STRUCTURE MAINTENANCE
Bridge Preservation
OUR OBJECTIVE

- To support region forces by providing technical advice, training, specialized materials and equipment as well as emergency response to ensure safe, efficient and effective bridge operations.
STATEWIDE BRIDGE CREW

• Emergency Response
• Specialized Steel Repairs
• Moveable Bridge Maintenance
EMERGENCY RESPONSE
TEMPORARY SUPPORTS
HEAT STRAIGHTENING
MOVEABLE BRIDGE
REGION BRIDGE SUPPORT UNIT

- Reachall Operations
- Material Procurement
- Best Practices
- Specialized Equipment
- Training and Expertise
MAINTENANCE FOCUS AREAS

- Crack Chasing
- Healer Sealer
- Thin Epoxy Overlay
- Deck Patching
- Expansion Joints
- Painting
- Pressure Relief Joints
WHO DOES BRIDGE MAINTENANCE?

• MDOT Special Crews
  – Each Region Utilizes Direct Forces for Bridge Maintenance.

• Contract Counties
  – Large Urbanized Areas Utilize Contract Counties As Well.

• Contractors
  – Region Bridge Engineers Include Contract Bridge Maintenance into Programs.
HOW MAINTENANCE IS CONDUCTED?

• MDOT Direct Forces and Structure Maintenance Section Establish Procedures
  – New Products
  – Techniques
  – Equipment

• Central Offices Create Special Provisions Based on Field and Laboratory Testing

• Special Provisions Then Used to Contract Bridge Maintenance
EXPANSION JOINTS

- Full Depth
- Partial Depth
- Pourable
- Gland Repair/Splicing
PARTIAL DEPTH JOINT
DECK PATCHING

- Urgent Repairs
- Block Outs/End Headers
- Fast Set Materials
- Cold Weather Products
THIN EPOXY OVERLAYS
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• Very Prep Sensitive
• Time Consuming
• Utilizes Heavy Equipment
• Provides Waterproof Wearing Surface
• Improves Traction
HEALER SEALER (PENETRATING SEALER)

- Prep Lenient
- Fast
- Mobility
- Light Equipment
- Seals Cracks
- Maintains Original Traction
- Used as Crack Chaser
HEALER SEALER VS. THIN OVERLAY

• Healer Sealer is Faster
  – Approx. 1/3 of the time of a Thin Overlay
  – Improves Mobility

• Sand is Cheaper than Chipped Flint

• Healer Sealer Breathes
  – May be used on Box Beams and Stay-In-Place Forms

• Healer Sealer Requires Less Prep
  – Quick Shot Blast
  – No Need to Remove Lane Lines

• Thin Epoxy Overlay Improves Ride Quality
  – May be used to Smooth Imperfections
  – Improves Skid Resistance

• Overlay Bridges Cracks, Healer Sealer Penetrates Cracks
FLOOD COAT TRENDS

• Transition From Thin Epoxy Overlays to Healer Sealers
• Thin Epoxy Overlays Still Have a Unique Benefit
• Healers Sealers are More Cost Effective
PAVEMENT RELIEF JOINTS (PRJ’S)
SYMPTOMS OF PAVEMENT GROWTH

• Closed Joint Rails
• Crushed Concrete Railing
• Separation of Tube Railing
• Diagonal (Shear) Deck Cracking in Quadrants
• Distortion in Approach Pavement
SYMPTOMS OF PAVEMENT GROWTH

• Closed Pin and Hangers in Cold Temps
• Tilted Rockers
• Beam Ends in Contact
• Tilted Backwall
• Abutment Spalls
FREQUENCY OF REINSTALLATION

- 2-3 YEARS

RELIEF JOINT TRENDS

• Large Increase in Relief Joint Installations in 2009/10
  – Increased Awareness
  – Less Labor Intensive
  – Cost Effective

• Major Preventative Tool
PAINTING

- All Painting Performed by Contract
- Inefficient to Continue Painting by Direct Forces
  - Equipment Costs
  - Health Hazards
  - Time
• A Need for a Falling Concrete Containment System that Maintained Deck Visibility.
FALSE DECKING

• Constructed of Square Tubing and Chain Link Fencing
• Fabricated per Individual Bridge Specifications
• Easy Installation from Shoulder
• Reusable