

PENNSYLVANIA HOUSE and SENATE TRANSPORTATION COMMITTEES
PUBLIC HEARING ON ENHANCING THE SAFETY OF HIGHWAY WORKERS, DRIVERS
AND PEDESTRIANS

JULY 14, 2015

PennDOT: PROTECTION OF HIGHWAY WORKERS (SB 887 – Costa)

Introduction

The Department would like to begin by thanking the House and Senate Transportation Committee members for the opportunity to express our strong support for Senate Bill No. 887 which we believe will enhance the safety of Pennsylvania's highway workers and emergency responders.

It seems fitting that the National Worker Memorial is in Pennsylvania this week as we discuss work zone safety. In 2013, the Bureau of Labor Statistics reported that construction laborers had the tenth most dangerous job in the nation based on overall fatality rate (mining machine operators were number 6).

Work zone safety has always been a Department priority, but with the recent rise in work zone deaths in 2014 from 16 to 24, and the passing of Act 89; work zone safety has taken center stage with Department leadership. Sadly, 21 PennDOT employees were struck and killed by vehicles in or near work zones since 1970, so this is a personal issue for everyone at the Department.

Many ideas and potential legislation have been discussed to address work zone safety. One general comment has been that if anyone is serious about work zone safety, the first step should be to address the penalty to incentivize proper behavior. This has resulted in numerous laws across the country which provide for enhanced penalties for violations within work zones. In fact, 33 states and the District of Columbia double the fine for speeding or other traffic violations in a work zones. Most of these laws require workers to be present in the construction zone for the increased penalties to take effect, and signs must be posted to alert drivers of the enhanced penalties.

The focus of this proposed legislation is to strengthen current penalties in the event that a driver injures or kills a highway worker acting in the worker's official capacity or while the driver is travelling within a designated highway safety corridor. In simple terms, if the bill is enacted, Title 75 will be amended to establish the duty of drivers in construction and maintenance areas, highway safety corridors, or emergency response areas. Failure to comply with these duties will result in new stiff fines that will surely heighten motorists' awareness of the issue and ultimately improve driver behavior. The penalties for drivers will escalate if their actions result in bodily injury, serious bodily injury, or death of a worker. Depending on the violation, the intent of the legislation is to create penalties that include fines ranging from \$1000 to \$10,000 and license suspension for periods ranging from 90 days to one-year. With that said it is important to note the legislation needs to be amended to add a suspension term; the current language only addresses the surrender of the driver's license and not an actual suspension. In addition, legislation calls for a suspension for an adjudication of delinquency and admission into a pre-adjudication program (ARD), but suspensions are only imposed based upon convictions under Section 3327(b.1)(2)(i) and (ii). ***An ARD is not a conviction.*** I would also note PennDOT will need approximately ***6 months*** to make the necessary system enhancements and changes – as opposed to the 60 day effective date in SB 887.

The bill also proposes the doubling of fines associated with a wide range of moving vehicle violations if they are committed in an emergency response area manned by emergency service responders. Our main concern associated with this proposed legislation is whether District Justices will impose the new fines consistently and to the fullest extent statewide.

Conclusion

Our employees and contractors work day in and day out to keep our roads and bridges safe for Pennsylvania residents and those who travel Pennsylvania roadways every day. We also recognize the commitment and sacrifice of emergency service responders who, as part of their daily duty, put themselves at risk to save lives. We strongly support any effort to raise and maintain motorists' awareness of their responsibility to drive safely within work zones and in the vicinity of emergency service responders.

On behalf of the Department, I appreciate your time and allowing me to speak with you today. I would be happy to take any questions at this time.



Early Estimate of Motor Vehicle Traffic Fatalities for the First Half (Jan–Jun) of 2013

Summary

A statistical projection of traffic fatalities for the first half of 2013 shows that an estimated 15,470 people died in motor vehicle traffic crashes. This represents a decrease of about 4.2 percent as compared to the 16,150 fatalities that were projected to have occurred in the first half of 2012, as shown in Table 1. The percentage change in fatalities has been steadily decreasing since the significant 12.3-percent increase projected for the first quarter of 2012. Preliminary data reported by the Federal Highway Administration (FHWA) shows that vehicle miles traveled (VMT) in the first six months of 2013 decreased by about 1.4 billion

miles, or about a 0.1-percent decrease. Also shown in Table 1 are the fatality rates per 100 million VMT, by quarter. The fatality rate for the first six months of 2013 decreased to 1.06 fatalities per 100 million VMT, down from 1.10 fatalities per 100 million VMT in the first half of 2012. The fatality rate for the second quarter of 2013 decreased to 1.08 fatalities per 100 million VMT, down from 1.12 fatalities in the second quarter of 2012. The actual counts for 2011, 2012 and 2013 continue to be updated and the ensuing percentage changes between the fatalities for any of these years are therefore subject to revision.

Table 1: Fatalities and Fatality Rate by Quarter, First Half, and the Percentage Change From the Corresponding Quarter or First Half in the Previous Year

Quarter	1st Quarter (Jan–Mar)	2nd Quarter (Apr–Jun)	3rd Quarter (Jul–Sep)	4th Quarter (Oct–Dec)	Total (Full Year)	1st Half (Jan–Jun)
Fatalities and Percentage Change in Fatalities for the Corresponding Quarter From the Prior Year						
2005	9,239	11,005	11,897	11,369	43,510	20,244
2006	9,558 [+3.5%]	10,942 [-0.6%]	11,395 [-4.2%]	10,813 [-4.9%]	42,708 [-1.8%]	20,500 [+1.3%]
2007	9,354 [-2.1%]	10,611 [-3.0%]	11,056 [-3.0%]	10,238 [-5.3%]	41,259 [-3.4%]	19,965 [-2.6%]
2008	8,459 [-9.6%]	9,435 [-11.1%]	9,947 [-10.0%]	9,582 [-6.4%]	37,423 [-9.3%]	17,894 [-10.4%]
2009	7,552 [-10.7%]	8,975 [-4.9%]	9,104 [-8.5%]	8,252 [-13.9%]	33,883 [-9.5%]	16,527 [-7.6%]
2010	6,755 [-10.6%]	8,522 [-5.0%]	9,226 [+1.3%]	8,496 [+3.0%]	32,999 [-2.6%]	15,277 [-7.6%]
2011	6,708 [-0.7%]	8,216 [-3.6%]	8,960 [-2.9%]	8,483 [-0.2%]	32,367 [-1.9%]	14,924 [-2.3%]
2012 [†]	7,530 [+12.3%]	8,620 [+4.9%]	9,180 [+2.5%]	8,450 [-0.4%]	33,780 [+4.4%]	16,150 [+8.2%]
2013 [‡]	7,170 [-4.8%]	8,300 [-3.7%]	–	–	–	15,470 [-4.2%]
Fatality Rate per 100 Million Vehicle Miles Traveled (VMT)						
2005	1.32	1.42	1.54	1.54	1.46	1.37
2006	1.35	1.41	1.47	1.44	1.42	1.38
2007	1.31	1.35	1.41	1.37	1.36	1.33
2008	1.22	1.25	1.33	1.32	1.26	1.23
2009	1.09	1.16	1.17	1.12	1.15	1.13
2010	0.98	1.09	1.18	1.14	1.11	1.04
2011	0.98	1.08	1.18	1.16	1.10	1.04
2012 [†]	1.08	1.12	1.21	1.16	1.14	1.10
2013 [‡]	1.04	1.08	–	–	–	1.06

[†]2012 and 2013 are statistical projections and rates based on these projections.

[‡]A marginal part of the increase in 2012 or the decrease in 2013 is attributable to 2012 being a leap year.

Source: Fatalities: 2005–2009 FARS Final File, 2010 FARS Annual Report File VMT: FHWA Traffic Volume Trends, August 2012

Figure 1: Percentage Change in Fatalities in Every Quarter as Compared to the Fatalities in the Same Quarter During the Previous Year

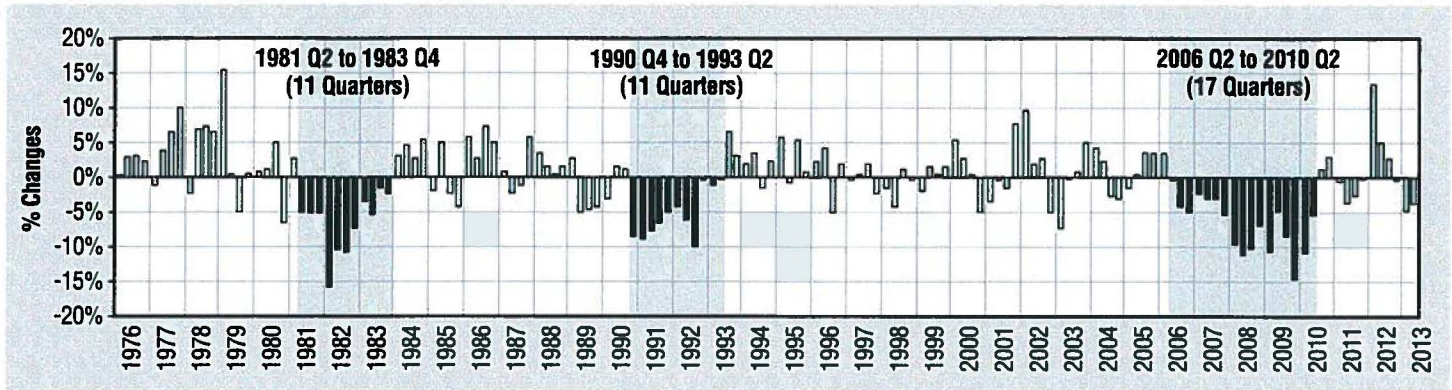


Figure 1 shows the historical trend of the percentage change every quarter from the same quarter in the previous year, going back to 1976. NHTSA has fatality data going back to 1975, and the shading in the chart depicts the years during which there were significant number of consecutive quarters with declines as compared to the corresponding quarters of the previous years. The declines during the early 1980s and 1990s lasted 11 consecutive quarters, while the most recent decline occurred over 17 consecutive quarters ending in the second quarter of 2010.

Discussion

The National Highway Traffic Safety Administration is continuing to gather data on crash fatalities for 2012 and 2013 using information from police accident reports and other sources. While it is too soon to speculate on the contributing factors or potential implications of any changes in deaths on our roadways, it should be noted that the historic downward trend in traffic fatalities in the past several years means any comparison will be to an unprecedented low baseline figure. This is a pattern that has continued through the reported totals for 2011 that show deaths at a 60-year low. In fact, fatalities declined by about 26 percent from 2005 to 2011.

In 2012, since recording a significant increase of 12.3 percent during the first quarter, the magnitude of the increases steadily declined during each subsequent quarter. Fatalities are estimated to have increased by about 4.9 percent in the second quarter, by about 2.5 percent in the third quarter, declining by about 0.4 percent in the fourth quarter of 2012. In 2013, fatalities are estimated to have declined by 4.8 percent and 3.7 percent in the first and second quarter, respectively. The corresponding estimated fatality rates per 100 million VMT during the first, second, third and fourth quarters of 2012 were 1.08, 1.12, 1.21 and 1.16, respectively. The fatality rate for the first quarter of 2013 was estimated to

be 1.04 fatalities per 100 Million VMT and 1.08 fatalities per 100 Million VMT for the second quarter of 2013.

Data

The data used in this analysis comes from several sources: NHTSA's Fatality Analysis Reporting System (FARS), Fast-FARS (FF), and Monthly Fatality Counts (MFC); and from FHWA's VMT estimates. FARS is a census of fatal traffic crashes in the 50 States, the District of Columbia, and Puerto Rico. To be included in FARS, a crash must involve a motor vehicle traveling on a trafficway and must result in the death of at least one person (occupant of a vehicle or a nonoccupant) within 30 days of the crash. FARS final files from January 2003 to December 2010 and FARS Annual Report file in 2011 are used. The FF program is designed as an Early Fatality Notification System to capture fatality counts from States more rapidly and in real-time. It aims to provide near-real-time notification of fatality counts from all jurisdictions reporting to FARS. The MFC data provides monthly fatality counts by State through sources that are independent from the FastFARS or FARS systems. MFCs from January 2003 up to July 2013 are used. MFCs are reported mid-month for all prior months of the year.

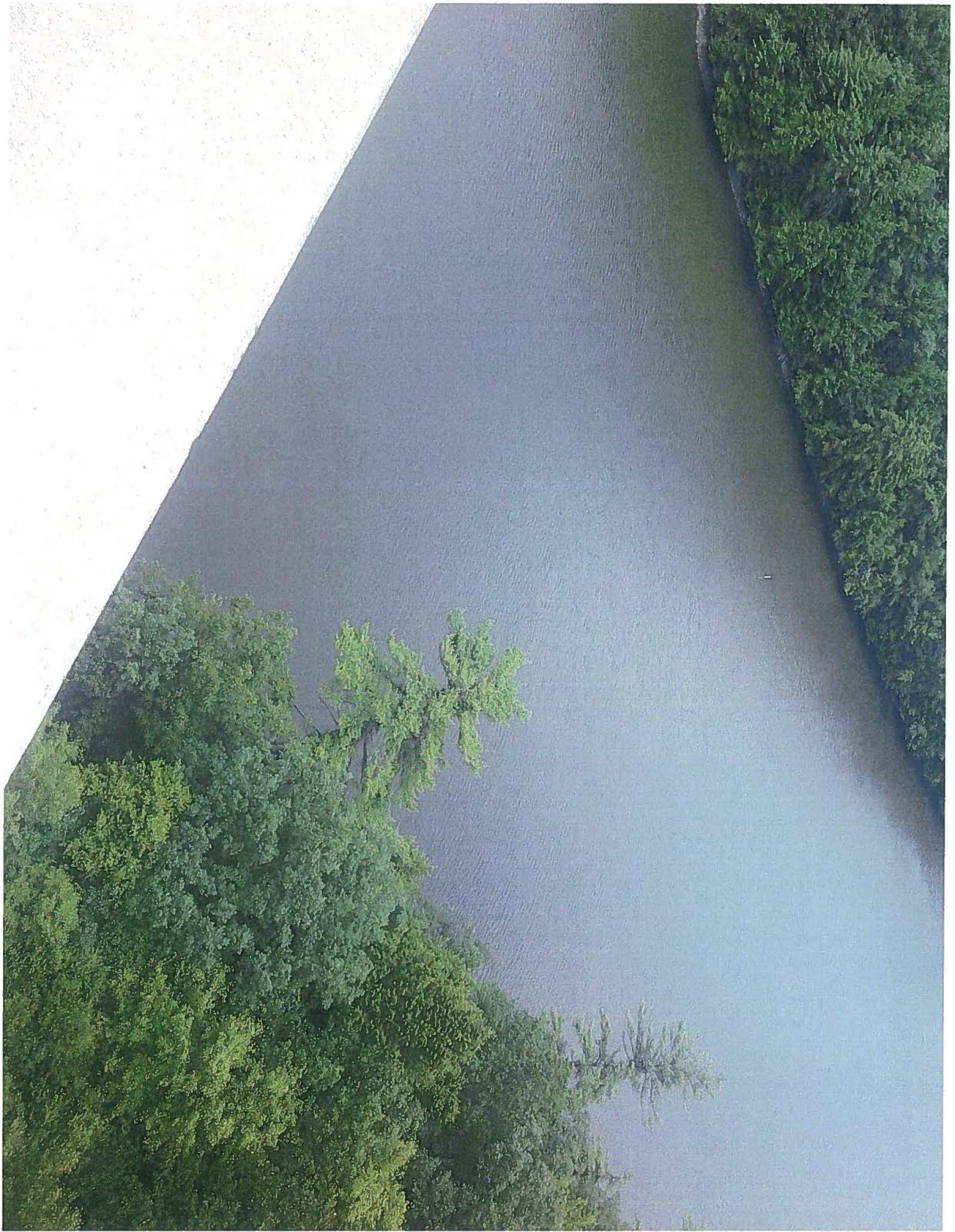
In order to estimate the traffic fatality counts for each month of 2012, time series cross-section regression was applied to analyze the data with both cross-sectional values (by NHTSA region) and time series (by month), to model the relationship among FARS, MFC and FF, the details of which are available in a companion Research Note. The methodology used to generate the estimates for 2012 is the same as the one used by NHTSA to project the decline in the fatalities for the whole of 2011 (*Early Estimates of Motor Vehicle Traffic Fatalities in 2011*, Report No. DOT HS 811 604) as well as projections of fatalities for the first nine months of 2012 (*Early Estimates of Motor Vehicle Traffic Fatalities in the First Nine Months (January–September) of 2012*, Report No. DOT HS 811 706, available at www-nrd.nhtsa.dot.gov/Pubs/811706.pdf).



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

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PENNSYLVANIA HOUSE and SENATE TRANSPORTATION COMMITTEES

**PUBLIC HEARING ON ENHANCING THE SAFETY OF HIGHWAY WORKERS, DRIVERS
AND PEDESTRIANS**

JULY 14, 2015

PennDOT: TRAFFIC CONTROL, SIGNAGE and WORK ZONE SET-UP

Introduction

The Department would like to begin by thanking the House and Senate Transportation Committee members for the opportunity to discuss the current state and future of the Department's Work Zone Program with the Committees.

With the passing of Act 89 and the Rapid Bridge Replacement P3 project, the number of work zones on Pennsylvania roadways is increasing. Accordingly, it is incumbent upon all of us to do everything we can to make these work zones safe to prevent work zone crashes.

When motorists are alert, obey traffic control devices (signs and pavement markings), maintain the posted speed limit, and pay attention to traffic patterns, the safety of everyone is enhanced. To address this fact head on, PennDOT continues to focus on traffic control, signage and work zone set-up improvements.

Existing Program

Each year the Department evaluates its work zone program to implement new policies and/or strategies to improve work zone safety and mobility. Some of the most recent and successful initiatives regarding **traffic control, signage and work zone set-up** include:

- Memorandum of Understanding between the Department and Pennsylvania State Police (PSP) for assistance, including work zone queue protection and traffic enforcement on interstate and other freeways. This agreement was developed to optimize the use of the State Police's limited resources while maintaining the flexibility to have them onsite at the most critical locations in a timely manner.
- The use of Intelligent Transportation Systems (ITS) technology within work zones to monitor traffic conditions and warn drivers of potential hazards in real time. For example, to help address recurring queue crashes in a work zone along I-80 in Clarion County, the Department recently installed an automated queue detection and warning system.
- Updates to PennDOT Publication 213, the Department's guideline on temporary traffic control. These updates promote the consistent use of advance warning signs and establish new flagger apparel requirements for enhanced safety and visibility.
- Updates to an existing policy to streamline the approval process for use of pedestal-mounted, temporary traffic signals which removes the human flagger from the roadway.
- Lastly, updates to our specifications to allow sequential lights at merging tapers. Sequential lights are a series of interconnected, synchronized flashing warning lights that improve delineation and encourage drivers to merge sooner.

Future Program

With a safety goal of reducing fatalities and major injury crashes by 50% before 2030, PennDOT has been aggressively examining our current practices and developing new strategies to meet that goal. In 2014, the Department underwent an independent safety evaluation of its work zone program to highlight areas of improvement and need. The following is a partial list of future initiatives that resulted from that study along with recommendations from Department leadership:

- Update the Memorandum of Understanding with PSP to expand its coverage and reduce prior notice requirements.

- Expand the use of ITS technologies to improve work zone safety.
- Establish a work zone manager policy which would require a certified individual to be present on every work zone to ensure compliance on a daily basis.
- Continue to support Automated Speed Enforcement legislation and continue to coordinate with the Pennsylvania Turnpike Commission to create regulation, policy and an implementation plan as legislation moves forward.
- Host a joint agency Work Zone Safety Summit with the Pennsylvania Turnpike Commission to collect industry input to refine policies and promote new, innovative work zone safety strategies
- Continue to support the research and development of connected vehicle technology through participation in national technical committees.

Challenges

Past history shows all of us that innovation and technology-based safety solutions are rarely without cost and can consume significant resources which must be addressed. Accordingly, we continue to support:

- Passage of Automated Speed Enforcement (ASE) legislation to allow the Department to create an ASE pilot program in work zones.
- Addressing concerns from municipalities on how work zone requirements affect their staffing levels and budgets. One example is the requirement for shadow vehicles to provide protection for mowing operations.
- Securing additional PSP resources to allow expansion of the existing MOU to provide additional enforcement and presence for all roadways. Our contracting partners have expressed their concern over recent examples of limited PSP support due to the current MOU requirements.

Conclusion

On a national basis, 48% of all work zone crashes result in an injury or fatality. Since 2005, Pennsylvania has seen an average of 23 deaths per year due to crashes in work zones. The people affected by these crashes are more than statistics; they are our coworkers, friends and family members. As a result, the Department strives every day to improve work zone safety for both motorists and workers. Please note that not all of the Department's work zone initiatives were mentioned today. Only the initiatives that relate to traffic control, signage and work zone set-ups were discussed. The Department takes great pride in work zone safety and has a number of additional safety initiatives that it will move forward with in the coming years to improve safety for both the motorist and worker.

On behalf of the Department, I appreciate your time and allowing me to speak with you today.

SOURCES:

https://www.workzonesafety.org/news_events/awareness_week/2015/artba_talking_points

<http://www.ops.fhwa.dot.gov/wz/docs/nwzaw2015factsheet/index.htm>

EXAMPLES OF WORKER FATALITIES:

<http://www.mainlinemedianews.com/articles/2014/06/01/region/doc538be7b1dbffb637224664.txt>

<http://6abc.com/news/construction-worker-struck-killed-on-rt-422/421589/>

DEADLY HIGHWAY SIGNS ON THE PENNSYLVANIA TURNPIKE

Emily Morris was looking forward to joining her parents, Drs. Wilson S. and Leona Ewing Morris, on a trip to California. It was a medical conference for Emily's parents, and a vacation for Emily. But mostly, it was an opportunity for the family to be together. Dr. Wilson Morris was a critical care physician, and his wife, Dr. Leona Morris, was a pediatrician. They shared the same medical office in Lebanon, Pennsylvania.

Emily lived in Norristown, Pennsylvania, where she was the Web Editor at Montgomery Media and managing editor for Souderton Independent and Perkasie News Herald. She was also an adjunct professor of English at Northampton Community College.

Emily was born on February 2, 1981, and grew up in Lebanon, Pennsylvania, with her parents and an older brother, Andrew. She graduated from Lebanon High School in 1999, and from Dickinson College in 2003. She earned a Masters of Art Degree (magna cum laude) in Journalism at Northeastern University. Emily was a gregarious and outgoing person who was much loved by her family, friends, and co-workers. One of Emily's friends commented that while most people have one best friend, Emily was a best friend to everyone.

It was noon on Saturday, April 14, 2012. The weather was clear and sunny. Emily was alone, driving her 2012 Volkswagen Passat. She was traveling westbound on the Pennsylvania Turnpike from her home in Norristown to her parents' home in Lebanon. Emily's father had spoken with Emily just before she left her home, and was expecting her arrival. They planned to fly out of Harrisburg International Airport together the next day. They were excited to spend time together on a family trip.

At the same time, a white commercial box truck was heading eastbound in the passing lane on the Pennsylvania Turnpike. It was driven by a deliveryman who had started work early that morning and was returning to his company's warehouse in Montgomery County

after a long trip. While we may never know why, the truck started to wander from the center line to the travel edge of the roadway.

PennDOT had started work on a bridge that passed over the Pennsylvania Turnpike near the Reading Exit, and the project required the protection of traffic traveling on the Pennsylvania Turnpike. The traffic control plan for the project called for the erection of temporary construction signs straddling the concrete median barriers ("Jersey Barriers") on the Turnpike, to the east and west of the bridge, warning motorists of construction ahead. The temporary construction signs that were used are called Type III barricades. They consist of 2 vertical steel posts, about 7' high, one erected on either side of the Jersey barrier, and connected above the Jersey Barrier by a wooden sign placard. The bottoms of the vertical steel posts are welded to horizontal steel post bases. A Pennsylvania Turnpike Standard Drawing of the sign and photograph of one of the signs erected in connection with the project are attached hereto as Exhibits "A" and "B." The vertical steel posts of the Type III barricade involved in this accident were only 3' from travel edge of the passing lanes in both lanes of travel.

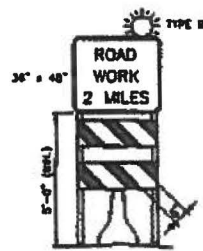
As Emily Morris's Volkswagen Passat and the commercial box truck approached each other from opposite directions on the Pennsylvania Turnpike, the box truck crossed over the travel edge of the highway, and its mirror struck the vertical post of the Type III barricade, sending the barricade hurtling up into the air and into Emily Morris's lane of travel. The posts and sign came slamming down onto the windshield of Emily's car, penetrating it and striking Emily in the face, head and upper body, and shearing off part of her skull.

The next call that Emily Morris's father received was that his daughter had been critically injured in an accident while driving home on the Pennsylvania Turnpike. Wilson and Leona Morris rushed to their daughter's side at Reading Hospital and stayed with her until she died on April 16, 2012.

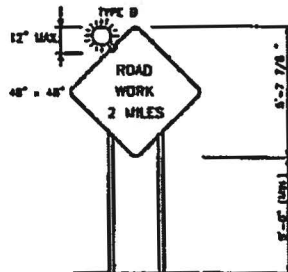
This accident was caused by the dangerous and improper standards created by the Pennsylvania Turnpike for the Type III barricades used in medians straddling Jersey Barriers. All temporary construction signs are required to be approved by the Federal Highway Administration as "crashworthy" based on crash tests. The letter from the Federal Highway Administration approving the Type III barricade used in this construction project was dated July 25, 2000, and was based on a crash test in which the barricade was set out in the open and a vehicle ran into both legs of the barricade head-on and at a 90 degree angle. The letter approving the sign stated that, "any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter." A copy of the FHA's letter dated July 25, 2000, is attached hereto as Exhibit "C."

This incident might easily be dismissed as a "freak" occurrence, but one must remember that the purpose of the Jersey Barrier is to prevent errant vehicles from crossing over from their lanes into the opposite lane of travel. The Jersey Barrier is like the back stop behind home plate on a baseball field. Only, it is there to stop cars, not baseballs. Thus, in order for it serve its purpose, it is foreseeable that the Jersey Barrier will be struck by motor vehicles. This writer has been contacted in other cases involving serious injuries caused by metal posts and debris from Type III Barricades laying on the roadway after being struck by vehicles.

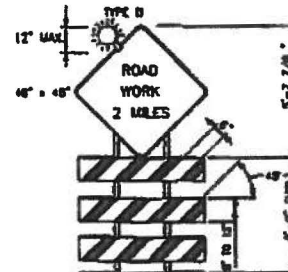
Other states use different, safer designs for temporary construction signs. This writer has brought this issue to the attention of the Turnpike Commission, to no avail. Moreover, the Pennsylvania Turnpike Commission claims immunity from lawsuits. Thus, the only protection that the public may have from these dangerous signs may be from the Pennsylvania Legislature.



TYPICAL MEDIAN
TYPE II BARRICADE



TYPICAL SHOULDER POST MOUNTED

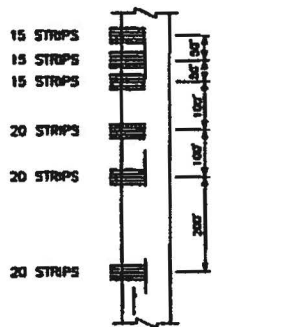


TYPICAL PAVED SHOULDER/ROADWAY
TYPE II BARRICADE

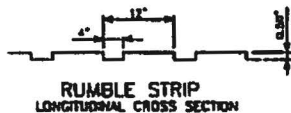
NOTES:

1. DISTANCE BETWEEN THE SIGN AND BARRICADE MAY VARY.
2. DO NOT USE METAL OR TOSSO SIGNS IN MEDIAN.
3. ALL SHOULDER SIGNS ARE TO BE POST MOUNTED ON THE PAVED SHOULDER AS FOR FORMER TC-4700 UNLESS CONDITIONS WARRANT OTHERWISE.
4. THE LENGTH OF BARRICADE MAY NOT EXCEED OR EXCEED THE WORKER HORISONTAL DIMENSION OF THE WORKS SIGN INSTALLED ON THE BARRICADE.
5. BATTERY CASE MUST BE PLACED EITHER ON THE CHAINS OR ATTACHED 20" MAXIMUM ABOVE THE GROUND EXACTLY TO THE POST OR BASE LEG.
6. PLACE SAFETY BULLET ON EQUAL OR BASE AS INDICATED OR BULLET TO REDUCE ROUDEDUE DUE TO WIND.

TYPICAL SIGN INSTALLATION

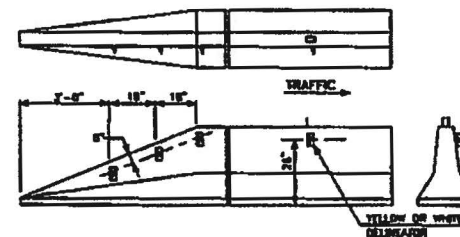


RUMBLE STRIP PATTERN



RUMBLE STRIP
LONGITUDINAL CROSS SECTION

RUMBLE STRIP DETAIL



NOTES:

1. PLACE ONE (1) YELLOW OR WHITE DELINEATOR ON THE TOP AND ON THE TOP OF THE BARRIER AT THE MIDDLE OF EACH CONCRETE BARRIER SECTION FACING TRAFFIC UNLESS PERMANENT BARRIER IS USED IN CONSTRUCTION. FOR PERMANENT BARRIER USED IN CONSTRUCTION, INSTALL DELINEATORS AT FULL SPACING.
2. FOR SINGLE FACE CONCRETE BARRIER, INSTALL DELINEATORS AS DESCRIBED IN #1 ABOVE.

PLACING OF DELINEATORS
ON TEMPORARY CONCRETE BARRIER



RECOMMENDED - OCTOBER 13 2012
 APPROVED BY: *[Signature]*
 ASSISTANT CHIEF ENGINEER - DESIGN
 APPROVED: *[Signature]* OCTOBER 11 2012
 CHIEF ENGINEER

CONSTRUCTION AND MAINTENANCE
 MISCELLANEOUS DETAILS

PENNSYLVANIA TURNPIKE COMMISSION
 STANDARD DRAWING

FILE NAME: PTA-2002-13.dwg SHEET 13 OF 13
 DRAWING TYPE: SA

DATE: OCTOBER 2012 PTS-880

SPEED
LIMIT
55



PENNSYLVANIA HOUSE and SENATE TRANSPORTATION COMMITTEES

PUBLIC HEARING ON ENHANCING THE SAFETY OF HIGHWAY WORKERS, DRIVERS AND PEDESTRIANS

JULY 14, 2015

PENNDOT TESTIMONY- AUTOMATED RED LIGHT CAMERA ENFORCEMENT (ARLE)

Introduction

The Department would like to begin by thanking the House and Senate Transportation Committee members for the opportunity to participate and provide data regarding ARLE. We are here to provide to you the violation data and crash data from Pennsylvania.

Background

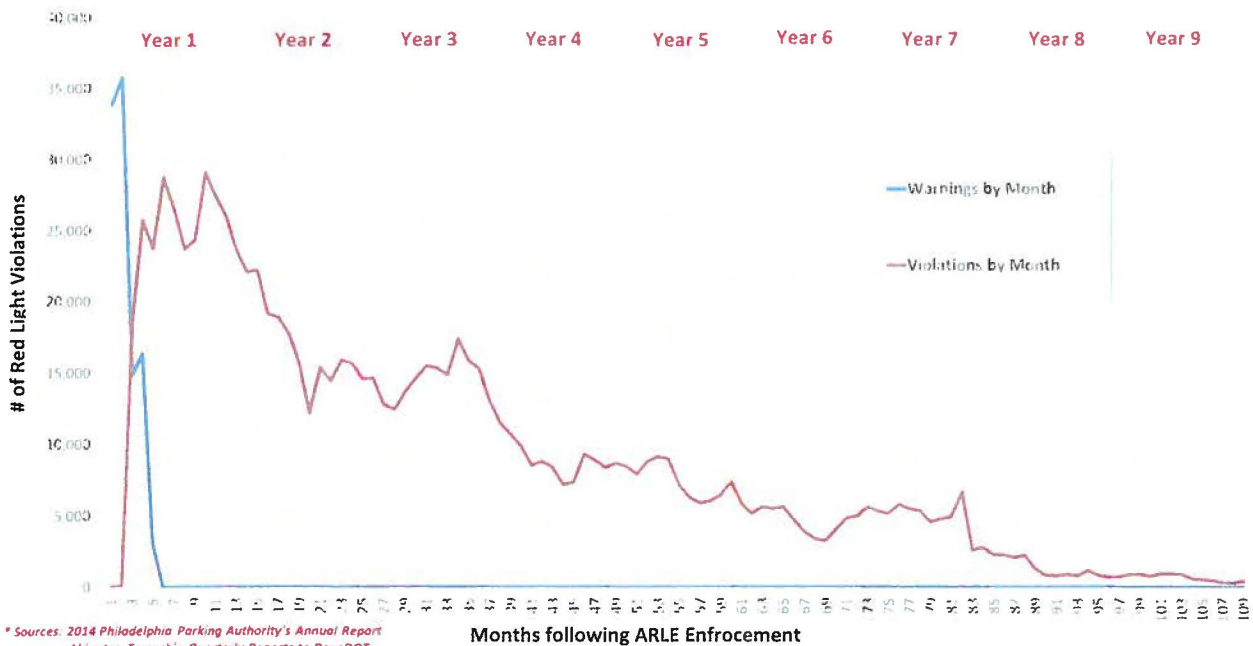
Currently, two municipalities, the City of Philadelphia (27 intersections operational) and Abington Township (3 intersections operational) have ARLE intersections.

Results to Date

The figure below provides a good representation of the violation reduction after implementation of ARLE and the number of intersections that have been operational over that same period. Based on the figure a 47.7% reduction in violations can be observed by comparing the first violation month (3 month operational) with the 24 month after ARLE implementation. The Department has found that 12 intersections (44.4%) no longer generate enough revenue to pay their monthly maintenance and operational expenses, but the intersections continues to remain in operation. (Note: Approximately 10 violations per day (300 per month) are needed to generate enough revenue to maintain operations and maintenance at each intersection.) The Department recently closed the application period for the 6th year of the ARLE Funding Program that has previously awarded 275 projects totaling \$39.9 Million.

Note: The overall data shown is based on the City of Philadelphia's program which has been operational for over 9 years while Abington Township's program has been operational for 9 months

Overall Automated Red Light Enforcement (ARLE) Violations



* Sources: 2014 Philadelphia Parking Authority's Annual Report
Abington Township Quarterly Reports to PennDOT

As noted in the 2011 Transportation Advisory Committee (TAC) Report, ARLE has been documented to reduce the number of running red light crashes in Pennsylvania. With the expansion of the number of intersections, driver familiarity, availability of more data, and program maturity, we have begun to re-analyze the effectiveness of ARLE. We extracted those crashes directly attributed to red light running and also included overall rear end crashes. Our initial review shows that overall rear end crashes have slightly increased while red light running crash severities have reduced. (This is consistent with previously completed national studies)

	Red Light Running Crash Severity						Overall Rear End Crashes
	Fatalities	Major Injuries	Moderate Injuries	Minor Injuries	Unknown	Total	
Before	3	6	53	111	95	268	179
After	1	0	10	27	25	63	182
Reduction	-2	-6	-43	-84	-70	-205	3
% Reduction	-66.7%	-100.0%	-81.1%	-75.7%	-73.7%	-76.5%	1.7%

Note: The table above compares 3 years prior to installation of ARLE with the last 3 years of crash data at 20 ARLE intersections

In conclusion, the Department is currently performing a detailed evaluation of the ARLE crash locations to ensure that the program continues to target safety improvements.