NEW JERSEY DEPARTMENT OF TRANSPORTATION
MEMORANDUM

TO: All Engineering Staff
Structural Evaluation & Bridge Management

FROM: GTR Gregory T. Renman, Manager
Structural Evaluation and Bridge Management

DATE: March 5, 2019

PHONE: 5-3572

SUBJECT: Priority Repair Procedure Document – Revised February, 2019

The attached Priority Repair Procedure document has been revised in accordance with current requirements.

Please review carefully and utilize this procedure for all Priority Repairs effective immediately.

Please note the addition of a "High Priority 1" Category. Also, please note that the time frames for completion of repairs has been modified for each category.

If you have any questions please do not hesitate to see me.

GTR/gtr

c: Eddy Germain P.E.
Paul Cardie, FHWA

SECTION 5.3

PRIORITY REPAIR

SECTION 5.3.1 - PROCEDURE

1. Once the need for a priority repair on a State or Orphan bridge has been identified in accordance with the attached "Priority Repair Categories", a search of all current design projects will be made to determine if there are any ongoing projects whose construction would affect the design (or need) of the priority repairs. It will then be determined if a Structural Evaluation and Bridge Management (SEBM}, Structural Design or a consultant [Retained by Structural Evaluation & Bridge Management or Operations Task Order] will be assigned the project. If the project is assigned to Structural Design, it is necessary to write a memorandum describing the condition and requesting that the appropriate action be taken. Typically, all repairs which would result in changes to the current configuration of the structure would be referred to Structural Design for approval. If the project is assigned to Structural Evaluation and Bridge Management, continue with Step #2. If the project is assigned to a consultant, skip to Step #4. The status of all priority repairs will be maintained in the work order system as described in Step 17 & 18.

2. The project to design the priority repair will be assigned to a crew led by a Project Engineer. The crew will develop the necessary drawings, sketches, specifications and repair procedures required for Operations to effect the priority repair. The priority repair will be designed in accordance with the current AASHTO Design Manuals, NJDOT Design Manuals and NJDOT Standard Specifications. The repair shall also be designed using standard engineering practices with a consideration of the construction capabilities of Operations. The as-built plans for the bridge shall be obtained if required and the conditions shall be verified in the field as necessary to develop the priority repair design. In emergency repair situations, the need for interim repair measures shall be considered when the permanent repairs may not be constructible in a timely manner. Care shall be taken that the final repair design is functional and constructible. A task order consultant (Designer) retained by Operations will be responsible to provide design for priority repairs that cannot be repaired / replaced in-kind or for repairs that require temporary support plans (jacking, shoring, etc.).

3. After the priority repair is designed, the Work Order shall be revised to indicate a new timeframe. [Refer to Step 17 for clarification]

4. When the project is assigned to a consultant to design the priority repair, it could be "extra work" (meaning there is an additional fixed fee involved) or "additional work" (no additional fixed fee involved). In either case, if a significant effort is required by the consultant, the Project Engineer should request a cost proposal from the consultant based on the agreed scope-of-work for the repair design.

5. If "additional work" is involved, the Project Engineer can authorize the consultant to start the work. If "extra work" is involved, the consultant cannot start the work until the necessary contract modification is executed. Remember that if the cost proposal exceeds $50,000., it must be reviewed by Auditing. In either case, the Project Engineer should negotiate the final design project costs with the consultant upon receipt of his cost proposal. Upon receipt of the consultant's final cost proposal, the Project Engineer will immediately begin the consultant contract modification process. The contract modification can be processed through the consultant signature phase, but if the FHWA's approval is required, it may not be routed for signatures through the Department until the FHWA's approval is received. Once the consultant contract modification has been fully executed, consultants performing "extra work" can be given notice to proceed with the design work.

Steps 6 through 18 apply to all designed repairs [SEBM, Structural Design or Consultant]

6. When the priority repair design package is received from the consultant (or designer), the Project Engineer (SEBM) will ensure that the work produced by the consultant meets the requirements of the scope-of-work. If the design is not in conformance with the scope-of-work, a transmittal letter to the consultant shall be drafted noting the non-conformance for the signature of the unit manager. In some cases, this may be discussed with the consultant on the telephone to expedite the resubmission process, but a letter should follow to the consultant.

7. If the design conforms to the requirements of the scope of work, the Project Engineer (SEBM) shall update the Work Order in the Operations Capital Program Work Order Client Application. The Work Order shall have all required fields completed and the consultant's priority notification letter attached (with photographs, sketches, etc.). An E-mail shall be issued through the Work Order system to notify the Supervising Engineer (SEBM) to perform a quality review for the Work Order.

8. The Supervising Engineer (SEBM) shall review the priority repair design to ensure that the design conforms to the current design manuals and codes. He will also ensure that the design is functional, constructible and conforms to current engineering practice. He will verify that there are no ongoing design projects whose construction would affect the priority repair design. Additionally, he will verify that the Work Order package is complete in all respects and that the proper priority repair category has been specified.

9. If non-conformances are found, the package will be returned to the designer or consultant noting all non-conformances.

10. If the package is observed to be acceptable, the Supervising Engineer (SEBM) will

generate an E-mail through the Work Order system to notify the unit manager that the Work Order is ready for his review and approval.

11. Upon verifying that the proper procedures have been followed and review conducted, the Manager/Supervising Engineer (SEBM) will approve the Work Order by generating an E-mail through the Work Order system to notify Operations. A Priority Repair Log will be maintained by the Work Order system that allows for a report file to be generated at any time.

12. If Operations encounters any problems with the execution of the priority repair, Operations will contact the Designer who will make necessary corrections for in-house review. These corrections can be handled verbally, but must be documented within the Work Order by Operations.

13. After recommended repairs have been performed, Operations must designate Priority Repairs as complete within the Work Order system, and attach any digital photographs of the completed work.

14. The Work Order system will generate an E-Mail notification when Operations indicates completion of the repair within the system. This repair completion notification E-Mail, along with the attached digital photographs of the repair in the system, will constitute the "field verification" for this office. The Manager, Supervising Engineer, and Project Engineer of Structural Evaluation will be included on all notification of work order close outs.

15. The inspection crew that initiated the priority repair will field verify the Emergency repairs and any High Priority 1 repairs where the photographs provided by Operations do not provide enough information or details to verify the completed work. Priority 1 and all Priority # 2 repairs will not be field verified by Structural Evaluation and Bridge Management.

16. Once the Emergency repair is addressed by a temporary measure, estimated timeframe of permanent repair along with the justification shall be documented in the Work Order system. A new work order will not be created.

17. For Work Order issued with the repair sketches, the repair timeframe shall correspond with the level of priority and commence from the date of issuance. For Work Order that requires design or permits (including Railroad, Utility, DEP etc.) , the repair timeframe shall begin after the completion of the design or permit issued and this shall be documented in the work order system. However, if required, Operations will perform temporary repairs to ensure the safety of the public until the design is completed or permits are obtained. Operations shall reach out to the Capital Program Support Office of Capital Program Management (CPM) to expedite the permitting process.

18. As part of the Quality Assurance (QA) process, Operations will provide a status update on all pending and completed Emergency and High Priority 1 work orders on a monthly basis to Structural Evaluation and Bridge Management. For Priority 1 and Priority 2 repairs, status updates will be provided every three months (end of March, June, September & December). A quarterly meeting will be held between the two units to discuss the status and any other priority repair related issues if needed. Operations will provide justifications & identify the reasons for all priority repairs where recommended work is not completed within the time frame specified under Priority Repair Category – Section 5.3.2

19. For all other non-structural/non-NBIS type repair work, Structural Evaluation will notify Operations by a separate email.

20. SEBM must be copied (email notification) on any work order issued by Operations or any other unit other than SEBM so that a priority level can be verified and approved. Defect descriptions and actions taken must be clearly spelled out in the work order. Photos of the defect/repair must be attached to the work order. SEBM will notify Operations by email and phone call if priority level needs to be changed based on the Engineers judgement. It may be necessary to verify the condition in the field if photos don't sufficiently indicate the severity of the defect. Operations will close out the work order once repairs are completed and notification must be sent to SEBM as described above.

SECTION 5.3.2 - PRIORITY REPAIR CATEGORIES

Emergency / Critical Finding

NJDOT considers all Emergency Repairs as Critical Findings.

Major defects in the superstructure or substructure which, if not repaired immediately, may require closing the bridge or a portion thereof and could lead to a total collapse of the structure resulting from component instability and/or localized element failure or failure to control errant vehicles on the bridge deck. All major defects affecting the structural integrity of the bridge are also included in this category.

In many instances it may be necessary to block off the affected area or close the bridge entirely until the repairs are made. Also, defects which, in the judgment of the engineer, require immediate attention in order to eliminate significant safety hazards to the traveling public are also included in this category.

Repairs under the Emergency category must be done as soon as possible. When delays are unavoidable, the use of temporary repairs must be considered and utilized whenever possible. In all cases, the repairs must start as soon as possible from the date of

notification to the Operations. Most repairs shall be resolved within seven (7) days of notification. If temporary measures are performed, estimated timeframe of permanent repairs along with the justifications shall be documented in the work order system.

Examples (But not limited to the following)

1. Crack in a non-redundant primary load carrying steel member.

2. Substantial (more than 50%) undermining of the bearing area of a non-redundant member.

3. Deterioration or other conditions which causes a main load carrying member to become unstable.

4. Loose sections of concrete encasements located above the traveled roadway or sidewalks.

5. Missing sections of bridge railings.

6. Localized failure of bridge deck or sidewalk.

7. Major scour problem with undermining of footings, not on piles (bridge is scour critical).

Procedure

1. Inspection crew (in-house or consultant) will immediately inform their respective project managers, usually utilizing a telephone in the field, regarding the situation.

2. Structural Evaluation and Bridge Management will alert the Bureau of Operations by telephone and recommend immediate appropriate action needed, such as load or speed posting (reduction in load limit, if already posted), blocking a portion of or closing the bridge to vehicular traffic, etc. A Work Order will be initiated.

3. Scope of work will be reviewed and checked to see if the proposed repairs can be done by the in-house maintenance forces or if it is beyond their capabilities.

4. Repairs beyond the capabilities of Operations should be brought to the attention of the Manager, Structural Engineering.

5. Structural Evaluation and Bridge Management shall prepare the repair sketches, plans and material list (if necessary) of the proposed repairs. Help could also be obtained from Structural Design or Consultants by way of an existing State

contract.

6. Bureau of Operations will inform Structural Evaluation and Bridge Management when the repairs are completed by updating the Work Order System, attaching photographs of the work performed, and also uploading as-built sketches/plans if possible.

7. Structural Evaluation and Bridge Management should use the Work Order system to ensure the needed repairs have been made.

8. Verification of the repairs by Structural Evaluation and Bridge Management (see section 5.3.1, item no. 15).

High Priority 1

This repair category reflects the observed field conditions where the inspection engineer determines a higher need for expedited repairs. This category will be assigned after careful consideration by an experienced Structural Evaluation Project Engineer, considering the severity, location, defect type, level of service on the bridge, and other factors involved with his/her judgement.

Refer to examples listed below under Priority 1 Category

Serious structural deficiency to a primary bridge element that could lead to load restrictions, lane and/or bridge closures or, may jeopardize public safety if not corrected in a timely manner.

Repairs under the High Priority 1 category must be performed as soon as possible. All repairs should be completed within thirty (30) days from the notification to Operations.

For any repair that will take more than 30 days, an estimated timeframe of repairs along with the justifications shall be documented in the work order system. Monthly monitoring, tracking and status update shall be performed by Operations until the repairs are completed.

Priority 1

Advance deficiency on a primary bridge element or appurtenance that may eventually lead to further deterioration, load restriction, lane and/or bridge closure, or may compromise public safety if not corrected.

Repairs under the Priority 1 category must be done as soon as possible. All repairs must be completed within ninety (90) days from the notification to Operations.

Examples (But not limited to the following)

1. Longitudinal crack in a primary load carrying steel member.

2. Substantial (more than 50 percent) undermining of bearing area of a redundant load carrying member.

3. Substantial section loss or collision damage to the main load carrying member requiring a major highway to be load posted.

4. Pier cap of a column bent in distress.

5. Major section loss on adjacent piles of a pile bent pier.

6. Major scour problem with exposed footings, not on piles (bridge is scour critical) OR Major scour problem with undermining of footings, not on piles (bridge is not scour critical).

7. Severely distressed primary bridge rails/structure-mounted guiderails.

8. Extensive deterioration of deck slab that can cause a potential hole thru situation.

9. Hazardous Deck Conditions – Deficiencies at or within 2 feet of travel lanes.

10. Prestressed Concrete Beams – Spalled & Delaminated concrete leading to loss of prestressing forces.

11. Clogged troughs or drainage Inlets located in bridge decks aligned lower than approaches, with potential for hazardous water ponding and icing.

12. Severe distress in fender system at a navigable waterway bridge.

13. Missing, damaged, improperly located or visually obstructed load posting or vertical under-clearance signs.

Included in the above two (2) categories – **High Priority 1 and Priority 1** are defects affecting the stability of the structure. In many instances, it may be necessary to post load or speed restrictions or to partially or completely block off the affected area to vehicular traffic until the repairs are made. Also, include defects which, in the judgment of the engineer, need immediate attention to maintain the level of service it served.

Procedure

1. Inspection crew (in-house or consultant) will immediately inform their respective project managers regarding the situation by creating a new Work Order.

2. Structural Evaluation and Bridge Management will alert the Bureau of Operations and recommend immediate appropriate action needed, such as posting of load or speed restrictions, blocking a portion of the bridge to vehicular traffic, etc.

3. Scope of Work will be reviewed and checked to see if the proposed repairs can be done by the in-house maintenance forces or if it is beyond their capabilities.

4. Repairs beyond the capabilities of Operations should be brought to the attention of the Manager, Structural Engineering.

5. Structural Evaluation and Bridge Management shall prepare the repair sketches, plans and material list (if necessary) of the proposed repairs. Help could also be obtained from Structural Design or consultants with a present state contract.

6. Bureau of Operations will inform Structural Evaluation and Bridge Management when the repairs are completed by updating the Work Order System, attaching photographs of the work performed, and also uploading as-built sketches/plans if possible.

7. Verification of High Priority 1 repairs by Structural Evaluation and Bridge Management (See section 5.3.1, Item No. 15).

8. Structural Evaluation and Bridge Management should use the Work Order system to ensure the needed repairs have been made.

9. Priority # 1 repairs will not be field verified by Structural Evaluation and Bridge Management (see section 5.3.1, item no. 15).

Priority 2

A defect in the superstructure, substructure or deck which, if not repaired within the next 12 months may lead to the defects described in a Priority 1 repair. Any defects that would risk the safety of the traveling public in the near future should also be included here. The engineer's judgment will be required to evaluate the overall situation to properly categorize the recommendations.

Following are some of the examples in this category:

Examples (But not limited to the following)

1. Short crack in a primary load carrying steel member in a redundant structure.

2. Undermining (less than 50%) of bearing area of a redundant load carrying

member.

3. Minor section loss or collision damage.

4. Minor problems with the bridge railing.

5. Minor scour problems with footings on piles (bridge is not scour critical).

Procedure

1. In-house inspection crews will convey the situation to their respective project engineer by creating a new Work Order. Consultant inspection crews will convey the situation to their respective project engineer via letter.

2. Structural Evaluation and Bridge Management and Bridge Management will prepare repair recommendations, including sketches and plans, etc. as necessary, and forward them to the Bureau of Operations under Priority 2 repairs. Help may be obtained from Structural Design or consultant with a present state contract.

3. Bureau of Operations will inform Structural Evaluation and Bridge Management when the repairs are completed by updating the Work Order System, attaching photographs of the work performed, and also uploading as-built sketches/plans if possible.

4. Structural Evaluation and Bridge Management should use the Work Order system to ensure the needed repairs have been made.

5. Priority # 2 repairs will not be field verified by Structural Evaluation and Bridge Management (see section 5.3.1, item no. 15).