Another section of the Blue Ridge Parkway, “America's Favorite Drive”, has been renewed using Full-Depth Reclamation (FDR) with Cement. Having served the Boone, NC area for decades, this section of “America’s Favorite Drive” was in need of a boost. By using FDR with Cement, the National Park Service (NPS), in conjunction with the Federal Highway Administration’s (FHWA) Office of Federal Lands Highway, is using sustainable and durable FDR to carry traffic into the Parkway’s second century of service.

Given its constant use and advanced age, both environmental and load-related pavement distresses were widespread and of high severity. Accordingly, simply patching and overlaying the existing pavement would have been a poor use of limited pavement dollars. The FHWA’s engineers selected FDR with Cement to economically bring the pavement back to fine condition for the decades ahead.

Project Located near Blowing Rock, North Carolina

The work was done under contract near Blowing Rock, NC, stretching from Milepost 283 to Milepost 292. Road Worx, Inc. of Knoxville, TN was the subcontractor for the FDR process. Estes Brothers Construction, Inc. was the prime contractor for the work. Reclamation work was initiated in July 2016.

Road Users Minimally Inconvenienced

“We were restricted to working Monday through Thursday,” said President of Road Worx Barry Wilder. “Our crews completed 120,000 square yards of FDR in 35 working days under traffic to complete the project,” he continued. The reclamation treated the existing pavement to a depth of 8 inches using 3.5% Cement. The cement was manufactured by Roanoke Cement Company of Troutville, VA.

Travel Counselor at the NC High Country Visitors Center at Blowing Rock Dianne Hill said, “We were very impressed with the speed of the project and the minimal effect that it had on the Parkway visitors. All of the comments that we received were very positive.” She further stated, “I drive this section nearly every day coming to work and going home. I am very happy with the new road and the quality of the work. Recycling and reusing the existing pavement really makes sense and I only wish we could do more of it!”

Other FDR Projects Performing Well

The NPS is pleased with the initial performance of its newly reclaimed pavement on its early FDR projects in Virginia and anticipates many years of maintenance-free performance. Head Ranger of Maintenance for the reclaimed sections of the Parkway near Staunton, VA James Frazier likes what he sees so far. Approximately 28 miles of the Parkway near Staunton were treated with FDR between 2012 and 2014.

“THe projects are looking good and have endured several harsh winters,” Frazier said.

Continues on back
He noted that temperatures on this segment of the Parkway drop below 0°F twelve to fifteen times each year and 2014 had 22 such events. Additionally, temperatures dip below freezing forty to fifty times per year.

FDR with Cement is a Solution for All Seasons
From sub-zero to broiling heat, FDR with Cement is a proven solution for restoration of worn-out pavement. Projects of all sizes, from parking lots to scenic highways to crowded interstates can be made ready for future traffic in an economical, sustainable manner. The Blue Ridge Parkway near Blowing Rock has been restored and is ready to carry visitors to the scenic beauty of the Appalachian Mountains for the long haul, while saving taxpayers millions of dollars over other paving options. If you have distressed pavement needing repair, FDR with Cement should be on your list of paving options. You can find the Southeast Cement Promotion Association’s representative in your area by visiting www.secement.org. Our staff can demonstrate how the entire range of cement-based paving solutions can work for you.

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Typical Construction Sequence of Full-Depth Reclamation with Cement

1 **Investigate existing pavement:** To ensure that the final results are optimized, always investigate the existing pavement structure and sub-grade prior to reclamation. Typically, samples of the pavement and sub-grade are collected to determine the appropriate rate of cement addition. Either too much or too little cement may reduce the quality of the final product.

2 **Plan operation to ensure a well-coordinated job:** Mixing, curing, and paving operations should be sequenced to minimize traffic disruptions and cover the FDR in a timely manner. Although FDR base can carry traffic for a week or more with only a chip-seal treatment, extended exposure without further paving is not recommended.

3 **Begin FDR by pulverizing existing pavement:** As a first step, it is recommended that the existing pavement be pulverized to the desired depth using the pavement reclaimer. The maximum particle size after pulverization varies with different specifications, but is generally required to be 2 inches or less. The contractor may elect to add some water at this stage to reduce dust and ease initial shaping, as was done on this project. Under limited circumstances, such as when the existing asphalt is less than an inch thick, this step may be omitted.

4 **Roughly reshape the pulverized pavement:** A motor grader and sheepsfoot roller are used to roughly regrade the base and prepare it to receive cement.

5 **Spread Cement:** Cement is spread with a spreader that is calibrated to deliver the specified amount of cement within tight tolerances. (Typically +/- 5 percent) Actual spread rate should be measured in the field by testing technicians periodically during construction.

6 **Mix cement, water, and pulverized pavement:** The reclaimer will make a second pass to mix the cement and pulverized pavement. If additional moisture is needed, the reclaimer may also use an attached water tanker to simultaneously bring the final mixture to the appropriate moisture content as determined in Step 1.

7 **Compaction and fine grading:** The sheepsfoot roller is used to compact the reclaimed mixture. The motor grader works in tandem to achieve deep compaction while maintaining the desired elevation. Once initial compaction is achieved, the motor grader and vibratory steel wheel roller will complete the fine grading operation and provide a smooth surface ready for overlay. To avoid interference with the cement hydration process, all grading and compaction should be completed within approximately 2 hours of mixing. This step is critical in achieving a smooth base that is ready to receive further overlay.