

National Open House Two-Lift Concrete Paving

KDOT Project Objective

By

Andrew J. Gisi, P.E.

Scan Tour on Long-Life Concrete Pavements



Canada ▪ Germany ▪ Austria ▪ Belgium ▪ Netherlands ▪ United Kingdom
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Sponsors: FHWA, AASHTO, NCHRP

Growing concerns in the US



Congestion

Economic impact



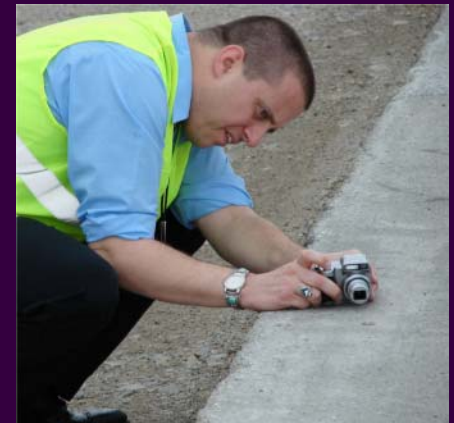
Noise

Work zone safety



Scan Objectives

Identify techniques used in other countries, and implementable in the US, for achieving longer concrete pavement service lives



Project Objectives

- Durable Wearing Surface
 - Surface Texture
 - Economical
 - Recycling

Why Use Two-Lift

- Quality surface aggregate
- Enhance Safety
- Reduce Noise
- Provide Economical Pavement
- Promote Recycling

Scope of Project

- Construct 24' pavement with 6' inside and 10' outside shoulders.
- Use non “D”-cracking aggregate in surface
- Stiff bottom layer
- Construct several surface textures for noise reduction, improve friction, and reduce splash and spray.
- Form centerline plastic joint

Compare and Contrast

- European Practices
- United States Practices

Aggregate Management - Austria



Aggregate Management - Koss



Dual Drum Mixer



Paving Train



Lower Layer

Unterbeton

Upper Layer

Oberbeton

Stiff Bottom Lift



Delivery and Consolidation



Top & Bottom Lift



Top & Bottom Lifts



Exposed Aggregate

- *Coarse aggregate, #5 to 5/16"*
- *Fine aggregate, #200 to #5*
- *Set retarder with cure compound*
- *Wash and brush paste matrix*

Exposed Aggregate - Germany



Exposed Aggregate - KS



Findings: Surface Texture

- *10' straight edge- Belgium*
- *13' straight edge- Austria*
- *0.8 to 1.0 mm texture with 5/16" aggr size*
- *Grind for bumps, no smoothness spec*
- *Burlap, comb, turf, brush, & exposed*

Other Features

- Noise Reduction
- Improve Surface Friction
- Economical Joints

Astro-Turf Material



Astro-Turf Drag Plastic Concrete



Astro-Turf Drag Hardened Surface



Longitudinal Tine



Closure at Joint Former



Accomplished Objectives

- Two-lift is possible and practical
- Economic pavement sections can be realized
- Exposed aggregate surface is possible and practical
- Many choices for surface texture; their use may be condition dependent.

The End

- Thanks for Your Attention
- Questions