For Longfellow Associates, the largest provider of Class-A office and lab space in North Carolina, it’s all about team work and customer service. Members of their team in Durham support client-tenants with superior customer service and amenities that are Longfellow’s hallmark. Jessica Brock, managing director, based in Durham, NC stated, “Longfellow believes in North Carolina as a growing hub for companies seeking Class-A office and lab space. Just as our tenants successfully grow by adding talent from local universities and research institutions, we, too, are proud to tap our region’s remarkable workforce for new team members. The rapid growth in our portfolio and in our team is a testament to the vibrancy of this market.”

In North Carolina’s Research Triangle, Longfellow’s portfolio includes over 3 million square feet of space. Once such property is Keystone Technology Park (KTP) in Morrisville, just outside of Durham. Described as a “brain trust of over 100 rolling acres,” KTP is home to some of the world’s leading biotech, financial, telecommunications, and medical device companies, with over 800,000 square feet of office and lab space.

In keeping with their commitment to providing an impeccable setting for their tenants, Longfellow recently upgraded the entire parking facility at KTP in Morrisville, NC. The pavement had deteriorated badly and needed to be rebuilt and strengthened. Simple patching and overlay was not an option for providing a long-term repair. So, Longfellow once again turned to Ruston Paving, who has reconstructed parking areas at several other Longfellow facilities, and Full Depth Reclamation with Cement (FDR).

In order to perform this work with minimal inconvenience to the tenants, it was decided to break up the project into multiple segments. Each segment would be built and completed before moving to another segment. As with many busy sites, the speed of the construction process was less importance than keeping the day to day operations as normal as possible. Minimum downtime and rapid construction is a trademark of Ruston Paving.

The area to be repaired at KTP covered approximately 30,000 square yards, the equivalent of over 4 lane-miles of roadway. Ruston reconstructed the site by breaking it into five segments. Each segment was milled, reclaimed, and overlaid before moving to the next. Once milled to preserve the existing grade, the remaining pavement was mixed with 45 pounds of cement per square yard to a depth of 16 inches. Ruston then overlaid the completed FDR base with two inches of asphalt and pavement markings were restored. At this point, the segment is ready for tenants to use.

Ruston Paving’s Pavement and Soils Specialist Tim McConnell notes that Longfellow will be coming back for
Ruston's reclaimer mixes cement with the pulverized pavement while receiving water from a water truck to ensure the mixture is near optimum moisture.

After reconstruction with FDR, the pavement at KTP is ready for the long haul.

Now repaired with FDR, the pavement is once again consistent with the manicured surroundings.

With a timely pavement preservation program to retard aging of the asphalt surface, this pavement should last indefinitely.

"The owner, Longfellow Associates, has been extremely pleased with the entire operation, especially the cost and the results. Because of this we will be doing two additional projects for them that are both approximately equal in size to this site," he said.

If you have a well-worn parking area or pavement, or are building new pavement, the staff at the Southeast Cement Promotion Association can help you achieve an economical, long-lasting solution to your paving problems. Visit our site at www.secement.org to see other examples of cement-based pavement solutions, technical reports, and contact information for representatives in your area.

Typical Construction Sequence of Full-Depth Reclamation with Cement (FDR)

1. **Investigate existing pavement:** To ensure that the final results are optimized, always investigate the existing pavement structure and subgrade prior to reclamation. Typically, samples of the pavement and subgrade 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 sheepfoot 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 sheepfoot 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. This step is critical in achieving a smooth base that is ready to receive further overlay.

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