National Open House
Two-Lift Concrete Paving

KDOT Project Objective
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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
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

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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