Targeted Overlay Pavement Solutions (TOPS)

Targeted overlays match treatments to high-priority, high-need locations.

U.S. Department of Transportation
Federal Highway Administration

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Asphalt Rubber Gap-Graded

The asphalt rubber gap-graded (ARGG) mix is a gap-graded asphalt mixture that uses aggregate with a top size of either ⅜ inch or ½ inch, as well as an asphalt-rubber binder containing approximately 20 percent ground tire rubber. Since the asphalt rubber binder provides a greater volume of asphalt due to the rubber particles, the aggregate gradation in this type of mixture is adjusted (gap-graded) to allow for a higher binder content. This type of mixture is very durable with resistance to reflective cracking, rutting, thermal cracking and oxidation, and generally has good frictional characteristics – depending on the aggregate. The compacted thickness of this mixture ranges from 1.25 inches to 2.25 inches, depending on the size of the aggregate used. These types of mixes can be used in a wide range of traffic levels in urban areas with considerable stop and go traffic, such as intersections.

ARGG mixes have been used and evaluated extensively in Arizona and California, and have also been evaluated at the Federal Highway Administration Accelerated Loading Facility, the National Center for Asphalt Technology (NCAT) Pavement Test Track, and in Louisiana, Taiwan, and Sweden. Overall, the various field performance studies carried out in different parts of the world indicate ARGG mixes present enhancement in asphalt pavement performance characteristics with varying traffic and environmental conditions.

A 2002 study by the Turner-Fairbank Highway Research Center using an ARGG test section showed reduction in fatigue and reflective cracking. Similar findings also occurred at the NCAT Pavement Test Track, where ARGG mix has been used as surface, intermediate, and base layers in test sections that were designed around the enhanced cracking resistance.

CalTrans frequently uses ARGG mixes, which it calls rubberized hot mix asphalt-gap graded (RHMA-G). RHMA-G is used as a structural surface course on many projects, and is commonly used to retard reflection cracking, resist thermal stresses created by wide temperature fluctuations, and add elasticity to a structural overlay.

Asphalt rubber gap-graded surface. *Source: National Center for Asphalt Technology*

Visit our website for more information on Targeted Overlay Pavement Solutions.

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