



Local Agency Safety Edge Grant Program Information & 2012 Streamlined Application Form

WHAT IS SAFETY EDGE?

The Safety Edge_{SM} is a simple but effective pavement edge solution that helps save lives by reducing roadway departure crashes. Roadway departures account for over half of all fatal crashes. Instead of a vertical drop-off, the Safety Edge_{SM} creates a pavement edge of 30-35 degrees that allows a safer transition for drivers who run-off-the-road. This helps reduce fatal and serious injury crashes on rural, two-lane roadways such as roll-overs and head-on collisions when a driver over-corrects from veering off the roadway. Safety Edge_{SM} can be incorporated on pavement projects cost effectively, system-wide, and with negligible impacts to paving operations. The Safety Edge_{SM} also provides a more durable pavement edge that prevents edge unraveling. This technology is an initiative through the FHWA's *Every Day Counts* program.

GRANT PROGRAM

FHWA's goal is to accelerate the use of the Safety Edge_{SM} technology, working with States to develop specifications and adopt this pavement edge treatment as a standard practice on all resurfacing and new pavement projects. In Arizona, the Arizona Department of Transportation (ADOT) has developed an Implementation Plan to install Safety Edge_{SM} on demonstration projects across the state and is looking to pursue adopting a policy or guide for a Safety Edge_{SM} standard in the next year.

In addition, the FHWA Arizona Division Office has received grant funding through a FHWA Technology Transfer (T2) Deployment program—which finances research, development, technology and innovation transfer activities—to purchase fifteen (15) Safety Edge_{SM} Shoe Devices to be made available specifically to Local Agencies to further implement Safety Edge_{SM} in Arizona. The **Local Agency Safety Edge_{SM} Grant Program** is 100% funded and not a reimbursable program. This Local Agency Safety Edge_{SM} Grant Program has already procured the Safety Edge_{SM} Shoe Devices. Therefore, Local Agencies who are a recipient of a grant award through this program do not have to go through federal reimbursement requirements or the federal procurement process. The physical Safety Edge_{SM} Shoe Device will be awarded to the Local Agency recipient who will become the owner of the Safety Edge_{SM} Shoe Device.

FHWA's goal is to advance the implementation of the Safety Edge_{SM} technology, so that more lives can be saved. By providing the Safety Edge_{SM} Shoe Device to Local Agencies, implementation of the pavement edge treatment on resurfacing and new pavement projects across Arizona can be accelerated, and information about Safety Edge_{SM} disseminated to contractors and inspectors statewide. The expectation is that Local Agencies lend out the Safety Edge_{SM} Shoe Device to contractors on local pavement projects to incorporate Safety Edge_{SM} into pavement treatments. The Arizona Local Technical Assistance Program (LTAP) Center will provide training to local agencies on the use of Safety Edge_{SM} and distribute the Safety Edge_{SM} Shoe Devices.



GRANT REQUIREMENTS

1. Application Form: See Streamlined Application Form attached.
2. Eligibility: Grants (i.e. Safety Edge_{SM} Shoe Devices) will be awarded only to local public agencies having jurisdiction over local transportation systems (cities, towns, counties, tribes).
3. Construction Project: Local Agency recipients will be required to commit to implementing Safety Edge_{SM} on at least one (1) paving project (but can be more than one) such as a pavement preservation or new roadway construction project. If possible, during construction, LTAP and/or FHWA may be in attendance for training or observation. Also, invitations should be extended to other contractors and surrounding agencies for training purposes or who may be interested in Safety Edge_{SM}.
4. Training. At least one (1) representative shall be identified from the Local Agency to be the lead contact and coordinator for Safety Edge_{SM}. This Local Agency Safety Edge_{SM} Coordinator will be required to be trained as a Safety Edge_{SM} Trainer who will then be able to train others at the Local Agency and contractors on Safety Edge_{SM}. The free Safety Edge_{SM} Coordinator Training will be conducted by Arizona LTAP and take approximately 4 hours. The Safety Edge_{SM} Coordinator will then be a resource on Safety Edge_{SM} to the Local Agency, be able to provide technical assistance as needed, and conduct inspections. On-site training when using the Safety Edge_{SM} Shoe Device takes approximately 15 minutes for contractors and other inspectors.
5. Policy/Standard Adoption. Local agencies will be encouraged to look at adopting a policy, guideline, specification, standard detail, or any combination thereof, incorporating Safety Edge_{SM} into their engineering and business practices.
6. Annual Report. For approximately three (3) years after receipt of the Safety Edge_{SM} Shoe Device, an annual update from the Local Agency will be required summarizing the previous year's activities and accomplishments regarding Safety Edge_{SM}. This annual update can be provided to FHWA in a brief letter or email and should include 1.) the number of projects and a short description on which Safety Edge_{SM} was implemented, 2.) the status of adopting a Safety Edge_{SM} policy and/or standard, 3.) photos (if available), and 4.) any other evaluation that has taken place (if available), such as before and after crash history of roadway departure and fatal and serious injury crashes, economic benefits (construction and/or maintenance costs), or other advantages and disadvantages that may have been experienced.



Grant Application Process

Please forward all grant applications to the FHWA Arizona Division Office. Provided all the requirements are met, Safety Edge_{SM} Shoe Devices will be awarded on a first-come, first-serve basis. A total of 15 Safety Edge_{SM} Shoe Devices are available and the Grant Program will run until all of the Devices are distributed. An award letter will be issued to the recipient agency. Training and arrangements to pick up the Safety Edge_{SM} Shoe Device will be coordinated with the Arizona LTAP Center.

Send signed original Application to:

FHWA Arizona Division
ATTN: Kelly LaRosa
4000 N. Central Avenue, Suite 1500
Phoenix, AZ 85012

Training will be arranged by LTAP:

Landon Mays
ARIZONA LTAP Center (HRDC)
1130 N. 22nd Avenue
Phoenix, AZ 85009

For questions, contact:

Kelly LaRosa, FHWA Arizona Division Safety Engineer at 602-382-8991 or Kelly.larosa@dot.gov
Landon Mays, Arizona LTAP Regional Instructor at 602-712-4064 or LMays@azdot.gov

ADDITIONAL RESOURCES

FHWA Safety Edge_{SM} Website www.fhwa.dot.gov/everydaycounts/technology/safetyedge/

FHWA Every Day Counts Website for other methods to accelerate project delivery, improve safety and reduce congestion available at: www.fhwa.dot.gov/everydaycounts/

APPENDICES

Appendix A—Local Agency Safety Edge_{SM} Grant Program Streamlined Application Form

Appendix B—FHWA Safety Edge_{SM} Flyer “How Does Safety Edge_{SM} Compare to Conventional Paving?”

Appendix C—Example Safety Edge_{SM} Standard Detail and Special Provision from Maricopa County DOT



Appendix A

Local Agency Safety Edge_{SM} Grant Program Streamlined Application Form



Local Agency Safety Edge_{SM} Grant Program Streamlined Application Form

Agency Name: _____	County: _____ ADOT District: _____
Applicant Information:	
Name: _____	
Title: _____	
Address: _____	
Email: _____ Phone: _____	
Designated Safety Edge _{SM} Coordinator (if different from Applicant above):	
Name: _____	
Title: _____	
Address: _____	
Email: _____ Phone: _____	
Please Check Concurrence:	
<input type="checkbox"/> The Local Agency will implement Safety Edge _{SM} on a Construction Project. Estimated Project Start Date (if known): _____	
<input type="checkbox"/> The Safety Edge _{SM} Coordinator will attend Safety Edge _{SM} Training and agree to train others on Safety Edge _{SM} for Local Agency Projects as needed.	
<input type="checkbox"/> The Local Agency will consider adopting a Safety Edge _{SM} policy/ standard/ specification/ or guidance.	
I, the undersigned, do hereby certify that I am an authorized applicant for the Local Agency who has received permission from Local Agency management to apply for this grant. I, the undersigned, do hereby certify that I or my staff has read and understand the application requirements, and the conditions contained herein that shall be complied with if a grant is awarded. To the best of my knowledge and belief, the information contained in this application is accurate and complete.	
Signature: _____	Date: _____
Print Name: _____	Title: _____



Appendix B

FHWA Safety Edge_{SM} Flyer

*“How Does Safety Edge_{SM} Compare to
Conventional Paving?”*

Federal Highway Administration
Every Day Counts

Innovation Initiative



How Does Safety Edge Compare to Conventional Paving?

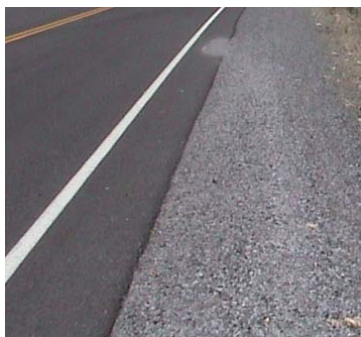
Conventional Paving: Vertical Edge Drop-off



In the conventional asphalt paving process, approximately 80 percent of compaction is achieved by the screed, then a series of rollers

is used to provide some additional compaction. However, at the edge of the pavement, the asphalt material is not well compacted and lays somewhat loosely at about a 45-degree angle. This loose material cools faster than the rest of the asphalt and typically breaks off.

Before the project is complete, the shoulder material is brought flush with the top of the pavement, so that drivers are not exposed to a drop-off initially.



After a few months, the shoulder begins to settle and the edge is exposed. Erosion also works on this material to wash it away. On narrow pavements, or in certain locations like curves or mailboxes, the unpaved shoulder



may be worn down by tires as well. The loose asphalt at the edge is lost with the shoulder material and the hard pavement edge is nearly vertical, with a rounded top. This edge can cause tire-scrubbing in a roadway departure.

ADVANTAGES: We've always done it this way—no training needed.

DISADVANTAGES: Where edge is exposed, drivers may encounter tire-scrubbing and lose control, potentially resulting in a crash. The pavement edge is more likely to ravel and break off.

Paving with the Safety Edge: Mountable Drop-off



There is one change with the Safety Edge—a shoe is attached to the paver to consolidate the edge material into a tight 30-degree shape as it comes off the screed. Compactive rolling of the rest of the pavement proceeds normally, as no additional compaction is necessary.



As with conventional paving, the shoulder material is brought flush with the top of the pavement before the project is considered complete. Again, drivers are not initially exposed to a drop-off.

Shoulder material will settle, erode, or be worn down by tires, similar to conventional pavement. However, the edge holds its shape



(if a proper shoe provided the intended compaction at laydown), so there is no lost material in the process. More importantly, the 30-degree edge that is exposed does not induce tire scrubbing. Drivers who have dropped a tire over this edge are very likely to be able to return to their lane without losing control as they attempt to steer back onto the pavement.

ADVANTAGES: Safer for drivers attempting to steer back onto pavement. Costs are low to none, depending on project parameters. The pavement may last longer.

DISADVANTAGES: Requires training and a small, relatively inexpensive piece of equipment.

Contact Information:

To learn more about EDC, visit:
<http://www.fhwa.dot.gov/everydaycounts>

For training or more information on this Every Day Counts Initiative, please contact your local FHWA Division Office.



U.S. Department
of Transportation
**Federal Highway
Administration**

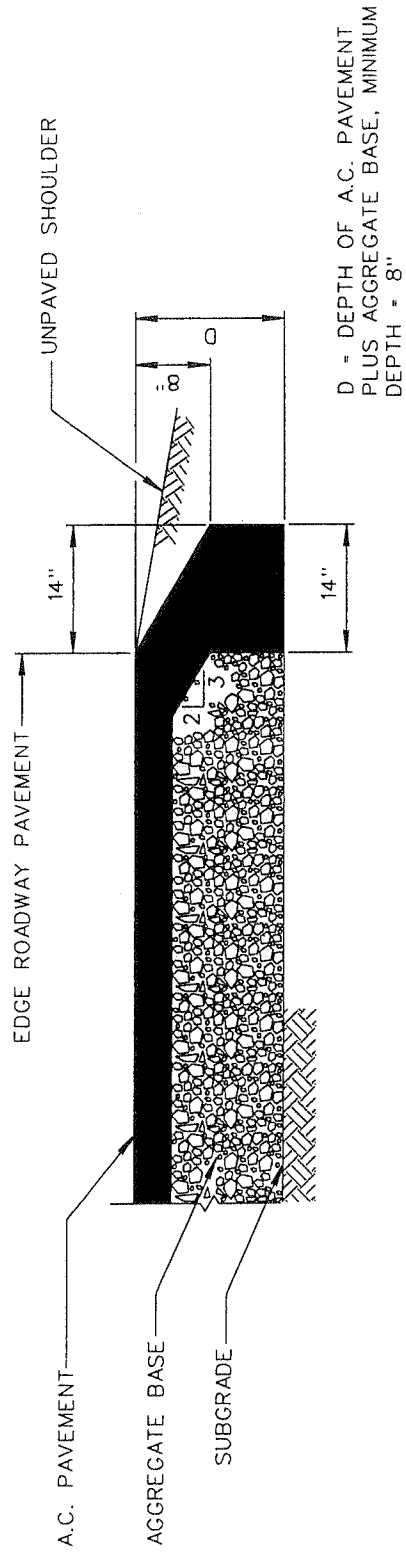




Appendix C

Example Safety Edge_{SM} Standard Detail and Special Provision

from Maricopa County DOT



MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION
 STANDARD DETAIL

ASPHALT PAVEMENT
 SAFETY EDGE

DATE:
 12/10

DETAIL NO.
 2001

MCDOT
GUIDELINE SPECIAL PROVISIONS
(For use with the 2011 MCDOT Supplement to MAG)

Instructions for use of these Guideline Special Provisions (GSP):

These GSP contain project specific specifications that do not appear in the MCDOT Supplement to the MAG Standard Specifications. The GSP are to be used as a framework for developing project special provisions. Individual specifications herein are to be reviewed and modified as required by project specific conditions. Additional special provisions will need to be written to clarify specific project conditions and requirements.

Within the table of contents and proceeding each separate specification is an explanation of when the specification is applicable (The instructions on when a section should be used is indicated in parenthesis). Select the appropriate sections for inclusion in project Special Provisions, copy and paste into your document.

Changes to the MCDOT Supplement to the MAG Standard Specifications are added periodically to these GSP for immediate implementation. These revisions are to be added to project special provisions when the project is to be advertised prior to the effective date of the next MCDOT Supplement. The changes are not to be added to project special provisions when the construction advertisement date is to occur after the anticipated publication date of the next MCDOT Supplement. The MCDOT Supplement is scheduled to be published annually with a target date of January 1.

Individuals preparing Special Provisions should be familiar with MCDOT Engineering Division's ***A Guide For The Preparation Of Contract Specifications***, dated April 2000 and revised 3/31/2011.

Coordinate revisions and additions to these GSP with Robert Herz.
(Phone: 602-506-4760, email: rherz@mail.maricopa.gov)

The bituminous material shall be Grade MC-70 or MC-250 liquid asphalt (*70 cold weather, 250 hot weather*) as determined by the Engineer. Prime coat shall be applied to the total width of the prepared subgrade at the rate of 0.4 gallon per square yard unless otherwise specified by the Engineer. Prime Coat shall be allowed to penetrate for not less than 48 hours prior to paving. An application of dry or slightly damp chips may be placed over the penetration coat to allow traffic to use the roadway. Prior to paving or application of another surface treatment the roadway shall be swept.

321.8.8 Safety Edge (Include when a Safety Edge is required and the project is to be constructed under the 2011 MCDOT Supplement to MAG. This revision will be added to the 2012 Revision of MAG or the 2012 MCDOT Supplement to MAG. Added 4/6/2011)

SECTION 321 ASPHALT CONCRETE PAVEMENT

321.8 PLACEMENT, add the following:

321.8.8 Safety Edge: Prior to commencing paving operations that require construction of a safety edge, the Contractor shall submit for the Engineer's approval construction procedures to be used for placement and compaction of the safety edge.

The finished safety edge slope shall be planar and form a $30^{\circ} \pm 5^{\circ}$ angle with the horizontal plane. Due to the required final edge slope of the safety edge, compaction as required by sections 321.8.4 and 321.10 may not be attainable. When the approved procedures for placement and compaction of the safety edge are followed, the safety edge compaction shall be considered acceptable.

When the depth of the safety edge extends two inches or more below the bottom of the asphalt pavement base course, the portion below the base course shall be placed and compacted as a separate construction operation. The remaining portions of the safety edge shall be constructed as part of each successive asphalt lift (base, intermediate, and finishing courses). Construction of the base course may immediately follow compaction of the lower portion of the safety edge.

When the depth of the safety edge extends less than two inches below the bottom of the asphalt pavement base course, the portion below the base course may be placed and compacted with the base course in a single operation. The remaining portions of the safety edge shall be constructed as part of each successive asphalt lift (intermediate and finishing courses).

321.10.7 Pavement Smoothness (Include on projects with new asphalt pavement length one mile or greater and a functional classification of collector or higher. Shorter road segments may have pavement smoothness testing applied when approved by the MCDOT Materials Engineer. Projects must have a minimum of two (2) courses of Hot Mix Asphalt in which the compacted depth of each layer is