

Ultra Thin Concrete

Thin high strength concrete to replace rutted asphalt at city intersections

Designed to be opened to traffic within 24 hours

Athens, Tennessee Project

January, 1994

Before



Green St. at Jackson St. was rutted and damaged
Asphalt buildup in gutters is a potential cause of drainage problems

Milling



Milling to a three inch depth was done by the Tennessee D.O.T.
Tuesday morning, January 11, 1994



The remaining asphalt surface and gutter served as forms
for the *ULTRA THIN* Concrete

Inlay Preparation



A power saw was used to get a clean, straight edge



A pneumatic hammer was used to square the milled edges

Cleaning & Sweeping



Asphalt was lifted off the gutter. Concrete is to be placed to the original gutter level



A power sweeper was used to clean the loose debris left from the milling operation

Traffic Sensors



Traffic loops were cut immediately after the sweeping operation



By noon Tuesday, this 188' section of road was ready for concrete
Due to heavy rains in the area, concrete placing was rescheduled for Wednesday morning

Placing & Screeding



Wednesday morning - 1/12/94
Conventional methods were used to place the concrete



A vibrating screed was used to level the concrete

Finishing & Brooming



A 12' highway straight edge is highly recommended for the finishing operation



A broom finish was used for skid resistance

Curing & Sawing



Curing compound was applied with a garden sprayer immediately after brooming



Sawing of approximately 3' sections was begun as soon as the concrete could hold foot traffic

Curing Blankets & Line Painting



The inlay was covered with curing blankets overnight



Lines were painted the same day the concrete was placed

Testing



Air and unit weights were made to check the physical properties of the concrete

Finished Product



Thursday morning - 1/13/94
The inlay was opened to traffic the next morning

ULTRA THIN CONCRETE

MIX DESIGN

Maximum Water - Cement Ratio is .35

CEMENT	800 lbs
#7 STONE	1710 lbs
RIVER SAND	1098 lbs
WATER	280 lbs
FIBER	3 lbs
SUPER PLASTICISER*	as required

*Add Super Plasticiser as necessary to produce required slump
This Project used 15 oz per cwt

TEST RESULTS

23 HOURS	3319 psi
7 DAYS	6597 psi
28 DAYS	
56 DAYS	
90 DAYS	