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
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