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
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
AUTOMATED SPEED ENFORCEMENT

Speed Timing Device Detects Excessive Speed
Cameras Take Photos of License Plate(s)
ID Responsible Party
  LOOKUP
  VERIFY
  NOTIFY

pennsylvania DEPARTMENT OF TRANSPORTATION
ASE IN WORK ZONES ARE 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
<table>
<thead>
<tr>
<th>COMMON ARGUMENTS</th>
<th>WHY PA IS DIFFERENT</th>
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<tbody>
<tr>
<td>✏️ GOAL IS REVENUE GENERATION</td>
<td>✔️ SYSTEM ADMIN PAID FLAT FEE</td>
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<tr>
<td>✏️ SPEED LIMITS ARTIFICALLY LOWERED</td>
<td>✔️ STATEWIDE POLICY FOR SPEED LIMIT CONSISTENCY</td>
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<tr>
<td>✏️ INSUFFICIENT WARNING GIVEN</td>
<td>✔️ TWO WARNING SIGNS REQUIRED</td>
</tr>
<tr>
<td>✏️ SPEED TIMING INACCURATE</td>
<td>✔️ DAILY TESTING (BEFORE AND AFTER) AND ANNUAL RECERTIFICATION</td>
</tr>
<tr>
<td>✏️ MINIMAL OVERSIGHT</td>
<td>✔️ THREE AGENCY OVERSIGHT</td>
</tr>
<tr>
<td>✏️ NO APPEAL OF INFRACTION</td>
<td>✔️ TWO-STEP CONTEST/APPEAL PROCESS</td>
</tr>
<tr>
<td>✏️ VIOLATION OF PRIVACY</td>
<td>✔️ NO PERSONAL IMAGES; ALL IMAGES DESTROYED AFTER 1 YEAR</td>
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PROGRAM DEVELOPMENT
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

**Pennsylvania Department of Transportation**
- Scheduling and Monitoring (State Highways)
- Fiscal Processes and Auditing
- Regulations and Standards Development

**Pennsylvania Turnpike**
- Scheduling and Monitoring (Commission Highways)
- Auditing and Vendor Contract Compliance
- Standards Development

**Pennsylvania State Police**
- 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
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

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

- Unit self-test at beginning and end of shift
- Operators recording all information - signs, worker presence, etc.
- Image, DMV information initially reviewed
- PSP reviewing all fine-carrying violations
WHAT IS THE PROGRAM STATUS?

All Agreements in Place – Interagency, External Contracts

Business Processes

Website, Outreach

FAQs

- What are automated work zone speed enforcement (AWZSE)?
- 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 sites
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
PROGRAM OPERATIONS
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

• High-Level Schedule – Locations, Est. Dates

• Regional Overview - used for SA Resource Allocation

• Construction / Maintenance Field Staff Coordination and Scheduling
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. The standard applies to the Automated Work Zone Speed Enforcement (AWZSE) vendor once an active work zone has been established. The existing Signage requirements for Temporary Traffic Control (TTC) or other lane closure or control devices shall remain in place. For any lane impact, the AWZSE vendor is responsible for any TTC required for the ARIZSE vendor operator, as also shown as "precautions" are provided to the Department by the Department’s contractor and are included in the pre-selected Publication 216 PATA flyers. A Department’s approved Traffic Control Plan (TCP) or additional signing installed at the discretion of the Department. The AWZSE vendor operator will work and ensure work zone signed field signing along with the enforcement will be in place prior to the beginning of the work zone. The other elements are in place prior to the beginning of automated speed enforcement.

2. Overtakes shown for placement of AWZSE signage are minimum requirements and may be adjusted to fit field conditions. This AWZSE vehicle operator shall provide lane impact requirements for lane impact requirements for the Department’s contractor as indicated in Section 030-07 of Publication 400.

3. Prior to beginning or ending any automated speed enforcement, the AWZSE vendor operator will ensure the Traffic Management Center (TMC) of 717.366.4488 to provide notification that automated speed enforcement is beginning or ending.

4. The AWZSE vendor operator will complete the field deployment field verification prior to beginning any automated speed enforcement.

5. Prior to use during automated speed enforcement, the AWZSE vendor’s operator shall maintain communication with the Department’s representatives and/or the Department’s contractor representatives to communicate work zone information, work zone activities and all arrival and departure times of the vendor’s operator during automated speed enforcement.

6. The Speed Enforcement Device/Vehicle will be placed within or adjacent to the active work zone and at a location where the minimum width required for the enforcement vehicle is 24 inches. This device/vehicle shall be placed within a Shadow Vehicle with TPM and not placed within the solid white line as indicated in Publication 216. Shadow Vehicle with TPMs are furnished by the Department or the Department’s contractor.

Legend

- 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
- ALL OTHER WORK ZONE ELEMENTS REMAIN CONTRACTOR / MAINTENANCE RESP.
• workzonecameras.penndot.gov/
• FAQs, Regulations
• Updated Locations Posted Weekly
• Violation processing – password protected
• Inquiries through website, resource account:
  RA-PD-AWZSE@pa.gov
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](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
### Event Information

**Event ID:** 453374

<table>
<thead>
<tr>
<th>SR</th>
<th>Direction</th>
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<tbody>
<tr>
<td>0078 (I-078)</td>
<td>EAST</td>
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</tbody>
</table>

**Local Road Name:** WILLIAM PENN HW

**Incident Location**
No location specified.

**Cause:** ROADWORK

**Status:** LANE RESTRICTION

**Affected Lanes:** Right Lane

**Begin Date:** 10/17/2019 at 20:00

**Estimated Re-open:** 10/18/2019 at 06:15

**Beginning Location**

<table>
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<tr>
<th>County</th>
<th>Mile</th>
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<tbody>
<tr>
<td>BERKS (06)</td>
<td>34.6</td>
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</table>

**Ending Location**

<table>
<thead>
<tr>
<th>County</th>
<th>Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>BERKS (06)</td>
<td>40.0</td>
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</tbody>
</table>

**Event Description:**
Line Eradication & painting

**Is Detour In Place?** No

**Is Detour Effective?** Unknown

**Detour Description**
Google/WAZE/511PA Reporting

Construction
I-78 E
Roadwork on I-78 eastbound between Mile Post: 34.3 and Mile Post: 40.0. There is a lane restriction.
Reported by PADO
1 min ago
0
0

Roadwork
Roadwork on I-78 eastbound between Mile Post: 34.5 and Mile Post: 40.0. There is a lane restriction.
Last Updated: Oct 17, 2019 6:51 PM
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.
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

- **Category 1**: 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

- **Category 2**: 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

- **Category 3**: 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

- **Category 4**: 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 Implementation 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.
## 2020 Temporary Traffic Control (MASH)

### Other state DOT Implementation and Recommendations

<table>
<thead>
<tr>
<th>AGENCY</th>
<th>PROPOSED SUNSET DATES</th>
<th>TEMPORARY TRAFFIC CONTROL DEVICE CATEGORY</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Ohio</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>New York</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>New Jersey</td>
<td>None (already requires MASH compliance)</td>
<td>None (already requires MASH compliance)</td>
</tr>
<tr>
<td>Delaware</td>
<td>TBD</td>
<td>1/1/2016 (DE MUTCD, temp. concrete barrier)</td>
</tr>
<tr>
<td>Maryland</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>West Virginia</td>
<td>1/1/2023</td>
<td>1/1/2023</td>
</tr>
<tr>
<td>Midwest Work Zone Roundtable</td>
<td>None</td>
<td>1/1/2025</td>
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</tbody>
</table>
**Recommendations for PennDOT**

<table>
<thead>
<tr>
<th>AGENCY</th>
<th>TEMPORARY TRAFFIC CONTROL DEVICE CATEGORY</th>
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<tbody>
<tr>
<td>PennDOT</td>
<td>1/1/2025</td>
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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
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

Posted Speed Limit

Work Zone Speed Limit
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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