



Highway 50 Blue Mesa ACE Fiber Overlay Reinforcement



ACE Fiber brings cost-effective strength and life cycle extension to a climate-challenged highway.

LOCATION:

Gunnison County, Colorado

PRODUCT:

ACE Fiber Reinforced Asphalt

PROJECT PARTNERS:

Owner

Colorado Department of Transportation

Contractor

A&S Construction Company

Completion Date

August 2017

Colorado highways are subject to two conditions many states are lucky to avoid: High elevation and extended periods of low temperature. Combining those elements with heavy traffic loads, the stretch of U.S. Highway 50 running past Gunnison, Colorado, has experienced rutting and cracking. The state’s department of transportation sought an economical and reliable way to strengthen the asphalt.

Challenge

Highway 50 crosses the Blue Mesa reservoir in Gunnison County. This high-water feature keeps temperatures cool around the road, while the sun slowly heats it during the day. These constant temperature fluctuations stress the asphalt while being pounded by steady traffic. The Colorado Department of Transportation (CDOT) sought a reliable and less-expensive way to strengthen the road that would ideally be less complicated to install than polymer fibers, paving fabrics or paving grids.

Solution

Nilex introduced the ACE Fiber roadway solution in 2016. ACE Fiber combines Aramid micro-fibers and Sasobit wax to create a three-dimensional reinforcement solution uniquely suited to the high temperatures found in Hot Mix Asphalt (HMA). Aramid provides 400,000 psi tensile strength that combats rutting from loads under summer heat and winter expansion/contraction cracking. ACE Fiber can be installed by any HMA contractor, and is easily added by vacuum line directly at the HMA plant, under Nilex supervision. Over 18 million Aramid fibers are dispersed in each ton of HMA. Direct addition to the HMA mix eliminates the separate installation step other solutions require.

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Installation

For the plant operator, the only difference in HMA creation for this job was the measuring and addition of ACE Fiber, using a vacuum line. Nilex was able to provide an onsite QA/QC mixing technician for the client, blending 500 equivalent tons of ACE into the HMA mix. This was enough to cover one lane of the highway for approximately half a mile. At the end of every ACE Fiber project, a technician provides a certified Professional Engineer-stamped mixing report, verifying the fibers were mixed properly.

During installation, Nilex also assists crews, who in this case experienced no changes to the usual procedures for a non-reinforced installation. The four-hour paving job was completed with a typical crew of ten, using the same equipment they use for other HMA installations: Pick-up machine, paver and three rollers.

Results

For the owner, ACE Fiber proved an easily-installed, cost-effective means of reducing cracks and future maintenance on a busy asphalt-paved federal highway. Compared to the alternatives considered, ACE provided excellent pavement strength and resilience at a lower cost.

The Nilex Advantage

Nilex is committed to unearthing better results. Whether it's for a civil, resource or environmental project, we offer the latest engineered and technically-superior materials and techniques to save our customers time and money, minimize the need to move or remove earth, and reduce the need for granular materials.

With 40 years' experience, a long-standing commitment to the environment and highly qualified staff, Nilex delivers the products and technologies that give clients an economic advantage with environmental benefit.

