

**KYTC Division of Maintenance and
ACEC Bridges, Inspection & Design Sub-Committee
Partnering Meeting**

**April 20, 2016, 9:00 AM – 11:00 AM
Room 311**

Minutes

These minutes provide an outline of discussions at the Division of Maintenance and ACEC Bridge Sub-Committee partnering meeting held at the Transportation Cabinet Office Building. Those in attendance were:

David Steele	KYTC Division of Maintenance
Josh Rogers	KYTC Division of Maintenance
Evan Dick	KYTC Division of Maintenance
Anne Irish	KYTC Division of Maintenance
Dora Alexander	KYTC Division of Maintenance
Tom Matthews	KYTC Division of Maintenance
Mark Swieterman	KYTC Division of Maintenance
Derek Barnes	Parsons
John Broadus	HDR
Steve Goodpaster	American Engineers
Wendy Harper	Parsons Brinckerhoff
Scott Ribble	Burgess & Niple

Discussion topics included:

- 1) Purpose** – This meeting was requested by the Sub-Committee to continue the dialog with the Division of Maintenance. The goal is to exchange feedback on bridge maintenance issues that could be addressed through inspection, rehabilitation, or design, resulting in more economical, easier to maintain, and longer lasting bridges.
- 2) Division of Maintenance (Bridge Preservation Branch) Discussion topics –**
 - a) Scour** – Scour is currently receiving a lot of attention from FHWA. The Division of Maintenance has been investigating a number of issues including scour on precast arch culverts (require scour calcs to be submitted by culvert manufacturers), scour standards for county structures (educate counties as to the importance of proper scour design), degree of scour in relation to the age of a structure (older structures had little or no

attention to scour during design and construction), and failure of slope protection due to insufficient size and/or poor gradation of rock (educate designers and Resident Engineers). The Division of Maintenance will be working to address these issues, to ensure that proper countermeasures are utilized on existing structures, and to promote properly accounting for scour in new design and construction.

3) Follow-up from last meeting

- a) As-builts** – KYTC is in the process of connecting their various bridge related servers and resources through a portal called STRUT that is managed by Earl Downey. Although as-builts have not specifically been addressed, STRUT would provide convenient access to KYTC users once a final storage location for as-built plans is determined.
- b) Coatings study** – KTC completed their study of various concrete coatings. Four coatings have been selected for use on KYTC projects. The note that has been included in recent preventative maintenance contracts is attached to these minutes and lists the approved products. Each of these products provides protection to the treated surfaces and can be tinted to provide desired aesthetics. The coatings can also be used in conjunction with formliners.
- c) Training opportunities** – KYTC is considering hosting sessions of the Stream Stability and Scour course and the three day inspection refresher training. It is anticipated that most if not all of the available seats will be filled by KYTC personnel. The two week inspection training may also be offered, and public seats may be available.

4) Load Ratings

- a) Performed by bridge designers** – The group agreed that there are benefits to having bridge designers prepare load ratings during the design process. Designers have all of the necessary data on hand to prepare the load ratings, and it would ensure that all new designs have sufficient rating factors for all of the current rating vehicles. There are challenges with funding (design funds versus maintenance funds) that would need to be addressed. Based on discussions with Professional Services concerning bundling post-construction services with design services, it seems that this would be viable if requested by both the Division of Maintenance and the Division of Structural Design. An additional concern is that the cost of licensing KYTC's preferred load rating software could be prohibitive for consultants that do not have current leases on those programs. Licensing fees vary, but in the case of the load rating of a typical structure, the cost of the software lease would exceed the cost of performing the load rating.
- b) Progress toward deadline** – There are approximately 3,000 load ratings remaining to be performed before the December 2017 deadline. A number of these structures have already been contracted out, and it is anticipated that approximately 50 additional load ratings will be handled by consultants. Consultant load ratings are due in May 2017.

- 5) Bridge Design Guidance Manual rewrite** – The group discussed various items that might be beneficial to include in the new Bridge Design Guidance Manual that is currently being drafted by the Sub-Committee. The group discussed requiring designers to show scour

profiles on plans. Also, due to limitations in load rating software, it would be helpful to have designers use the same f'_c for all precast beams on a structure. These points will be included in the draft Guidance Manual along with load rating provisions for new designs if that discussion progresses prior to the manual being published. The Sub-Committee will discuss the results of the coatings study with the Division of Structural Design and replace masonry coating with the new coatings, if permitted. If additional items for inclusion are identified, they can be forwarded to the Sub-Committee for inclusion.

- 6) **Consultant access to bridge plans** – At this time, consultants need to request bridge plans from someone who has access to the Division of Structural Design’s archive server (except if a consultant has BrM access and the plans have been uploaded to the media tab, though this currently covers a fairly small percentage of structures). With the STRUT portal in development, it may be technically possible to provide read only access to consultants. This topic will be revisited as STRUT is completed.
- 7) **BrM consistency among Districts and individual inspectors** –
 - a) **Application of defects** – The use of defects currently varies by District and among inspectors. Defects are not currently required by FHWA, though the Division of Maintenance recommends including only the most significant defect for each element with quantities below Condition State 1. There have been some software issues with including multiple defects for a single element.
 - b) **Items with no corresponding elements in BrM** – Items such as concrete frames and aggradation inside culvert barrels do not currently have FHWA or KYTC elements. Concrete frames are relatively rare, but issues such as aggradation are very common and are being captured in a variety of elements such as Channel Drift and Debris on or Around Superstructure that do not match well with this condition. The Division of Maintenance is not opposed to adding new elements as the need arises. It is suggested that a new element for Aggradation and/or Silting in Culvert Barrel or separate elements for aggradation and silting be added with condition states defined by the percentage of total area blocked.
- 8) **Slope protection – Standard details versus HEC 23 requirements** – Recent KYTC geotechnical reports have included language that the limits, size, and thickness of the slope protection shall be as specified in HEC 23. Design Guideline 14 in HEC 23 recommends extending the riprap beyond the toe of slope a specified distance. However, it has been noted that many designers are still using the standard riprap toe of slope detail. The Division of Maintenance does not currently have any observations about the effectiveness of scour countermeasures constructed using standard details compared to those designed to meet HEC 23 requirements, nor have they noted a history of poor performance with the standard toe of slope detail.
- 9) **Preventative maintenance** – Tom described the preventative maintenance program. Work includes pressure washing, application of rust inhibitor to steel beam ends below joints, greasing or otherwise coating steel bearings, and sealing pier caps, abutment caps, and concrete railings. Contracts typically include several bridges along the same corridor or

otherwise located relatively close together. The intention of the program is to maintain the condition of bridges that currently have only minor issues and extending the maintenance window/life expectancy on these bridges for several years. Bridges with more advanced deficiencies require rehabilitation work prior to being good candidates for preventative maintenance.

- 10) Partnering opportunities at KYTC bridge maintenance conference** – The Sub-Committee suggested that it may be advantageous to have consultant inspectors participate in a portion of the in-house maintenance conference. This would allow for information to be presented concurrently to KYTC and consultant inspectors, and would foster better communication among the various inspectors. There are currently no plans to hold a maintenance conference in 2016, but Anne would see if the agenda for the 2017 conference could be arranged to have roughly a half day of presentations that could be attended by consultant inspectors.
- 11) BrM updates** – The update to BrM version 5.2.2 is currently slated for August 2016. The update should not have a major impact on end users. Incremental updates are common. Recent updates include a critical designation for work orders (to be used only with proper documentation) and a new tab for load rating information. The Sub-Committee suggested that a list of additions and changes be made available online so users who do not frequently use BrM are able to quickly catch up on the changes.
- 12) Bridge Inspection Procedures Manual** – The manual has been finalized. It is available through BrM, upon request, and through an online search for the KYTC Bridge Maintenance/Preservation website (the Bridge Maintenance page linked through KYTC's homepage does not include a link to the manual). This document will be updated as necessary. In order to ensure the most current version is being utilized, it is suggested that the manual be accessed online rather than from a local copy.
- 13) Future advertisements** – The statewide routine inspection contract will be let in the near future. As the current contract is being utilized more than was originally intended, the upset limit for the new contract will likely be increased. The 50 load ratings mentioned above will be advertised later this year. There are approximately 30 trusses and 20 PCIB bridges that will be split into three packages that include both types of structures. There is a current in-depth inspection project in District 9, and additional in-depth inspections may be advertised as needed.
- 14) Future meetings** – The next scheduled partnering meeting will be held in Spring 2017.

CONCRETE COATING

Concrete coating shall be applied to all specified concrete surfaces. See detailed drawings for each bridge address areas of components to be coated. Use compressed air to remove any loose debris from the surfaces that are to be coated after power washing. All coatings shall be applied within manufacturers recommended dry film thickness range. Comply with KYTC "Standard Specifications for Road and Bridge Construction" Section 614.03.02 and coatings supplier recommended conditions for application. Allow the surfaces to be coated to dry a minimum of 24 hours before any coating is applied. The coating must be applied within 72 hours of pressure washing. All coating application shall be executed using brushes, rollers, etc. No spray application will be permitted. One of the following coating systems listed below shall be used:

Manufacture	Prime Coat	Finish Coat
Sherwin Williams -	Macropoxy 646	Acrolon 218 HS
PPG	Amberlock 2	Devoe Devflex HP
Carboline -	Carboguard 890	Carbothane 133 HB
Tnemec -	Elastogrip 151	EnviroCrete 156

The finish coat color shall closely match the existing concrete.