

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Darrin Turner

State Nevada

Position Supervisor 1, Bridge Crew

E-mail dturner@dot.state.nv.us



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

the majority of our painting is to cover up graffiti

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:                                      When:

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:none

Is washing done as part of preparation?

- Yes                       No

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life
- Provide some protection between painting contracts
- Prompted by repair work in vicinity
- Other: cover up graffiti

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?  
spot

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
- Acrylic elastomer       Epoxy Amine       Oil Alkyd
- Polyaspartic       Moisture Cure Urethane
- Other: water base paint

Please provide the manufacturer(s) and product name(s) of the coatings.  
vri

7. Application methods use by the crews?

- Spray       Roller       Brush
- Other:

8. How is the success of the strategy measured?

- Anecdotal       Anecdotal with some quantitative results
- Quantitative results       Research study
- Other: Please indicate criteria

Please provide documents, links, or references to supporting information.  
work orders

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing  
 Lab tests                         Research study  
 Other: Please indicate criteria none

10. If it was your decision, what paint would you recommend for the crews to use?  
water base

11. Has the agency developed guidance or documentation on their maintenance of  
steel coatings? no

12. Additional Comments:  
none

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Steven Sibley

State LA

Position Bridge Inspection QA\QC Engineer

E-mail steven.sibley@la.gov



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

LA DOTD does not have a formal painting program yet. Bridge Maintenance is working to establish one. At one point in history LA DOTD had dedicated statewide crews as well as district crews that could and did perform maintenance painting (pressure wash & overcoat, spot paint, etc.). These crews have dwindled through attrition and now only a couple districts have painting crews that perform this type of work infrequently. There is no longer a statewide paint crew.

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:                                      When:lost through attrition over the  
past 10 years.

3. What level of preparation does your state crews do before painting?

- SP-2                                       SP-3                                       SP-6  
 Other:Pressure wash (2000 - 3000 psi)

Is washing done as part of preparation?

- Yes                       No

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life  
 Provide some protection between painting contracts  
 Prompted by repair work in vicinity  
 Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?  
mostly spot, girder end areas, but also entire small bridges (depends on access and other site conditions).

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic  
 Acrylic elastomer       Epoxy Amine       Oil Alkyd  
 Polyaspartic               Moisture Cure Urethane  
 Other:

Please provide the manufacturer(s) and product name(s) of the coatings.  
Historically we have used a Mil. Spec (MS-285) and purchased from various manufacturers. We also now have a QPL for other overcoating systems that is comprised of mostly MC Urethanes, but also includes some Epoxy Mastics.

7. Application methods use by the crews?

- Spray                       Roller                       Brush  
 Other:

8. How is the success of the strategy measured?

- Anecdotal                       Anecdotal with some quantitative results  
 Quantitative results       Research study  
 Other: Please indicate criteria

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing  
 Lab tests                       Research study  
 Other: Please indicate criteria

10. If it was your decision, what paint would you recommend for the crews to use?  
Most likely one of the systems from QPL 79, but the MS-285 system is very application friendly, but requires more man-hrs to complete.

11. Has the agency developed guidance or documentation on their maintenance of steel coatings? Not yet. Is being developed as part of the redevelopment of a program.

12. Additional Comments:





Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?
- Extend coating service life
  - Provide some protection between painting contracts
  - Prompted by repair work in vicinity
  - Other: spot overcoat vulnerable areas
5. Are the crews used just for spot painting, girder end areas, or the entire bridge?  
Only spot painting, usually the bearings or the girder ends
6. What type(s) of coatings are the crews using?
- Calcium Sulfonate
  - Epoxy Mastic
  - Urethane Mastic
  - Acrylic elastomer
  - Epoxy Amine
  - Oil Alkyd
  - Polyaspartic
  - Moisture Cure Urethane
  - Other: Zinc-rich "cold galvanizing" paint from a spray can

Please provide the manufacturer(s) and product name(s) of the coatings.  
various

7. Application methods use by the crews?
- Spray
  - Roller
  - Brush
  - Other: off the shelf paint from a spray can
8. How is the success of the strategy measured?
- Anecdotal
  - Anecdotal with some quantitative results
  - Quantitative results
  - Research study
  - Other: Please indicate criteria

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing  
 Lab tests                               Research study  
 Other: Please indicate criteria

10. If it was your decision, what paint would you recommend for the crews to use?

11. Has the agency developed guidance or documentation on their maintenance of steel coatings? No, other than we just don't do (properly prepared and planned) in-house painting because of lead issues (i.e. all of the training, equipment, containment, and monitoring necessary when dealing with the proper preparation of old lead paint) and because we don't have much of a need for painting (see No. 1 above).

12. Additional Comments:

Much of our spot painting that is done, is done by our inspectors while inspecting a bridge. They just keep a small supply of spray cans on hand and give the bearings or girder ends a quick shot of paint on spot areas that may need it. Very minimal prep. We have no formal or organized, in-house, paint maintenance program.



# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Richard Thompson

State Virginia

Position Bridge Management Engineer

E-mail [richard.thompson@VDOT.Virginia.gov](mailto:richard.thompson@VDOT.Virginia.gov)



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

*Only one district out of nine has their bridge crew paint bridges. Less than 5% of that district's program is used for painting bridges.*

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:

*All but one district has dropped the program due to environmental requirements and the remaining district may not be doing much longer.*

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life
- Provide some protection between painting contracts
- Prompted by repair work in vicinity
- Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?  
*What painting is performed is usually done on repair work.*

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
- Acrylic elastomer       Epoxy Amine       Oil Alkyd
- Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

*One district has begun using several corrosion inhibitors (Black Max is one) for spot painting around repaired areas. If it works out other districts will use as well.*

7. Application methods use by the crews?

- Spray       Roller       Brush
- Other:

8. How is the success of the strategy measured?

- Anecdotal                       Anecdotal with some quantitative results  
 Quantitative results             Research study  
 Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing  
 Lab tests                         Research study  
 Other:

10. If it was your decision, what paint would you recommend for the crews to use?

11. Additional comments:



# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Eric Christie

State Alabama

Position Assistant State Maintenance Engineer - Bridges

E-mail christiee@dot.state.al.us



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

Less than 5%. Most painting by statewide crews is for spot painting of deteriorated areas or in conjunction with repair work.

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:                                      When:

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other: Some sand blasting is done - likely between SP-7 and SP-6

Is washing done as part of preparation?

- Yes                       No

Please provide a brief description of the equipment used.

Sand Blaster, grinders and wire brush.

4. What is the aim or strategy of using state crews for painting steel bridges?
- Extend coating service life
  - Provide some protection between painting contracts
  - Prompted by repair work in vicinity
  - Other:
5. Are the crews used just for spot painting, girder end areas, or the entire bridge?  
Spot painting of girder ends, gusset plate connections and bearings
6. What type(s) of coatings are the crews using?
- Calcium Sulfonate
  - Epoxy Mastic
  - Urethane Mastic
  - Acrylic elastomer
  - Epoxy Amine
  - Oil Alkyd
  - Polyaspartic
  - Moisture Cure Urethane
  - Other: Aliphatic Acrylic Polyurethane

Please provide the manufacturer(s) and product name(s) of the coatings.  
Carbomastic 15, Sherwin-Williams Fast Clad DTM Urethane, Carboline 134HG

7. Application methods use by the crews?
- Spray
  - Roller
  - Brush
  - Other:
8. How is the success of the strategy measured?
- Anecdotal
  - Anecdotal with some quantitative results
  - Quantitative results
  - Research study
  - Other: Please indicate criteria

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing  
 Lab tests                               Research study  
 Other: Please indicate criteria

10. If it was your decision, what paint would you recommend for the crews to use?  
Sherwin-Williams Fast Clad or Carboline 134 HG

11. Has the agency developed guidance or documentation on their maintenance of  
steel coatings? no

12. Additional Comments:

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Darrin Turner

State Nevada

Position Supervisor 1, Bridge Crew

E-mail dturner@dot.state.nv.us



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

the majority of our painting is to cover up graffiti

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:                                      When:

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:none

Is washing done as part of preparation?

- Yes                       No

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life
- Provide some protection between painting contracts
- Prompted by repair work in vicinity
- Other: cover up graffiti

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?  
spot

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
- Acrylic elastomer       Epoxy Amine       Oil Alkyd
- Polyaspartic       Moisture Cure Urethane
- Other: water base paint

Please provide the manufacturer(s) and product name(s) of the coatings.  
vri

7. Application methods use by the crews?

- Spray       Roller       Brush
- Other:

8. How is the success of the strategy measured?

- Anecdotal       Anecdotal with some quantitative results
- Quantitative results       Research study
- Other: Please indicate criteria

Please provide documents, links, or references to supporting information.  
work orders

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing  
 Lab tests                       Research study  
 Other: Please indicate criteria none

10. If it was your decision, what paint would you recommend for the crews to use?  
water base

11. Has the agency developed guidance or documentation on their maintenance of  
steel coatings? no

12. Additional Comments:  
none

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Ivan Silbernagel

State Oregon

Position Structure Coatings Engineer

E-mail [Ivan.P.SILBERNAGEL@odot.state.or.us](mailto:Ivan.P.SILBERNAGEL@odot.state.or.us)



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               **Infrequently**

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

**Less than 1%. State forces have only been doing some smaller collision damage work until recently. They have started to do some cleaning and spot painting.**

2. About how long have the crews been painting?

- Less than 5 years**                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:

3. What level of preparation does your state crews do before painting?

- SP-2                       **SP-3**                       SP-6  
 Other:

Please provide a brief description of the equipment used.

**Needle gun, power wire wheels and discs. Sometimes with vacuum shrouds.**

4. What is the aim or strategy of using state crews for painting steel bridges?

**Extend coating service life**

Provide some protection between painting contracts

Prompted by repair work in vicinity

Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

**Only spot painting**

6. What type(s) of coatings are the crews using?

Calcium Sulfonate       Epoxy Mastic       Urethane Mastic

Acrylic elastomer       Epoxy Amine       Oil Alkyd

Polyaspartic       **Other: Moisture cured Urethane**

Please provide the manufacturer(s) and product name(s) of the coatings.

**Wasser – mio-zinc/mc-zinc, mio-mastic/ferrox b, and ferrox a/ mc-luster**

**Sherwin-Williams – zinc primer/corothane 1 galvapac, ironox b, ironox a**

**Zero Rust & cold galvanizing – very small temp patches**

7. Application methods use by the crews?

Spray       Roller       Brush

**Other: all methods but mostly brush**

8. How is the success of the strategy measured?

Anecdotal       **Anecdotal with some quantitative results**

Quantitative results       Research study

Other:

Please provide documents, links, or references to supporting information.

We have postponed several full maintenance painting projects 5+ years by doing some cleaning and spot painting.

9. How is the effectiveness of the coatings measured?

Anecdotal

Field testing

Lab tests

Research study

Other:

10. If it was your decision, what paint would you recommend for the crews to use?

It depends on the structure type and environment. Single component moisture cured urethanes are user friendly and can be applied with little or no containment/environmental controls. Surface tolerant zinc primers (i.e Corothane 1 zinc primer #B65A15 or Wasser Mio-zinc) work well for tool prepped surfaces. Any of the MCU intermediate and topcoats mentioned above can be used. Coal tars work well for immersion use, but they need better surface prep than tool cleaning. Coal tars are carcinogens so their use is very limited.

11. Additional comments: ODOT has traditionally waited until the coating system needed full removal before doing any coatings work. Our maintenance crews did almost no coating maintenance because of lead and chromate issues. We are now doing some cleaning and spot painting. On coastal bridges, spot painting can add a few years to the coating systems life. On structures away from the coast, it can easily add 10 years to the coating system life.

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name David Jensen

State Iowa

Position Operations Engineer

E-mail david.jensen@dot.state.ia.us



1. Do state maintenance crews do any painting of steel bridges? NO

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

STATE PAINTING IS DONE BY CONTRACT

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life
- Provide some protection between painting contracts
- Prompted by repair work in vicinity
- Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
- Acrylic elastomer       Epoxy Amine       Oil Alkyd
- Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

7. Application methods use by the crews?

- Spray       Roller       Brush
- Other:

8. How is the success of the strategy measured?

- Anecdotal       Anecdotal with some quantitative results

- Quantitative results       Research study
- Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing
- Lab tests                         Research study
- Other:

10. If it was your decision, what paint would you recommend for the crews to use?

11. Additional comments:

IOWA DOES NOT PAINT STEEL BRIDGES WITH ANY STATE FORCES.  
ALL WORK IS CONTRACTED OUT.

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name \_\_\_ John Vance \_\_\_\_\_

State \_ Mississippi Department of Transportation

Position \_\_ State Maintenance Engineer \_\_\_\_\_

E-mail \_ jvance@mdot.state.ms.us \_\_\_\_\_



1. Do state maintenance crews do any painting of steel bridges?

- |  |  |
|--|--|
| <input type="checkbox"/> Dedicated crews | <input type="checkbox"/> Routinely               |
| <input type="checkbox"/> Occasionally    | <input checked="" type="checkbox"/> Infrequently |

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

Since the Crews do spot painting it is a very small percentage of the total program.

2. About how long have the crews been painting?

- |   |  |
|---|--|
| <input type="checkbox"/> Less than 5 years  | <input checked="" type="checkbox"/> More than 15 years |
| <input type="checkbox"/> Less than 15 years | <input type="checkbox"/> Dropped the program           |
| <input type="checkbox"/> Other:             |  |

3. What level of preparation does your state crews do before painting?

- |  |                               |                               |
|--|-------------------------------|-------------------------------|
| <input type="checkbox"/> SP-2              | <input type="checkbox"/> SP-3 | <input type="checkbox"/> SP-6 |
| <input checked="" type="checkbox"/> Other: |                               |                               |

Please provide a brief description of the equipment used.

Usually wire brush & paint brush and sand blasting occasionally.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life
- Provide some protection between painting contracts
- Prompted by repair work in vicinity
- Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?  
Spot painting, pile replacement painting, addle painting, bearings painting, etc.

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
- Acrylic elastomer       Epoxy Amine       Oil Alkyd
- Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

Farrell Calhoun in Memphis, TN  
1024 Rust Stop red Primer (oil base)

7. Application methods use by the crews?

- Spray       Roller       Brush
- Other:

8. How is the success of the strategy measured?

- Anecdotal
- Anecdotal with some quantitative results
- Quantitative results
- Research study
- Other: Visual bridge inspection

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal
- Field testing
- Lab tests
- Research study
- Other: Visual bridge inspection

10. If it was your decision, what paint would you recommend for the crews to use?

Bridge crews painted a few entire bridges several years ago, but dropped the program due to the time involved, work load of bridge repair, etc. Their painting now is limited to repaired areas of beams, new piles, pile repair or bearings. In the bridge crew's experience, the oil base stays on better than water base.

Additional comments: We have a few bridges repainting contracts each year.



# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Calvin Weber

State Delaware

Position Bridge Maintenance Engineer

E-mail calvin.weber@state.de.us



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

We do not have a state forces painting program.

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other: N/A

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life
- Provide some protection between painting contracts
- Prompted by repair work in vicinity
- Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
- Acrylic elastomer       Epoxy Amine       Oil Alkyd
- Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

7. Application methods use by the crews?

- Spray       Roller       Brush
- Other:

8. How is the success of the strategy measured?

- Anecdotal       Anecdotal with some quantitative results

- Quantitative results       Research study
- Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing
- Lab tests                         Research study
- Other:

10. If it was your decision, what paint would you recommend for the crews to use?

11. Additional comments:

## Attachment CC Guide for Field Determination of Paint Systems

**Note:** Show Paint System Code on page 1 of update sheet (Item 134), under **Service (2)**.

\*Contains Lead

### Paint System Codes

Code	Paint System
A	*Aluminum over red lead
B	CODE NO LONGER USED
C	Aluminum Pigmented Coal Tar Epoxy over Zinc
D	Aluminum over red primer nonwaterbase (ALKYD) Since 1987 used by Bridge Maintenance
E	Epoxy
F	*Foliage green (ALKYD) over red lead (Contracts let early 1970 thru 1975)
G	*Foliage green over red lead with beam ends (or parts of beams) painted with coal tar epoxy
H	Foliage green (ALKYD) over zinc by Bridge Maintenance
I	Inorganic zinc (IOZ) primer and acrylic top coats
L	*Aluminum over red lead with beam ends (or parts of beams) painted with coal tar epoxy
M	Coal tar epoxy over zinc
T	Weathering steel with beam ends painted with water based acrylic (brown in color)
U	Unknown
V	Green vinyl over zinc (Contract let early 1975)
W	Weathering steel
X	Green vinyl over red primer nonwaterbase (ALKYD) (Contracts let 1991)
Y	Green waterbased (Acrylic) over red waterbased primer (Acrylic) since 1993 used by Bridge Maintenance
Z	Unpainted (Not weathering steel)

PAINT SYSTEM DESCRIPTION				
Paint	Approx. Period of Use	Color	Other Characteristics Used for Identification	Comments
Aluminum	All Years	Silver		
Foliage Green	Late 1960's to Mid 1970's	Green	Chalks Heavily, Fades	
Aluminum Pigmented Coal Tar Epoxy	Early to Mid 1970's	Silver	Tends to bronze when exposed	Known to have ben used on Elizabeth City bascule
Vinyl	After 1975	Green	Does not chalk	
Epoxy	Late 1960's	Light tan	Chalks, Fades, Very hard	Only used on Lift span at Wilmington
Coal Tar Epoxy	After Mid 1960's	Black or Red	Very hard	1. Has been used for maintenance painting at ends of beams
				2.Coal tar epoxy over zinc was used at Oregon Inlet and Carolina Beach
Red Lead	All Years	Reddish Orange	Primer	
Zinc	Late 1960's	Light Green or Gray	Very hard, Rough, Primer	
White Lead	Before Mid 1960's	White	Finished coat chalks, Will darken and turn black if exposed to sulfide gas	Color is generally white, but can be tinted to any shade of gray. Known to have been used on some Forest Service bridges



# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Jeff C. Vigil  
State New Mexico  
Position Bridge Management  
E-mail jeff.vigil@state.nm.us



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

NMDOT has extremely limited painting program. Painting of steel members is rarely performed. New Mexico's hot and arid climate allows for this.

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other: Very limited

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

Extend coating service life

Provide some protection between painting contracts

Prompted by repair work in vicinity

Other: [Aesthetics](#)

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

[On preventative maintenance jobs, spot painting is usually performed.](#)

[On beautification projects, entire bridge is usually painted.](#)

6. What type(s) of coatings are the crews using?

Calcium Sulfonate       Epoxy Mastic       Urethane Mastic

Acrylic elastomer       Epoxy Amine       Oil Alkyd

Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

7. Application methods use by the crews?

Spray

Roller

Brush

Other:

8. How is the success of the strategy measured?

- Anecdotal       Anecdotal with some quantitative results  
 Quantitative results       Research study  
 Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal       Field testing  
 Lab tests       Research study  
 Other:

10. If it was your decision, what paint would you recommend for the crews to use?

11. Additional comments:

New Mexico has a hot and arid climate. As a result, the rate of corrosion of steel members is very low. Painting of steel members is not really required except for areas that are affected by salt runoff from the roadway. Painting of steel members (in New Mexico) is of limited importance as required to preserve the structural life of a bridge.



# SURVEY on MAINTENANCE OF STEEL COATINGS

Name \_\_\_\_\_ Bob Fura \_\_\_\_\_

State \_\_\_\_\_ RI \_\_\_\_\_

Position \_\_\_\_\_ Chief Civil Engineer/Bridge Eng. \_\_\_\_\_

E-mail \_\_\_\_\_ rfura@dot.ri.gov \_\_\_\_\_



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               **Infrequently**

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

**RIDOT does not perform any painting with state forces**

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other: **RIDOT has never had a painting program using state forces**  
**Separate painting contracts have rarely been put out, painting is only done when a bridge is rehabilitated and is often excluded due to funding**

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other: **Varies with type of coating, SSPC SP10, SP11, SP12**

Please provide a brief description of the equipment used.

**Surface prep is typically by abrasive shot blasting to SSPC SP10**

**Not familiar with what equipment is used as any and all painting is contracted out**

4. What is the aim or strategy of using state crews for painting steel bridges?
- Extend coating service life
  - Provide some protection between painting contracts
  - Prompted by repair work in vicinity
  - Other: N/A
5. Are the crews used just for spot painting, girder end areas, or the entire bridge?  
**If we do paint, usually only the ends of beams and the fascia beams**

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate**
- Epoxy Mastic
- Urethane Mastic**
- Acrylic elastomer
- Epoxy Amine
- Oil Alkyd
- Polyaspartic
- Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

CPC Corp

Chemotex Bridgecote 4100

7. Application methods use by the crews?

- Spray**
- Roller
- Brush
- Other:

8. How is the success of the strategy measured?

- Anecdotal
- Anecdotal with some quantitative results
- Quantitative results
- Research study
- Other: N/A

Please provide documents, links, or references to supporting information.

<http://www.dot.state.ri.us/documents/engineering/BlueBook/CD-Bluebook.pdf>

<http://www.dot.ri.gov/documents/engineering/research/approvals/RIDOTApprovedProducts.pdf>

9. How is the effectiveness of the coatings measured?

- Anecdotal
- Field testing
- Lab tests
- Research study
- Other: N/A

10. If it was your decision, what paint would you recommend for the crews to use?

**Products from the RIDOT approved Materials list**

11. Additional comments:



# SURVEY on MAINTENANCE OF STEEL COATINGS

Name \_\_\_Walt Peters\_\_\_\_\_

State \_\_\_OKDOT\_\_\_\_\_

Position \_\_\_Asst Br Engr – Operations \_\_\_\_\_

E-mail \_\_\_wpeters@odot.org\_\_\_\_\_



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

Less than 1%

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other: It is rare, but we do spot painting from time to time at beam ends.

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life  
 Provide some protection between painting contracts

- Prompted by repair work in vicinity
- Other: Primarily to protect beam ends

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

Girder ends

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
- Acrylic elastomer       Epoxy Amine       Oil Alkyd
- Polyaspartic       Other: Bridgemate

Please provide the manufacturer(s) and product name(s) of the coatings.

Rhomar Industries, Inc.  
2109 E. Rockhurst  
Springfield, MO 65802

7. Application methods use by the crews?

- Spray       Roller       Brush
- Other:

8. How is the success of the strategy measured?

- Anecdotal       Anecdotal with some quantitative results
- Quantitative results       Research study
- Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal       Field testing

Lab tests

Research study

Other:

10. If it was your decision, what paint would you recommend for the crews to use?

Rust Grip or a Calcium Sulfonate

11. Additional comments:

None

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Gary L. Doerr PE

State North Dakota

Position Section Head Bridge Management

E-mail [gldoerr@nd.gov](mailto:gldoerr@nd.gov)



1. Do state maintenance crews do any painting of steel bridges? NO

- |  |                                       |
|--|---------------------------------------|
| <input type="checkbox"/> Dedicated crews | <input type="checkbox"/> Routinely    |
| <input type="checkbox"/> Occasionally    | <input type="checkbox"/> Infrequently |

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

2. About how long have the crews been painting?

- |   |  |
|---|--|
| <input type="checkbox"/> Less than 5 years  | <input type="checkbox"/> More than 15 years  |
| <input type="checkbox"/> Less than 15 years | <input type="checkbox"/> Dropped the program |
| <input type="checkbox"/> Other:             |  |

3. What level of preparation does your state crews do before painting?

- |                                 |                               |                               |
|---------------------------------|-------------------------------|-------------------------------|
| <input type="checkbox"/> SP-2   | <input type="checkbox"/> SP-3 | <input type="checkbox"/> SP-6 |
| <input type="checkbox"/> Other: |                               |                               |

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life
- Provide some protection between painting contracts
- Prompted by repair work in vicinity
- Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate
- Epoxy Mastic
- Urethane Mastic
- Acrylic elastomer
- Epoxy Amine
- Oil Alkyd
- Polyaspartic
- Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

7. Application methods use by the crews?

- Spray
- Roller
- Brush
- Other:

8. How is the success of the strategy measured?

- Anecdotal
- Anecdotal with some quantitative results

- Quantitative results       Research study
- Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing
- Lab tests                         Research study
- Other:

10. If it was your decision, what paint would you recommend for the crews to use?

11. Additional comments:

Painting is done by contract

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name: Ryan M. Hughes

State: Maryland

Position: Assistant Chief- Bridge Inspection and Remedial Engineering Division

E-mail: rhughes1@sha.state.md.us



1. Do state maintenance crews do any painting of steel bridges? No

- |  |                                       |
|--|---------------------------------------|
| <input type="checkbox"/> Dedicated crews | <input type="checkbox"/> Routinely    |
| <input type="checkbox"/> Occasionally    | <input type="checkbox"/> Infrequently |

Please provide a brief statement on the percentage of the state forces painting program compared to the total program. 0%

2. About how long have the crews been painting?

- |   |   |
|---|---|
| <input type="checkbox"/> Less than 5 years  | <input type="checkbox"/> More than 15 years             |
| <input type="checkbox"/> Less than 15 years | <input checked="" type="checkbox"/> Dropped the program |
| <input type="checkbox"/> Other:             |   |

3. What level of preparation does your state crews do before painting?

- |                               |                               |                               |
|-------------------------------|-------------------------------|-------------------------------|
| <input type="checkbox"/> SP-2 | <input type="checkbox"/> SP-3 | <input type="checkbox"/> SP-6 |
|-------------------------------|-------------------------------|-------------------------------|

Other: Cleaning for spot, zone and overcoat requires localized solvent cleaning to SP-1, followed by complete high pressure water cleaning to SP-12 (WJ-4) with nozzle pressures between 4000-6000 psi, and then power tool / hand tool cleaning to SP-2/3. Hand tool cleaning is permitted only in areas that are inaccessible for power tool cleaning.

Please provide a brief description of the equipment used. Contractor uses whatever equipment is appropriate for the job.

4. What is the aim or strategy of using state crews for painting steel bridges?

- |   |
|---|
| <input type="checkbox"/> Extend coating service life                        |
| <input type="checkbox"/> Provide some protection between painting contracts |

Prompted by repair work in vicinity

Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

6. What type(s) of coatings are the crews using?

Calcium Sulfonate       Epoxy Mastic       Urethane Mastic

Acrylic elastomer       Epoxy Amine       Oil Alkyd

Polyaspartic       Other:

#### Spot Paint System

Coat 1- Penetrating sealer

Coat 2- Aluminum filled epoxy mastic

Coat 3- Aliphatic urethane

#### Zone and Overcoat Paint System

Coat 1- Penetrating sealer

Coat 2- Micaceous iron oxide, aluminum filled MCU

Coat 3- Micaceous iron oxide, MCU

Coat 4- Aliphatic Urethane

Please provide the manufacturer(s) and product name(s) of the coatings. All our paint projects are advertised, but Sherwin Williams and Carboline products are used most.

7. Application methods use by the crews?

Spray       Roller       Brush

Other: Brushes, rollers or daubers are only used adjacent to machinery, in inaccessible areas and for applying stripe coats.

8. How is the success of the strategy measured?

Anecdotal       Anecdotal with some quantitative results

Quantitative results       Research study

Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing  
 Lab tests                               Research study  
 Other:

10. If it was your decision, what paint would you recommend for the crews to use?

Our best performing paint system is our system for complete paint:

Complete Paint System  
Coat 1- Organic zinc  
Coat 2- Epoxy polyamide  
Coat 3- Aliphatic urethane

With a surface preparation consisting of:

Localized solvent cleaning to SP-1, followed by low pressure water cleaning to SP-12 with a nozzle pressure of 2000-2500 psi and then complete abrasive blast cleaning to near white metal SP-10.

11. Additional comments:

We've found that paint system performance depends more on surface preparation than the materials used, and we only overcoat if existing paint system has:  
DFT between 7 and 20 mils  
Pull off test results in 200 psi minimum adhesive/cohesive tensile strength.

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Michael Hill

State Arkansas

Position Staff Heavy Bridge Maintenance Engineer

E-mail Mike.Hill@arkansashighways.com



1. Do state maintenance crews do any painting of steel bridges?

Dedicated crew

Routinely

Occasionally

Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

The state may spend around 3 million/yr on painting of which 10% of that may be by state forces. There is no set amount.

2. About how long have the crews been painting?

Less than 5 years

More than 15 years

Less than 15 years

Dropped the program

Other:

3. What level of preparation does your state crews do before painting?

SP-2

SP-3

SP-6

Other: Pressure wash – 3000 psi

Please provide a brief description of the equipment used.

Pressure washer

Tarps for catching wash off

4. What is the aim or strategy of using state crews for painting steel bridges?

Extend coating service life

Provide some protection between painting contracts

Prompted by repair work in vicinity

Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

Repair crews – spot painting and end areas

The statewide paint crew will paint an entire bridge

6. What type(s) of coatings are the crews using?

Calcium Sulfonate       Epoxy Mastic       Urethane Mastic

Acrylic elastomer       Epoxy Amine       Oil Alkyd

Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

Watson Coating, Armor-Shield 8106

7. Application methods use by the crews?

Spray       Roller       Brush

Other:

8. How is the success of the strategy measured?

Anecdotal       Anecdotal with some quantitative results

Quantitative results       Research study

Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

Anecdotal

Field testing

Lab tests

Research study

Other:

10. If it was your decision, what paint would you recommend for the crews to use?

Calcium Sulfonate for our maintenance crews will remain our main overcoating for the foreseeable future.

We are looking at a moisture cured urethane aluminum coating for certain spot locations

11. Additional comments:

If funding was available we would like to let more paint contracts

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name: A. Atta Najem, PhD

State: New Jersey

Position: Project Manager

Phone: 609.530.4560 (office), 609.306.9316 (cell)

E-mail: [aatta.najem@dot.state.nj.us](mailto:aatta.najem@dot.state.nj.us)



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

N/A

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life  
 Provide some protection between painting contracts  
 Prompted by repair work in vicinity  
 Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic  
 Acrylic elastomer       Epoxy Amine       Oil Alkyd  
 Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

7. Application methods use by the crews?

- Spray       Roller       Brush  
 Other:

8. How is the success of the strategy measured?

- Anecdotal       Anecdotal with some quantitative results  
 Quantitative results       Research study  
 Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal       Field testing  
 Lab tests       Research study  
 Other:

10. If it was your decision, what paint would you recommend for the crews to use?

11. Additional comments: In New Jersey, we contract out all our Bridge Painting Projects.

Please contact me if you need more information

Thank You  
Atta Najem, PhD



# SURVEY on MAINTENANCE OF STEEL COATINGS

Name John C. Rogers

State California

Position Bridge Paint Program

Advisor \_\_\_\_\_

E-mail john\_c\_rogers@dot.ca.gov



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

State forces account for approximately 70-75 % of the total steel bridge painting performed by the program. The balance is the percentage of painting performed by contract forces which has increased over the last few years. This contract painting trend will continue in the foreseeable future.

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6

Other: SP-1 to remove oil, grease and contaminants before performing SP-3 or SP-6

Please provide a brief description of the equipment used.

Crews pressure wash the steel using a 3,000 psi pressure washer.  
Crews then utilize power tools such as chipping hammers, grinders, etc. for SP-3 and slag or steel abrasives for SP-6 blast cleaning.

4. What is the aim or strategy of using state crews for painting steel bridges?
- Extend coating service life
  - Provide some protection between painting contracts
  - Prompted by repair work in vicinity
  - Other:
5. Are the crews used just for spot painting, girder end areas, or the entire bridge?  
Crews usually paint the entire bridge
6. What type(s) of coatings are the crews using?
- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
  - Acrylic elastomer       Epoxy Amine       Oil Alkyd
  - Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

California DOT has its own waterborne acrylic latex paint formulations

[http://www.dot.ca.gov/hq/esc/ttsb/chemical/pdf/pwb145d\\_mar06.pdf](http://www.dot.ca.gov/hq/esc/ttsb/chemical/pdf/pwb145d_mar06.pdf)

[http://www.dot.ca.gov/hq/esc/ttsb/chemical/pdf/pwb146d\\_mar06.pdf](http://www.dot.ca.gov/hq/esc/ttsb/chemical/pdf/pwb146d_mar06.pdf)

[http://www.dot.ca.gov/hq/esc/ttsb/chemical/pdf/pwb171b\\_feb06.pdf](http://www.dot.ca.gov/hq/esc/ttsb/chemical/pdf/pwb171b_feb06.pdf)

[http://www.dot.ca.gov/hq/esc/ttsb/chemical/pdf/pwb171data\\_sheet\\_may06.pdf](http://www.dot.ca.gov/hq/esc/ttsb/chemical/pdf/pwb171data_sheet_may06.pdf)

[http://www.dot.ca.gov/hq/esc/ttsb/chemical/pdf/pwb172b\\_feb06.pdf](http://www.dot.ca.gov/hq/esc/ttsb/chemical/pdf/pwb172b_feb06.pdf)  
[http://www.dot.ca.gov/hq/esc/ttsb/chemical/pdf/pwb172data\\_sheet\\_may06.pdf](http://www.dot.ca.gov/hq/esc/ttsb/chemical/pdf/pwb172data_sheet_may06.pdf)

7. Application methods use by the crews?

- Spray                       Roller                       Brush  
 Other:

8. How is the success of the strategy measured?

- Anecdotal                       Anecdotal with some quantitative results  
 Quantitative results                       Research study  
 Other:

Please provide documents, links, or references to supporting information.

California DOT engineers perform element level inspection during every routine inspection. The element level inspection data for painted steel elements is used to calculate the paint condition index (pci) for every painted steel bridge. When the pci drops to 65 or lower, a painting work recommendation is triggered.

The screenshot shows a PowerPoint slide titled "Paint Condition Index" with a table of element values and a calculated PCI. The table lists elements like Painted Steel Girder, Pin and Hanger, Steel Column, Painted Steel Rail, and Steel Column Shell, along with their units, total quantities, and values across five states. The total paint value is \$458,886 and the current paint value is \$185,991, resulting in a PCI of 40.5.

Element	Units	Total Quantity	State 1	State 2	State 3	State 4	State 5	Element Value
Painted Steel Girder	m	100	0	0	0	100	0	\$87,500
Pin and Hanger	EA	2	0	0	2	0	0	\$10,395
Steel Column	EA	4	4	0	0	0	0	\$50,096
Painted Steel Rail	m	100	100	0	0	0	0	\$30,000
Steel Column Shell	EA	4	4	0	0	0	0	\$8,000
<b>TOTAL PAINT VALUE =</b>		<b>\$458,886</b>						
<b>CURRENT PAINT VALUE =</b>		<b>\$185,991</b>						
<b>PAINT CONDITION INDEX =</b>				<b>40.5</b>				

9. How is the effectiveness of the coatings measured?

Anecdotal

Field testing

Lab tests

Research study

Other:

10. If it was your decision, what paint would you recommend for the crews to use?

In California our choices are limited by stringent environmental constraints regarding VOCs. Most of the paints that meet our environmental requirements are the waterborne paints.

11. Additional comments:

One of our biggest bridge painting concerns is coating inspection on both in-house and contract paint projects. Our Program is currently looking into options to improve the staff's coating inspection expertise.

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name \_\_\_\_\_ Brian Merrill \_\_\_\_\_

State \_\_\_\_\_ Texas \_\_\_\_\_

Position \_ Bridge Constr & Maint Engr \_\_\_\_\_

E-mail \_\_\_ bmerrill@dot.state.tx.us \_\_\_\_\_



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program. **0%**

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other: NA

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other: NA

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life
- Provide some protection between painting contracts
- Prompted by repair work in vicinity
- Other: NA since we don't use them for that work.

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?  
If we did it would be for spot painting.

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
- Acrylic elastomer       Epoxy Amine       Oil Alkyd
- Polyaspartic       Other: NA

Please provide the manufacturer(s) and product name(s) of the coatings.

7. Application methods use by the crews?

- Spray       Roller       Brush
- Other: NA

8. How is the success of the strategy measured?

- Anecdotal       Anecdotal with some quantitative results

- Quantitative results     Research study  
 Other: NA

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing  
 Lab tests                          Research study  
 Other: NA

10. If it was your decision, what paint would you recommend for the crews to use?

Not sure at this time

11. Additional comments: We are looking into setting up bridge maintenance crews that could do this type of work.

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name: Scott Stotlemeyer

State: Missouri

Position: State Bridge Maintenance Engineer

E-mail: scott.stotlemeyer@modot.mo.gov



1. Do state maintenance crews do any painting of steel bridges?

Dedicated crews

Routinely

Occasionally

Infrequently

See explanation below.

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

MoDOT's Central Office Bridge Maintenance section had four 6-person crews dedicated to bridge painting statewide. However, we are undergoing a reorganization effort in which those resources are being combined with those of our five dedicated statewide repair crews to create eight regional crews responsible for all bridge maintenance items, including bridge painting, within an area. With the change in scope of work, each regional crew will paint on a more seasonal and cyclical nature.

State forces have performed, and will continue to perform, the bulk of the bridge maintenance painting in the rural areas. Contract painting is typically used only in the metropolitan areas (i.e., Kansas City and St. Louis), on rehabs, and on major bridges.

As a comparison, state forces painted 149 bridges and we let 48 bridges to be painted by contract from January 2007 through September 2008.

2. About how long have the crews been painting?

Less than 5 years

More than 15 years

Less than 15 years

Dropped the program



Please provide the manufacturer(s) and product name(s) of the coatings.

Watson Coatings, Inc., Armor-Shield AS8301(grey)

7. Application methods use by the crews?

- Spray                       Roller                       Brush  
 Other:

8. How is the success of the strategy measured?

- Anecdotal                       Anecdotal with some quantitative results  
 Quantitative results                       Research study  
 Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing  
 Lab tests                       Research study  
 Other:

10. If it was your decision, what paint would you recommend for the crews to use?

Based on cost and ease of application and cleanup - Calcium Sulfonate.

11. Additional comments:

MoDOT staff partnered with industry representatives just completed a review our new construction, contract maintenance, and in-house paint programs. A final report with recommendations for improvement will be available the first part of 2009.



# SURVEY on MAINTENANCE OF STEEL COATINGS

Name: John E. Buxton

State: Maine

Position: Bridge Maintenance Engineer

E-mail: john.buxton@maine.gov



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

*One crew painting about 3 bridges per year, four others painting bearings and beam ends out of 25 bridge crews.*

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:

Please provide a brief description of the equipment used.

*Steel shot recycle and vacuum shrouded power tools.*

4. What is the aim or strategy of using state crews for painting steel bridges?

Extend coating service life

Provide some protection between painting contracts

Prompted by repair work in vicinity

Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

*As explained above, both full paint and spot painting.*

6. What type(s) of coatings are the crews using?

Calcium Sulfonate       Epoxy Mastic       Urethane Mastic

Acrylic elastomer       Epoxy Amine       Oil Alkyd

Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

*Sherwin William or Wasser .....Moisture Cure Urethane*

7. Application methods use by the crews?

Spray

Roller

Brush

Other:

8. How is the success of the strategy measured?

- Anecdotal                       Anecdotal with some quantitative results  
 Quantitative results       Research study  
 Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing  
 Lab tests                       Research study  
 Other:

10. If it was your decision, what paint would you recommend for the crews to use?

*Moisture Cure Urethane*

11. Additional comments:

*More Painting is needed by maintenance forces and through contract painting.  
The decrease in bridge maintenance crew sizes has limited our ability to paint.*



# SURVEY on MAINTENANCE OF STEEL COATINGS

Name \_\_\_ Wayne Seger \_\_\_\_\_

State \_\_\_ Tennessee \_\_\_\_\_

Position \_\_\_ Civil Engineering Manager II \_\_\_\_\_

E-mail \_\_\_ wayne.seger@state.tn.us \_\_\_\_\_



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program. Just recently our in-house bridge repair/maintenance personnel have been doing some spot painting of coated bridge steel, especially bearings and near deck expansion joints. I would say that this task is less than 25% of their main assignments but is very important to the preservation of the steel in the bridge. All of the total painting of a bridge is contracted out by low bid.

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6

Other:

Please provide a brief description of the equipment used. Our crew typically use a wire brush (hand or power tool) and scrapers. Rarely will they blast clean. Although in some cases, they have used the abrasive blaster to a poor SP-6 condition.

4. What is the aim or strategy of using state crews for painting steel bridges?

Extend coating service life

Provide some protection between painting contracts

Prompted by repair work in vicinity

Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?  
As mentioned in an earlier response, our crews just spot paint.

6. What type(s) of coatings are the crews using?

Calcium Sulfonate     Epoxy Mastic     Urethane Mastic

Acrylic elastomer     Epoxy Amine     Oil Alkyd

Polyaspartic     Other: whatever they have on hand

Please provide the manufacturer(s) and product name(s) of the coatings.

7. Application methods use by the crews?

- Spray                       Roller                       Brush  
 Other:

8. How is the success of the strategy measured?

- Anecdotal                       Anecdotal with some quantitative results  
 Quantitative results                       Research study  
 Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing  
 Lab tests                       Research study  
 Other:

10. If it was your decision, what paint would you recommend for the crews to use?

The calcium sulfonate paint seems to be very forgiving and can be applied easily. We will also use a rust neutralizer, such as Picklex and other “rust converters” as a first step or at least a primer in trying to do some interim preservation measures.

11. Additional comments:



# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Richard M. Shaw

State New Jersey

Position Director, Ops. Support

E-mail RichardM.Shaw@dot.state.nj.us



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

**All Bridge Painting on State owned bridges is conducted by contracted forces. No in-house bridge painting is accomplished. Those crews were lost due to attrition in the 1990's and were not replaced.**

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life
- Provide some protection between painting contracts
- Prompted by repair work in vicinity
- Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
- Acrylic elastomer       Epoxy Amine       Oil Alkyd
- Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

7. Application methods use by the crews?

- Spray                       Roller                       Brush
- Other:

8. How is the success of the strategy measured?

- Anecdotal
- Anecdotal with some quantitative results
- Quantitative results
- Research study
- Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal
- Field testing
- Lab tests
- Research study
- Other:

10. If it was your decision, what paint would you recommend for the crews to use?

11. Additional comments:

Due to the fact that we still have bridges with lead based paint, all contractor forces must first conduct lead removal activities. Bridges are near-white blasted cleaned, coated with organic zinc primer, a high-build epoxy intermediate coat, and finished with a urethane coat using approved FHWA paint colors. All SSPC guidelines are followed during the painting process. Contractor crews must be certified, as must inspection personnel.

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name :Daniel D. Holderman

State :North Carolina

Position : State Bridge Management Engr.

E-mail : dholderman@ncdot.gov



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

Less than 5%

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:

Please provide a brief description of the equipment used.

Hand scrapers, needle guns, roto-peen

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life

Provide some protection between painting contracts

Prompted by repair work in vicinity

Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

Spot/repair areas, girder ends – entire bridge by contract

6. What type(s) of coatings are the crews using?

Calcium Sulfonate       Epoxy Mastic       Urethane Mastic

Acrylic elastomer       Epoxy Amine       Oil Alkyd

Polyaspartic       Other: Alum. Filled epoxy mastic  
Organic zinc

Please provide the manufacturer(s) and product name(s) of the coatings.

7. Application methods use by the crews?

Spray       Roller       Brush

Other:

8. How is the success of the strategy measured?

Anecdotal       Anecdotal with some quantitative results

Quantitative results       Research study

Other: not really measured

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

Anecdotal       Field testing

Lab tests       Research study

Other: observation by field forces and feedback to State Br. Mgt. Unit

10. If it was your decision, what paint would you recommend for the crews to use?  
Organic zinc or Aluminum-filled epoxy mastic primer  
Acrylic topcoats

11. Additional comments:

Most of our existing paint systems are red lead primer with aluminum topcoats. The red lead presents lead abatement issues which have slowed down our repainting efforts.

Painting by bridge crews is essentially to arrest corrosion until contract painting can be arranged.

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name David Jensen

State Iowa

Position Operations Engineer

E-mail david.jensen@dot.state.ia.us



1. Do state maintenance crews do any painting of steel bridges? NO

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

STATE PAINTING IS DONE BY CONTRACT

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life
- Provide some protection between painting contracts
- Prompted by repair work in vicinity
- Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
- Acrylic elastomer       Epoxy Amine       Oil Alkyd
- Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

7. Application methods use by the crews?

- Spray       Roller       Brush
- Other:

8. How is the success of the strategy measured?

- Anecdotal       Anecdotal with some quantitative results

- Quantitative results       Research study
- Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing
- Lab tests                         Research study
- Other:

10. If it was your decision, what paint would you recommend for the crews to use?

11. Additional comments:

IOWA DOES NOT PAINT STEEL BRIDGES WITH ANY STATE FORCES.  
ALL WORK IS CONTRACTED OUT.

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Chris Potter

State Utah

Position Deputy Bridge Operations Engineer

E-mail cpotter@utah.gov



1. Do state maintenance crews do any painting of steel bridges?

- |  |                                       |
|--|---------------------------------------|
| <input type="checkbox"/> Dedicated crews | <input type="checkbox"/> Routinely    |
| <input type="checkbox"/> Occasionally    | <input type="checkbox"/> Infrequently |

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

All bridge painting is performed under contract by contractors except for graffiti cover-up painting.

2. About how long have the crews been painting?

- |   |  |
|---|--|
| <input type="checkbox"/> Less than 5 years  | <input type="checkbox"/> More than 15 years  |
| <input type="checkbox"/> Less than 15 years | <input type="checkbox"/> Dropped the program |
| <input type="checkbox"/> Other:             |  |

3. What level of preparation does your state crews do before painting?

- |                                 |                               |                               |
|---------------------------------|-------------------------------|-------------------------------|
| <input type="checkbox"/> SP-2   | <input type="checkbox"/> SP-3 | <input type="checkbox"/> SP-6 |
| <input type="checkbox"/> Other: |                               |                               |

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life
- Provide some protection between painting contracts
- Prompted by repair work in vicinity
- Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
- Acrylic elastomer       Epoxy Amine       Oil Alkyd
- Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

7. Application methods use by the crews?

- Spray                       Roller                       Brush
- Other:

8. How is the success of the strategy measured?

- Anecdotal
- Anecdotal with some quantitative results
- Quantitative results
- Research study
- Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal
- Field testing
- Lab tests
- Research study
- Other:

10. If it was your decision, what paint would you recommend for the crews to use?

11. Additional comments:

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Gary Peterson

State Minnesota

Position State Bridge Construction and Maintenance Engineer

E-mail gary.peterson@dot.state.mn.us



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

Probably about 5% of our contract bridge improvement program.  
Currently less than 1% of our maintenance staff work output.  
Estimated about 9% of our recommended 2009 statewide PM program.

Partial repainting and full repainting are typically done under contract. We have added a Spot Paint Preventive Maintenance Activity to those already required by maintenance staff this year. Once we have a process defined to remove and store waste products in accordance with EPA regulations we anticipate Bridge Gusset Plates and the ends of bridge beams located under bridge joints will begin targeted for PM this spring.

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:

Varies from district to district. Most do very little.

3. What level of preparation does your state crews do before painting?

SP-2                       SP-3                       SP-6

Other:

We will require a SP2 or 3 surface prep.

Please provide a brief description of the equipment used.

Hand tools, Hepavac,

4. What is the aim or strategy of using state crews for painting steel bridges?

Extend coating service life

Provide some protection between painting contracts

Prompted by repair work in vicinity

Other: Although paint failure can cause beams to rust, typically section loss occurs first near joints. Our proposed PM is to maintain the paint system under bridge joints and at gusset plates until the rest of the bridge paint system catches up and a full repaint project can be contracted.

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

Spot painting.

6. What type(s) of coatings are the crews using?

Calcium Sulfonate       Epoxy Mastic       Urethane Mastic

Acrylic elastomer       Epoxy Amine       Oil Alkyd

Polyaspartic               Other: see below

Please provide the manufacturer(s) and product name(s) of the coatings.

Sherwin Williams macropoxy 920 pre-prime and duraplate epoxy paint of equivalent tinted to match color on bridge. Use a Sherwin Williams pro select Stampeed-1 polyurethane sealant or equivalent to caulk seams.

7. Application methods use by the crews?

- Spray                      x Roller                      x Brush  
 Other:

8. How is the success of the strategy measured?

- Anecdotal                       Anecdotal with some quantitative results  
 Quantitative results         Research study  
X Other:

We have added a Pontis element that to record the paint condition on gusset plates and another for beam ends located under joints.

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing  
 Lab tests                         Research study  
X Other:

Time will tell.

10. If it was your decision, what paint would you recommend for the crews to use?

See item 6 above. Because of concerns regarding management of regulated and hazardous wastes, our crews need to limit the amount of paint they remove to maintain the gusset plates and beam ends. Since sand blasting will require containment and will generate larger quantities of waste to manage, I'd like to

begin by limiting work to spot painting areas that are mechanically cleaned if possible but hand cleaned as a minimum preparation. The paint systems listed in question 6 are tolerant of that level of surface preparation.

11. Additional comments:

We hope to have more information next year.

Our experience rating our gusset plates indicates that it is very important that the paint intersection of the chord with the gusset plate be maintained to manage the amount of section loss that would otherwise occur at this location if located within a salt spray zone or near a deck drain outlet. We have noted fairly significant corrosion of gusset plates as we have looked closely at some of our truss bridges.

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name Carl Puzey

State Illinois

Position Structural Services Section  
Chief

E-mail Carl.Puzey@illinois.gov



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

**Essentially all of our painting is done by contractors.**

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?

- Extend coating service life
- Provide some protection between painting contracts
- Prompted by repair work in vicinity
- Other:

5. Are the crews used just for spot painting, girder end areas, or the entire bridge?

6. What type(s) of coatings are the crews using?

- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
- Acrylic elastomer       Epoxy Amine       Oil Alkyd
- Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

7. Application methods use by the crews?

- Spray                       Roller                       Brush
- Other:

8. How is the success of the strategy measured?

- Anecdotal
- Anecdotal with some quantitative results
- Quantitative results
- Research study
- Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal
- Field testing
- Lab tests
- Research study
- Other:

10. If it was your decision, what paint would you recommend for the crews to use?

11. Additional comments:

# SURVEY on MAINTENANCE OF STEEL COATINGS

Name \_\_\_\_\_ Matt Farrar \_\_\_\_\_

State \_\_\_\_\_ Idaho \_\_\_\_\_

Position \_\_\_\_\_ State Bridge Engineer \_\_\_\_\_

E-mail  
\_\_\_\_\_ matt.farrar@itd.idaho.gov \_\_\_\_\_



1. Do state maintenance crews do any painting of steel bridges?

- Dedicated crews                       Routinely  
 Occasionally                               Infrequently

Please provide a brief statement on the percentage of the state forces painting program compared to the total program.

**State Crews or state crew supervised inmate labor have infrequently been used to paint steel bridge railing.**

2. About how long have the crews been painting?

- Less than 5 years                       More than 15 years  
 Less than 15 years                       Dropped the program  
 Other:

3. What level of preparation does your state crews do before painting?

- SP-2                       SP-3                       SP-6  
 Other:

Please provide a brief description of the equipment used.

4. What is the aim or strategy of using state crews for painting steel bridges?
- Extend coating service life
  - Provide some protection between painting contracts
  - Prompted by repair work in vicinity
  - Other:
5. Are the crews used just for spot painting, girder end areas, or the entire bridge?  
**This work is done by contract as part of other rehab work on the bridge**
6. What type(s) of coatings are the crews using?
- Calcium Sulfonate       Epoxy Mastic       Urethane Mastic
  - Acrylic elastomer       Epoxy Amine       Oil Alkyd
  - Polyaspartic       Other:

Please provide the manufacturer(s) and product name(s) of the coatings.

**By Contract we are doing spot removal and spot painting. In general we require a primer and top coat of moisture cured polyurethane paint.**

**System I**

Sherwin Williams

Primer - Corothane I Zinc Primer

Topcoat - Corothane I Ironox A

**System II**

Wasser High-Tech Coatings

Primer - MC-MioZinc

Topcoat - MC-Ferrox A

7. Application methods use by the crews?

- Spray                       Roller                       Brush  
 Other:

8. How is the success of the strategy measured?

- Anecdotal                       Anecdotal with some quantitative results  
 Quantitative results       Research study  
 Other:

Please provide documents, links, or references to supporting information.

9. How is the effectiveness of the coatings measured?

- Anecdotal                       Field testing  
 Lab tests                       Research study  
 Other:

10. If it was your decision, what paint would you recommend for the crews to use?

11. Additional comments:

