

PAPA Annual Conference | January 22, 2020

# PennDOT Temporary Traffic Control Update



#### **Discussion Items**

- Automated Work Zone Speed Enforcement (AWZSE) Program
- Road Condition Reporting System (RCRS)
   Overview
- PennDOT Temporary Traffic Control MASH update
- PennDOT Work Zone Speed Limit Policy
- Temporary Traffic Control Safety Training Program

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# Pennsylvania 2018 Numbers

#### **OUR WORK ZONES ARE DANGEROUS**

**23** 

**WORK ZONE CRASH FATALITIES IN 2018** 

1,804

**TOTAL CRASHES IN PA WORK ZONES IN 2018** 

**47** 

PERCENT OF WORK
ZONE CRASHES CITING
EXCESSIVE SPEEDING



## SPEEDING IS NOT A NEW CONCERN

Work Zone
Crashes up 1-2%
Annually since
2012



Speeding as a Contributing Factor Increasing



Crashes Occur in
Most Dangerous
Areas – Over 50%
of Work Zone
Crashes in
Activity Zone





#### **WE HAVE LIMITED RESOURCES**

82% of Work
Zone Crashes
Occurred when
Law Enforcement
not Present



2017 PSP
Assistance \$4.2M for 81
projects



Workers directly in harms' way – in 2017, 95 Intrusions occurred, 18 employees injured







Speed Timing Device
Detects Excessive
Speed

**Cameras Take Photos of License Plate(s)** 

ID Responsible Party
LOOKUP
VERIFY
NOTIFY



# > ASE IN WORK ZONES <u>ARE</u> EFFECTIVE

MD Safezones – Since 2009, 80% Reduction in Excessive Speeding

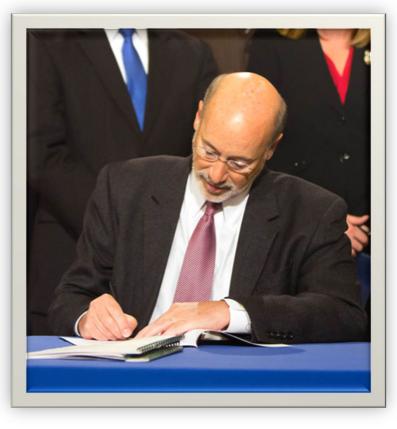




Work Zone Fatalities have been reduced by 50%



#### **LEGISLATIVE HIGHLIGHTS**



- FIVE YEAR PILOT PROGRAM ON PENNDOT (FEDERAL-AID) AND PTC HIGHWAYS
- 11 MPH OVER SPEED LIMIT
- CIVIL PENALTIES VIOLATIONS REVIEWED BY PSP
- TIERED PENALTY STRUCTURE
- DEFINED CONTEST, APPEALS PROCESSES



#### WHY IS PA'S PROGRAM DIFFERENT?

#### COMMON ARGUMENTS

- ▲ GOAL IS REVENUE GENERATION
- SPEED LIMITS ARTIFICALLY
  - LOWERED
- INSUFFICIENT WARNING GIVEN
- **A** SPEED TIMING INACCURATE
- **▲** MINIMAL OVERSIGHT
- NO APPEAL OF INFRACTION
- **▲ VIOLATION OF PRIVACY**

#### **WHY PA IS DIFFERENT**

- SYSTEM ADMIN PAID FLAT FEE
- STATEWIDE POLICY FOR SPEED LIMIT CONSISTENCY
- **TWO WARNING SIGNS REQUIRED**
- DAILY TESTING (BEFORE AND AFTER)
  AND ANNUAL RECERTIFICATION
- THREE AGENCY OVERSIGHT
  TWO-STEP CONTEST/APPEAL
- PROCESS
- NO PERSONAL IMAGES; ALL
  IMAGES DESTROYED AFTER 1 YEAR









# PILOT PROGRAM GOALS

- ✓ Reduce speeds in work zones
- ✓ Improve driver behavior
- ✓ Save worker and traveler lives
- ✓ Compliment existing enforcement by the Pennsylvania State Police
- **✓** Promote work zone safety



#### INTERAGENCY PARTNERSHIP



- ✓ Scheduling and Monitoring (State Highways)
- ✓ Fiscal Processes and Auditing
- ✓ Regulations and Standards Development
- ✓ Scheduling and Monitoring (Commission Highways)
- ✓ Auditing and Vendor Contract Compliance
- ✓ Standards Development





- ✓ Violation Review and Affirmation
- ✓ Field Speed and Quality Control Testing



#### **CONTRACTED SERVICES**





PROGRAM ADMINISTRATOR –
Technical, Administrative Support
Extension of Agency Staff

SYSTEM ADMINISTRATOR –
Field Deployments, Violation Processing,
Database Development, Customer Service



#### PROGRAM ADMINISTRATOR RESPONSIBILITIES

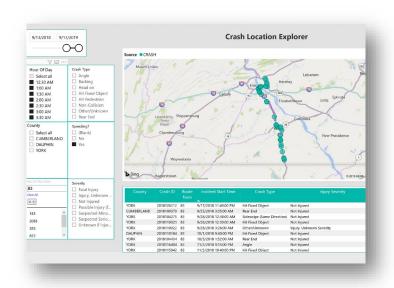


#### PRE-ENFORCEMENT

- **SYSTEM ADMINISTRATOR PROCUREMENT**
- BUSINESS RULES DEVELOPMENT
- **CONCEPT OF OPERATIONS**
- PROJECT SELECTION AND SCHEDULING PROCESS
- HEARING PROCESS DEVELOPMENT
- **TECHNICAL SUPPORT**



#### > PROGRAM ADMINISTRATOR RESPONSIBILITIES



#### **DURING ACTIVE PILOT PERIOD**

- PROJECT SELECTION / SCHEDULING
- FIELD, BACK OFFICE QUALITY ASSURANCE
- OPERATIONAL COMPLIANCE / PROCESS UPDATES
- **PROGRAM OUTREACH**
- PERFORMANCE MONITORING AND REPORTING
- TECHNICAL / ADMIN SUPPORT



#### SYSTEM ADMINISTRATOR RESPONSIBILITIES



#### PRE-ENFORCEMENT

- **UNIT / VEHICLE OUTFITTING**
- **TESTING / CALIBRATION**
- **DATABASE / WEB PORTAL DEVELOPMENT**
- **BUSINESS RULE DEVELOPMENT**
- TECHNICAL TRAINING



## > SYSTEM ADMINISTRATOR RESPONSIBILITIES



#### **DURING ACTIVE PILOT PERIOD**

- FIELD UNIT DEPLOYMENT
- **VIOLATION REVIEW AND MAILING**
- VIOLATION COLLECTION AND DISBURSEMENT
- CUSTOMER SERVICE AND RECORD KEEPING
- INFORMAL HEARING SUPPORT
- **ANNUAL CERTIFICATIONS**



# **AWZSE UNIT TECHNOLOGY**

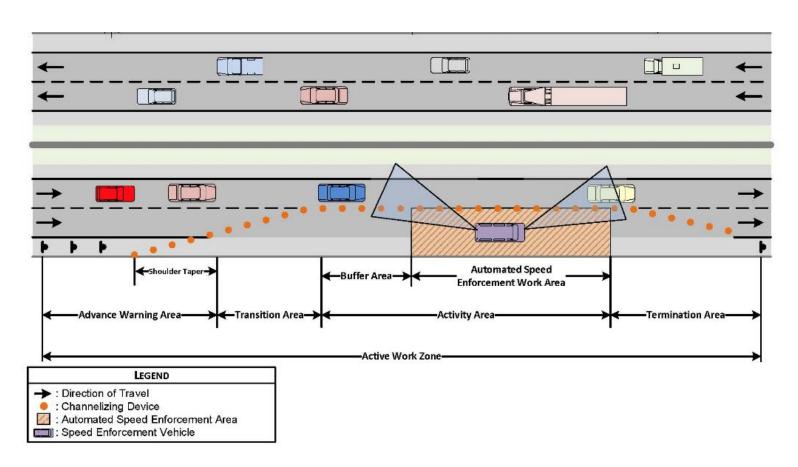


- Self contained mobile unit (SUV)
- Dual radar system
- Both radar readings must agree for violation.
- Two cameras advancing (front), receding (rear) plates
- Field unit software feeds to cloud-based database, processing portals





## WHERE WOULD AWZSE GET DEPLOYED?





#### REQUIREMENTS FOR ENFORCEMENT



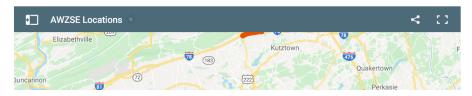
- Workers MUST BE PRESENT
- Two Warning Signs
- Notice at Location and Website
- Appropriate Work Zone Speed Limit Signs (if applicable)
- END WORK ZONE SIGNS

HOME ABOUT REGULATIONS LOCATIONS FAQS SAFETY

VIOLATIONS CONTACT US

The Automated Work Zone Speed Enforcement program has launched its minimum 60-day "pre-enforcement" testing period. Locations of the systems can be found below.

- Interstate 78 Section 12M Project (Mile Markers 35-43), Berks County
- Interstate 476 Total Reconstruction (Mileposts 31-38), Montgomery County
- Interstate 83 Exit 4 Project (worMileposts 3-4), York County





## MULTIPLE LAYERS OF REVIEW



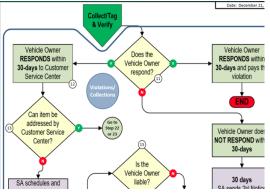
**DEPARTMENT OF TRANSPORTATION** 

## WHAT IS THE PROGRAM STATUS?

All Agreements in Place – Interagency, External Contracts



**Business Processes** 



Website, Outreach AQS

HOME ABOUT

- What are automated work zone speed enforcement (AWZSI
- ♦ What is the goal of the AWZSE Program?
- When did the AWZSE program begin in Pennsylvania?
- How does AWZSE work?
- ♦ How often are the AWZSE systems checked for accuracy?
- Where are the AWZSE systems located and how are the site.





# PROGRAM KICKOFF PRESS EVENT OCTOBER 30, 2019









# INITIAL TEST DEPLOYMENTS NOVEMBER, 2019



- Minimum 60-day "Pre-Enforcement" Period
- Testing Selection, Notification, Deployment
   Processes
- Backoffice Review
- Reviewing initial results



SPEED LIMIT

PHOTO ENFORCED







#### PROGRAM OPERATIONAL APPROACH



17 UNITS - 10 PENNDOT, 7 PTC



**EIGHT-HOUR DEPLOYMENT SHIFT** 



**UP TO TWO SHIFTS DAILY** 



**SUPPORT WEEKDAY, WEEKEND ACTIVITIES** 



**GOAL - IMPROVE DRIVER BEHAVIOR** 







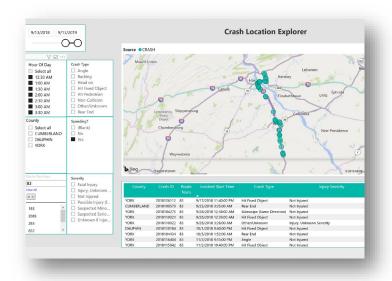
#### PROJECT IDENTIFICATION APPROACH



- REQUEST THROUGH PENNDOT, PTC STAFF
   RESOURCE ACCOUNT, WEBSITE
- SHOULD INCLUDE KEY INFORMATION –
  LOCATION, SPEEDING OR SAFETY CONCERNS
- INDICATE PROTECTION TYPE (BARRIER, CHANNELIZING DEVICE)
- CURRENTLY SCREENING 2020
  LIMITED ACCESS PROJECTS
- SITE VISITS WE NEED YOUR HELP!



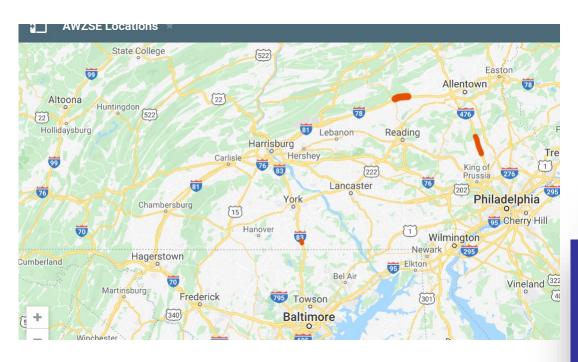
#### DATA-DRIVEN SELECTION



- REVIEWING HISTORIC SPEED, CRASH DATA
- PREDICTIVE FOR FUTURE PROJECTS
- ACCOUNT FOR WORKER VULNERABILITY
- **PRIORITIZE LOCATIONS**
- AVOID REGULAR PATTERNS CREATE "HALO" EFFECT



## PRELIMINARY MONTHLY SCHEDULE





**Locations, Est. Dates** 

- Regional Overview used for SA Resource Allocation
- Construction / Maintenance
   Field Staff Coordination and

**Scheduling** 



#### FINALIZED WEEKLY SCHEDULE

HOME ABOUT REGULATIONS LOCATIONS FAOS SAFETY VIOLATIONS CONTACT US



The Automated Work Zone Speed Enforcement program has launched its minimum 60-day "pre-enforcement" testing period. Locations of the systems can be found below.

- Interstate 78 Section 12M Project (Mile Markers 35-43), Berks County
- Interstate 476 Total Reconstruction (Mileposts 31-38), Montgomery County

- Detailed Schedule Dates / Times
- Finalized after coordination with field staff
- Includes contact information, arrival and notification processes
- Distributed to SA and appropriate
   PennDOT / PTC contacts
- Weekly locations posted on Website



# FINAL GO/NO-GO COORDINATION

SA/RE/IIC Coordination



Verify Worker Presence



Notify if construction / maintenance activity terminates before end of enforcement shift





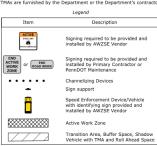
#### **NEW STANDARDS**

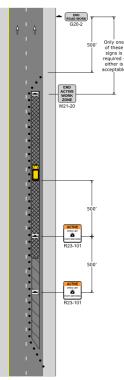
#### Automated Speed Enforcement Systems In Active Work Zones Work Space In Right Lane - Freeways and Expressways

#### Notes:

1. This standard applies only to the Automated Work Zone Speed Enforcement (AWZSE) wendor once an active work zone has been established. This standard applies only for the placement of signing required for the AWZSE wendor operator. All signs shown as "greyscale" are provided by the Department or the Department's contractor and are included in a pre-selected Publication 213 PATA figure, a Department's approved Traffic Control Plan (TCP) or, additional signing installed at the direction of the Department. The AWZSE vendor operator will required signing signifying the end of the active and the properties of the prop

- Distances shown for placement of AWZSE signing are minimum requirements and may be adjusted to fit field condition. The AWZSE vendor operator will coordinate with the Department's representative or the Department's contractor as indicated in Section 105.07 of Publication 408.
- Prior to beginning or ending any automated speed enforcement, the AWZSE vendor operator will contact the State Traffic Management Center (STMC) at 717.346.4400 to provide notification that automated speed enforcement will be commencing.
- 4. The AWZSE vendor operator will complete the field deployment field verification prior to beginning any automated speed enforcement.
- 5. Prior to and during automated speed enforcement, the AW25E vendor's operator will maintain communication with the Department representative and/or with the Department's contractor representative to communicate worker presence, work area activities and all arrivand department times of the vendor's operator during automated speed and department of the properties of
- 6. The Speed Enforcement Device/Vehicle will be placed within or adjacent to the active work zone and at a location where the minimum roll-ahead distance for the shadow vehicle with a TMA will not be obstructed. AWZSE signing will be placed so that they are not obstructed by a Shadow Vehicle with TMA and not placed within the contraction. AWZSE is the shadow of the shadow of





- TCP PATA / PTS AWZSE SPECIFIC SERIES
- **DELINEATES SA, OTHERS RESPONSIBILITIES**
- **CURRENT COORDINATION PER 105.07.**
- **COORDINATION SPEC FOR NEW CONTRACTS**
- SA RESPONSIBLE / LIABLE FOR THEIR ELEMENTS
- CONTRACTOR / MAINTENANCE RESP.



#### PROGRAM WEBSITE AND CONTACTS

**ABOUT** REGULATIONS LOCATIONS FAQS **VIOLATIONS CONTACT US** 



- Updated Locations Posted Weekly
- Violation processing password protected
- Inquiries through website, resource account: RA-PD-AWZSE@pa.gov

**GENERAL INQUIRY** 



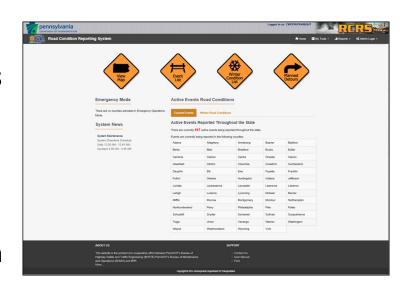
#### Road Condition Reporting System (RCRS)

#### PennDOT's RCRS Policy

 Most recent policy letter (SOL 470-09-9) for RCRS requirements was issued on August 25, 2009 –

#### P:\penndot shared\RCRS\Policy

- The policy includes the following important subjects:
  - Road Closure and Lane Restriction Reporting Requirements
  - Dynamic Message Sign (DMS)
     Reporting Requirements
  - Road Condition Reporting Requirements
  - PennDOT Winter Weather Truck Usage Reporting Requirements
  - RCRS Coordinators / Roles & Responsibilities





#### RCRS Event Screen

#### **Event Information**

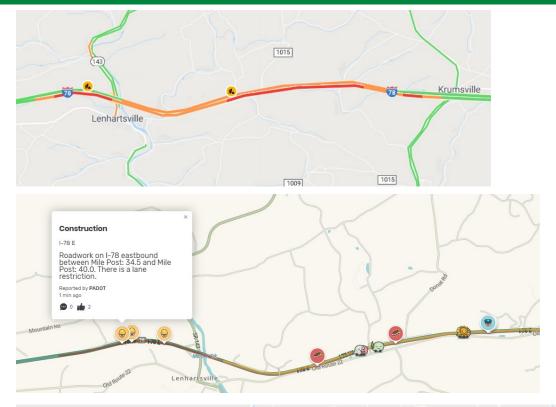
Event ID: 493374											
SR:	SR: 0078 (I - 078)								Direction:	EAST	
	Local Road Name:	NN HW									
Incident Location						Ca	nuse:	ROADWORK			
No location specified.						Sta	atus:	LANE RESTRICTION			
						Affected La	nes:	Right Lane			
						Begin [	Date: 1	10/17/2019 at 20:00			
						Estimated Re-o	pen: 1	10/18/2019 at 06:15			
Beginning Location Ending Location											
Co	County: BERKS (06)					Cor	unty: B	BERKS (06)			
	Mile:	34.5					Mile: 4	40.0			
Event Description:											
Line Eradication & painting											
Is Detour In Place? No Is						Is Detour Effective?	Unknown				
Direction				Туре	Color De			Detour Description			



# Google/WAZE/511PA Reporting











# Manual for Assessing Safety Hardware (MASH 2016)



- AASHTO/FHWA Joint Implementation Agreement for Manual for Assessing Safety Hardware (MASH) (FHWA memorandum dated January 7, 2016)
- FHWA memorandum specifically states that temporary traffic control devices, including portable barriers, manufactured after December 31, 2019, must have been successfully tested to the 2016 edition of MASH
- Devices manufactured on or before this date, and successfully tested to NCHRP Report 350 or the 2009 edition of MASH, may continue to be used throughout their normal service lives.

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# Traffic Control Devices by Category

FHWA issued a memorandum (Dated July 25, 1997) "Identifying Acceptable Highway Safety Features". The memorandum defined four categories of work zone devices that were to be evaluated against NCHRP 350 criteria



## Traffic Control Devices by Category

 <u>Category 1</u>: Includes small and lightweight channelizing and delineating devices that have been in common use for many years and are known to be crashworthy by crash testing of similar devices or years of demonstrable safe performance. (Examples: cones, tubular markers, flexible delineator posts, and plastic drums)





## Traffic Control Devices by Category

 <u>Category 2</u>: Includes devices that are not expected to produce significant vehicular velocity change but may otherwise be hazardous. (Examples: barricades, portable sign supports, intrusion alarms, drums with sign panels attached, and drums with warning lights attached)





# Traffic Control Devices by Category

 <u>Category 3</u>: Is for hardware that is expected to cause significant velocity change or other potentially harmful reactions to impacting vehicles. (Examples: longitudinal barriers, fixed sign supports, crash cushions)



## Traffic Control Devices by Category

 <u>Category 4</u>: Includes portable or trailer-mounted devices such as flashing arrow panels, temporary traffic signals, area lighting supports, and portable changeable message signs.





### Other state DOT Implemenation and Recommendations

- Based on communication with other state DOT's, uncertainty remains regarding sunset durations for temporary traffic control devices.
- Many states have yet to establish sunset dates, however a majority are leaning towards:
  - 5-year sunset duration for Category 2 devices
  - 10-year sunset duration for Category 3 devices.
- Midwest Work Zone Roundtable member states drafted a MASH implementation plan that many state DOTs are following.



# Other state DOT Implemenation and Recommendations

#### PROPOSED SUNSET DATES

TROPOSED SONSET DATES							
AGENCY	TEMPORARY TRAFFIC CONTROL DEVICE CATEGORY						
	1	2	3	4			
Ohio	TBD	TBD	TBD	TBD			
New York	TBD	TBD	TBD	TBD			
New Jersey	None (already requires MASH compliance)	None (already requires MASH compliance)	None (already requires MASH compliance)	None (already requires MASH compliance)			
Delaware	TBD	1/1/2016 (DE MUTCD, temp. concrete barrier)	TBD	TBD			
Maryland	TBD	TBD	TBD	TBD			
West Virginia	1/1/2023	1/1/2023	1/1/2023	1/1/2023			
Midwest Work Zone Roundtable	None	1/1/2025	1/1/2030	None			



## 2020 Temporary Traffic Control Meeting (MASH)

### **Recommendations for PennDOT**

AGENCY	TEMPORARY TRAFFIC CONTROL DEVICE CATEGORY				
	1	2	3	4	
PennDOT	1/1/2025	1/1/2025	1/1/2027	1/1/2027	

Recommended durations are intended to provide a reasonable duration for contractors to sunset their NCHRP 350 barrier stockpiles while being more conservative than the 10-year duration being considered by many states.

Recommended that the Department recognizes and adopts the categorization of temporary traffic control work zone devices as established in NCHRP Report 350.



# Work Zone Speed Limit Policy













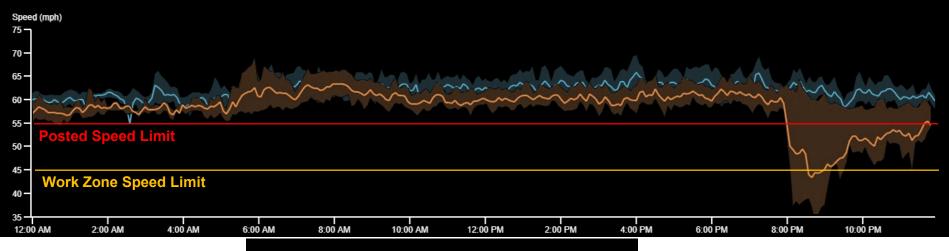
# Work Zone Speed Limit Policy

- Reduce work zone crashes
  - Since Act 89 (2013) 2% annual increase
- Recommendation of 2014 FHWA study
- Automated Speed Enforcement
  - Increased scrutiny from the public
  - Need support from magisterial districts
- Research indicates speed variability is a greater crash risk than higher operating speeds within 5-10 MPH of the mean speed
- Motorists only reduce speeds when they perceive a need to do so



# Work Zone Speed Limit Policy

Northbound comparison of average speed per 5 minutes for Sat & Sun (Before and During Work Zone)



Legend

2016 Average Speed no Work Zone

2019 Average Speed with Work Zone



# Policy Objectives

**GOAL:** Design work zones to maximize safety (worker & motorists), mobility, and driver conformance while considering costs to do so.



#### **SPECIFIC OBJECTIVES:**

- Evaluate worker and motorist safety concerns
- Maintain acceptable mobility and driver expectations
- Establish consistency and credibility of speed limits
- Improve motorist compliance with speed limits
- Ensure AWZSE speed limits are properly established
- Address FHWA IOP report concerns

# Policy Objectives

## **HOW DO WE GET THERE?**

- Implement a repeatable, data-driven process
- Accommodate the existing posted regulatory speed limit whenever possible
  - Justify reductions with data!
  - TE-form to aid in justification





# Policy Applicability

- All work zone speed limits
  - Continuous regulatory speed limits
  - Variable regulatory speed limits
  - Advisory speed limits
- Work zones on all state roads
  - Includes local road work zones that have devices placed on state roads
- Applicable to all entities except
   Emergency Responders





# Roles & Responsibilities

- Evaluator: Determines traffic control and speed limit
  - Designers, Department Maintenance Personnel, Contractors
- Reviewer and Approver: Approves/denies work zone speed reduction request
  - DTE (all scenarios)
  - BOMO HSTO Chief (only if AWZSE is applicable)
- **Issuer:** *Issues temporary regulatory speed limit reduction permit* 
  - DTE or district designee
- Implementor: Verifies reduced speed limit signage is installed
  - Inspector-in-Charge (IIC)
  - Department Foreman



# **Policy Summary**

- All work zones are to be designed to the posted regulatory speed limit whenever possible
  - Only exception is emergency responders
- Adequate justification and objective data must be documented in the TE-form for a speed reduction to be approved
- DTEs approve all speed reductions unless AWZSE is proposed
  - BOMO concurrence is needed for an ASE work zone
- TE-form only needs to be completed if a speed reduction is proposed
- TE-form can double as a Temporary Regulatory Speed Limit Reduction Permit



# Temporary Traffic Control Safety Training Program

- Designed to ensure compliance with statewide standards with the goal of improving safety and consistency in work zones.
- All persons (public and private) responsible for the planning, designing, installing/removing, inspection, etc. of TTC within Department or PTC right-of-way.
- Three categories of Temporary Traffic Control training
  - Field Personnel
  - Deployment and Oversight (i.e. Supervisors, inspectors, etc.)
  - Designers and Reviewers



# Temporary Traffic Control Contacts

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