BCO
US 75

- Paris District
- US 75
- 2010
- 7”

US 75 Project History

Pavement Section

- **Mainlanes: 10” CPCD, 6” Flexbase, Lime treated subgrade**
- **Shoulders: 8” Avg Flexbase, 1” ACP**
- **Year: 1984**
- **Shoulders: In 1998, 10” CPCD & 6” Flexbase**
- **ADT in 1984 ~ 11,000, projected 20 yr ADT ~ 16,200**
- **ADT in 2010: 51,000 & projected 20 yr ADT ~71,000**

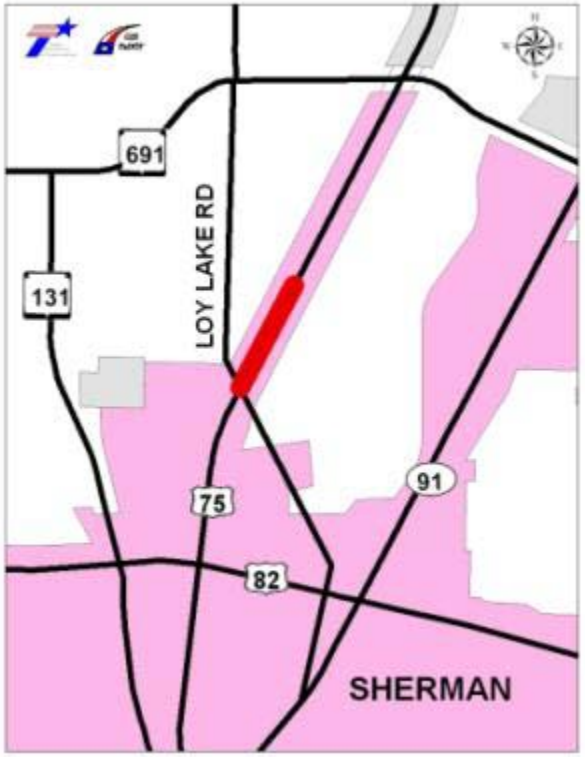
US 75 Project History

- **Since 2002, Paris District spends around $500K to $1 million on slab repair on US 75 per year.**
- **With help from Dr. Claros, RTI and Mr. Littlefield, District Engineer for Paris District,**

  Project No. 5-4893 "Pilot Implementation of CRCP Overlay on Jointed Concrete Pavement"

  was implemented.
- **Dr. Moon Won, Texas Tech University, developed CRCP overlay design.**
- **Funding for this implementation project was $500K.**

Pilot Implementation of CRCP Overlay Limits



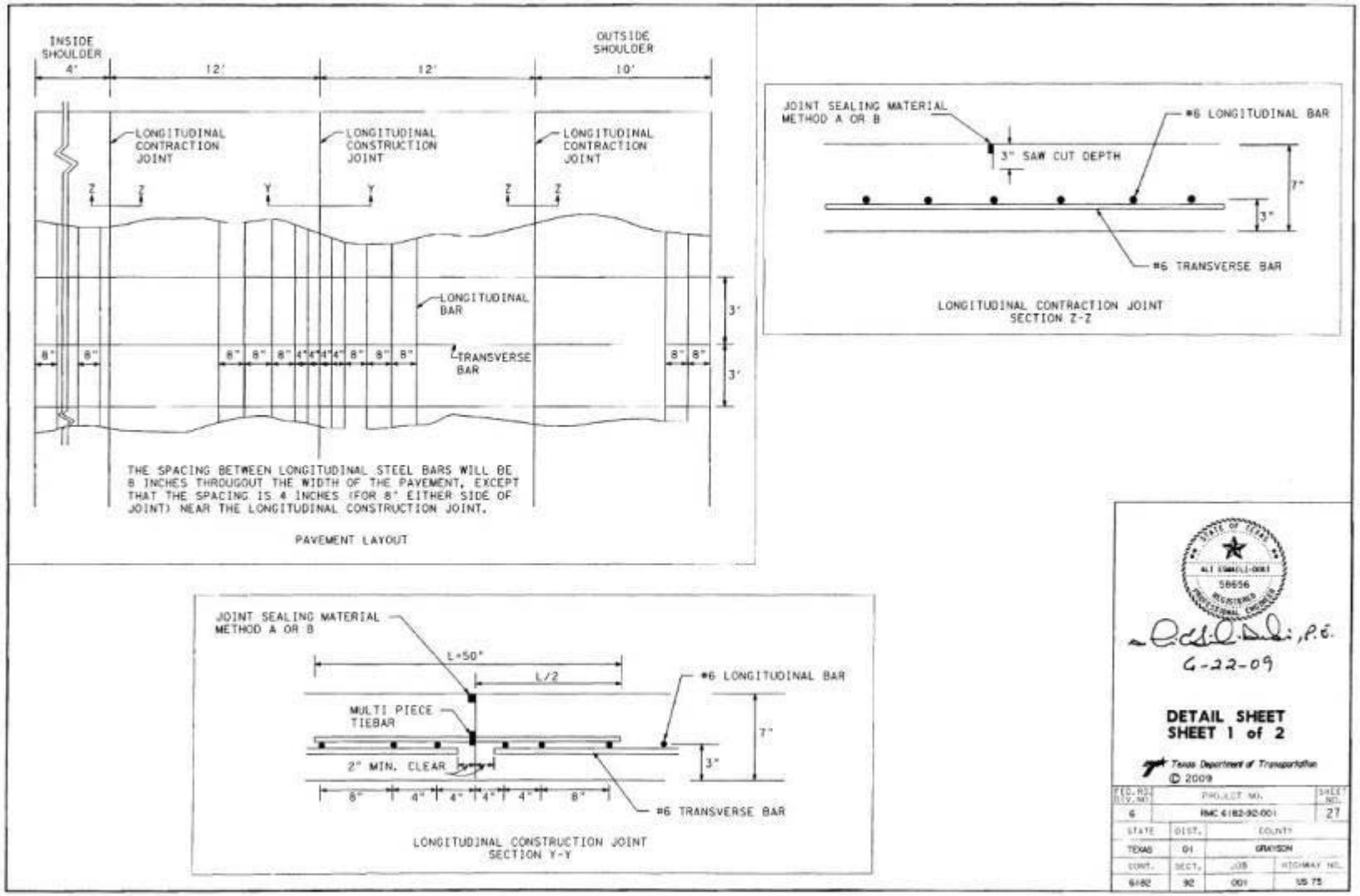
Pilot Implementation of CRCP

- Lowest Bidder was Ed Bell Construction Company, Dallas,TX
- Contract Amount: $480,846.00
- Construction Started: May 17,2010
- Open House: May 20, 2010
- Contract time : 32 Working Days
- Work Completed: August 13,2010

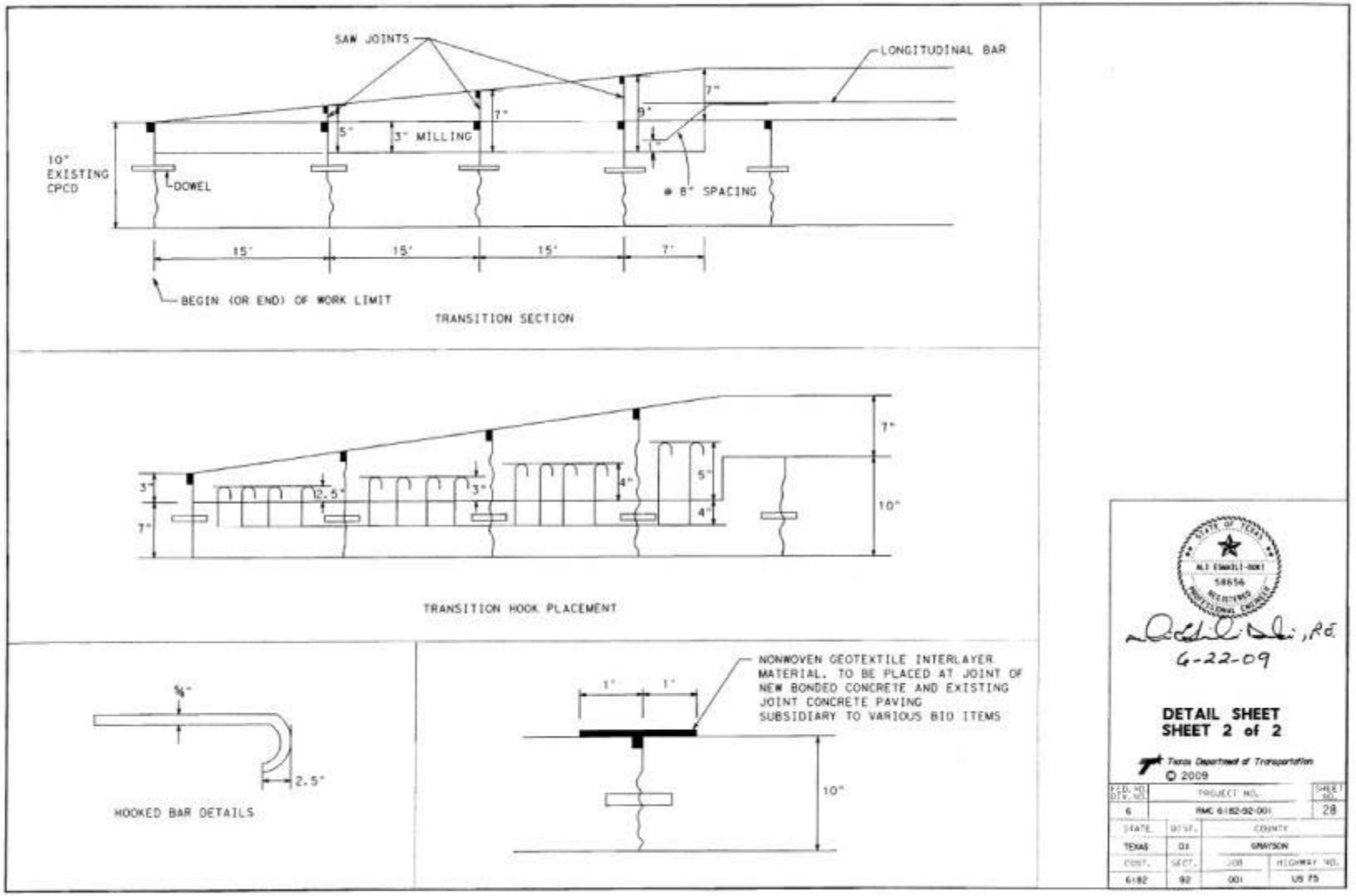
Pilot Implementation of CRCP

- Project length: 0.5 miles
- Width: 38-ft (two 12-ft mainlanes, 4-ft inside shoulder, 10-ft outside shoulder)
- 7-in CRCP with 0.7 % steel 4-in deep from surface (3-in from the bottom of CRCP)
- Class P concrete with 2,600 psi in 24 hours
- CTE of less than 4.6×10^{-6} in/in/ F
- Wet mat curing

Pilot Implementation of CRCP



Pilot Implementation of CRCP




12.22.2009 16:18


12.22.2009 16:39


66
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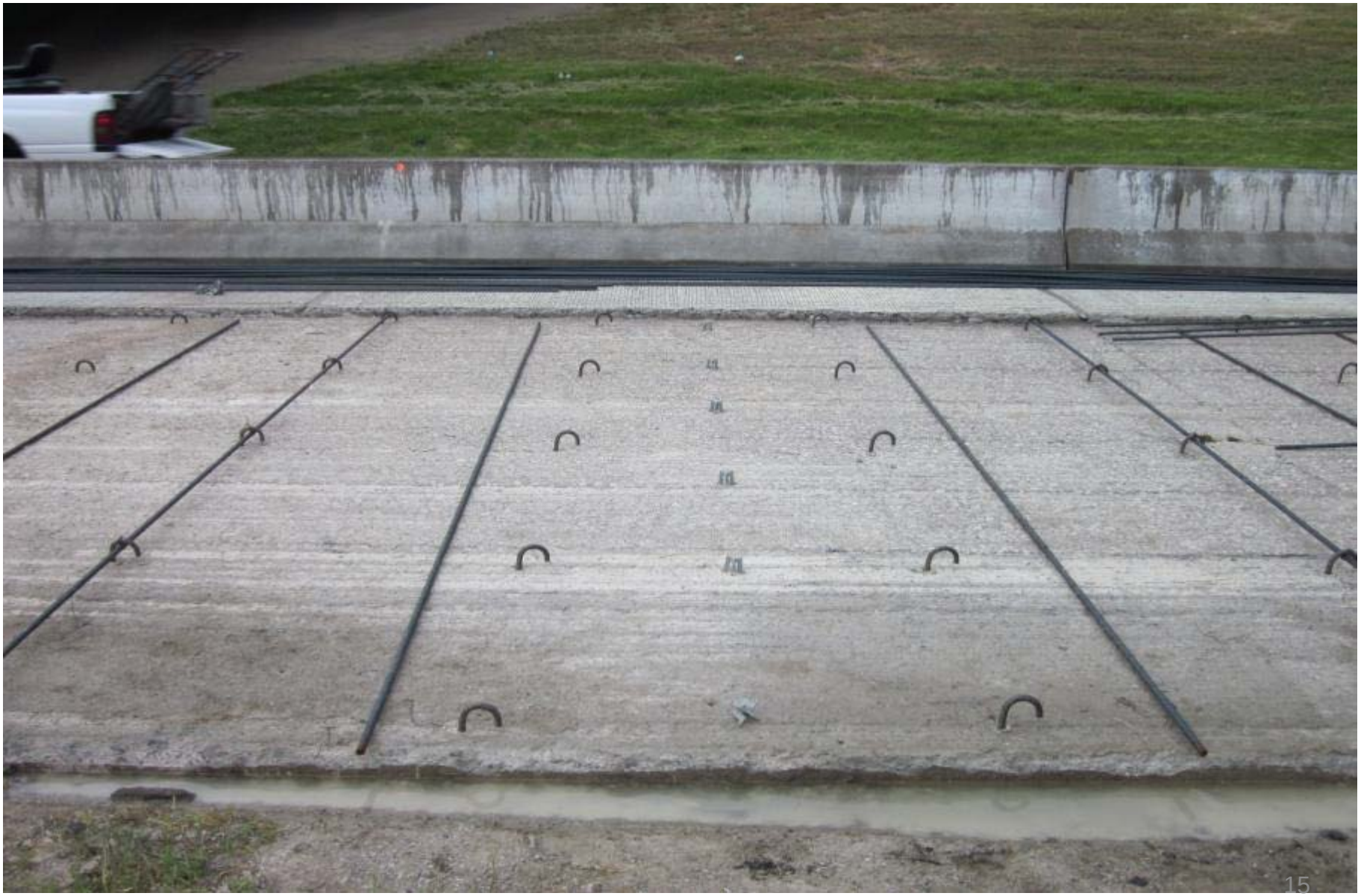
Cold Milling

Milling transition sections

Installing hook bars



Placing Geo-textiles at joint

Installing rebars(1)

Installing rebars(2)

Longitudinal steel spacing

Steel depth

Rebars in the transition section

Surface Cleaning

Placing Concrete(1)

Placing Concrete(2)

Curing

Longitudinal joint sawcut

Placing wet mats(1)

Placing wet mats(2)

Completed CRCP BCO

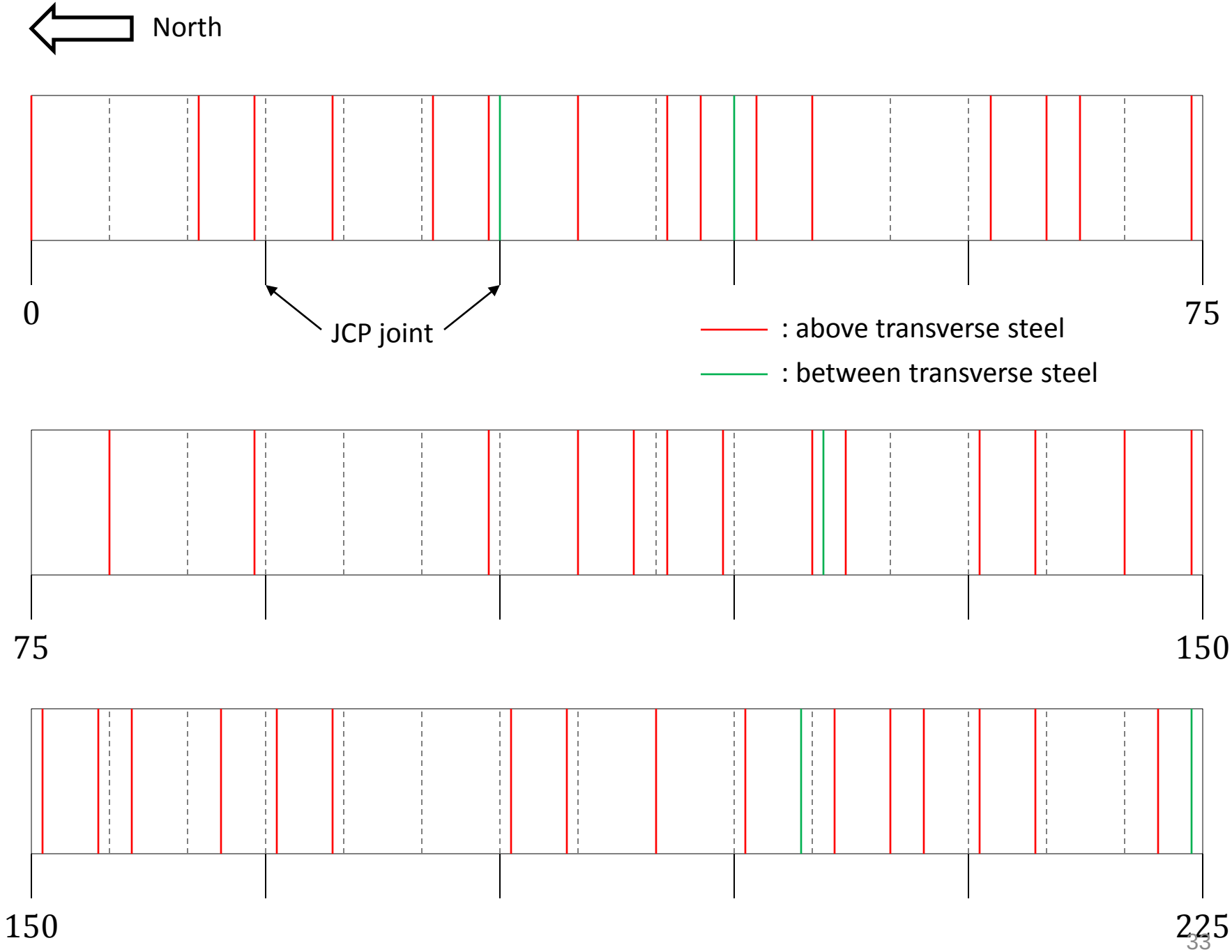
- **Annual Maintenance on US 75: $1.0 Million**
- **Various Lane Closures: Average 3 months**
- **Cost of Maintenance for next 20 years without inflation: $20 Million**
- **Road User Cost due to lane closures at current ADT and projected ADT for 20 years is over $ 70 M**
- **Overlaying with 7” Concrete Overlay for this project limits is ~ $30 M**

Cracking & Deflections

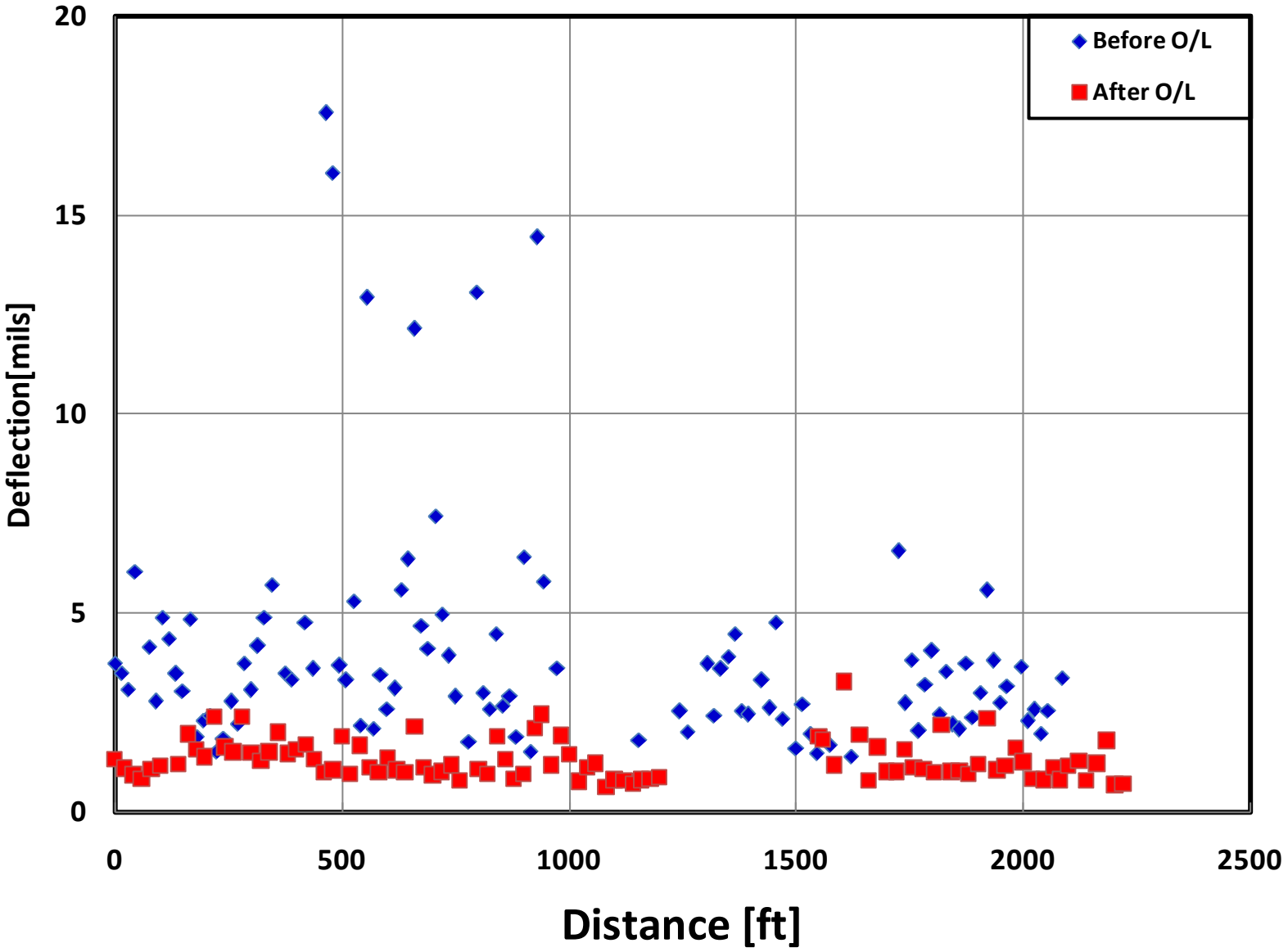
- Length of test section : 2205 ft
- Total transverse cracks : 448 ea
- Average crack spacing : 4.93 ft

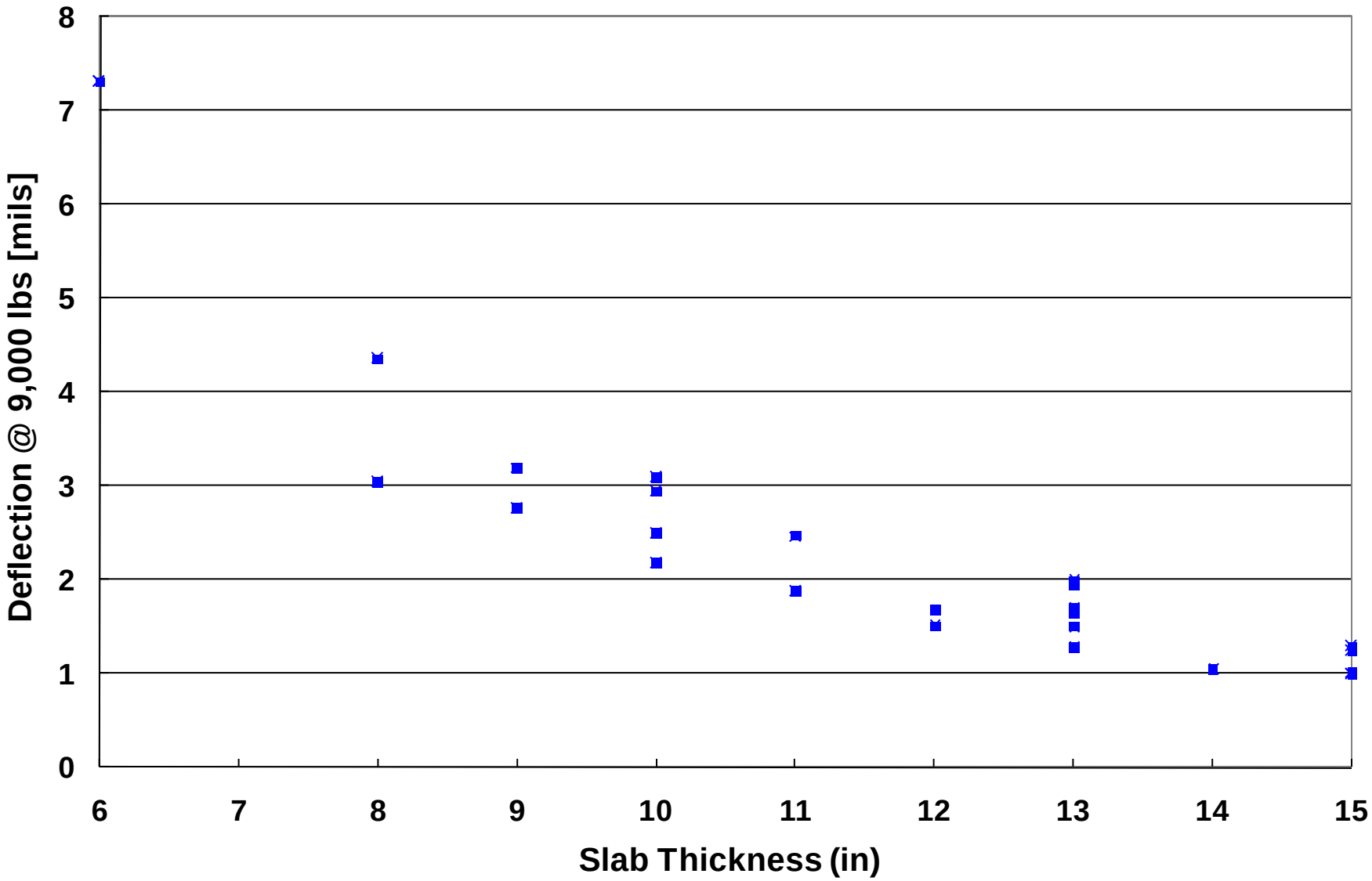
- Transverse crack above transverse steel : 363 ea (81%)
- Transverse crack between transverse steel : 85 ea (19%)

- Total number of JCP joint : 148 ea
- Transverse crack at JCP joint : 40 ea


North
0
JCP joint
75
: above transverse steel
: between transverse steel
75
150
150
225

Deflections before/after Overlay




Deflection @ 9,000 lbs [mils]
0
1
2
3
4
5
6
7
8
6
7
8
9
10
11
12
13
14
15
Slab Thickness (in)

Summary

- 7-in CRCP with 0.7 % steel at 4-in from the top on deteriorated 10-in JCP
- More than 80 % transverse cracks on transverse steel
- About 25 % transverse cracks on existing transverse joints
- Better curing resulted in tighter cracks.

Interim Findings

- Deflections were reduced substantially.
- So far, ride is excellent and no distresses have been observed.
- Long-term performance will be monitored and the findings will be used for the rehabilitation decision.