**Michigan's Unbonded Concrete Overlays**

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**Unbonded Concrete Overlays**

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Executive Director

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**Unbonded? Separated Concrete Overlays**

- **PCC Overlay**
- **Separator Layer**
- **Old PCC Pavement**

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**Unbonded Concrete Overlays**

- **Design**
  - Little or no preparation
  - Interlayer/separator (hot mix) approx. 1in.
- **Performance**
  - No reflective cracking
  - Almost 20 yrs in Michigan

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**Unbonded Overlays in Michigan**

- **Highways**
  - I-96, Ionia County, 1984
    - M-66 to Sunfield Rd., 7.5 in.
  - US 23, Monroe County, 1984
    - Ida Center Rd. to M-50, 8 in.
  - US 10, Bay County, 1990
    - Bay City to Midland, 7 in.
  - I-96, Ionia County, 1991
    - Ionia Co. to Bauer Rd., 7.5 in.

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**Unbonded Overlays in Michigan**

- **Highways (cont.)**
  - I-94, Jackson County, 1995
    - Jackson Co. east 9.5 mi., 7.5 in.
  - US 131, Allegan County, 1998
    - Conrail RR to 114th Ave., 7.5 in.
  - US 23, Livingston County, 1999
    - Faucett Road to Genesee County Line, 8 in.
  - I-69, Branch County, 1999
    - I-94 to Eaton County Line, 7.5 in.
Unbonded Overlays in Michigan

• Highways (cont.)
  – I-69, Eaton County, 2000
    • Eaton Co. Line to Island Hwy., 7.0 in.
  – US 131, Kent County, 2000-2001
    • M-46 north to Cannonsville Road., 7.0 in.

US 10 Concrete Overlay

• Westbound Concrete Overlay
  – 12 miles Completed in 11 Weeks
  – 14 days Ahead of Schedule
  – Incentive: $210,000 @ $15,000 per day
• Eastbound Rubblize & AC Overlay
  – 5 1/2 Months Completion Time

US 131 Concrete Overlay

• 4.5 miles divided highway
• Concrete Overlay - All Lanes + Shoulders
• Completed in 44 days

U.S. 10 Concrete Overlay

• Phase I
  – Began September 4 (After Labor Day)
  – Completed October 18
• Phase II
  – Began October 22
  – Completed November 7

Unbonded Overlays in Michigan

• US 10, Bay County, 1990
  – Bay City to Midland
  Length: 6.0 mi.
  Contractor: Interstate Hwy. Const.
  Thickness: 7 in.
  Joint Spacing: 15’ Random
  Interlayer: 1 in. AC

Traffic Management

Stage I
- Prepare Shoulders
- Place AC Interlayer
- Take Outside Lane & Shoulder
- Pave Concrete Overlay
- Open to Traffic

Stage II
- Take Inside Lane & Shoulder
- Pave Concrete Overlay
- Open to Traffic
Fast and Affordable

- I-96, Ionia County, 1991
  - Ionia Co. Line to Bauer Rd.
  - Length: 6.8 mi.
  - Contractor: Ajax Paving
  - Thickness: 7.5 in.

- Interstate I-96
  - Concrete Overlay - 7.5"
    - Clinton County, 1991
    - Cost: $1,034,000 per mile
    - Three months
  - Rubblize w/Asphalt Overlay - 6"
    - Ingham County, 1992-93
    - Cost: $1,437,500 per mile
    - Two Seasons

39% Difference in Initial Cost

1998 Bid Results

- I-96 Asphalt Overlay
  - 14.06 kilometers
  - Original Concrete 36 Yrs Old
  - 8-10 Year Fix
  - $14.52 Million - $1.03 Million/km

  Overall Cost to Taxpayers
  $103,000 per kilometer per year

- I-69 Rubblize/Asphalt Overlay
  - 9.61 kilometers
  - Original Concrete 30 Yrs Old
  - 12 Year Fix
  - $11.4 Million (w/o Bridges) - $1.19 Million/km

  Overall Cost to Taxpayers
  $99,200 per kilometer per year

- US 131 Concrete Overlay
  - 6.6 kilometers
  - Original Concrete 38 Years Old
  - 20 Year Fix
  - $6.18 Million (w/o bridge) - $0.94 Million/km

  Overall Cost to Taxpayers
  $47,000 per kilometer per year

Thin Unbonded Concrete Overlays in Michigan

- Thin PCC Overlay
- Separator Layer
- Old PCC Pavement
Unbonded Concrete Overlays in Michigan

- Local Roads & Streets
  - Coolidge Highway, Royal Oak, 1983
  - 13 Mile to 14 Mile, 5 in.
  - Enterprise Drive, Allen Park, 1997
  - Oakwood to S. Dearborn, 6 in.

Coolidge Road, 1983

- Concrete Overlay and Widening
- Original Concrete Built 1928 and 1929
- 8 inch plain concrete
- 20 foot wide two lane road

Coolidge Road, 1983

- Numerous 3” and 5” asphalt overlays
- Widen from 20 to 25 feet
- 4,590 feet of 5-inch unbonded overlay
- Placed in September 1983

Coolidge Road

13 Mile to 14 Mile Road
Enterprise Drive, Allen Park

- Original pavement built in 1950's
- 9-inch mesh reinforced
- 6-inch unbonded overlay
- 9-inch plain concrete widening
- Joint Spacing - 10 feet

Enterprise Drive, Allen Park

- Access to Local Businesses Crucial
- 9-inch widening built first
- 7,200 square yard overlay built in one Saturday
Outer Drive, Wayne County

- Outer Drive, Ford Rd. to Hines Drive, Wayne County
- 5 lane curbed pavement
- Original plain concrete built in 1928
- Last asphalt overlay lasted 7 years