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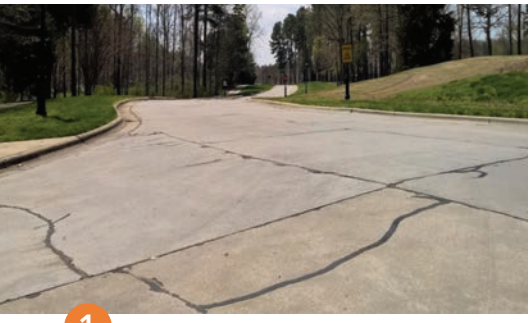
# Concrete Overlay Provides Ideal Solution for Governors Club's Pavements in Chapel Hill, North Carolina



1 Davie Intersection before

2 18% grades & single lane construction

3 Intersection reconstruction

The Governors Club, a gated private golf club community located in Chapel Hill, North Carolina, is well recognized for its amenities and often praised for its beautiful lifestyle. So when the time came to address the community's aging streets, the Governors Club infrastructure committee turned to concrete. Phase One, completed in 2013, included the pavements at the community's entrance. It involved complete removal of the distressed pavement, subgrade stabilization with cement, and then paving with 7 inches of concrete. The process worked well and resulted in the durable pavement that the community desired, but Roy Thornton, volunteer project manager, wondered if this construction method was the best way to move forward with future (street replacement) phases.

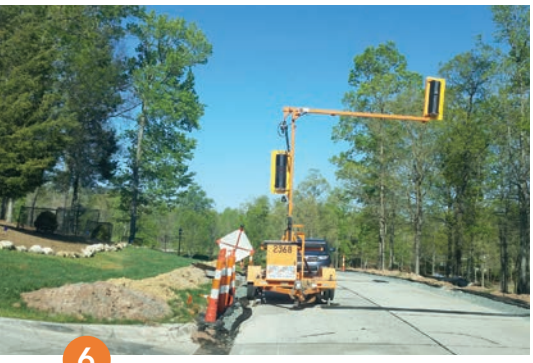
After conducting online searches and reviewing numerous publications, Thornton reached out to the Concrete Pavement Technology Center (CPTC) at Iowa State University to further his knowledge of pavements. He also consulted with our regional industry organizations, the Carolinas Concrete Paving Association (CCPA) and the Southeast Cement Promotion Association (SCPA), to discuss his options. The more information that was presented to him, the more he considered a concrete overlay as the best option for the next phase. Similar to the first phase, the committee wanted an aesthetically pleasing, long-life pavement. Along with the need to address some drainage issues that compromised the life of the original pavement structure in certain areas, Thornton also desired a pavement design that could be reopened to traffic fairly quickly minimizing the inconvenience to the homeowners and service industries who visit the community daily.

After careful thought about options, Thornton and the Governors Club consultant, Philip Post and Associates, chose a 7-inch concrete overlay to expedite construction. A replacement strategy with concrete overlays minimized exposing the subgrade to weather elements, thus minimizing the likelihood for construction delays. Over 24,000 Square Yards (SY) of pavement area were overlaid during this project. Another 1,000 SY of reconstructed pavement was needed for transition areas to tie into the existing pavement with the new overlay. The new, 4500-psi compressive strength pavement had a 12-foot joint design to help ensure drying shrinkage cracking occurred at the dowelled joints. One of the more innovative aspects of the project was a non-woven geotextile interlayer fabric material separating the old underlying pavement from the overlay. Thornton again used his resources to confirm the fabric material would perform comparably to other separation materials (e.g. asphalt). This decision not only saved money and construction time, but also reduced the final pavement surface grade by nearly an inch.

The project was bid in the summer of 2015 and after reviewing the submitted proposals, the Governors Club chose Granite Contracting, LLC, Cornelius, North Carolina to perform the required work. The contractor used fixed metal forms and a truss screed to place the concrete pavement. Careful staging

4 Non-woven fabric placement

5 7-inch concrete overlay - Phase 2



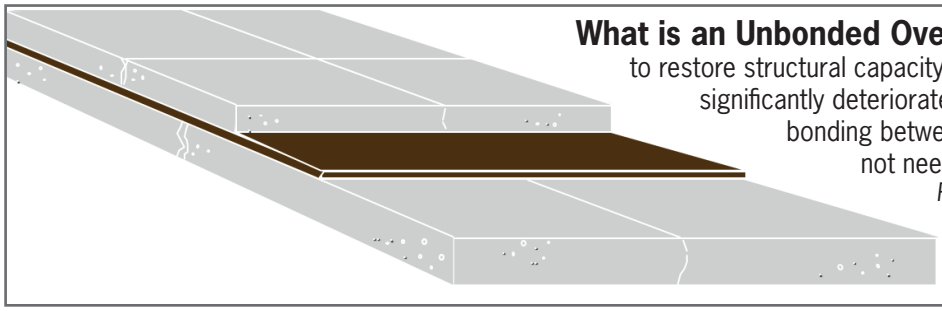
6 Traffic control light

of the work enabled the Jack Nicklaus designed golf course and Governors Club Clubhouse to remain open for the community residents and guests. Daily communications on the neighborhood chat boards kept residents apprised of closures and available detours.

The contractor worked closely with Thornton and the residents to ensure the streets were opened in time for planned neighborhood social events. Where required, halfwidth paving techniques and high-early strength concrete mixes were utilized to help maintain traffic. One of the streets had 18% grades, so that too was unique, as it presented challenges in comparison to prior projects that Granite Contracting had completed.

Complex projects require the formation of close partnerships between the owner and contractor for success. Thornton summarized the project's success by stating, "From day one when the project team reviewed the bid response for mutual understanding, all the way through construction, and until the final day of completing the punch list items, there was never a question about the alignment of objectives: Best value and a superior product…Our community received both."

7 Completed concrete overlay



**What is an Unbonded Overlay** The purpose of an unbonded overlay is to restore structural capacity to an existing pavement that is moderately to significantly deteriorated. The term "unbonded" simply means that a bonding between the overlay and the underlying pavement is not needed to achieve the desired performance *(ACPA Publication TB021.03P Guide to Concrete Overlays: Sustainable Solutions for Resurfacing and Rehabilitating Existing Pavements, 3rd Edition).*

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