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# APPENDIX C

## BRIDGE CONDITION REPORT CHECKLIST

**Contract/Project:** \_\_\_\_\_

**Note to Engineer: Complete and include this checklist with the Bridge Condition Report submittal to the Illinois Tollway.**

### Executive Summary

- Report Basis Definition and Objectives
- Findings and Recommendations clearly stated
- Alternate study findings, if applicable
- Project costs
- Proposed remediation

### Geographical and Administrative Data

- Structure Number
- County
- Route Designation
- Feature(s) crossed
- Section
- Station
- Roadway Classification
- Design/Posted Speed
- ADT (current/design)
- ADTT (current/design)
- DHV
- Inventory Rating (HS or HL)
- Operating Rating (HS or HL)
- Sufficiency Rating
- Structure History
  - Year, route and section the original structure was built under
  - Year/s and brief description of any reconstruction, rehab or repairs since built

### Physical Description of Existing Structure

- Superstructure and substructure type
- Length and width
- Span arrangement and lengths
- Skew
- Wearing surface type and thickness
- Vertical alignment
- Horizontal alignment
- Utilities or attachments present

### Field Inspection and Physical evaluation

- Superstructure

- Description of condition of deck
- Square foot areas and percentages estimated for concrete deck to require partial and full depth patching
- Description of condition of beams including locations and extent of significant deterioration/damage
- Condition of paint on steel bridges
- Fracture critical inspection
- Description of condition of joints
- Joint type
- Measurement of joint opening and temperature the measurement was taken
- Description of condition of bearings
- Substructure
  - Description of condition of abutments, wingwalls and backwalls
  - Estimated area/length of required repairs for abutments
  - Identification of scour problems near abutments
  - Description of condition of piers
  - Estimated area/length of required repairs for piers
  - Identification of scour problems near piers
  - Description of type and condition of scour/slope protection
  - Estimate areas and locations of required repairs of scour/slope protection
- Provide NBIS ratings for the structure over the last 3 reporting periods if available
- Provide information on vertical clearances and if meet current requirements
- Provide information on horizontal clearances and if meet current requirements
- Hydraulic adequacy

### **Potential Scope of Work Determination & Analysis**

- Member reuse supported by calculations to determine adequacy of or the need for
- strengthening the existing member
- Major members sized
- Fracture critical members (Category E or E') analyzed for remaining life
- Substructure reuse supported by analysis and testing
- Soil borings, analysis for bearing capacity and soil profiles

### **Discussion and Recommended Scope of Work**

- Alternative studies with preferred alternative identified
- Cost Estimate
- Staging discussion and plans as required
- Recommendations for monitoring and maintenance of existing structure

### **Attachments**

- Location Map
- IDOT Master Structure Report
- Bridge Inspection Report
- Top and Bottom of Deck Condition Surveys

- Substructure Condition Surveys
- Cost Estimates
- Proposed Structure
- Structure Photos
- Hydraulic Analysis Summary (if required/available)
- Proposed Plan and Profile (if available)
- Existing and Proposed Roadway Cross Sections (if available)
- Abbreviated Existing Plans
- Addition Test Results (if applicable – i.e., Borings, Deck Core Analysis etc.)

## **TS&L SUBMITTAL CHECKLIST**

## BRIDGE TS&L CHECKLIST

**Contract/Project:** \_\_\_\_\_

**Note to Engineer: Complete and include this checklist with the TS&L submittal to the Illinois Tollway.**

### General

- Review Bridge Condition Report, Structure Report, Structure Geotechnical Report and Hydraulic Report to see that the TS&L plan agrees with the listed reports and that the structure fits the site conditions.
- Consultants should provide company name on TS&L plan.
- If Illinois Tollway is planning on constructing, reconstructing, widening or extending a structure that is jointly maintained by the Illinois Tollway, IDOT or a local agency, the Design is required to complete the appropriate Structure Report (SDM 3.3)
- Waterway Information Table, Design Scour Elevation Table, if required, and the scour critical analysis coding per SDM 2.4 (SDM 3.4)
- Structure Geotechnical Report (SGR) in accordance with IDOT's Bridge Manual Sections 2.1.5.3, 2.3.4.3 and 2.3.6.3 (SDM 3.5)
- Plan Preparation is per Illinois Tollway SDM 6.0

### Title Block

- Label the page as "General Plan"
- List the following data:
  - Roadway name/marked route over feature.
  - If the structure is over a waterway listed as a navigable public body of water, provide the term "Public Water".
  - Designated funding route and section number.
  - County.
  - Station at the center of the bridge of main route or intersecting survey lines.
  - Structure number. (Illinois Tollway and IDOT Structure Number)

### Location Sketch SDM 6.3.8

- Provide a sketch that shows four sections of the township.
- Label the range, township, principle meridian and section numbers
- Provide a north arrow.
- Call out the bridge location.
- Recheck names of major features on sketch.

### Highway Classification SDM 6.3.9

- List the following data for each route over and under a structure:
  - Designated funding route and roadway name/marked route
  - Functional Class from the Illinois Structure Information System
  - ADT - Existing and Future
  - DHV – Existing & Future

- ADTT – Existing & Future
- Design speed

### **Railroad Information SDM 6.3.10**

- Provide number of trains
- Provide type and time of trains passing over/under the proposed structure each day
- Railroad Milepost number

### **Design Specifications**

- Provide the applicable bridge design specifications (SDM 5.1)
- Include any additional applicable specifications (e.g. seismic, curved girders, etc.)

### **Construction Specifications**

- Illinois Department of Transportation Guide Bridge Special Provisions (GBSPs)
- Illinois Tollway Supplemental Specifications to the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction (latest edition)
- Illinois Department of Transportation Supplemental Specifications and Recurring Special Provisions (latest edition)
- Illinois Department of Transportation Standard Specifications for Road and Bridge Construction (latest edition)

### **Seismic Data**

- Provide the applicable seismic data based for the applicable design specification.

### **Upper Left hand Corner Data SDM 6.3.2 & 6.3.3**

- Provide a benchmark that matches the structure report and survey data.
- Provide the existing structure number with the construction year and project name.
- Structure Reconstruction or Rehab - Provide a brief description of the existing superstructure and substructure and list of Major Items of Work as well as the require MOT
- Structure Widening – Include a description of the existing structure and required MOT
- Structure Replacement – Include a description of the existing and proposed structure as well as the required MOT.
- New Structure – Include a description of the proposed structure and MOT if required.
- Indicate for the removal of existing structures, reconstruction and rehabilitation, any items of the existing bridge will be removed and incorporated into a future Illinois Tollway contract or for future Illinois Tollway use.

### **Waterway Information Table**

- Verify the numbers match the approved hydraulic waterway information table.
- Verify the design high water elevation matches the elevation shown in the elevation view.

### **Design Scour Elevation Table**

- For stream and river crossings, provide a design scour elevation for each substructure unit.

## Offset Sketch

- Provide an offset sketch for curved roadways, See SDM Figure 6.3.5.1 for an example.

## Profile Grade

- Provide a profile grade that extends beyond the bridge approach pavements. See SDM Figures 6.3.6.1 and 6.3.6.2 for examples.
- Show grade slopes, curve length, elevation, and stations of PVC PVT, & PVI.
- Verify the profile grade matches the plan and profile sheet.
- Indicate the roadway and location of the profile grade line.
- Check for negative fillets on rehabilitation projects.

## Horizontal Curve data

- Provide horizontal curve data including the PI station, I. D, R, L. T, E, PC station, PT station, and SE.
- Indicate super elevation and/or normal crown transition stations if transition occurs between approach pavements.

## Superelevation Transitions 6.3.7

- Superelevation Transitions can only occur within the limits of the bridge or approach slab if there is a Design Deviations
- Indicate limits on General Plan and appropriate vertical Profile Sketch, see SDM 15.3

## Cross Section

- Verify the bridge width is correct for the roadway classification and consistent per the approved BCR, if applicable.
- Indicate the roadway centerline and profile grade location.
- Provide out-to-out, roadway, shoulder, sidewalk and parapet dimensions.
- Provide deck cross slopes and check the crown location.
- Provide slab thickness. For cast-in-place concrete slab bridges, provide thickness and indicate "subject to refinement during the design phases."
- Show beam depth. For a plate girder, indicate web depth only.
- Provide the composite note. if applicable.
- Verify the fillet ls shown correctly.
- Provide the rail type and vertical dimension.
- Provide median and sidewalk dimensions. if applicable.
- Show a longitudinal open joint if required.
- Locate the stage construction line and stage removal line.
- For each stage sequence, indicate the location of traffic lanes, limits of removal, limits of construction, and location of temporary barrier.
- Show local tangent, offset, radial and varying dimensions for curved roadway month straight beams.
- Provide clearance diagram for Railroad Bridges.
- Verify the clearance between the stage removal line and the stage construction line can accommodate temporary sheet piling, if required.



- Verify the depth of dead load deflection at the stage construction line is acceptable. If not, provide closure pour.
- Evaluate the condition of the existing superstructure in order to determine proper lane usage for Stage I traffic.
- Label the deck drains and scuppers and verify bridge drainage is provided, as necessary.
- Indicate a closed drainage system, if necessary.
- Provide an Outline of the cross section of the existing structure without dimensions.
- Locate any utilities below the superstructure or conduits in the concrete parapets.
- Show beam spacing.

### **Abutment Section**

- Verify integral and semi-integral abutments meet limitation requirements.
- Show bridge omission.
- Specify the type of expansion joint and verify it fits the bridge geometry.
- Show the approach slab
- Show the back of abutment location.
- Show the clearance to berm/end of slopewall.
- Provide the dimension from the back of the abutment to the centerline of bearing with the exception of integral abutments.
- Show the bearing type.
- Provide the embankment detail behind the abutment.
- Dimension the approach slab seat width and back wall thickness.
- Provide appropriate backfill and drainage details for selected abutment type.
- For skewed bridges, indicate horizontal dimensions are at right angles.

### **Slope Details**

- Show appropriate slope treatment.
- Provide a detailed section through the slopewall (or riprap) and corresponding ditch/anchor detail.
- Provide a slopewall flank detail and indicate the slopewall extension distance beyond the out-to-out of bridge width, if applicable.
- Verify the riprap size is consistent with the stream velocity, if applicable.
- Provide stone riprap flank details, if applicable.

### **Pier Sketch**

- Verify proper pier type configuration.
- Show the actual number of columns for multi-column piers.
- Verify the correct crashwall heights for bridges over railroads.
- Provide dimension from ground line to top of crash wall.
- Show ground elevations.
- Provide foundation type and related elevations/details.

- Provide section thru pier with an expansion joint. if applicable.
- Label expansion joint type, bearing types and dimensions from centerline of pier to centerline of bearings, if applicable.
- Encase pile bents in debris laden streams.
- Show open joints in caps and construction joints in base anal according to policy.

### **Elevation View**

- Show bridge omission stations.
- Shows fixity and expansion conditions at all substructure elements.
- Show vertical and horizontal clearances.
- Vertical clearance for a bridge over a railroad should be shown in accordance faith AREMA clearance diagrams.
- Show approach traffic barrier terminal types.
- Show footing elevations, abutment, or encasement wall elevations.
- Show foundation type and required elevations.
- Type and depth of spans, i.e., 72-inch PPC I-beam or 48-inch Steel Plate Girder, etc.
- Show slope treatment and indicate rise and run.
- Show pipe culverts through embankment if required at grade separations.
- Plot the existing ground line (if different than proposed)
- Show construction embankment and backfill note when applicable.
- Show ground elevations at piers.
- Show streambed elevation.
- Show design high water elevation and Estimated Water Surface Elevation (EWSE).
- Show location of light poles and signs, if required.
- Show navigation obstruction lighting, architectural lighting, or other electrical systems, as required.
- Show cross slopes for the roadway and shoulders below the bridge.
- For structures over railroads, add a note indicating "No freefall deck drains will be permitted in the span over the tracks or within 10 ft. of cross arms of a railroad pole line".

### **Plan View**

- Show span lengths and numbers, distances from back of abutment to centerline of bearing, and back- to-back of abutment length.
- Ensure the above dimensions match the stationing distances.
- Show the skew angle at a substructure unit.
- Show approach roadway template, i.e. lane and shoulder widths, curb and gutter type, etc.
- Show the approach roadway and bridge widths and out-to-out dimensions.
- Show stations and elevations at the centerline of each pier ad back of and centerline of bearing of each abutment
- Show station equation for intersecting reference lines on roadways.
- Show stations and offsets to roadway's tapers that are under or across structure.
- Ensure bridges are shown with stationing increasing to the right.
- Show stationing/flow direction under roadway.

- Show lane and shoulder dimensions under roadway.
- Show channel width at right angles to stream.
- Locate point of minimum vertical clearance on time bridge. For railroad bridges, the minimum vertical clearance should be shown in accordance with the AREMA clearance diagram on the bridge.
- Indicate and check horizontal clearances.
- Show stage construction line.
- Show temporary sheet piling when applicable.
- Plot the boring locations.
- Show proper picture of slopewall configuration.
- Show slopewall slope at right angles to stream.
- Show location of all existing and proposed utilities (overhead and buried) and storm sewers in the vicinity of the bridge
- Show bridge approach pavement length
- Show guardrail.
- Show expansion joint accurately at bridge ends.
- Show railroad mile post information.
- Verify handicap ramps are shown on sidewalks at intersections.
- Show north arrow.
- Provide light pole foundation locations, if required.
- Show limits of existing structure.
- Show floor drain/scupper spacing and type.
- Show bridge approach pavement drains when applicable.
- Horizontal and vertical alignments for roadways, waterways and facilities