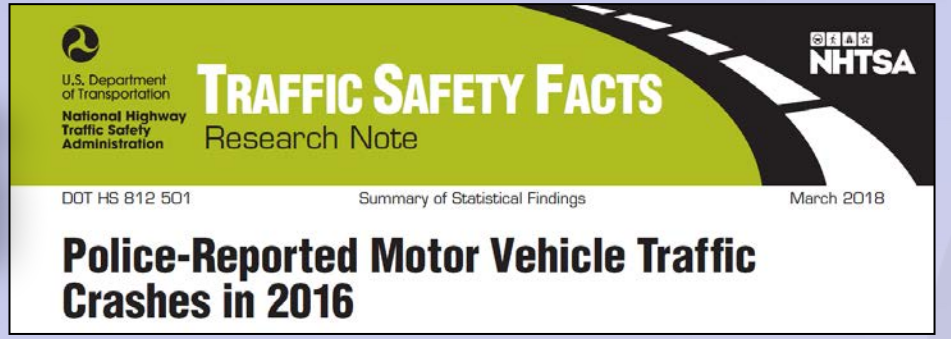
2016



7.3 MILLION Traffic Accidents Per Year!!

2016 – 2.18 MILLION Injured

2016 Roadway Fatalities

37,461

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2016


2013

32,719 - 2013

Fatalities Increased to 37,461 in 2016

Fatalities Increased 4,742

The largest percentage increase in nearly 50 years!

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1 Accident Every 540 Seconds

1 Accident With Injury Every 208 Seconds

1 Fatality Every 15 Minutes

In Just 45 Minutes...

3 Fatalities

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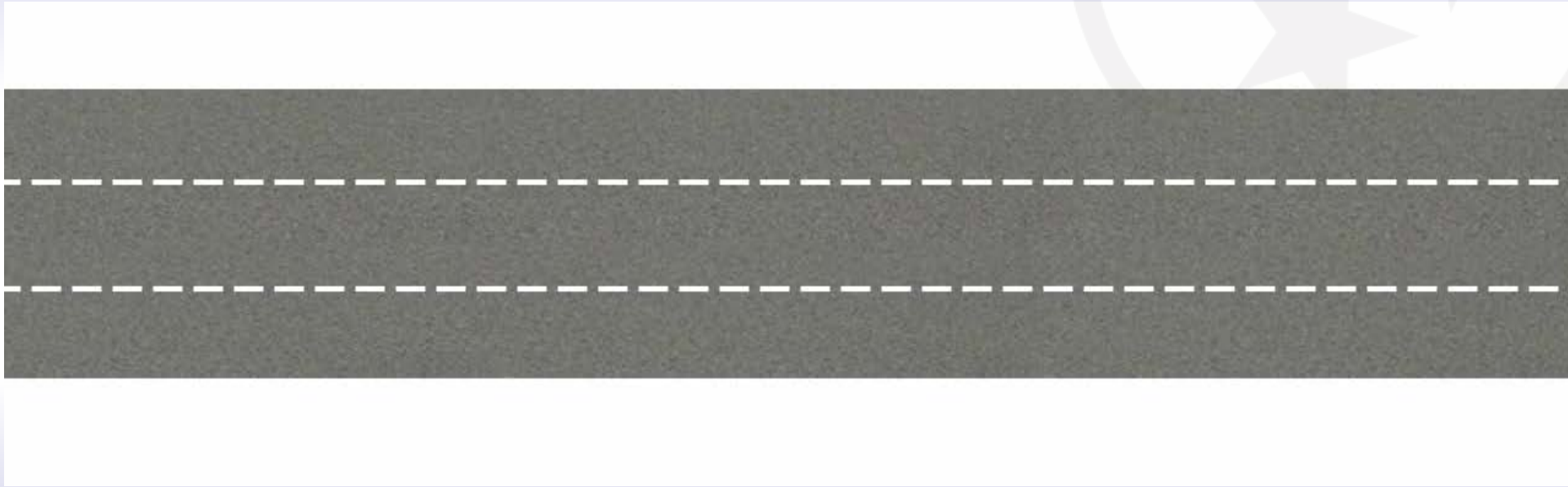
End of Queue Accidents

Consider an Incident on a Typical 3 – Lane Roadway…



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End of Queue Accidents

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End of Queue Accidents

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Yearly Music Festival in Manchester, TN

Population of Manchester – 10,261 (2010)

Population of Manchester during Bonnaroo: 110,784

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Bonnaroo

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Bonnaroo

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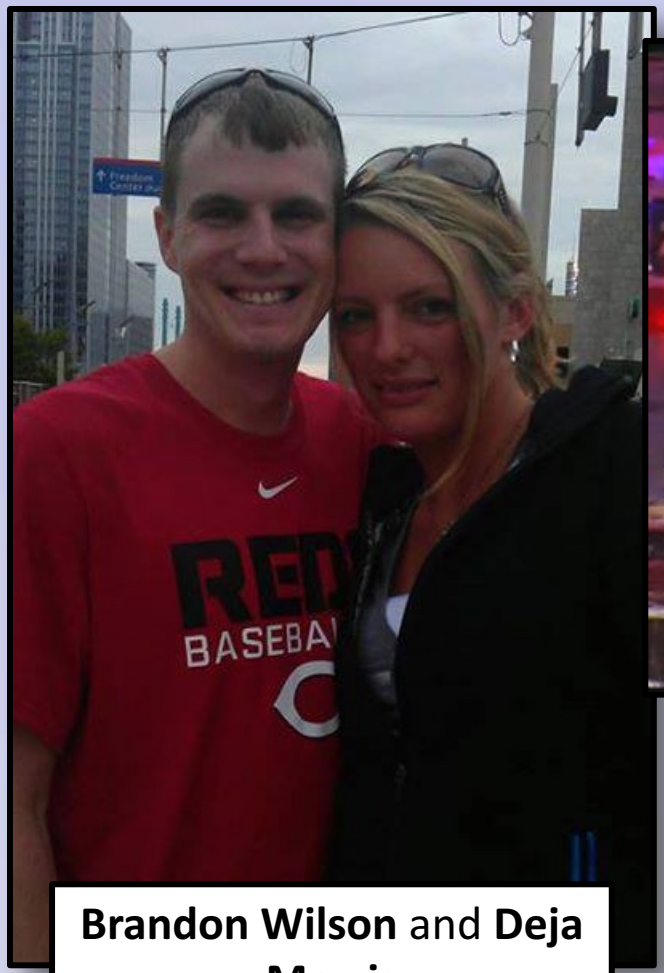
Bonnaroo



Brandon Wilson and **Deja Morris**

Both were killed when a tractor trailer driver hit their vehicle on Interstate 24 in Murfreesboro during the early morning hours of June 13, 2013.

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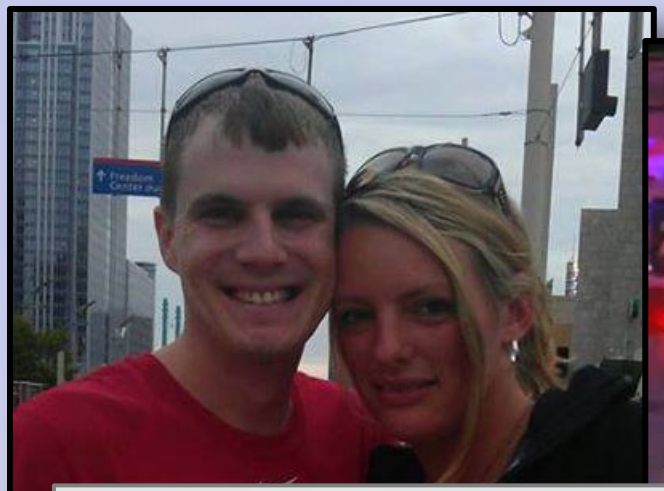
Bonnaroo



Both were killed when a tractor trailer driver hit their vehicle on Interstate 24 in Murfreesboro during the early morning hours of June 13, 2013.

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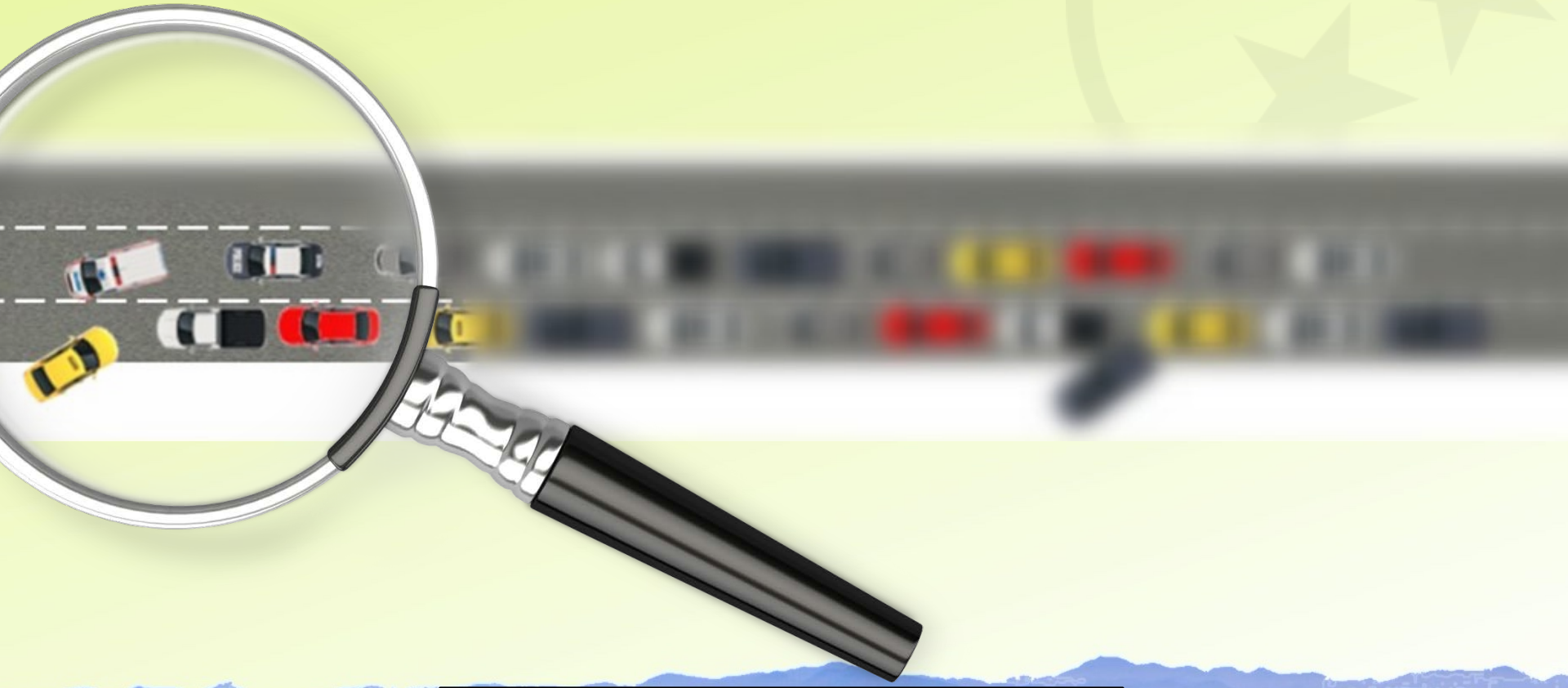
Change of Focus



PROTECT THE QUEUE!

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Change of Focus

PROTECT THE QUEUE!

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Change of Focus

PROTECT THE QUEUE!

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Change of Focus

PROTECT THE QUEUE!

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Protect the Queue Initiative

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Secondary Accidents as a Result of Traffic Queuing

As Defined by the Latests TIM Training Material:

- **Secondary Crashes** are crashes that occur within the incident scene or within the queue or backup, including the opposite direction, resulting from an original incident
- For **Each Minute** that traffic is blocked, it typically takes it **4 Minutes** to recover.

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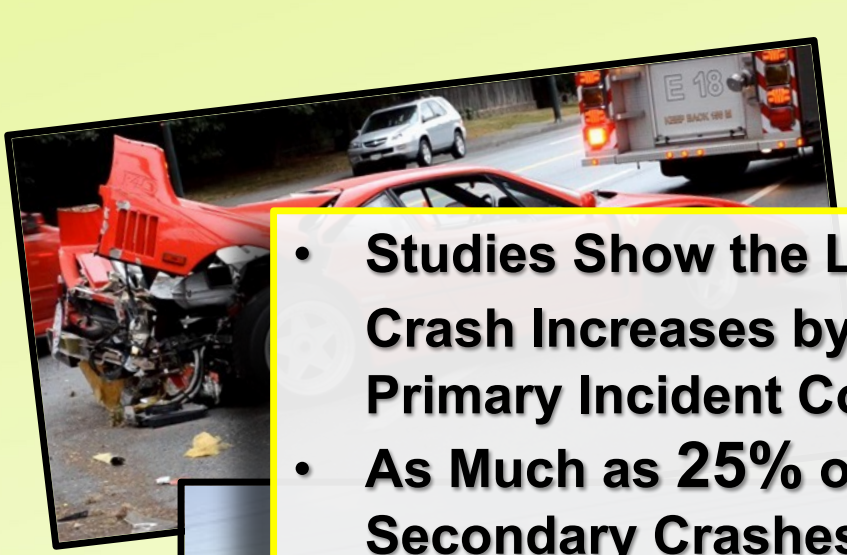
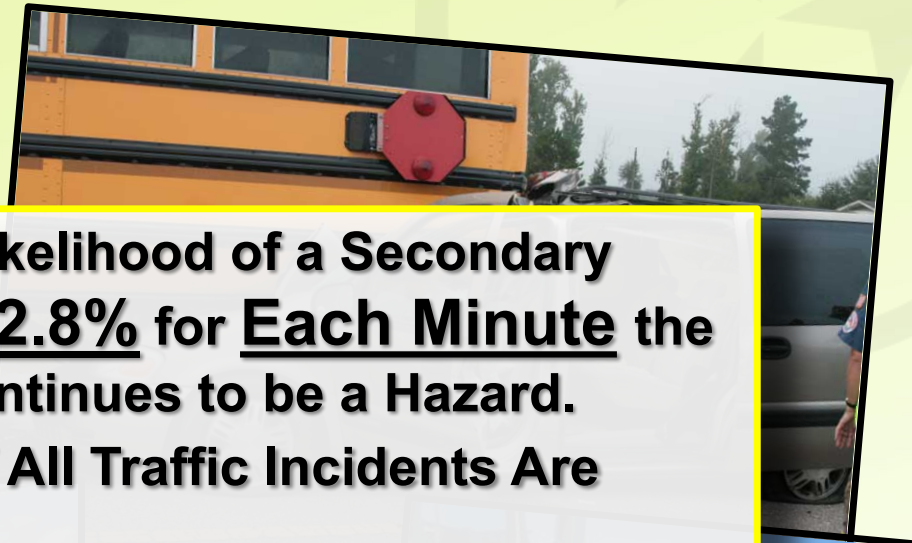
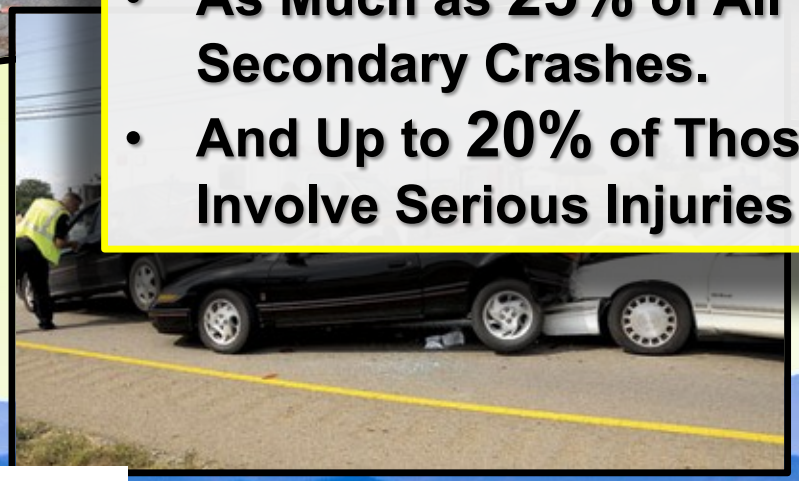
TDOT PROTECT THE QUEUE!

Secondary Accidents as a Result of Traffic Queuing







- Studies Show the Likelihood of a Secondary Crash Increases by **2.8%** for **Each Minute** the Primary Incident Continues to be a Hazard.
- As Much as **25%** of All Traffic Incidents Are Secondary Crashes.
- And Up to **20%** of Those Secondary Crashes Involve Serious Injuries or Fatalities.

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Secondary Accidents as a Result of Traffic Queuing

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Secondary Accidents as a Result of Traffic Queuing

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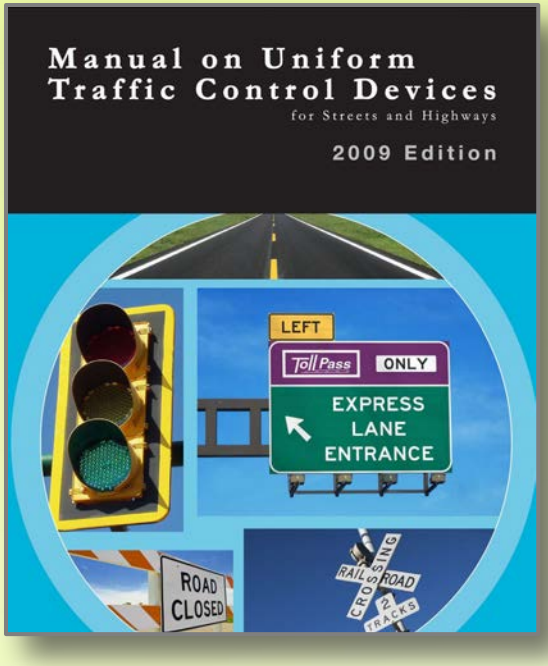
Seconds Count



55 MPH = 80 Feet in 1 second

65 MPH = 95 Feet in 1 second

75 MPH = 110 Feet in 1 second

Table 6C-2. Stopping Sight Distance as a Function of Speed

Speed*	Distance
20 mph	115 feet
25 mph	155 feet
30 mph	200 feet
35 mph	250 feet
40 mph	305 feet
45 mph	360 feet
50 mph	425 feet
55 mph	495 feet
60 mph	570 feet
65 mph	645 feet
70 mph	730 feet
75 mph	820 feet

* Posted speed, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed

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Seconds Count

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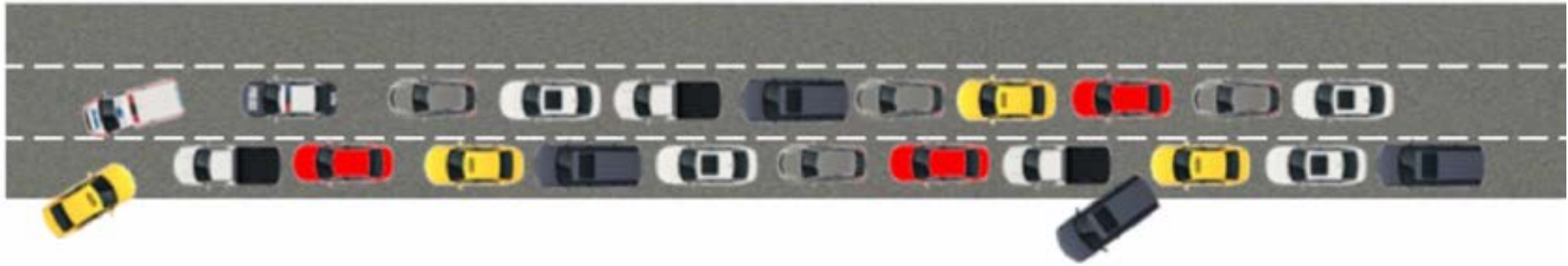

Seconds Count

To Effectively Protect the Queue,
We have to Provide Warning
BEFORE the Traffic Backup

~ ¼ Mile to ½ Mile
Critical 3-5 Seconds to Alert Oncoming Traffic

Early Warning Devices MUST
Be Deployed AHEAD of the
Backup or "Queue" to be of any Value

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Tools Used to Protect the Queue

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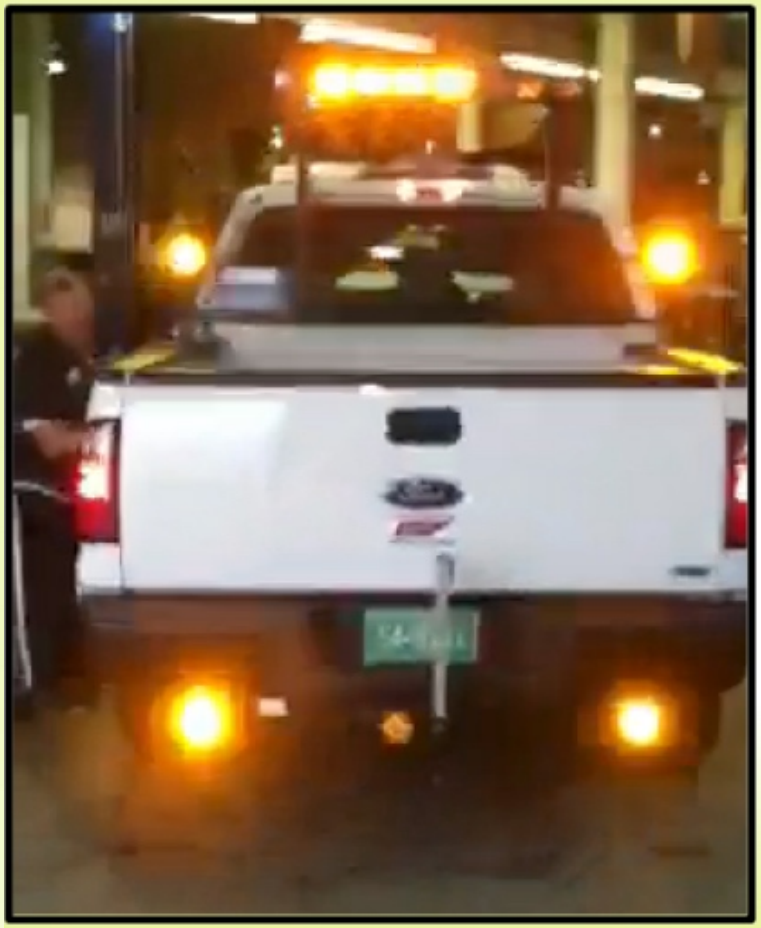
TDOT PROTECT THE QUEUE!

Troopers and Uniformed Officers

Queue Trucks



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PROTECT THE QUEUE!

Queue Trucks

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TDOT PROTECT THE QUEUE!

Queue Trucks

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Queue Trucks

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TDOT PROTECT THE QUEUE!

Queue Trucks

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TDOT PROTECT THE QUEUE!

Standard Operating Guidelines for Traffic Queue Protection

Tennessee Department of Transportation
Division of Traffic Operations
Standard Operating Guideline (SOG 6303-01)

Effective Date: 11/01/2014

Title	Signature
Region 1 Operations Director	
Region 2 Operations Director	
Region 3 Operations Director	
Region 4 Operations Director	
Headquarters Traffic Operations Director	
TDOT Maintenance Division Director	

	Protect the Queue- (SOG 6303-01)
Purpose:	Standard Operating Guideline (SOG 6303-01) is intended to provide guidance and recommended best practices to field incident management and operations personnel while protecting the traffic queue on Tennessee Interstate and State Routes.

Recommended Guidance:	TDOT resources are available to address safety and congestion issues during highway incidents on Interstate routes and State Routes, as requested by TDOT Headquarters and Regional Operations and Incident Management personnel, as well as requests from other state and local agencies which respond to highway incidents, including crashes, spilled cargo, and natural or man-made disasters. Additionally, upon request from officials representing on-site incident operations or Incident Command, TDOT will deploy resources and staff to establish a safe and mobile traffic control plan, including adequate traffic queue protection and motorist information plan. • Queue protection activities are to be conducted on the shoulder or closed travel lane as applicable • Appropriate vehicle emergency and warning light discipline should be used; maximize rear facing lights, minimize front facing lights. • Queue protection vehicles should be placed to create an appropriate buffer zone between end of queue and oncoming traffic to maintain a warning area of approximately 0.25 mile upstream from the end when possible. • TDOT resources shall consist of roadway equipment, supplies, and manpower dispatched from the nearest TDOT facility. • Resources include cones, static and electronic signs, portable lighting, mobile equipment • All Temporary Traffic Control (TTC) applications should comply with the current Manual on Temporary Traffic Control Devices (MUTCD). • A shadow vehicle is recommended when performing this activity. • When two vehicles are available for queue protection, and the queue extends to the first upstream vehicle, that vehicle shall proceed to relocate as the second vehicle remains in place to warn on-coming vehicular traffic of the growing queue, thus trading places with the remaining vehicle to protect the back of the growing queue.

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Special Provision Traffic Queue Protection

STATE OF TENNESSEE

January 1, 2015

SPECIAL PROVISION

REGARDING

TRAFFIC QUEUE PROTECTION

Description: When construction activities are performed on control-access or limited access facilities, the Contractor shall pursue efforts for the protection of traffic queues caused by project operations and clearly demonstrate adequate good faith efforts as described herein. The queue protection truck is expected to alert motorists (inside or outside of project limits) of all stopped traffic caused by construction activities or incidents within the project limits.

Equipment: The contractor shall provide a minimum of one (1) queue protection truck for each traveling direction where traffic flow is reduced. One (1) additional queue protection truck shall be onsite in reserve. The system deployed must fulfill the following minimum requirements:

1. A truck mounted attenuator that meets or exceeds NCHRP TL-3 requirements.
2. Four (4) round yellow strobe lights (with auto-dimmers) positioned rear facing
   - Two (2) mounted under rear bumper
   - Two (2) mounted at cab level
3. One (1) standard cab mounted light bar.
4. A truck mounted message board with a minimum of 3 Lines and 8 Characters per line.
5. Four Hour National Traffic Incident Management (TIM) Responder Training for Queue Truck Operators.

Maintenance of Traffic: The following procedures will be followed until free flow traffic conditions are present:

- The queue protection truck shall be positioned no further than ½ mile upstream from the back of the slow moving traffic.
- The queue protection truck shall be positioned on the shoulder and clear of the traveled way so as not to impede traffic.
- The queue protection truck shall relocate as needed to maintain the minimum ½ mile distance from the back of the slow moving traffic.
- The 2nd queue protection truck shall be held in reserve, on site, and support the primary truck if conditions prevent repositioning by reverse. This truck shall not be paid for idle time.
- Trucks shall be kept in project limits during planned lane closures and other project activities expected to cause a queue.
- Queue length estimates and traffic conditions shall be reported to the TDOT District Operations Supervisor or designee at the following periods:
  1. At 30 minute intervals
  2. At significant changes
  3. When free flow traffic is achieved

The queue protection truck shall be mobilized as directed by the District Operations Super designee and shall be de-mobilized when free flow conditions are reached.

Basis of Payment: The queue protection truck, all related equipment, and labor shall be p Item No. 712-08.10, per hour. All costs are to be included in the price bid. Idle time shall paid.

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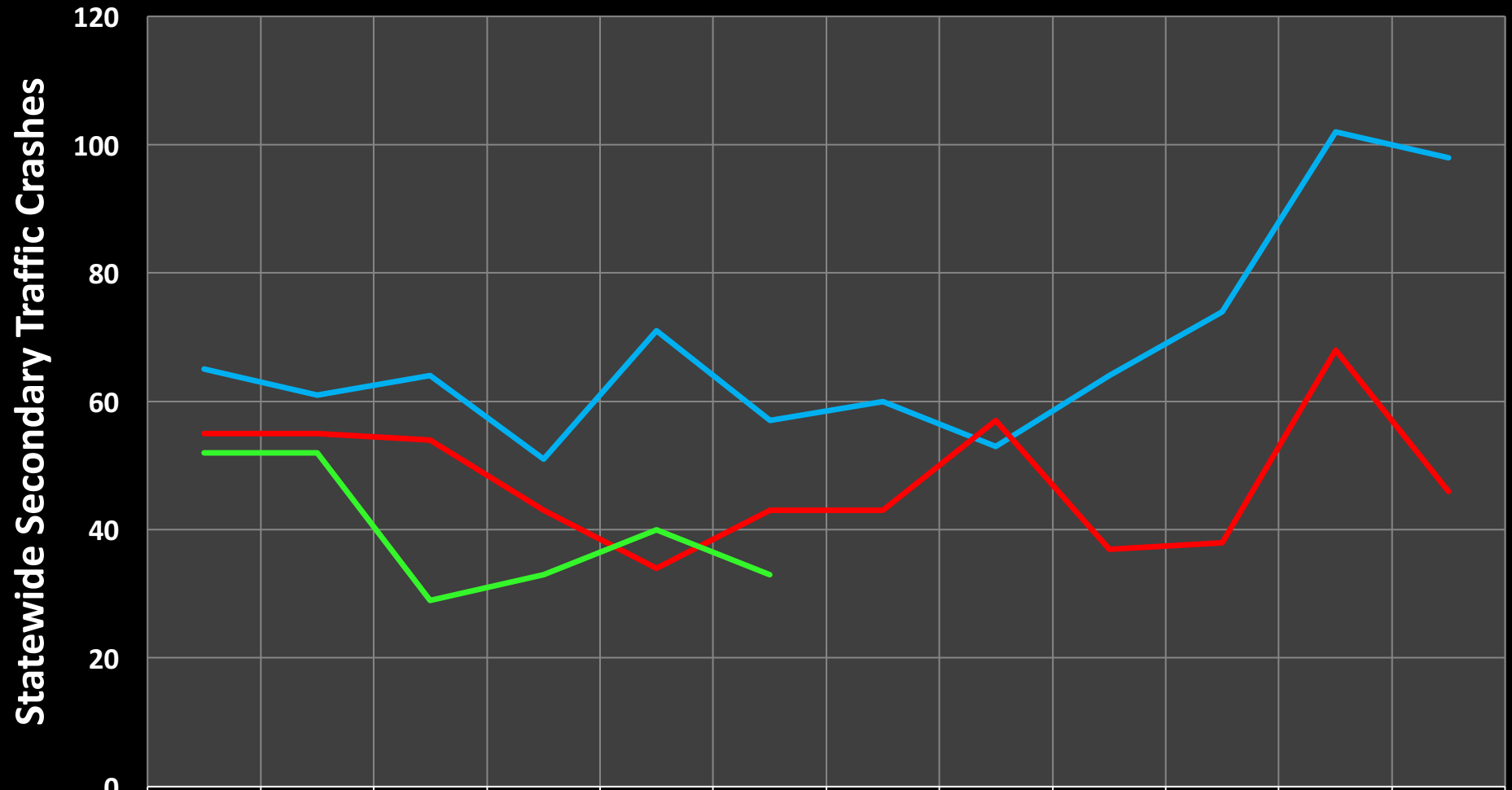
Protect the Queue Results



	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013	65	61	64	51	71	57	60	53	64	74	102	98
2014	55	55	54	43	34	43	43	57	37	38	68	46
2015	52	52	29	33	40	33						

Secondary Crashes By the Numbers

June 2015 Compared with 2014... = 25% Reduction

June 2015 Compared with 2013... = 48% Reduction

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TDOT PROTECT THE QUEUE!

Contact Information

Questions?

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615-476-8850 615-350-4541

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