

12, 2023

CONFERENCE

Cass County Pavement Preservation Plan

Kyle Litchy PE.

Assistant County Engineer

I have been working at the Cass County Highway Department for 10 years doing design, construction management, and budgeting. Over this time, we have tried many different sections and we think we have narrowed it down to a process that works for us and may work for other counties throughout the state. We have over 25 miles of reconstructed roadway using this plan and it has shown to save money, time, and resources as well as provide a stronger road that will last.

Planning

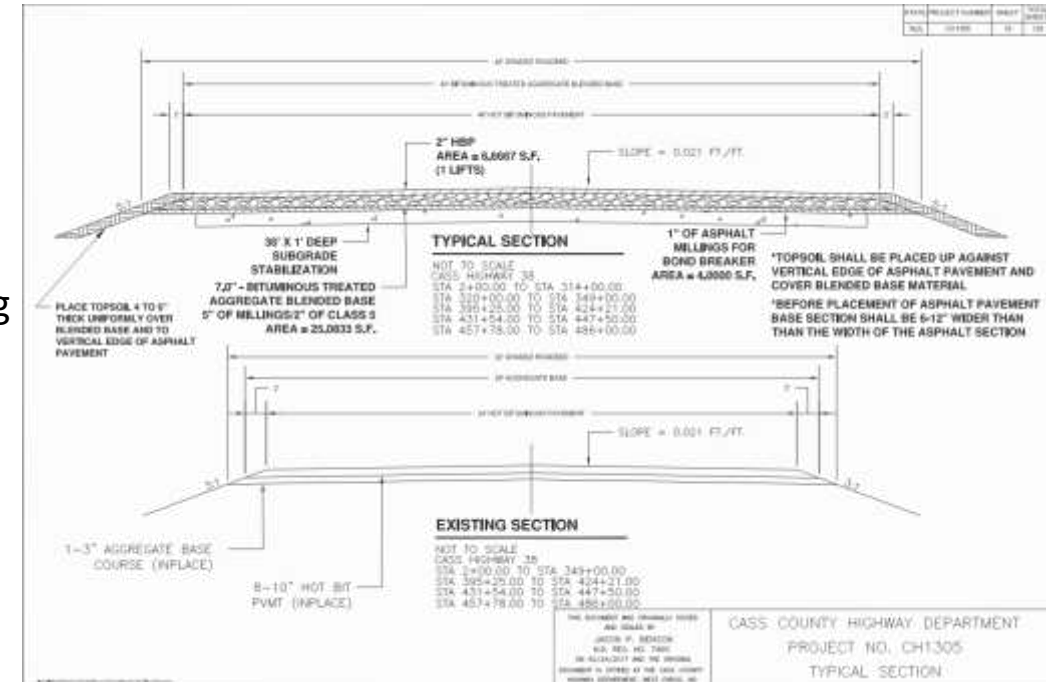
Where to start?

- If its bad fix it!
- Deciding between multiple roads/5-year plans
 - FWD (Falling Weight Deflectometer/PCI (Pavement Condition Index) Testing
 - Tests for strength of road
 - Test provides IN of Asphalt required if looking for only mill and fill options
 - Tests for Pavement Surface Condition
 - Traffic Counts
 - Most traveled
 - Most trucks



Design

- Cass County regrade section throughout the years
 - 1990's
 - 7" HBP & 3" Aggregate
 - SN 3.1
 - No work done to subgrade besides working and compacting
 - Tons of imported material (7,500)
 - 2000's
 - 7" HBP & 12" Aggregate
 - SN 4.0
 - R1 Fabric added on top of subgrade
 - Tons of imported material (15,500)
 - 2010's to current
 - 5"-7" HBP (depending on traffic), 8" Salvaged Base, & 12" Cement Treated Subgrade
 - SN 5.0-5.8
 - We have also cement treated the Salvaged Base in major truck routes (SN 6.5+)
 - Tons of imported material (6,500)
 - We always replace centerline culverts with RCP



Construction Practices

- PG Oil
 - We used to use PG58-28
 - Now we use PG58-34H
 - Have seen way better performance out of this oil with cracking and striping
- Tack
 - 0.05 Gal/SY on non milled surface
 - 0.1 Gal/SY on milled surface
 - 0.1 Gal/SY on centerline joint
- Fog
 - We always fog after final lift while pavement is still warm 0.05 Gal/SY
- Rap
 - 15-20% Rap
 - We require contractor to crush millings to 5/8" for more consistence mix (we have seen tighter mats)
- Special Provisions
 - Ride Spec
 - Longitudinal Joint Spec
 - Intelligent Compaction
 - Used to use compaction spec before spec book put incentives for compaction

Post Construction

- Crack Seal
 - Next construction season (before Chip Seal)
 - Chip Seal
 - Next construction season pending funds but for sure 2 years after original construction
 - We always fog new chip seal
 - Perpetual Pavement
 - Now that we have a strong base under our roads will only need to do maintenance mill and overlays
 - Will not have to worry about narrowing roadway by having to add more asphalt in future
- 
- A red chip seal machine and a white dump truck with its bed raised, dumping material, on a construction site. The background shows a clear blue sky and a red car parked on the right.