

**AASHTO SUBCOMMITTEE ON BRIDGES & STRUCTURES**  
**ANNUAL STATE BRIDGE ENGINEERS' SURVEY (2016)**  
**45 States Responded**

**MANAGEMENT**

**Accelerated Bridge Construction**

1. What ABC design and construction guidance/standards are used in your state? (check all that apply)  
**6 (13.33%)** ABC Manual developed by state  
**41 (91.11%)** Existing AASHTO, FHWA, Industry guidance  
**18 (40.00 %)** State Design Manual/documents no different than for standard construction  
**3 (6.67%)** Other
  
2. Who determines if/what innovation is incorporated into bridge projects, such as bridge slides, SPMTs, prefabricated bridge elements, etc. in traditional Design-bid-build project delivery?"  
**25 (55.56%)** Bridge owners  
**3 (6.67%)** Bridge designers  
**0 (0%)** Contractors  
**17 (37.78%)** Collaborative effort
  
3. What is the primary method your state uses in longitudinal joints of precast deck slabs on ABC Projects? (check all that apply)  
**10 (22.73%)** Conventional grout  
**3 (6.82%)** Conventional grout with post-tensioning  
**7 (15.91%)** Rapid set grout  
**3 (6.82%)** Rapid set grout with post-tensioning  
**15 (34.09%)** UHPC  
**11 (25%)** Depends on project  
**12 (27.27%)** Precast deck slabs not being used
  
4. What is the primary method your state uses in transverse joints of precast deck slabs on ABC Projects? (check all that apply)  
**8 (18,18%)** Conventional grout  
**10 (22.73%)** Conventional grout with post-tensioning  
**6 (13.64%)** Rapid set grout  
**4 (9.09%)** Rapid set grout with post-tensioning  
**12 (27.27%)** UHPC  
**9 (20.45%)** Depends on project  
**14 (31.82)** Precast deck slabs not being used

## Alternative Contracting

- 5 Which of the following alternative contracting methods has your state used (check all that apply)?  
**40 (88.89%)** Design-Build  
**18 (40%)** Construction Manager/General Contractor (CM/GC) or Early-Contractor-Involvement  
**12 (31.11%)** P3  
**16 (35.56%)** Low-bid/Best Value  
**9 (20%)** Fixed price  
**5 (11.11%)** None
- 6 If you did not answer “none” to the above question, please indicate alternative contracting methods have led to (check all that apply):  
**8 (21.51%)** Cost-savings, major  
**12 (30.77%)** Cost-savings, minor  
**22 (56.41%)** Time-savings, major  
**22 (56.41%)** Time-savings, minor  
**22 (56.41%)** Innovations that could be used on other projects  
**17 (43.59)** Quality no different than from conventional contracting  
**14 (35.9%)** Quality below that from conventional contracting
- 7 What tools has your State developed (check all that apply)?  
**23 (52.27%)** Manual or miscellaneous guidance on design-build  
**9 (20.45%)** Manual or miscellaneous guidance on CM/GC  
**3 (6.62%)** Manual or miscellaneous guidance on P-3  
**26 (59.09%)** RFP template  
**22 (50 %)** RFQ template  
**12 (27.27%)** None of the above
- 8 Has your state required technical proposals that were:  
**25 (60.98%)** Prescriptive in nature, detailing exactly what was or was not acceptable?  
**9 (21.95%)** More performance-based, with minimal requirements, allowing the Design Build team to use other outside agency standards and specifications?  
**7 (17.07%)** Other
- 9 Has your state administered an alternative contract that has bundled bridges?  
**21 (46.67%)** Yes  
**24 (53.33%)** No

- 10 If you answered “yes” to the above question, what issues has your state encountered?
- 9 (52.94%)** ROW Issues
  - 9 (52.94%)** Utility issues
  - 11 (64.71%)** Subsurface obstruction/unforeseen subsurface conditions issues
  - 6 (35.29%)** Managing a contractor with multiple physical construction sites
  - 2 (11.76%)** Managing the documentation of the ECI design process on multiple bridges in one contract
  - 4 (23.53%)** Not being able to reconcile prices on some of the individual bridges

### **Records Management**

- 11 What types of bridge files are stored in your state? (check all that apply)
- 44 (97.78%)** Inspection reports
  - 43 (95.56%)** Structure Plans
  - 33 (73.33%)** Structure Specifications
  - 41 (91.11%)** Shop Drawings
  - 43 (85.56%)** As-Built Plans
  - 27 (60%)** Design/Analysis documents and calculations in perpetuity
  - 10 (22.22%)** Design/Analysis documents and calculations, but for under 10 years
  - 8 (17.78%)** Design/Analysis documents and calculations, but for more than 10 years
  - 44 (97.78%)** Load Rating calculations
  - 39 (86.67%)** Construction documents such as foundation reports, permits, etc.
- 12 Does your state have staff dedicated to storage of bridge files?
- 25 (55.56%)** Yes
  - 20 (44.44%)** No
- 13 Does your state store all your bridge records from Design, Construction and Maintenance (plans, inspections, analyses, shop drawings, etc.) electronically in system/software package?
- 28 (62.22%)** Yes
  - 17 (37.78%)** No
- 14 If you answered “yes” to the above questions, what system/software packages is your state using?
- 6 (19.35%)** Custom System – (DOT Internal System)
  - 0 (0%)** SharePoint
  - 9 (29.03%)** Bentley – Project Wise
  - 5 (16.13%)** InspectTech
  - 0 (0%)** eBuilder
  - 0 (0%)** AMX Solutions
  - 1 (3.23%)** Dayton
  - 10 (32.26%)** Other

## Project Management

- 15 How does your state use BIM/BrIM for projects (check all that apply)?  
**4 (8.89%)** For major projects  
**3 (6.67%)** For typical highway projects  
**10 (22.22%)** For selected projects to pilot its use  
**32 (71.11%)** Not used
- 16 Which projects require a demolition plan to be submitted for bridge removal in your state? (check all that apply)  
**20 (50%)** All bridge projects  
**1 (2.5%)** Culverts  
**4 (10%)** Bridges of a specific span length  
**14 (40%)** Continuous post-tensioned and/or complex bridges  
**15 (37.5%)** Bridges over highways  
**6 (15%)** Fracture critical bridges
- 17 Which bridge removal projects require a PE seal on demolition plans in your state? (check all that apply)  
**11 (32.35%)** All bridge projects  
**0 (0%)** Culverts  
**4 (11.76%)** Bridges of a specific span length  
**16 (47.06%)** Continuous post-tensioned and/or complex bridges  
**13 (38.24%)** Bridges over highways  
**6 (17.65%)** Fracture critical structures
- 18 If demolition plans must be submitted does your state review, accept or approve the plans?  
**16 (38.10%)** Review Only  
**15 (25.71%)** Accept  
**11 (26.19%)** Approve
- 19 Does your state use agency force account procedures to perform direct work by DOT forces for maintenance and/or preservation work (check all that apply)?  
**16 (36.36%)** Yes; for bridges  
**15 (34.09%)** Yes; for pavements  
**8 (18.18%)** Only in emergencies  
**20 (45.45%)** Not used

## Railroad Projects

- 20 For bridges that carry a roadway over a railroad where the railroad is the owner and your state is responsible for maintenance/inspection, does your state require the railroad to cover the cost of insurance, flagging, and Right of Entry (ROE) for the DOT to inspect the bridge?  
**4 (10%)** Yes  
**36 (90%)** No
- 21 Who pays for railroad flagging when replacing or repairing a railroad owned structure carrying a roadway with DOT funding?  
**29 (78.38%)** DOT  
**4 (10.81%)** Railroad  
**2 (5.41%)** Joint  
**2 (5.41%)** Other

## DESIGN

### General

- 22 Does your state have structures specifically for animal overcrossings?  
**12 (26.67%)** Yes  
**33 (73.33%)** No
- 23 If you answered “yes” to Question 22, what type of structure have your state used? (check all that apply)  
**5 (41.67%)** Concrete girders and deck  
**6 (50%)** Concrete arches  
**9 (75%)** Concrete boxes  
**4 (33.33%)** Other
- 24 If you answered “yes” to Question 22, what design specifications or criteria have you used? (check all that apply)  
**12 (110%)** AASHTO LRFD Bridge Design Specifications  
**2 (16.67%)** Technical Manual for Design and Construction of Road Tunnels (Publication FHWA-NHI-10-034)  
**1 (8.33%)** Other
- 25 If you answered “yes” to Question 22, what type of barrier have you used along the sides of the overcrossings to prevent animals from falling off the structure? (check all that apply)  
**2 (16.67%)** Concrete noise barrier  
**7 (58.33%)** Chain link fence  
**3 (25%)** Welded wire fence  
**4 (33.33%)** Other

- 26 Does your state have a lesser standard/criteria of design for bridges on non-state-owned, low volume, or rural structures in terms of:

Hydraulic design events?

**21 (46.67%)** Yes

**24 (53.33%)** No

HL93 Live loads?

**4 (8.89%)** Yes

**41 (91.11%)** No

Permit Design Vehicle Live loads?

**6 (13.64%)** Yes

**38 (86.36)** No

Seismic design criteria?

**3 (6.82%)** Yes

**41 (93.18%)** No

- 27 If you answered “yes” to any of the above, how does your state communicate the lesser standard? (check all that apply)

**17 (65.38%)** Bridge Design Manual

**6 (23.08%)** Low Volume Roads guide

**5 (19.23%)** County and local assistance guidance

**3 (11.54%)** Agreement with FHWA

**4 (15.28%)** Case-by-case approval

**5 (19.23%)** Other

### **Seismic Design**

- 28 Does your State allow lap splices in longitudinal reinforcement outside the plastic hinging regions (mid- column) when designing columns using the seismic requirements of the LRFD Bridge Design Specifications?

**22 (59.46%)** Yes

**4 (10.81%)** Yes, but only mechanical splices are permitted

**11 (29.73%)** No

- 29 Has your state used seismic isolation bearings in new design and retrofit of bridges?

**5 (12.5%)** Yes, retrofit only

**12 (30%)** Yes, new and retrofit

**23 (57.5%)** No

- 30 If you answered “yes” to Question 29, what types of isolation bearings are usually used in your state? (check all that apply)  
**13 (72.22%)** Lead-cored elastomeric Bearing  
**6 (44.44%)** Concave Friction Pendulum Bearings  
**3 (16.67%)** Flat plate friction sliding bearings  
**2 (11.11%)** Other
- 31 If you answered “yes” to Question 29, does your state provide a full design for the specified bearing type or require the contractor to provide a full design for the bearing provided?  
**1 (5.56%)** Yes, full design provided for specified bearing type  
**1 (61.11%)** Yes, contractor is required to provide a full design for the bearing type provided  
**6 (3.33%)** No, design is left up to contractor in all cases

### Concrete

- 32 Does your state require intermediate diaphragms for spread box beam bridges?  
**16 (43.24%)** Yes  
**21 (56.76%)** No
- 33 If you answered “yes” to the above question, does your state allow steel diaphragms?  
**13 (76.47%)** Yes  
**4 (23.53%)** No
- 34 Which of the following related to high performance (above 15 KSI) fiber- reinforced concrete/cementitious materials applies to your state (check all that apply)?  
**5 (11.63%)** We are seeking standardized testing protocol  
**12 (27.91%)** Limited application in decks  
**0 (0%)** Wide-spread use in decks  
**1 (2.33%)** Limited applications in girders  
**1 (2.33%)** Limited usage in substructures  
**29 (67.44)** None of the above
- 35 For typical beam-slab bridges with cast-in-place decks, which direction does your state place the top steel in the top mat of reinforcement?  
**38 (84.44%)** Transverse  
**7 (15.56%)** Longitudinal

### Steel

- 36 Does your state require shear connectors in the negative moment regions?  
**39 (86.67%)** Yes  
**6 (13.33%)** No

- 37 If you answered “yes” to the above question, what capacity in the negative moment region does your state use?  
**21 (56.76%)** Full composite section capacity  
**17 (43.24%)** Reduced composite section capacity
- 38 In the fabrication of steel haunch girders what does your state allow for forming the bottom flange at the haunch? (check all that apply)  
**25 (65.79%)** Mechanical hot bending  
**19 (50%)** Cold bending  
**10 (26.32%)** Upset shrinkage heating  
**24 (63.16%)** Welded joints

### Decks

- 39 What limits does your state place on the WIDTH of bridge decks without open joints?  
**2 (4.44%)** Less than 80’  
**2 (4.44%)** 80’-90’  
**2 (4.44%)** 90’-100’  
**5 (11.11%)** 100’-120’  
**2 (4.44%)** Over 120’  
**32 (71.11%)** No limit
- 40 Does your state have a ride quality specification for new bridge decks?  
**27 (61.36%)** Yes  
**17 (38.64%)** No
- 41 If you answered “yes” to the above question, is there something done to restore friction?  
**21 (75%)** Yes  
**7 (25%)** No
- 42 Does your state apply a wearing surface to a new bridge deck?  
**6 (13.33%)** Yes  
**17 (37.78%)** No  
**22 (48.89%)** Sometimes
- 43 If you answered “yes” to the above question, what types of overlay are being used? (check all apply)  
**13 (46.43%)** HMA  
**13 (46.43%)** Epoxy  
**8 (28.57%)** Latex or silica fume modified concrete  
**8 (28.57%)** Polyester concrete  
**2 (7.41%)** Other

- 44 Does your state perform final texturing of concrete bridge?  
**43 (95.56%)** Yes  
**2 (4.44%)** No
- 45 If you answered “yes” to Question 44, when does your state perform final texturing of concrete bridge decks:  
**14 (32.56%)** At the time of deck placement  
**29 (67.44%)** After curing is complete with mechanical sawed grooves
- 46 If you answered “yes” to Question 44, is your texturing in:  
**27 (62.79%)** Transverse  
**16 (37.21%)** Longitudinal
- 47 If you answered “yes” to Question 44, is the direction of texturing chosen for (check all that apply):  
**23 (54.76%)** Drainage  
**18 (42.86%)** Noise  
**18 (42.86%)** Safety/Accident History  
**5 (11.90%)** Other
- 48 Does your state require an International Roughness Index (IRI) measure of deck and approach roadway smoothness?  
**11 (24.44%)** Yes  
**34 (75.56%)** No

### **Expansion Joints and Bearings**

- 49 What is your State practice on using jointless bridges i.e. elimination of expansion joints?  
**29 (64.44%)** Yes, we have explicit policy/requirements  
**11 (24.44%)** No explicit policy/requirement, but encouraged  
**4 (8.89%)** No policy/requirement, up to Designer  
**1 (2.22%)** Discouraged or not permitted due to seismic concerns
- 50 Does your State require fatigue testing for Modular joint Systems? Is Manufacturer’s fatigue test report available for review?  
**13 (33.33%)** Yes, the report is always available  
**5 (12.82%)** Yes, but sometimes, the report is unavailable  
**21 (53.85%)** Not required
- 51 Does your state have guidance on allowable rocker bearing tilt?  
**4 (9.09%)** Yes  
**19 (43.18%)** No  
**21 (47.73%)** Rocker bearings have been replaced and are no longer allowed

## Foundations

- 52 When designing uncased concrete shaft foundations, does your state allow all of the plan dimension of concrete outside the reinforcing cage to be considered in the calculations of axial and flexural resistance?  
**34 (79.07%)** Yes  
**9 (20.93%)** No
- 53 If you answered “no” to the above question, how much of the concrete cover is neglected?  
**0 (0%)** ≤ 2 in.  
**3 (37.5%)** > 2 in.  
**5 (62.5%)** Specified cover

## Barriers and Railings

- 54 Has your state developed a plan to have your bridge railings compliant to the new Manual for Assessing Safety Hardware (MASH)?  
**6 (13.33%)** Yes  
**10 (22.22%)** No  
**29 (64.44%)** In process, not complete
- 55 How does your state determine the test level for bridge barriers?  
**3 (7.14%)** 1989 AASHTO Guide Specification for bridge barriers  
**12 (28.57%)** Based on Design Speed  
**0 (0%)** Based on AADT  
**27 (64.29%)** Other
- 56 What test level (NCHRP 350) does your state use for bridge barriers on high speed (50 mph or greater) roadway?  
**5 (11.36%)** TL-3  
**35 (79.55%)** TL-4  
**3 (6.82%)** TL-5  
**1 (2.27%)** Other
- 57 What test level (MASH) will your state use for bridge barriers on high speed (50 mph or greater) roadway?  
**4 (8.89%)** TL-3  
**16 (35.56%)** TL-4  
**3 (6.67%)** TL-5  
**0 (0%)** Other  
**22 (48.89%)** Not yet determined

- 58 What test level (NCHRP 350) does your state use for bridge barriers on low speed (45 mph or lower) roadway?  
**16 (36.36%)** TL-3  
**19 (43.18%)** TL-4  
**1 (2.27%)** TL-5  
**8 (18.18%)** Other
- 59 What test level (MASH) will your state use for bridge barriers on low speed (45 mph or lower) roadway?  
**6 (13.33%)** TL-3  
**9 (20%)** TL-4  
**2 (4.44%)** TL-5  
**3 (6.67%)** Other  
**25 (55.56%)** Not yet determined
- 60 Is your state planning to use a pooled fund to help with MASH compliance?  
**7 (15.56%)** Yes – we are currently not in a pooled fund but would like to join one  
**15 (33.33%)** Yes – we are currently a member of a pooled fund  
**11 (24.44%)** Depends on what shapes are tested  
**12 (26.67%)** No
- 61 Approximately how many standard bridge railings in your state are currently not MASH complaint?  
**2 (4.44%)** 0  
**12 (26.67%)** 1-3  
**7 (15.556%)** 4-6  
**4 (8.89%)** 7-10  
**3 (6.67%)** More than 10  
**17 (37.78%)** Unknown
- 62 Which of the following best describes your state’s plan (or draft plan) for MASH compliant bridge railing?  
**8 (17.78%)** Get all current state standard railings MASH compliant  
**6 (13.33%)** Adopt MASH compliant railings that are not part of your current state standards.  
**16 (35.56%)** Get some of your current standard railing MASH compliant and adopt some new MASH compliant railings that are not part of your current state standards  
**15 (33.33%)** No plan developed at this time

- 63 The AASHTO Guide for the Development of Bicycle Facilities indicates a minimum bicycle railing height of 3'-6". What is your state railing height for interior railing (between traffic and bicyclists)?  
**29 (64.44%) 3'-6"**  
**0 (0%) 4'-0"**  
**6 (13.33%) 4'-6"**  
**10 (20.22%) Other**
- 64 For bicycle facilities, what is your state railing height for exterior (outside edge of deck) railing?  
**31 (70.45%) 3'-6"**  
**0 (0%) 4'-0"**  
**11 (25%) 4'-6"**  
**2 (4.55%) Other**
- 65 For bicycle facilities does your state require the interior railing to meet the TL-3 crash-tested requirements?  
**36 (81.82%) Yes**  
**8 (18.18%) No**
- 66 For bicycle facilities does your state require the exterior railing to meet the TL-3 crash-tested requirements?  
**9 (20%) Yes**  
**36 (80%) No**

## Culverts

- 67 Does your state allow the use of precast box culverts?  
**35 (77.78%) Yes**  
**10 (22.22%) Yes in some cases**  
**0 (0%) No**
- 68 If you answered "yes" to Question 67, does your state have any limits of fill heights on the use of precast box culverts?  
**1 (3.45%) Min 2 ft – Max 10 ft**  
**2 (6.9%) Min 2 ft – Max 15 ft**  
**4 (13.79%) Min 2 ft – Max 20 ft**  
**3 (10.34%) Min 2 ft – Max 25 ft**  
**19 (65.52%) Min 2 ft – Max 30 ft**

- 69 If you answered “yes” to Question 67, does your state have any limits of settlements on the use of precast box culverts?  
**19 (44.19%)** < 6 in.  
**0 (0%)** < 12 in.  
**0 (0%)** < 18 in.  
**0 (0%)** < 24 in.  
**24 (55.81%)** No limit
- 70 Does your state use precast culvert sections that have non-parallel segment ends to provide a bend from end to end of the culvert??  
**1 (2.27%)** Yes; always  
**24 (54.55%)** Yes; sometimes  
**19 (43.18%)** No
- 71 What methods does your state use to tie precast box culvert sections together?  
**6 (13.64%)** Single steel ties each side  
**5 (11.36%)** Multiple steel ties each side  
**5 (11.35%)** Multiple steel ties each side plus single or multiple steel ties on top  
**28 (63.64%)** No ties

### **Signing and Lighting Structures**

- 72 Has your state adopted 2015 AASHTO LRFD-LTS for Sign/Signal/Light Support Design?  
**10 (23.81%)** Yes, fully or partially adopted  
**27 (64.29%)** No, but under consideration  
**5 (11.90%)** No, not under consideration
- 73 If you answered “no” to the above question, when does your state plan to adopt AASHTO LRFD-LTS?  
**1 (3.03%)** 2016  
**8 (24.24%)** 2017  
**3 (9.09%)** 2018  
**21 (63.64%)** No Plan
- 74 If you answered “no plan” to the above question, what edition of AASHTO-LTS is your state currently using?  
**1 (3.7%)** 1994  
**5 (18.52%)** 2001 or 2009  
**12 (44.44%)** 2013  
**9 (33.33%)** Combination

## CONSTRUCTION

- 75 What method(s) does your state use to reduce the potential for bridge deck cracking (check all that apply)?
- 41 (91.11%)** Burlap/Polyethylene Sheeting
  - 9 (20%)** Copolymer/synthetic Blanket
  - 26 (57.78%)** Membrane Curing Compound
  - 4 (8.89%)** Lithium Curing Compound
  - 21 (46.67%)** Sawing grooves versus tinning
  - 8 (17.78%)** Macro/micro fibers
  - 7 (15.56%)** Other
- 76 The US Environmental Protection Agency (EPA) is now requiring the testing of bridge concrete for the presence of asbestos-containing material, (EPA 450/3-90-017), if any concrete removal is to be done on the bridge. Has your state been able to implement this requirement?
- 14 (32.56%)** Yes, all of the time
  - 6 (13.85%)** Some of the time
  - 1 (2.33%)** Rarely
  - 22 (51.15%)** No
- 77 When replacing bridge decks on continuous truss bridges, how does your state ensure that truss members are not overstressed during construction activities? (check all that apply)
- 25 (65.79%)** Develop a fully engineered construction sequence prior to bid
  - 16 (42.11%)** Require the contractor to provide full engineering
  - 11 (28.95%)** Place prescriptive limits on construction equipment weight
  - 16 (4.211%)** Place prescriptive limits on how much deck load can be removed and/or stockpiled at a time
- 78 Check all that apply to your state concerning construction of severely skewed bridges:
- 6 (13.33%)** Issues resolved by following the AASHTO Construction Specifications
  - 21 (46.67%)** Issues resolved following state-specific guidance or details
  - 9 (20%)** Issues unresolved
  - 18 (40%)** Haven't had issues or the skew of bridges is limited
- 79 Prior to placing modified concrete overlays, what does your state do for the existing deck?
- 30 (71.43%)** Pre-wetting
  - 8 (19.05%)** Chemical primers
  - 4 (9.52%)** Neither

- 80 Many Contractors are requesting larger pours for CIP bridge decks. Does your state allow these larger, sometimes continuous pours?  
**38 (86.36%)** Yes  
**6 (13.64%)** No
- 81 If you answered “yes” to the above question, does your State have a volume limit for deck pours?  
**15 (36.59%)** No  
**1 (2.44%)** Yes - <200 CY  
**3 (7.32%)** Yes - >200, but < 400 CY  
**1 (2.44%)** Yes - >400 CY  
**21 (5.122%)** Yes - Limited by pour rate/duration/air temp
- 82 Which methods does your state prefer for the non-destructive testing of drilled shafts?  
**38 (88.37%)** Crosshole Sonic Logging  
**3 (6.98%)** Thermal Integrity Profiling  
**1 (2.33%)** Gamma-Gamma Logging  
**0 (0%)** Embedded Data Collector  
**1 (2.33%)** Other
- 83 What method(s) does your state use for pile driving? (check all that apply)  
**10 (23.26%)** ENR  
**9 (20.93%)** Modified Gates  
**38 (88.37%)** Wave Equation Analysis (WEAP)  
**34 (79.07%)** Dynamic Load Test  
**8 (18.60%)** Other
- 84 What method of bearing capacity evaluation is preferred for driving concrete friction piles?  
**1 (2.56%)** ENR  
**4 (10.26%)** Modified Gates  
**9 (23.08%)** Wave Equation Analysis (WEAP)  
**20 (51.28%)** Dynamic Load Test  
**5 (12.82%)** Other
- 85 What method of bearing capacity evaluation is preferred for driving steel H-Piles for end bearing on rock?  
**4 (9.09%)** ENR  
**5 (11.36%)** Modified Gates  
**10 (22.73)** Wave Equation Analysis (WEAP)  
**18 (40.91%)** Dynamic Load Test  
**7 (15.91%)** Other

- 86 What qualifications does your state require for personnel conducting NDT as part of steel/concrete fabrication QA Program? (check all that apply)  
**14 (34.15%)** State qualification  
**21 (51.22%)** ASNT certification  
**14 (34.15%)** AISC certification  
**17 (41.46%)** ACI certification  
**17 (41.46%)** Other
- 87 What types of rebar supports (dobies) have been used in your state? (check all that apply)  
**30 (66.67%)** Concrete  
**39 (84.44%)** Steel  
**40 (88.89%)** Plastic

## MAINTENANCE

### Bridge Preservation

- 88 Has or will your state used/use a resin-based ultra-violet resistant cover application on deteriorated or new steel girder ends (including end diaphragms and bearing) under joints that are prone to leakage?  
**4 (8.89%)** Yes  
**41 (91.11%)** No
- 89 Does your state have a list of maintenance/preservation actions with associated unit cost that you would share with an NCHRP research team?  
**17 (38.64%)** Yes, for contract work  
**4 (9.09%)** Yes, for state forces work  
**23 (52.27%)** No
- 90 Does your state routinely test for chloride content in decks or substructure that you would share with a Federal research team?  
**2 (4.55%)** Yes, correlated to deicing chemical application rate  
**7 (15.91%)** Yes, not correlated to deicing chemical application rate  
**35 (79.55%)** No
- 91 Does your state have a program/initiative to reduce bridge deck cracking and improve bridge deck performance?  
**4 (8.89%)** Yes, involving a deterioration model  
**16 (35.56%)** Yes, not involving a deterioration model  
**25 (55.56%)** No

- 92 If you answered “yes, involving a deterioration model” to the above questions, how did your state come upon the model?
- 1 (14.29%)** Software Output based on an established theory
  - 5 (71.43%)** Custom (Data mining and statistical analysis)
  - 1 (14.29%)** Other

## Steel

- 93 Has your state built High Performance Steel/Weathering Steel bridges?
- 40 (88.89%)** Yes
  - 5 (11.11%)** No
- 94 If you answered “yes” to the above question, does your state have a maintenance policy which includes regularly scheduled washing HPS/Weathering steel superstructures?
- 5 (12.5%)** Yes
  - 35 (87.5%)** No

## Overlays

- 95 What demolition method does your state use to remove the unsound deck concrete prior to the application of a Latex-modified, Microsilica, or dense Concrete Overlay?
- 28 (62.22%)** Hydro-demolition
  - 6 (13.33%)** Conventional Scarifying
  - 1 (2.22%)** Other
  - 10 (22.22%)** Do not use latex overlay
- 96 When performing preservation activities of Microsilica, dense, polyester or thin-bonded epoxy overlays on existing latex Microsilica, dense, polyester or thin-bonded epoxy overlays, what preparation activities are performed?
- 3 (7.14%)** None (place on top of existing overlay)
  - 25 (59.52%)** Scarify or hydro-demo entire existing overlay
  - 5 (11.90%)** Scarify or hydro-demo specific areas
  - 9 (21.43%)** Do not use latex Microsilica, dense, polyester or thin-bonded overlay

## Inspection

- 97 Does your state require certification or qualification for NDT UT inspection of pins? (check all that apply)
- 13 (29.55%)** State qualification
  - 18 (40.91%)** ASNT Level III certification
  - 13 (29.55%)** Other

- 98 How does your state collect bridge inspection data during a field inspection?  
**9 (20%)** Electronically  
**11 (24.44%)** Pencil and Paper  
**25 (55.56%)** Combination of Paper and Electronically  
**0 (0%)** Other
- 99 Has, or will, your state use agency-defined elements to inventory and inspect sub-components of functional systems during tunnel inspections?  
**7 (15.56%)** Yes  
**7 (15.56%)** No  
**21 (46.67%)** To be determined  
**10 (22.22%)** No tunnels in State
- 100 How long does your state keep bridge inspection records?  
**0 (0%)** 2 to 5 years  
**2 (4.44%)** 6 to 10 years  
**0 (0%)** 11 to 15 years  
**4 (8.89%)** Over 16 years  
**39 (86.67%)** The life of the asset
- 101 Is your state having issues with the patina not forming or the patina being compromised on weathering steel bridges, particularly over high speed roads?  
**0 (0%)** Over low speed travel lanes  
**9 (32.14%)** Over high speed travel lanes  
**19 (67.86%)** Other
- 102 Who inspects tunnels in your state?  
**12 (26.67%)** In-house staff  
**5 (11.11%)** Consultants  
**10 (22.22%)** Combination of in-house staff and consultants  
**7 (15.56%)** To be determined; inspection program still in development  
**11 (24.44%)** No tunnels in State

### **Loading Rating and Posting**

- 103 For bridges built prior to 1931, what method does your state use for load rating and overload permitting?  
**9 (20.45%)** AASHTO LRFR  
**4 (9.09%)** AASHTO ASR  
**27 (61.36%)** AASHTO LFR  
**4 (9.09%)** Other

- 104 Has your state adopted a policy or practice of assigned load ratings in accordance with AASHTO MBE Section C6A.1.1 or Section C6B.1 as supplemented by FHWA’s memo?  
**32 (74.42%)** Yes  
**10 (23.26%)** No  
**1 (2.33%)** Not Applicable
- 105 What is the primary software used in your state to load rate bridges?  
**24 (54.55%)** AASHTOWare BrR  
**6 (13.64%)** LARS Bridge  
**4 (9.09%)** BRASS  
**10 (22.73%)** Other
- 106 What is the secondary software used in your state to load rate bridges?  
**4 (9.52%)** SAP2000/CSiBridge  
**6 (14.29%)** MIDAS Civil  
**0 (%)** ADINA  
**32 (76.19%)** Other
- 107 What specific methods are used in your state to rate existing bridges?  
**23 (54.67%)** LFR for all  
**17 (40.48%)** LRFR for all  
**1 (2.38%)** LFR for steel and LRFR for concrete  
**1 (2.38%)** LFR for concrete and LRFR for steel
- 108 Does your state use LRFR method to rate reinforced concrete bridges?  
**28 (65.12%)** Yes  
**15 (34.88%)** No
- 109 If you answered “yes” to Question 108, are you including shear in your analysis?  
**27 (90%)** Yes  
**3 (10%)** No
- 110 If you answered “yes” to Question 108, are there any issues?  
**10 (35.71%)** No issue  
**13 (46.37%)** Minor issue  
**2 (7.14%)** Significant issue, putting on hold or developing workarounds  
**3 (10.71%)** Significant issue, posting or strengthening to comply with ratings
- 111 Has the end panel shear been an issue (controlling and lowering the rating) in your state when rating steel plate girder bridges?  
**16 (37.21%)** Yes  
**27 (62.79%)** No

- 112 If you answered “yes” to the above question, what are your possible solution?  
**3 (16.67%)** No issue  
**1 (5.56%)** Bridge rating on hold  
**3 (16.67%)** Using partial tension-field action theory outside software  
**11 (61.11%)** Other
- 113 Is your State rating for the AASHTO SHV legal trucks or do your State Legal Loads govern over the SHVs? If you are rating for the AASHTO SHV trucks are you utilizing a screening method to prioritize your bridge ratings?  
**20 (46.51%)** Yes; rating for SHVs  
**12 (27.91%)** Yes; rating for SHVs but using screening criteria to prioritize  
**11 (25.58%)** Not rating for SHVs
- 114 Has your state completed the gusset plate analysis?  
**32 (72.73%)** Yes  
**12 (27.27%)** No
- 115 If you answered “yes” to the above question, how did you obtain the details of Gusset plates of trusses to perform Gusset Plate analysis?  
**3 (8.57%)** As-built plans  
**3 (8.57%)** Field measurements  
**28 (80%)** Combination of both field measurements and as-built plans  
**1 (2.86%)** Automated photo rectification
- 116 Does your state rate pin and hanger assembly when performing routine load rating process??  
**9 (20.93%)** Yes  
**34 (79.07%)** No
- 117 Does your state rate culverts with less than 20 ft spans?  
**16 (35.56%)** Yes  
**29 (64.44%)** No
- 118 If you answered “yes” to the above question, does your state use the methods given in the MBE?  
**14 (87.5%)** Yes  
**2 (12.5%)** No
- 119 Does your state consider the eccentricity of truss members during rating analysis?  
**11 (25%)** Yes  
**33 (75%)** No
- 120 If you answered “yes” to the above question, does your state always use the eccentricity measured in the field?  
**3 (25%)** Yes  
**9 (75%)** No

- 121 How many truck configurations are represented on your state's standard bridge load posting sign?
- 15 (34.88%)** 2 or less
  - 18 (41.86%)** 3 or 4
  - 4 (9.3%)** 5 or 6
  - 4 (9.3%)** 7 or 8
  - 2 (4.65%)** 9 or more

### **Leased Airspace Beneath Bridges**

- 122 Does your state lease surface rights or air space beneath bridges?
- 20 (45.45%)** Yes
  - 24 (54.55%)** No
- 123 If you answered "yes" to the above question, who does your state lease air space to?
- 3 (15%)** Public agencies
  - 0 (0%)** Private entities
  - 17 (85%)** Both
- 124 Does your state allow the construction of buildings or other permanent structures in leased air space beneath bridges?
- 10 (27.03%)** Yes
  - 27 (72.97%)** No
- 125 If you answered "yes" to the above question, what kind of occupancy does your state permit in buildings under bridges?
- 5 (45.45%)** Transitory
  - 6 (54.55%)** Permanent
- 126 Does your state have written requirements for leased airspace beneath bridges?
- 13 (33.33%)** Yes
  - 26 (66.67%)** No
- 127 If you answered "yes" to the above question, does your state's requirements address any of the following? (check all that apply)
- 12 (92.31%)** Routine bridge maintenance and bridge inspection
  - 12 (92.31%)** Emergency Access
  - 10 (76.92%)** Minimum setbacks, horizontal and vertical clearance to bridge components

128 State: 45

California  
Ohio  
Alaska  
New Mexico  
NH  
Virginia  
Connecticut  
Tennessee  
Texas  
Colorado  
Montana  
New York  
Kentucky  
West Virginia  
Utah  
Idaho  
Maine  
NEW JERSEY  
North Carolina  
ARKANSAS  
AZ  
Nevada  
Maryland  
Michigan  
Florida  
Minnesota  
Washington  
Iowa  
Kansas  
Nebraska Department of Roads  
Mississippi  
Missouri  
Illinois  
Wisconsin  
Indiana  
South Carolina  
Louisiana  
Wyoming  
Vermont  
South Dakota  
Pennsylvania  
Oregon  
Delaware  
North Dakota  
Georgia

129 Name of person compiling survey responses: \_\_\_\_\_

**PLEASE COMPLETE THE SURVEY USING THE LINK PROVIDED. QUESTIONS  
MAY BE DIRECTED TO:**

**[Lian Duan@dot.ca.gov](mailto:Lian_Duan@dot.ca.gov)**

**Cc [Susan Hida@dot.ca.gov](mailto:Susan_Hida@dot.ca.gov)**

**By FRIDAY, May 30, 2016**

**Caltrans will compile the results and make available in time for the 2016 Annual SCOBS Meeting. Thanks in advance for your on-time participation.**