

City of Williams stretches budget with double chip over fabric

Mary Stroup-Gardiner, CP2 Center, and Skip Brown, PPTG Co-Chair

The City of Williams originally planned and budgeted for a 2-inch hot mix asphalt overlay over fabric, with key cut grind at gutters for a 33,000 square yard project. The existing pavement was a 2-inch, old, highly distressed pavement over a soft and unstable clay subgrade, with a water table depth of 2 to 3 feet. After reviewing the site conditions, Skip Brown of Delta Construction Co., Inc., advised the City Engineer that the existing pavement would have problems supporting construction equipment at its current thickness. Reducing the thickness by milling would cause even further support problems.

Brown suggested changing the project from a traditional grind and overlay to double chip over fabric. The change would provide fewer problems supporting construction equipment and stretch the size of the project from 33,000 to 56,000 square yards for the same budget, and the problem of achieving desired density of asphalt concrete over unstable subgrade conditions would be minimized. Furthermore, the chip seal over fabric would provide a more flexible surfacing to help preclude reflective cracking under loading conditions. As construction progressed, the City Engineer, supported by public response, was pleased enough with the outcome to increase the area treated to 75,000 square yards.

The project started by placing a thin, leveling course (856 tons) over the most severely distressed areas (Figure 1). Distressed areas with a fair ride quality were not treated. The fabric was placed into

PG70-10 binder applied at a rate of 0.30 to 0.33 gallons per square yard using a distributor truck fitted with the fabric roll and a stiff transverse broom. Three crew members (driver and two working the fabric) are needed to

properly place the fabric by keeping it flat, worked into the tack coat and trimming the edges as the fabric is placed (Figure 2). The fabric is then imme-

diately rolled using pneumatic rollers to embed it completely into the binder.



Figure 3. Sanded fabric (right) and construction of second chip seal.

As the day warmed up, the tack coat began to saturate the fabric, important for good adhesion (Figure 3). The tacky surface was sanded by mid-day to prevent local traffic from tracking the binder or pulling up the fabric. Limited local traffic helps work the fabric into the underlying cracks. The sand then works into the depressions over the cracks.



Figure 4. Finished surface.

The double chip used was $\frac{3}{8}$ -inch by No. 6 California

state specification for the chips. The emulsion used was PMCRS-2H, applied at 0.32 g/sy for the first application and 0.38g/sy for the second. Chips were applied at 22 lb/sy for the first application and 25 lb/sy for the second. Sweeping the final lift began after 7 days of use by local city traffic. The overall result is a smooth, finished surface after the double chip seal is placed. (Figure 4).

Figure 2. Crew placing fabric over tack coat followed by pneumatic tire roller to seat the fabric.



Figure 1. Limited areas of sheet patching and distressed pavement before fabric placement.

