Bridge Deck Cleaning and Sealing
Best Management Practice

1. Bidding

Obtain and refer to the current version of the State of Wisconsin Special Provisions for Performance Based Maintenance document. The following items should be considered and confirmed in writing by WI DOT staff prior to bidding:

- Are parapet walls and sidewalks to be sealed as part of this project?
  Note: The basis for payment is the plan quantity of the bridge deck area not including approaches, parapet walls, and sidewalks. Consequently the cleaning and sealing costs must be included in the base bid. Confirm exactly what areas are to be sealed and how you will be compensated.

- What materials will be used for crack sealing and deck sealing?
  Application rates and dry times will vary by product.

- Will these materials be furnished by the County or WI DOT?

- Are there restrictions on hours of work and lane closures?
  Shift premiums, overtime, and additional traffic control may be factors to include in your bid.

- Research the history of bridge deck sealing to analyze absorption rate and dry time.

2. Traffic Control

The County should determine the best method of traffic control for each bridge they will be working on. Lane closures must be coordinated with WI DOT and all traffic control implementation must be in place and compliant with the MUTCD work zone safety requirements prior to commencing any maintenance work. Monitor the progress of the WCHA Work Zone Safety Committee and follow recommendations when applicable.

3. Surface Preparation

All crack filling and deck sealing operations require a clean, dry surface. Each bridge should be inspected prior to bidding to determine what will be required to prepare the deck, approaches, parapet walls, and sidewalks (if applicable) for sealing. Items to consider:

- Heavy dirt, mud, or debris removal may require mechanical sweeper, power broom, skid steer, or power washer.

- Moderate dirt and debris removal might require a back pack blower, air compressor, or flusher truck.

- Light dust and debris removal may only require a broom, shovel, and blower or air compressor.

Bridges with heavy or moderate dirt, mud, and debris should be cleaned a minimum of one week prior to sealing to allow the deck, cracks, and joints to adequately dry prior to sealing.

4. Crack Filling

   A. All cracks requiring filling must be cleaned of loose debris. The recommended method is the use of compressed air from a wand supplied by a large portable compressor.

   B. Crack filling should be done in accordance with the material manufacturer's Technical Data Sheet. Many of these materials are a two-part system requiring specialized double cartridge caulking guns. Some cracks may be filled with rubber crack filling material applied with a wand from a melter and finished with a squeegee.

      Material manufacturer's dry/cure times should be considered prior to sealing the deck.

5. Crew Size

   Several items need to be considered when establishing crew size. Some of these items are:

   - Bridge size.
   - Degree of cleaning required.
   - Crack filling required?
   - Method of applying sealer.
   - Anticipated drying time.

   A typical bridge deck cleaning and sealing crew consists of 4 - 6 members excluding traffic control personnel.

6. Sealer Application Equipment

   Application equipment ranges from a barrel pump and hand held wand to skid mounted or tow behind tanks with pumps and spray bars. Some versions have been purchased commercially and some have been adapted in highway shops to serve this purpose. It is recommended that application equipment incorporating a metering system be utilized to monitor application rates. Please refer to the attached photos for examples.

Application equipment selection should be based on the anticipated volume of material involved. This may be an opportunity for several counties to utilize the same equipment as this work is typically specialized and infrequent.

7. Drying Time

Many factors that will impact drying time are to be considered before applying the sealer. Some of these factors are:

- Current air and surface temperature. Refer to Manufacturer's Technical Data Sheet for temperature limits.
- Predicted air and surface temperature for the next four hours.
- Estimated dry time for the product being used.
- Uniform application of materials.
- Humidity level present and forecasted.
- Sunshine and wind conditions present and forecasted. Recommended wind speeds of 0 – 10 MPH while spraying sealant.
- Determine age of current sealant and estimated porosity/absorption rate and its impact on dry time. Typical dry time experienced by County crews in 2014 were one-half hour to four hours with the average dry time from application to traffic ready being two hours.

Ideal conditions are moderate to warm temperatures, light breeze, sunny, and low humidity.

Richland County

Field, Brian

From: Jim Chitwood <jim.chitwood@co.richland.wi.us>
Sent: Tuesday, June 23, 2015 9:56 AM
To: Field, Brian
Subject: FW: Emailing: 20141103_123545.jpg
Attachments: 20141103_123545.jpg

Brian,

This is a photo of our truck that is set up for bridge deck spraying. There is a 500 gallon tank in the box that carries the sealant product. The tailgate mounted tank carries clean water for rinsing out the system at the end of each day. The unit is driven by the trucks hydraulic system and we calibrate it to apply the correct amount of product. The spray bar has T-Jet model 8005VS brass nozzles. I believe the spray bar is so that they can tilt in order to spray the parapet walls. This year we have added a pump in order to transfer the product from the 55 Gal barrels to our on board holding tank. Last year we spent too much time raising barrels over the truck and waiting for them to drain.

It works extremely well. It is fast, efficient and very functional. We currently have three area counties wanting to hire us to spray decks on their respective PBM projects. Let me know if you have further questions.

Jim Chitwood

-----Original Message-----
From: Bill Condon
Sent: Tuesday, June 23, 2015 7:26 AM
To: Jim Chitwood
Subject: Emailing: 20141103_123545.jpg

Your message is ready to be sent with the following file or link attachments:

20141103_123545.jpg

Juneau County

Field, Brian

From: Dennis Weiss <dweiss@co.juneau.wi.us>
Sent: Tuesday, June 16, 2015 6:58 AM
To: Field, Brian
Attachments: 20150616_062826.jpg; 20150616_062836.jpg

Brian, pics from the sprayer unit. It runs off the 5100 controller for the hydraulic flow normally the auger control. The tips are set up that they can be individually shut off. The sides fold up for both moving and shooting the parapets. Pressure gauges, flow regulator, filters in place for ease of getting at. This is what we use for the bridge deck sealing. Take care! Dennis

Dennis Weiss
Commissioner
Juneau County Highway Department
608-847-5874
608-547-4575 ©

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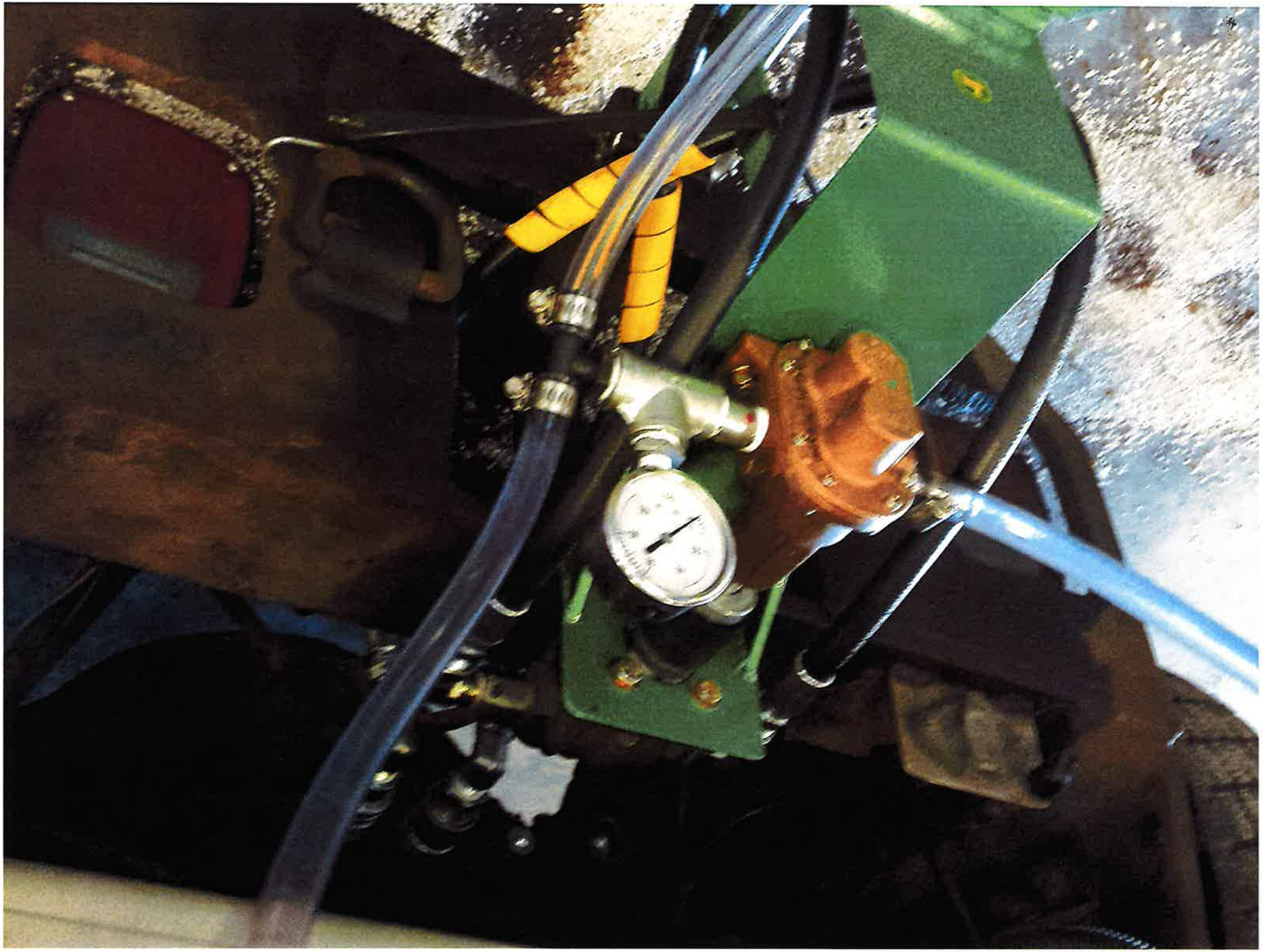

Lincoln County