Prior to FDR, Skipper Bowles Drive was in very poor condition. A constant stream of transit buses took a toll on the pavement. Traffic continued to flow in front of the Dean Smith Center during construction. Note the condition of the existing pavement in the foreground.

UNC Chapel Hill Scores a "Slam Dunk" using Full-Depth Reclamation (FDR) with Portland Cement

While the road to college basketball’s Final Four can be rough and unpredictable, the University of North Carolina at Chapel Hill’s path begins at the Dean Smith Center on Skipper Bowles Drive. Years of heavy traffic left the pavement on Skipper Bowles Drive as hard to bear as a last-second three pointer by Villanova at a national championship game. However, just as championship hopes spring eternal in the hearts of Tar Heel fans, Skipper Bowles Drive has been completely renewed using the sustainable process of Full-Depth Reclamation (FDR) with Portland Cement.

A Complex Project

Pavement conditions on Skipper Bowles Drive (photos 1 and 2) were so deteriorated that simple fixes were deemed inadequate. Further complicating the pavement restoration challenge, Skipper Bowles Drive had originally been constructed over an existing university utility corridor. When asked what utilities were involved in the pavement restoration project, Project Engineer Mike Surasky, PE, of A. Morton Thomas & Associates, Inc. of Raleigh, NC commented, “All of them! Seriously, every utility under the sun was in that road including university typical utilities such as steam, chilled water, natural gas, fresh water, reusable water, sewer, and fiber optic conduits.” Both Surasky and other project stakeholders were concerned FDR would not be feasible given the incredibly dense concentration of utilities.

Utilities a Challenge, Not a Barrier

“Many clients have concerns about working around utilities,” said Tim McConnell, pavement and soils specialist with Ruston Paving Company, Inc. of Durham, NC, the FDR subcontractor for the project. “Obviously, things like manholes and valves have to be accounted for and can reduce productivity compared to a utility-free project. But, with proper planning, utilities are not a barrier to successful FDR. Even with utilities, FDR is the quickest and least disruptive way to reconstruct a failing road.”

When dealing with utilities in a project, the first step is to carefully locate and mark all utilities. Ideally, this should be done in the preconstruction planning stage so contractors bidding on the work can properly price and schedule for it. However, even with careful planning and marking, sometimes utility surprises can happen. “An example of an unexpected utility problem happened on the first day of work. A six-inch diameter water line was located and marked at the edge of the pavement as being well below the level of reclamation. However, it was not realized that the line was raised to clear a rock outcropping as it crossed the road until the reclaiming equipment found it. Briefly, it looked like Old Faithful, but we had it fixed rapidly and continued on,” said McConnell.

Transit Buses Require Stout Pavement

The Skipper Bowles Drive project was approximately 0.4 miles long and four lanes wide. The heavy-duty pavement selected for the project was 12 inches of FDR with Portland Cement and 5.5 inches of asphalt. At bus stops, which deal with frequent starting and stopping of heavily-loaded buses, the pavement section was 9.5
inches of FDR and 8 inches of concrete. During design, it is often not recognized that transit buses are exempt from axle load limits. This can result in some of the highest axle loadings on the road when fully loaded, as is common during sporting events at this location. Single axle loads of up to 27,000 pounds are possible, but the new pavement structure is up to the task.

Tight Schedule was Met using FDR with Portland Cement

The contractor was given the notice to proceed on April 18, 2015 and the project was substantially completed by September 2, 2015. Although all aspects of the project took four and a half months, the total cumulative time to complete the FDR itself was only two weeks.

“The scheduling for the project was very tight,” noted Surasky. “In addition to the utilities, the schedule was one of the major challenges for the project. Work had to be completed prior to the start of football season and had to contend with both move out and move in at the residence halls located along the project. In the end the project was done on time and FDR allowed the pavement work to be done in the quickest possible way,” he said.

During the project, traffic was restricted to one direction while work was done in the closed lane (photo 3). Ordinarily, a barrier wall is not necessary while performing FDR. However, because of the high concentration of students on foot, barriers were needed to guide pedestrians to safe access points along the project.

FDR – The Proven Solution

From elementary schools to elite universities, FDR with Portland Cement is the fast, economical, sustainable, and durable solution for worn out pavements. Whether it is an outlying parking lot or the road in front of an iconic landmark, FDR with Portland Cement can provide the affordable, long-lasting solution. Let us show you how it can solve your paving problems.

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