

Module 4-13

PCC Overlays

Objectives

List PCC overlay types

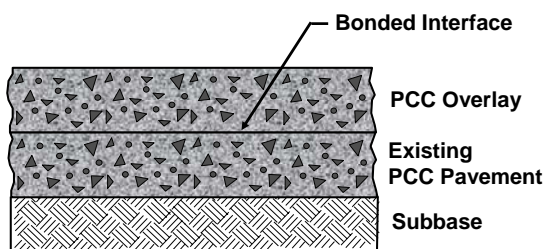
Discuss importance of bonding condition

Identify conditions for which each overlay type is most suitable

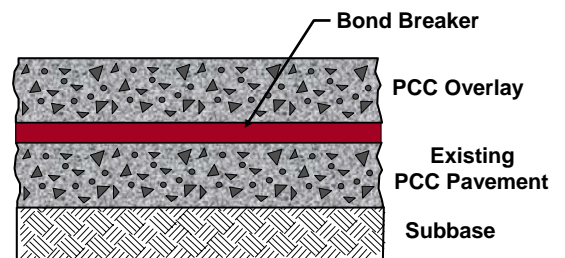
Describe thickness design approaches

Determine the amount of preoverlay repair required

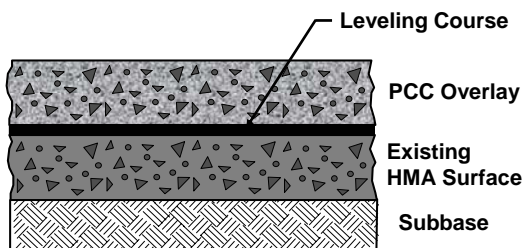
Bonded PCC Overlay



Unbonded PCC Overlay



Whitetopping



Overlay Section

Detailed pavement evaluation

- Condition survey
- FWD testing
- Coring

Consider the cause of deterioration

Major considerations

- Construction feasibility
- Desired performance period
- Available funding

Construction Feasibility

- Traffic control**
- Constructability**
- Contractor experience**
- Clearances and elevation changes**
- Environmental constraints**

Construction of Bonded Overlay



Construction of Bonded Overlay



Construction of Bonded Overlay



Overlay Design Approaches

- PCC Mix**
- **Thickness**
 - **Engineering judgment**
 - **Structural deficiency**
 - **Mechanistic fatigue damage**

Design Considerations

- Overlay thickness (thick vs. thin)**
- Bonding condition**
- Drainage**
- Reinforcement**
- Transverse and longitudinal joints**

Factors Affecting Preoverlay Repairs

Type of overlay
Structural adequacy
Pavement condition (distress)
Future traffic loadings
Physical constraints
Overall cost

Repairs for Bonded PCC Overlays

Full-depth repair of deteriorated joints
Load transfer restoration or full- depth repair of working cracks
Grinding of minor joint faulting
Cross stitching on working longitudinal cracks

Repairs for Unbonded PCC Overlays

Full-depth repair of severely deteriorated joints and cracks
Milling/grinding of faulting > 6 mm (0.25 in)
Full-depth repair of punchouts on CRCP

Repairs for Whitetopping

Localized repair of failed areas
Cold milling

- Restore profile
- Remove rutting and shoving

Leveling course to produce uniform surface for paving

Summary

Bonded overlays - good condition
Unbonded overlays - poor condition
Whitetopping - deteriorated HMA
All types have performed well when used appropriately
The type and amount of preoverlay repairs affects performance