Rehabilitation Strategies

Three categories:

- Restoration
- Resurfacing
- Reconstruction

Together, known as CPR³

Which is used depends on existing condition.
Rehabilitation Timing

Structural/Functional Condition

Min. Acceptable Rating

Age or Traffic

Restoration

Resurfacing

Reconstruction
Concrete Pavements

- Full-depth repair
- Partial-depth repair
- Diamond grinding
- Joint & crack resealing
- Slab stabilization
- Retrofitting dowels
- Retrofitting concrete shoulders
- Cross-stitching long. cracks/joints
Partial Depth Repair (PDR)

- Repairs deterioration in the top 1/3 of the slab.
- Generally located at **joints**, but can be placed anywhere surface defects occur.
Field Training in Indiana to-date

IN LTAP in Danville, IN October 12, 2012
Field Training in Indiana to-date

INDOT Greenfield and LaPorte Districts
June 2013

APWA Training, Fishers, IN
March 2016
Candidates for PDR
Partial Depth or Full Depth?

Partial Depth Repair

Full Depth Repair
Finding Unsound Concrete

Sounding the pavement:

- Hammer
- Steel rod
- Steel chain

DULL  SHARP
Unsound-Delaminated  Solid
Removal

- Sawing and chipping
- Carbide milling
  - Transverse
  - Longitudinal
Carbide-Milling

- Efficient
- Leaves rough surface
- Avoid hand work
Note V-shape Edge
Milling Distresses Joint
Cleaning

- Check removal by sounding before cleaning
- Air or Sandblast bottom and vertical faces
- Acceptable waterblast:
  - 100-200 MPa pressure
  - Waiting period to dry
Final Cleaning... Pre-placement

- Airblow to remove dust & debris
- Direct away from patches
  - Use 0.63 MPa minimum air pressure
  - Oil & moisture free air
  - Check with clean cloth
- Backpack blowers acceptable
Re-establish Joint

- Separates patch from adjacent lane
- Reforms joint reservoir
- Provides uniform sealing reservoir
- Acceptable materials:
  - Styrofoam
  - Asphalt-impregnated fiberboard
  - Fiberboard
Applying Bonding Agent

- Check patch area cleanliness first
- Clean again if necessary
- Apply agent uniformly
  - Scrub cementitious grout with wire brush
  - Apply epoxy with soft brush
  - Coat all surfaces (horizontal & vertical)
Placing Patch Material

- Mix in small quantities
- Place from wheelbarrows, buggies
- Slightly overfill the patch area
- Use small spud vibrators (<25 mm)
  - Hold at 15-30 degrees
  - Do not drag!!
Finishing

- Match surrounding elevation
- Work tool from center toward edges
- Seal saw runouts with grout or liquid epoxy
Completed Partial Depth Patch
Additional Resources

2017 Indiana Concrete Pavement Workshop Presentations:

http://indianaconcretepavement.com/
THANK YOU
Questions?
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