

# *Concrete Pavement Preservation / Repair*

## *Joint Spall Repair – Partial Depth Repair*

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# *PCCP Preservation Techniques*

*(in the order of consideration)*

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- Full-depth repair
- Partial-depth repair
- Slab stabilization
- Retrofitting dowels
- Cross-stitching longitudinal cracks/joints
- Diamond grinding
- Joint & crack resealing



*How do preventive treatments  
differ from routine/reactive  
treatments?*



*Same treatments  
...different TIMING!*



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- **Partial-depth repair**
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# Partial Depth (Spall) Repairs











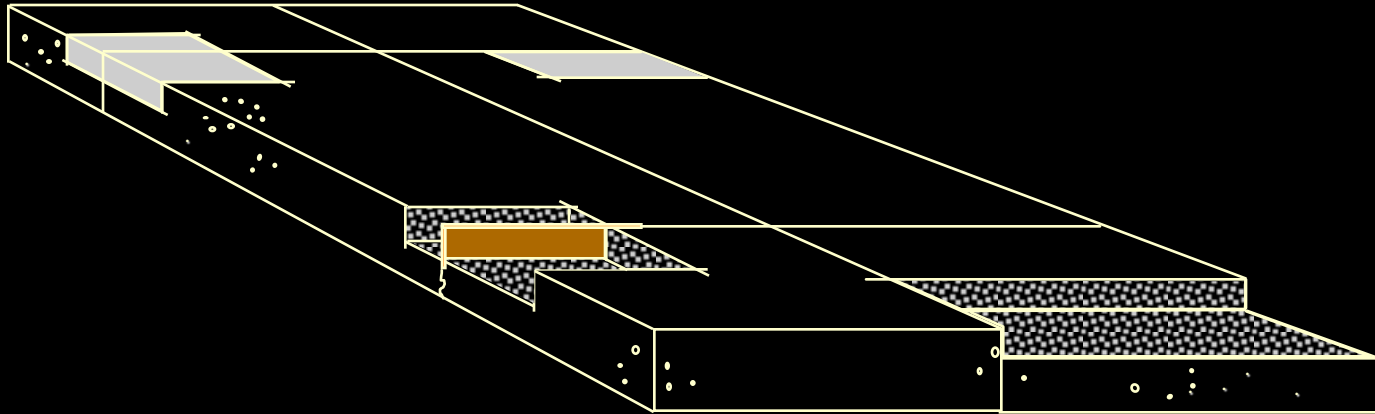


# *Application*

- Candidates for joint spall repair
  - Spalling caused by incompressibles in joint
  - Localized areas of scaling
- Not candidates for joint spall repair
  - Spalling caused by dowel lockup
  - Spalling at working cracks
  - Spalling caused by durability distress

# *Partial Depth Repairs*

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



# Vertical Edges can Enhance Performance



**Keep  
Concrete  
out of  
the  
Joints**





5 17 00



**MNDOT**



*Milled Joint*

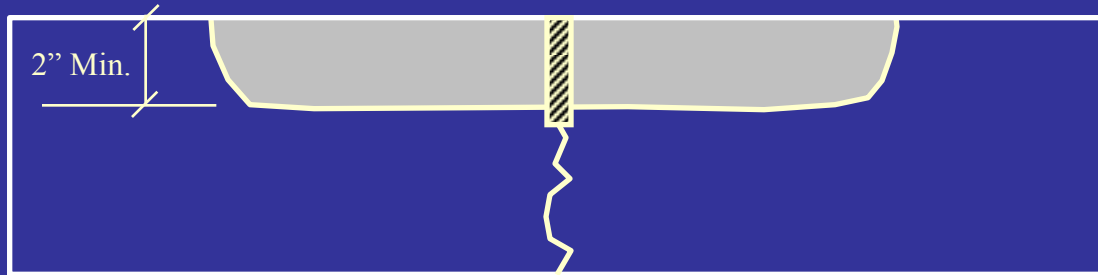




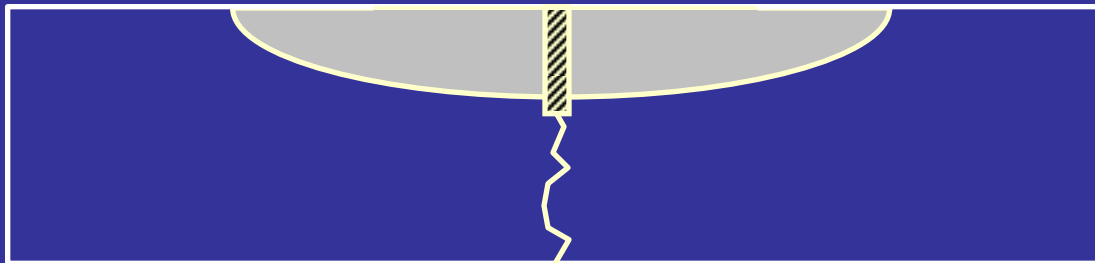


# Concrete Removal

## Cold Milling



Transverse Milling (small head, moves along joint)

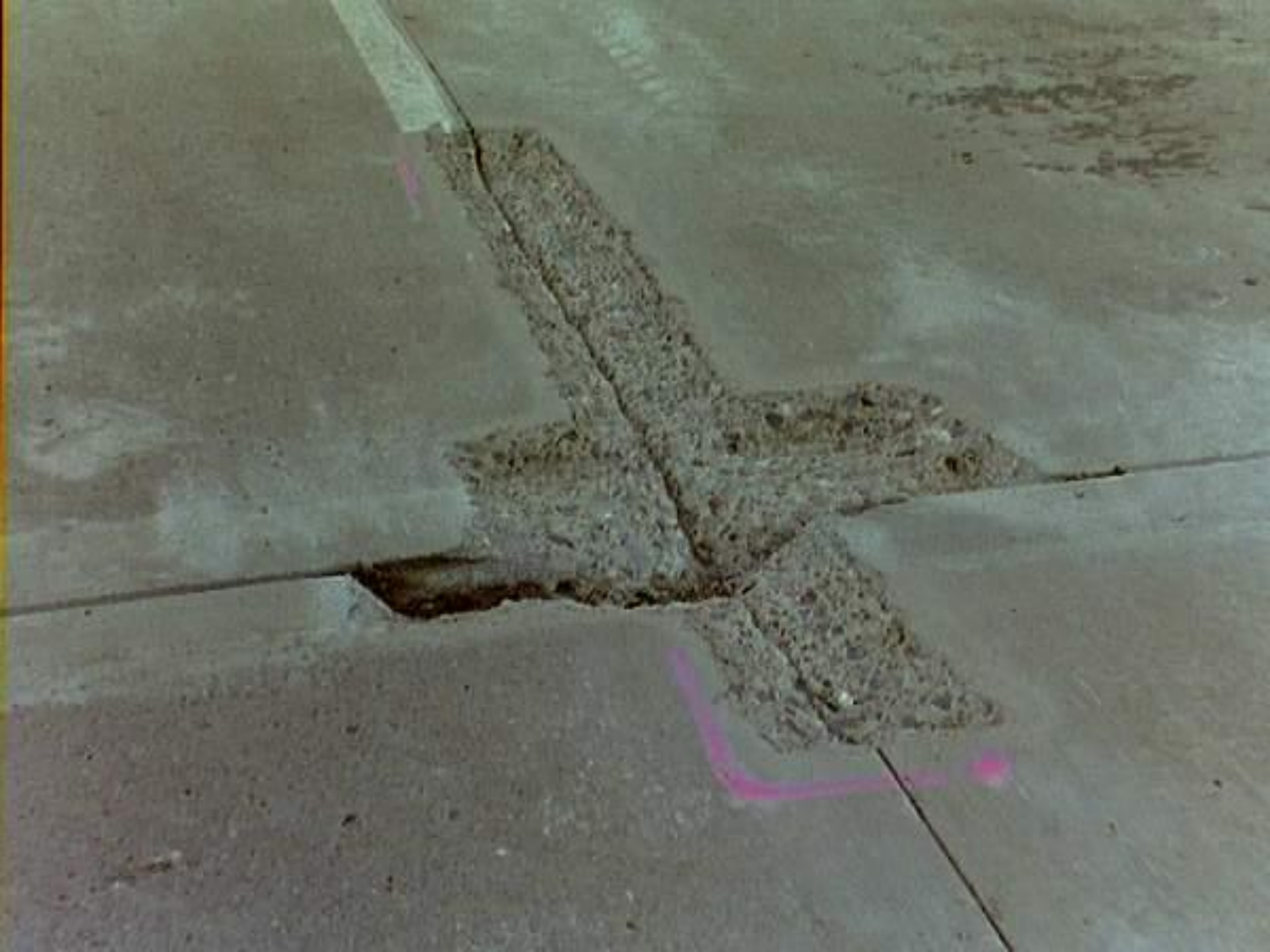


Longitudinal Milling (wide head, pick up & move over)

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  - **Spalling at working cracks**
  - Spalling caused by durability distress





# Vertical Edge – Added Time and Cost



**Keep  
Concrete  
out of  
the  
Joints**



# Savings Reducing 2 Steps to 1



# *Partial-Depth (Joint Spall) Patching Operations*





# *Grout Recipe*

- 2 Parts Type I Cement
- 1 Part Water
- 1 Part Sand
- Mixed to the consistency of thick cream or kool whip
- Placement immediately before concrete.
- Has a shelf life of 60 minutes.







# *3U18 Mix Design*

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- Cement Type 1
- Air
- Water
- Coarse Agg 80
- Sand
- Water/Cement
- Type E Water reducing and Accelerating
- 850 pounds
- 6.5%
- 295 pounds
- 1328 pounds
- 1328 pounds
- 0.35

# Sample Mix Minnesota 3U18

## Partial Depth Mix

- Small Aggregate 100% passing 3/8" sieve
- 850 lbs Type I Cement
- Type E Water Reducer and Accelerator
- 6.5% Air
- Maximum 1 inch slump
- Cure time of 12 hours















# QUESTIONS





***VIDEOS***

# QUESTIONS

