

Arizona Local Technical Assistance Program

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INSIDE

- 1. Arizona DOT Deploys 25 new High-tech Snow Plows
- 3.Targeted Work Zone Engagement Framework Guidance Document
 5.NHTSA Communication Calendar
 6.Roadway Departure Safety
 9. Road Scholar Graduates
 10. Calendar of Events



The AZ LTAP mission is to foster a safe, efficient and environmentally sound transportation system by improving skills and knowledge of the transportation provider through training, technical assistance and technology transfer. The AZ LTAP vision is to be recognized as a premier resource in developing and transferring innovative technologies, proven solutions and reliable servces to successfully meet the evolving educational and traning needs of the transportation community within Arizona. AZ LTAP will actualize its vision and accomplish its mission by paying personal attnetion to customer needs.

All courses on the AZ LTAP training schedule have been requested by our customers. You may request training to be delivered at your location by completing an on demand request form, please visit: www.azltap.org. Arizona DOT Deploys 25 New 'High-Tech' Snow Plow Trucks editor@aashto.org January 4, 2019



The Arizona Department of Transportation is adding 25 new "high-tech" snow plow trucks to its fleet of 200 units; trucks equipped with lighter, more flexible 12foot plow blades that can be adjusted from inside the cab. The agency added that those new trucks are being used almost exclusively on wider interstate highways, including I-17 and I-40 in the Flagstaff area.

[Above photo by Arizona DOT.]

The Arizona DOT noted in a statement on Dec. 20 that the new snow plow trucks cost \$280,000 each and weigh 65,000 pounds when fully loaded with equipment and deicing materials. However, the new trucks aren't winter season-only vehicles, the agency stressed, as when their snow plow-related equipment is removed, the vehicles serve as dump trucks for highway maintenance work.



Photo by Arizona DOT

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What makes these snow plow trucks "high-tech" revolves around several design features:

Inside the cab, joysticks allow the driver to more precisely control the blade's movements.

A computerized monitor screen provides weather data and pavement temperatures as well as information about deicing agents that are distributed from the plow's dump truck bed. A separate screen displays images from rear- and sidemounted cameras.

A laser light system helps guide drivers as they operate separate blade called a "wing plow," which can extend from right side of the vehicle and increase the amount of snow cleared. The laser's beam, which shines ahead to match where the outside edge of the wing plow will travel, lets drivers know if they need to merge away from objects such as guardrails.



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Photo by Arizona DOT

The Arizona DOT also noted that the "bit" or bottom-edge section of the flexible snowplow blades on its 25 new trucks includes a shock-absorbing rubber insulator that improves contact with the highway's surface.

That helps the plow blade act much more like a squeegee along the pavement, the agency said; increasing the removal of snow and ice from lower, worn spots on the roadway created by heavy traffic volumes.

Here's a look the tasks undertaken by Arizona DOT snow removal teams during winter storms:





(Continued on Page 4)

AZ Mílepost 2019



Targeted Work Zone Engagement Framework Guidance Document

The Targeted Work Zone Engagement Framework ("Framework") was developed in 2016 to serve as a resource for FHWA personnel to easily and efficiently provide targeted assistance to State transportation agencies. It is designed to support work zone program personnel in enhancing the effectiveness of their work zone safety and mobility policies and procedures. It is intended for use by State agency staff in conjunction with FHWA subject matter experts to identify and assess work zone safety and mobility impact mitigation needs, determine useful resources, and implement improvements. The Framework, which has been updated to include tools and resources published since the original issue in 2016, includes a range of information resources (guidelines, field guides, podcasts, training, and analytical tools) along with guidance to assist agencies in determining how to improve their own work zone safety and mobility policies and procedures based on available data

View the publication at: https://ops.fhwa.dot.gov/publications/fhwahop18081/fhwahop18081.pdf



[Editor's note: The American Association of State Highway and Transportation Official's Winter Maintenance Technical Service Program, known as "SICOP," serves as a winter operations resource for state DOT fleets. The program offers an array of winter operation advice via the SICOP website <u>https://</u> <u>sicop.transportation.org/</u>, as well as via social media such as the Facebook group "Winter Operations" and the podcast "SICOP Talks Winter Ops" at <u>http://sicoptalkswinterops.com</u>.]

The Arizona DOT also offers several tips to motorists for safer vehicle operation around snow plows as well as other "winter-driving" advice at <u>azdot.gov/KnowSnow</u>:

Stay at least four vehicle lengths behind a snow plow and never pass until it pulls over to let traffic pass.

Never assume a snowplow operator knows you are nearby. If you can't see the plow driver, there is a good chance the driver can't see you.

Consider putting off travel during snow storm. It's much more difficult for snowplows to do their jobs when a highway is jammed with vehicles stopped by slide-offs and crashes on the slick surface.

To avoid interfering with snowplows, drivers of large trucks should heed signs on steep uphill grades telling them to stay in the right lane or right lanes.

If approaching an oncoming snowplow, slow down and give the plow extra room.

Leave space when stopping behind a snowplow. The driver might need to back up.

Just because a plow has been through an area, don't assume the roadway is completely clear of snow and ice.







Roadway Departure Safety





More than half (53 percent) of U.S. fatal crashes occur after a driver crosses the edge or centerline of a roadway. Two-thirds (67 percent) of these fatal crashes occur in rural areas. More than half (53 percent) of U.S. fatal crashes occur after a driver crosses the edge or centerline of a roadway. Two-thirds (67 percent) of these fatal crashes occur in rural areas.

What causes drivers to drive off the roadway or out of their lane?

Many factors, and combinations of factors, contribute, including driver fatigue and drowsiness; distracted driving; and slippery road surfaces and poor visibility in adverse weather conditions. These factors are sometimes compounded by driving too fast. Alcohol and drugs can contribute to both fatigue and speed. Driver fatigue also is induced by highway hypnosis, which occurs when long, monotonous stretches of highway reduce the driver's concentration.

How do rumble strips prevent crashes?

For those drivers who are about to unintentionally drive off the pavement edge or cross the centerline, rumble strips create noise and vibration inside the vehicle through interaction with the vehicle tires. Often this alert is strong enough to get the attention of a distracted or drowsy driver, who can quickly make a corrective steering action to return to the roadway safely. Rumble strips also alert drivers to the lane limits when conditions such as rain, fog, snow or dust reduce driver visibility.

How do rumble stripes improve visibility at night and in bad weather?

A rumble strip becomes a "rumble stripe" when an edge line or center line pavement marking is placed on it. The contour of the rumble strip drains water, and provides a reflective back wall that allows the pavement marking to maintain its retroreflectivity at night during rain and post-rain events.

Crashes Down

Eleven States and one national study have analyzed the effectiveness of centerline rumbles in reducing crashes. These studies conclude that crossover crashes were reduced 18 to 64 percent, with most studies showing 40 to 60 percent reductions.

Shoulder rumbles were first used on freeways, where their effectiveness has been studied extensively. Fourteen States and two multistate studies report reductions in single-vehicle run-off -road freeway crashes of 14 to 80 percent, with most reporting reductions in the 30 to 40 percent range. The three States that restricted their crash analysis to crashes caused by distracted or drowsy driving (the true target crashes for rumble strips) report 40 to 80 percent reduction in those crash types.



Rumble stripes daytime (left) and at night in the rain (right). Note the brightness of the rumble stripe at night, as compared to the normal pavement marking to the left of the rumble line. Michigan DOT (by permission)

Centerline Rumble Strips

Centerline Rumble Strips are an effective countermeasure to prevent head-on collisions and oppositedirection sideswipes (often referred to as cross-over or cross-centerline crashes). Centerline Rumble Strips are primarily used to warn drivers whose vehicles are crossing centerlines of two-lane, two-way roads.

Design Features – In order to minimize nuisance to motorists and neighborhood property owners, the rumble line is often discontinued in the vicinity of intersections and major commercial driveways. State DOT practices vary regarding the placement of rumble strips in no passing zones.



Centerline rumble strip installed in a No-Passing section on Kentucky's Daniel Boone Parkway. Kentucky Transportation Cabinet (by permission)

Shoulder Rumble Strips

Shoulder Rumble Strips are an effective means of preventing run-off-the-road crashes. They are primarily used to warn drivers when they have drifted from their lane.

Design Features – Placement of shoulder rumbles close to the travel lane increases their effectiveness at intercepting and alerting a drifting motorist. Especially on narrow-shouldered roads, some agencies place the rumble line at the shoulder edge, in conjunction with the edge line pavement marking, creating a "shoulder stripe."

To accommodate bicyclists, common modifications to shoulder rumble strips include 1) avoiding rumbles unless a minimum of 4 ft. of paved shoulder is available; 2) leaving a periodic gap in the rumble line to allow bicycles to travel between the shoulder and travel lane; 3) modifying the depth and width of the rumble cut to make traversing the rumble strips safer for cyclists.



Gapped shoulder rumble strips allow bicycle flow between shoulder and driving lane. Minnesota DOT (by permission)

For more information FHWA Office of Safety Roadway Departure Web Site http://safety.fhwa.dot.gov/roadway_dept NCHRP Report 641: Guidance for the Design and Application of Shoulder and Centerline Rumble Strips has the most current information on rumble strips and their effectiveness. Cathy Satterfield, P.E. FHWA Office of Safety Roadway Departure Team (708) 283-3552 cathy.satterfield@dot.gov Frank Julian FHWA Resource Center Safety and Design Team (404) 562-3689 frank.julian@dot.gov

2019 3rd Quarter Road Scholar Graduates

Congratulations to the following Road Scholar participants for their acheivements this year in the Road Scholar Program. Thank you for your hard work!

3rd quarter Graduates Level I <u>City of Sierra Vista</u> Brad P. Meinzer

Town of Queen Creek Johnathan Deck 3rd quarter Graduates Level II <u>Tucson Airport Authority</u> Celestino Robles Ron Sparks Jr. Ronald Gaines





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Safety in the Workplace

11/14/2019	11/14/2019	Phoenix
11/19/19	11/19/19	Phoenix
11/19/19	11/20/19	Flagstaff
11/21/19	11/21/19	Phoenix
12/5/2019	12/5/2019	Florence
12/17/19	12/17/19	Payson
12/19/2019	12/19/2019	Phoenix
01/15/2020	01/15/2020	Yuma
02/05/2020	02/06/2020	Yuma
03/03/2020	03/03/19/2020	Phoenix
03/04/2020	03/04/2020	Phoenix
04/21/2020	04/21/2020	Tucson



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1130 NORTH 22ND AVENUE PHOENIX, ARIZONA 85009 ttraining@azdot.gov www.azltap.org 602-712-4050