Moving Bridge Painting Into The 21st Century

Presented to: Purdue Road School
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Bridge Painting and Where We Are Today

• Specifications are performance based. The owner provides all the requirements giving the contractor the opportunity to develop their plan on how to achieve the requirements of the specifications.

• Organizations like SSPC (The Society of Protective Coatings) and NACE (The National Association of Corrosion Engineers) have developed standards for owners to use for surface preparation, painting and containment systems.

• These organizations have developed contractor certification programs for Owners to use. These programs evaluate the contractors ability to perform the work and there ability to remove hazardous materials like lead.
Bridge Painting and Where We Are Today

• Abrasive blast cleaning with recyclable steel grit is typically used to remove the existing coating which typically contains lead based paint.

• The application of the three coat system is applied to protect the steel substrate from the environment. Typically a zinc/epoxy/urethane system is applied.

• Containment is used during all production. This includes surface preparation and painting activities.

• Many DOT’s have and are using third party inspection, due to the technical aspects of this industry, to provide full time inspection services during the construction phase.
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Why Do We Need To Move?

- ~610,000 bridges in FHWA inventory
- Aging inventory
- Alternative protective coatings
  - Stainless steel
  - Hot dip galvanize
- New bridge design
- Cost of maintaining paint
- Focus on bridge preservation
- We need to use new approaches and technologies to move bridge painting into the 21st Century
Suggestions for Change?

• New Focus on Bridge Preservation
  – Painting as a preservation action
• Materials
• Surface preparation
• Inspection tools
• Funding
• Changes in DOT workforce
• Reduction in skilled craftsmen
• Promising new technologies
• Project development
Technical Issues
Materials

PRESENT
• Commodity Materials
• Lists of Approved Materials
• ASTM D-5894

FUTURE
• High Performance Coatings
• Tiered Lists of Approved Materials
• New Testing Protocol
Technical Issues
Surface Preparation

PRESENT
• Traditional Tools
  o Soluble Salt Assessment

FUTURE
• Emerging Technology
# Technical Issues: Surface Preparation

- **PRESENT**
  - Anchor Profile
    - Replica Tape
    - Probe
    - Stylus

- **FUTURE**
  - Emerging Technology
    - 3-D Optical Scanning
    - Thermography
    - Laser
Technical Issues
Coating Application

PRESENT
- Film Thickness Gages

FUTURE
- Emerging Technology
  - X-Ray Fluorescence
  - FTIR
  - Thermography
  - OAP
Programmatic Issues

PRESENT
• Standardized painting practice (one approach fits all)

FUTURE
• Designed bridge coatings practice (customized for each bridge location)
Programmatic Issues

PRESENT
• Bridge painting as a treatment

FUTURE
• Bridge painting as an element to be preserved (by washing and spot/zone painting)
Programmatic Issues

PRESENT
• Focus on painting bridge steel

FUTURE
• Paint reinforced and pre-stressed concrete
Programmatic Issues

PRESENT
• Conventional QC/QA

FUTURE
• Self-inspection, mutual 3rd party, auditing
Programmatic Issues

**PRESENT**
- Reliance on state forces for inspections

**FUTURE**
- Use of 3rd party inspectors as DOT inspection personnel (to get qualified people)
Programmatic Issues

PRESENT
• Contractor qualifications primarily tied to bonding capacity

FUTURE
• Contractor/worker qualifications & certifications, work history with DOT
Programmatic Issues

PRESENT
- NACE/SSPC Inspector certifications

FUTURE
- DOT specification-procedure specific inspection qualifications
Programmatic Issues

PRESENT
• DOT Divisions (e.g. Construction, Maintenance, Materials, Environmental) working in silos

FUTURE
• DOT multi-disciplinary paint teams
Programmatic Issues

PRESENT

• Each DOT acting alone relative to painting issues

FUTURE

• National/regional paint committees, teams, working groups of multiple DOTs
Programmatic Issues

PRESENT
• DOTs passive with technical societies, vendors, regulatory agencies

FUTURE
• DOTs proactively engaging technical societies, vendors and regulatory agencies
Legislative Issues

PRESENT
• Low Bid Contracting

FUTURE
• Design-build, A+B, warranty, reliability based contracting
Legislative Issues

PRESENT

• Painting budget set by “available funds”

FUTURE

• DOT actively pursuing needs based budget (to fund 40-50 year painting cycle)
Thank You

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