Concrete Patching – “Dos & Don’ts” - Best Options for Good Performance

DPW/ACEC RPR Training
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Mike Byers
Restoration Options

Concrete Pavements

- Full-depth repair
- Partial-depth repair
- Diamond grinding
- Joint & crack resealing
- Slab stabilization
- Retrofitting dowels
- Cross-stitching long. cracks/joints
- Thin Concrete Overlays
- Reconstruction
Primary Question!!

Is this Pavement a Candidate to be Patched??
11th Street – Meridian to Delaware

Full Depth Patch??
Kessler Blvd & 38th Street Ramps

REMOVE??
Kessler Blvd & 38th Street Ramps

Full Depth Patch??
Full or Partial Depth??
11th Street – Meridian to Delaware

Full Depth Patch

Partial Depth Patch
Keystone Ave – Southbound – 86th to 75th

Mill & Patch??
Patch or Remove??

Patching >30% of area = Remove & Replace
Concrete Pavement Preservation Guide

THANK YOU!
Dale S. Harrington and Kurt Smith
Representing the National Concrete Pavement Technology Center
dharrington@snyder-associates.com
515-964-2020

www.cptechcenter.org
Keys to Success – Full Depth Patching

- Properly sized Patch repairs
- Full Depth Saw Cut & Removal of old PCCP
- Remove Poor Subgrade & Recompaction of new subbase
- Re-establish load transfer if necessary
- Proper Concrete Mix
- Good placement, consolidation & finishing
- Curing
Restoration of Load Transfer
Concrete Placement

- Consolidation and level finish are critical
- Vibrate along edges of repair and in vicinity of dowel bars
- Don’t use vibrators to move concrete
- Avoid addition of extra water
- Texture surface to match existing pavement
Finishing

Fig. 6.11 on p. 6.18
Broom or Tine Texturing
Curing
Application of Curing Compound

• White-pigmented curing compound (150 sq/gal)
• Apply immediately after texturing
• Uniform coverage

For early opening use polyethylene insulation board
Keys to Success – Partial Depth Patching

- Removal of poor Material
- Clean!! Clean existing PCCP prior to patch
- Apply bonding grout
- Isolation!! Compression Relief
- Place concrete patch material
- Feather edge of patch with grout
- Apply Curing
Must Verify Pavement is Candidate for Partial Depth Repair

• Take a core at the joint to determine if PCC damage is above dowel baskets??
• If above = Partial Depth
• If damage passes below dowel bars = Full Depth Patch
Partial Depth Patching – Material Removal
Partial Depth Patching – Material Removal
I-70 Joint Repair
Cleaning Repair
Cleaning Repair
Clean PCCP to be patched
Compressible Insert

75 mm min.

Spall

Patch

Compressible insert

25 mm
Compression Relief

Point Bearing

Joint Closure

Popout & Breakage

Debonding

Expansion → ← Expansion
Partial Depth Patching
SAWING OPTION ??
Feathering edge of Patch with Grout
Completed Partial Depth Patch
REMINDER !!

Keys to Success – Partial Depth Patching

• Removal of poor Material
• Clean!! Clean existing PCCP prior to patch
• Apply bonding grout
• Isolation!! Compression Relief
• Place concrete patch material
• Feather edge of patch with grout
• Apply Curing
THANK YOU!
Questions or Comments?

mbyers@pavement.com
plong@pavement.com
jleckie@pavement.com