The Problem’s Scope

- 131 State Bridges Have Timber Piling
  - 5.6%

- 1385 Non-state Bridges Have Timber Piling
  - 13.3%
The Problem with Timber Piling

- Age
- Stream Bed Degradation
- Reduced Pile Cross Section
- Cap Condition
Timber Pile Capacity Issues

• Shorter Lengths (30 to 45 feet)

• Numerous Piles

• Fair to Good Cap Conditions

• Short-span Slab Bridges

• 30 Tons Nominal Capacity

• 10 to 20 Tons Design Loads
Pile Capacity
What has been done in the past?
What has been done in the past?
Demo Bridge

- Three-span continuous slab has 28.5’, 35’ and 28.5’ spans.
- Built in 1938, widened in 1986 when two piles per member were added.
- Two rows of timber piles with cross bracing are placed under each bent.
- Bent piles have 0% to 90% section remaining. Piles were rated 4 for their condition.
- Bent and abutment caps are in good to very good condition.
Spliced

All others are 90% section remaining.

Bent 1

Bent 2

Pile rating computed @ 4 (poor condition)

Not To Scale

Q A1 = C of Abutment #1, Q A2 = C of Abutment #2. Locate C of Piers, Grade Beams, Girders and Wings, Check Appropriate Skew

Bridge Inspection Field Sketch Template

DR Form 532, April 09
Old Policy

- Replace bridges with timber piles in poor conditions
- Replace the bridges with timber piles in fair conditions when widening is required.
- Timber piles are rated in fair or worse conditions.

New Policy

- Repair the timber piles if they are sufficiently carrying the cap loads (caps are not suffering).
- Repair if it extends the life of structure 10 to 20 years.
Splice Assembly
Top Unit
Cost Factor

• Stocked or salvaged material was used.
• The district mechanic assembled the pieces and painted the splice.
• The estimated cost of material, assembled and painted, is $1,000.
• Installation labor was estimated at 40 man-hours.
Advantages

• Low-Cost Alternative
• Effective Alternative
• Accelerated Repair – Pre-Assembled Units
• Minimum Environmental Impact – No Permit
• Splice Capacity of 25 Tons > Design Capacity
• Temporary Solution – Lasts longer than the waiting period.
• Under Traffic
• By Maintenance
QUESTIONS ?