

National Bridge Inspection Standards (NBIS) Metrics

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Metric #1: 23 CFR 650.307 Bridge inspection organization

650.307 (a), (c), (d) & (e) – Bridge inspection organization

Does the State transportation department have an organization that inspects or causes to be inspected, all highway bridges on public roads, except for bridges that are owned by Federal agencies?

Compliance (C): Yes.

Substantial Compliance (SC): Organizational roles and responsibilities are not clearly defined and documented for all criteria, even if the program is functioning consistently as assessed by the additional 22 metrics. State has a designated Program Manager that has been delegated the responsibility for the NBIS.

Non-Compliance (NC): Organizational roles and responsibilities are not clearly defined and documented. State does not have a designated Program Manager that has been delegated the responsibility for the NBIS.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: There are clearly defined and documented organizational roles and responsibilities for each of the following that are functioning as assessed by the additional 22 metrics: Bridge inspection policies and procedures, Quality control and quality assurance, Preparation and maintenance of a bridge inventory, Bridge inspections, Reports, Load ratings, Delegation of authority policies and procedures.

State transportation department has an organization as described by the AASHTO MBE.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's bridge inspection program.

Intermediate: Verify delegation procedures exist and are being monitored. Verify that policies exist and roles/responsibilities are understood.

In-depth: Same as intermediate. Verification involves interviews with personnel and sampling of policies and procedures to see if they are being followed. Includes field and file review.

Metric #2: 23 CFR 650.309 Qualifications of personnel – Program Manager

650.309 (a) - Program Manager:

Does the Program Manager meet the requirements in paragraphs 650.309 (a) & 650.313 (g)?

Compliance (C): Yes.

Substantial Compliance (SC): If needed, Program Manager is scheduled for comprehensive bridge inspection training within next 12 months. If needed, periodic bridge inspection refresher training as defined by a State's Quality Control/Quality Assurance (QC/QA) program to be completed by Program Manager within next 12 months.

Non-Compliance (NC): No.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: PE registration or ten years of bridge inspection experience and successfully completed an FHWA approved comprehensive bridge inspection training and periodic bridge inspection refresher training. Refer to the NBIS Q&A website for Program Manager guidance.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Program Manager.

Intermediate: Verify qualifications of Program Manager through interview.

In-depth: Verify qualifications of Program Manager through interview and review of documented qualifications.

Metric #3: 23 CFR 650.309 Qualifications of personnel – Team Leader(s)

650.309 (b) - Team leader(s)

Do the Team Leaders meet the requirements in paragraph 650.309 (b) & 650.313 (g)?

Compliance (C): Yes.

Substantial Compliance (SC): Team Leaders who have not had periodic bridge inspection refresher training as defined in a State's QC/QA program are scheduled to complete the training within the next 12 months.

Non-Compliance (NC): No.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: (1) PE registration; or (2) five years of bridge inspection experience; or (3) NICET Level III or IV Bridge Safety Inspector; or (4) Bachelor's degree in engineering from ABET accredited college or university, successfully passed the Fundamentals of Engineering Exam, and two years of bridge inspection experience; or (5) Associate Degree in engineering from ABET accredited college or university and four years of bridge inspection experience.

In addition to the above five criteria, the following two apply to all: successfully completed an FHWA approved comprehensive bridge inspection training and periodic bridge inspection refresher training.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's process for monitoring Team Leader qualifications. Division has a current list of qualified team leaders from the program manager.

Intermediate: Review the current list of Team Leaders and their NBIS qualifications, including but not limited to dates of comprehensive and refresher training. If applicable, randomly sample using a MOE of 15% and a LOC of 80% and interview to assess qualifications of team leaders.

In-depth: Review the current list of all Team Leaders and their NBIS qualifications, including but not limited to dates of comprehensive and refresher training. Randomly sample using MOE of 15% and a LOC of 90% to verify qualifications of the Team Leaders through interviews including review of documented qualifications.

Metric #4: 23 CFR 650.309 Qualifications of personnel – Load Rating Engineer

650.309 (c) - Individual Responsible for Load Ratings:

Does the individual responsible for load ratings meet the requirement of paragraph 650.309 (c)?

Compliance (C): Yes.

Substantial Compliance (SC): NA.

Non-Compliance (NC): No.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: PE registration.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of individual responsible for load ratings.

Intermediate: Verify qualifications of individual responsible for load ratings at the State Transportation Department through interview. If applicable, randomly sample using a MOE of 15% and a LOC of 80% and interview to assess qualifications of individuals delegated the load rating function under 650.307(c).

In-depth: Verify qualifications of individual responsible for load ratings at the State Transportation Department through interview and review of documented qualifications. If applicable, randomly sample using a MOE of 15% and a LOC of 90% to interview and review documented qualifications to assess qualifications of individuals delegated the load rating function under 650.307(c).

Metric #5: 23 CFR 650.309 Qualifications of personnel – UW Bridge Inspection Diver

650.309 (d) - Underwater Bridge Inspection Diver:

Does the underwater bridge inspection diver(s) reviewed meet the requirements of paragraph 650.309 (d)?

Compliance (C): Yes.

Substantial Compliance (SC): NA.

Non-Compliance (NC): No.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Successfully completed a FHWA approved comprehensive bridge inspection training course, or a FHWA approved underwater bridge inspection diver training course.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's process for monitoring underwater bridge inspection diver qualifications. Division has a current list of underwater team leaders/inspectors including dates of comprehensive and refresher training.

Intermediate: Verify qualifications of a random sample using a MOE of 15% and a LOC of 80% and interview to assess qualifications from the current list of underwater team leaders/inspectors which may include supporting documentation.

In-depth: Verify qualifications of a random sample using a MOE of 15% and a LOC of 90% to interview and review qualifications from the current list of underwater team leaders/inspectors and supporting documentation.

Metric #6: 23 CFR 650.311 Inspection frequency – Routine

650.311 (a) (1) & (2) – Routine inspections

Have all bridges been inspected at regular intervals not exceeding 24 months? Have criteria to determine level and frequency for which bridges that require inspection at less than 24 months been established?

Compliance (C): Yes.

Substantial Compliance (SC): 100% of all structurally deficient or load restricted bridges (NBI item 41 coded as P or R) have been inspected in accordance with the established frequencies. At least 98% of all other bridges have been inspected in accordance with the established frequency. At most 2% of all other bridges have been inspected no more than 4 months beyond the scheduled inspection date.

Non-Compliance (NC): Less than 100% of all structurally deficient or load restricted bridges have been inspected in accordance with the established frequencies. Less than 98% of all other bridges have been inspected in accordance with the established frequency. Greater than 2% of all other bridges inspected within 4 months beyond the scheduled inspection date. Any bridge delinquent for inspection by more than 4 months.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Percent of bridges inspected in accordance with the established criteria and frequency.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's process for ensuring bridge inspections are performed on schedule. Generate standard reports on current and historical inspection frequency data and review results.

Intermediate: Generate standard reports on current and historical inspection frequency data and review results. Randomly sample using a MOE of 15% and a LOC of 80% to review bridge inspection records, including a historical review of reports, to ensure frequency in the records match the data recorded in the NBI. The sample population should include structurally deficient and load restricted bridges, as well as bridges that require inspection at less than 24 months, as applicable. The review should include some site visits.

In-depth: Generate standard reports on current and historical inspection frequency data and review results. Randomly sample using a MOE of 15% and a LOC of 90% to review bridge inspection records, including a historical review of reports, to ensure frequency in the records match the data recorded in the NBI. The sample population should include structurally deficient and load restricted bridges, as well as bridges that require inspection at less than 24 months, as applicable. Review criteria for establishing inspection intervals less than 24 months and ensure that the sampling includes bridges covered by the criteria. The review must include some site visits.

Metric #7: 23 CFR 650.311 Inspection frequency – Routine Extended

650.311 (a) (3) – Routine inspections – extended interval

If FHWA approval has been granted for extended inspection interval, are bridges being inspected in accordance with the approved criteria? Are controls in place to ensure sustained compliance with the approved criteria?

Compliance (C): Yes or NA.

Substantial Compliance (SC): At least 98% of all applicable bridges have been inspected in accordance with the established and approved criteria. At most 2% of these bridges have been inspected no more than 4 months beyond the scheduled inspection date.

Non-Compliance (NC): Less than 98% of all applicable bridges have been inspected in accordance with the established and approved criteria. Greater than 2% of these bridges inspected within 4 months beyond the scheduled inspection date. Any bridge delinquent for inspection by more than 4 months. Any bridge found with an extended inspection interval that does not meet the approved criteria.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Percent of bridges inspected in accordance with the established criteria and frequency.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's process for ensuring bridge inspections are performed on schedule. Generate standard reports on current and historical inspection frequency and review results. Division has a current list of bridges approved for extended interval.

Intermediate: Generate standard reports on current and historical inspection frequency data and review results. Randomly sample using a MOE of 15% and a LOC of 80% to review bridge inspection records, including a historical review of reports, to ensure frequency in the records match the data recorded in the NBI. Review criteria for establishing inspection intervals greater than 24 months and ensure that the sampling includes bridges covered by the criteria. The review should include some site visits.

In-depth: Generate standard reports on current and historical inspection frequency data and review results. Randomly sample using a MOE of 15% and a LOC of 90% to review bridge inspection records, including a historical review of reports, to ensure frequency in the records match the data recorded in the NBI. Review criteria for establishing inspection intervals greater than 24 months and ensure that the sampling includes bridges covered by the criteria. The review must include some site visits.

Metric #8: 23 CFR 650.311 Inspection frequency – Underwater

650.311 (b) (1) & (2) – Underwater inspections

Have all bridges requiring underwater inspections been inspected at regular intervals not exceeding 60 months? Have criteria to determine level and frequency for which bridges that require underwater inspections at less than 60 months been established?

Compliance (C): Yes.

Substantial Compliance (SC): 100% of all bridges that require underwater inspections and have a substructure condition rating of 4, or less, or are scour critical have been inspected in accordance with the established criteria. At least 98% of all other bridges have been inspected in accordance with the established criteria. At most 2% of all other bridges have been inspected no more than 4 months beyond the scheduled inspection date.

Non-Compliance (NC): Less than 100% of all bridges that require underwater inspections and have a substructure condition rating of 4, or less, or are scour critical have been inspected in accordance with the established criteria. Less than 98% of all other bridges have been inspected in accordance with the established frequency. Greater than 2% of the other bridges are delinquent for inspection. Any bridge delinquent for inspection by more than 4 months.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Percent of bridges inspected in accordance with the established criteria and frequency.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's process for ensuring bridge inspections are performed on schedule. Generate standard reports on current and historical inspection frequency data and review results.

Intermediate: Generate standard reports on current and historical inspection frequency data and review results. Randomly sample using a MOE of 15% and a LOC of 80% to review bridge inspection records, including a historical review of reports, to ensure frequency in the records match the data recorded in the NBI. The sample population should include scour critical bridges and bridges with a substructure rating of 4 or less, as well as bridges that require inspection at less than 60 months, as applicable. Review criteria for establishing inspection intervals less than 60 months and ensure that the sampling includes bridges covered by the criteria. The review should include some site visits.

In-depth: Generate standard reports on current and historical inspection frequency data and review results. Randomly sample using a MOE of 15% and a LOC of 90% to review bridge inspection records, including a historical review of reports, to ensure frequency in the records match the data recorded in the NBI. The sample population should include scour critical bridges and bridges with a substructure rating of 4 or less, as well as bridges that require inspection at less than 60 months, as applicable. Review criteria for establishing inspection intervals less than 60 months and ensure that the sampling includes bridges covered by the criteria. The review must include some site visits.

Metric #9: 23 CFR 650.311 Inspection frequency – Underwater Extended

650.311 (b) (3) – Underwater Inspection – Extended Interval

If FHWA approval has been granted for extended underwater inspection interval, are bridges being inspected in accordance with the approved criteria? Are controls in place to ensure sustained compliance with the approved criteria?

Compliance (C): Yes or NA.

Substantial Compliance (SC): At least 98% of all bridges have been inspected in accordance with the established and approved criteria. At most 2% of all other bridges have been inspected no more than 4 months beyond the scheduled inspection date

Non-Compliance (NC): Less than 98% of all applicable bridges have been inspected in accordance with the established and approved criteria. Greater than 2% of all applicable structures inspected within 4 months beyond the scheduled inspection date. Any bridge delinquent for inspection by more than 4 months.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Percent of bridges inspected in accordance with the established criteria and frequency.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's process for ensuring bridge inspections are performed on schedule. Generate standard reports on current and historical inspection frequency data and review results. Division has an approved list of bridges qualifying for extended underwater inspection frequency.

Intermediate: Generate standard reports on current and historical inspection frequency data and review results. Randomly sample using a MOE of 15% and a LOC of 80% to review bridge inspection records, including a historical review of reports, to ensure frequency in the records match the data recorded in the NBI. Review criteria for establishing inspection intervals greater than 60 months and ensure that the sampling includes bridges covered by the criteria. The review should include some site visits.

In-depth: Generate standard reports on current and historical inspection frequency data and review results. Randomly sample using a MOE of 15% and a LOC of 90% to review bridge inspection records, including a historical review of reports, to ensure frequency in the records match the data recorded in the NBI. Review criteria for establishing inspection intervals greater than 60 months and ensure that the sampling includes bridges covered by the criteria. The review should include some site visits.

Metric #10: 23 CFR 650.311 Inspection frequency – Fracture Critical Member

650.311 (c) (1) & (2) – Fracture critical member (FCM)

Have all FCMs been inspected at regular intervals not exceeding 24 months? Have criteria to determine level and frequency for which FCMs that require inspections at less than 24 months been established?

Compliance (C): Yes.

Substantial Compliance (SC): 100% of all structurally deficient or load restricted bridges with FCMs have been inspected in accordance with the established criteria. At least 99% of all other bridges with FCMs have been inspected in accordance with the established criteria. At most 1% of all other bridges with FCMs have been inspected no more than 4 months beyond the scheduled inspection date

Non-Compliance (NC): Less than 100% of all structurally deficient or load restricted bridges with FCMs have been inspected in accordance with the established criteria. Less than 99% of all other bridges with FCMs have been inspected in accordance with the established criteria. Greater than 1% of the other bridges with FCMs are delinquent for inspection. Any bridge with FCMs delinquent for inspection by more than 4 months.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Percent of bridges inspected in accordance with the established criteria and frequency.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's process for ensuring bridge inspections are performed on schedule. Generate standard reports on current and historical inspection frequency data and review results.

Intermediate: Generate standard reports on current and historical inspection frequency data and review results. Randomly sample using a MOE of 15% and a LOC of 80% to review bridge inspection records, including a historical review of reports, to ensure frequency in the records match the data recorded in the NBI. The sample population should include structurally deficient and load restricted bridges, as well as bridges that require inspection at less than 24 months, as applicable. Review criteria for establishing inspection intervals less than 24 months and ensure that the sampling includes bridges covered by the criteria. The review should include some site visits to verify accessibility and inspection and procedural documentation.

In-depth: Generate standard reports on current and historical inspection frequency data and review results. Randomly sample using a MOE of 15% and a LOC of 90% to review bridge inspection records, including a historical review of reports, to ensure frequency in the records match the data recorded in the NBI. The sample population should include structurally deficient and load restricted bridges, as well as bridges that require inspection at less than 24 months, as applicable. Review criteria for establishing inspection intervals less than 24 months and ensure that the sampling includes bridges covered by the criteria. The review must include some site visits to verify accessibility and inspection and procedural documentation.

Metric #11: 23 CFR 650.311 Inspection frequency – Damage, In-depth or Special

650.311 (d) – Damage, in-depth and special inspections

Have criteria to determine level and frequency for these inspections been established?

Compliance (C): Yes. 100% of all bridges requiring these inspections have been inspected in accordance with the established criteria.

Substantial Compliance (SC): Criteria not currently established, but under development and scheduled to be completed within 12 months. At least 98% of all applicable bridges have been inspected in accordance with the established and approved criteria. At most 2% of these bridges have been inspected no more than 4 months beyond the scheduled inspection date.

Non-Compliance (NC): Criteria not established nor under development. Less than 98% of all other bridges have been inspected in accordance with the established frequency. Greater than 2% of all other bridges inspected within 4 months beyond the scheduled inspection date. Any bridge delinquent for inspection by more than 4 months.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Bridges inspected in accordance with the established criteria and frequency.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's process for ensuring bridge inspections are performed on schedule. Generate standard reports on current and historical inspection frequency data and review results. Division has a copy of the established and approved procedures.

Intermediate: Generate standard reports on current and historical inspection frequency data and review results. Randomly sample using a MOE of 15% and a LOC of 80% to review bridge inspection records, including a historical review of reports, to ensure frequency in the records match the data recorded in the NBI. The review should include inspection documentation of damage, in-depth and special inspections and established and approved procedures. The review should include some site visits to verify inspection documentation and procedural documentation.

In-depth: Generate standard reports on current and historical inspection frequency data and review results. Randomly sample using a MOE of 15% and a LOC of 90% to review inspection records, including a historical review of reports, to ensure frequency in the records match the data recorded in the NBI. Review damage, in-depth and special inspection procedures. The review must include some site visits to verify inspection documentation and procedural documentation.

Metric #12: 23 CFR 650.313 Inspection procedures – Team Leader

650.313 (b) – Provide at least one team leader during inspections

Is one team leader, who meets the minimum qualifications stated in § 650.309 (b) and 650.313 (g), at the bridge at all times during each initial, routine, in-depth, fracture critical member and underwater inspection?

Compliance (C): Yes.

Substantial Compliance (SC): Team leader on site, but periodic bridge inspection refresher training out of date by no more than 12 months beyond the period defined in the QC/QA procedures or lacks the required experience by less than 12 months.

Non-Compliance (NC): Any initial, routine, in-depth, fracture critical member or underwater inspections performed without a qualified team leader present (i.e., No Team Leader on site or on-site Team Leader falls outside of qualifications tolerance allowed under substantial compliance).

Conditional Compliance (CC): Adhering to approved plan of corrective action

Criteria: A qualified team leader present at all initial, routine, in-depth, fracture critical member or underwater inspections.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's bridge inspection practices. Request and obtain information on inspection rates for each Team Leader.

Intermediate: Request and obtain information on inspection rates for each Team Leader and their NBIS qualifications, including dates of comprehensive and refresher trainings and compare with a sample of bridge inspection records to ensure a qualified Team Leader was present at the inspection. Randomly sample using a MOE of 15% and a LOC of 80% to review the list of Team Leaders and to obtain a sample of bridge inspection records they have inspected. May perform impromptu field verification of some ongoing inspections to observe team leader presence.

In-depth: Request list of all Team Leaders and their NBIS qualifications, including dates of comprehensive and refresher trainings and compare with a sample of bridge inspection records to ensure a qualified Team Leader was present at the inspection. Randomly sample using a MOE of 15% and a LOC of 90% to review the list of Team Leaders and to obtain a sample of bridge inspection records they have inspected. Impromptu field verification is required of some ongoing inspections to observe team leader presence.

Metric #13: 23 CFR 650.313 Inspection procedures – Load Rating

650.313 (c) - Rate each bridge

Has each bridge been rated to its safe load carrying capacity in accordance with the AASHTO Manual?

Compliance (C): Yes.

Substantial Compliance (SC): 100% of all bridges with NBI condition ratings of 4-Poor or less for Deck (item 58), Superstructure (item 59), Substructure (item 60), Culvert (item 62), NBI appraisal ratings of 3-Serious or less for Structural Evaluation (item 67), load restricted bridges (NBI item 41 coded as P or R), bridges with temporary supports (NBI item 41 coded as D or E), and bridges with fracture critical members have a load rating in accordance with the AASHTO Manual. At least 95% of all other bridges have a load rating in accordance with the AASHTO Manual.

Non-Compliance (NC): Less than 100% of bridges with NBI condition ratings of 4 or less for items 58, 59, 60 or 62, NBI appraisal ratings of 3 or less for item 67, load restricted bridges, bridges with temporary supports, and bridges with fracture critical members have a load rating in accordance with the AASHTO Manual. Less than 95% of all other bridges have a load rating in accordance with the AASHTO Manual.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Percent of bridges that have a load rating in accordance with the AASHTO Manual.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's load rating practices. Generate standard NBI reports related to load ratings and review results. Division should have a copy of state legal and permit load laws and regulations to ensure consistency with State policies and procedures.

Intermediate: Generate standard NBI reports related to load ratings and review results. Randomly sample using a MOE of 15% and a LOC of 80% to review bridge records to ensure load rating calculations exist and the design, legal, and routine permit loads in the records match the data recorded in the inventories. Review legal and permit load laws and regulations to ensure consistency with State policies and procedures. The sample should be selected to ensure a review of higher risk bridges (see note below). Site visits of some bridges should be performed to verify condition of bridge is as stated in load rating.

In-depth: Generate standard NBI reports related to load ratings and review results. Randomly sample using a MOE of 15% and a LOC of 90% to review bridge records to ensure load rating calculations exist and the design, legal, and routine permit loads in the records match the data recorded in the inventories. The sample should be selected to ensure a review of higher risk bridges (see note below). At least ten percent of the sampled bridges should be field reviewed to ensure assumptions made in the load rating are valid. Perform checks on some load ratings to

verify load rating calculations and methodology. Review legal and permit load laws and regulations to ensure consistency with State policies and procedures.

Metric #14: 23 CFR 650.313 Inspection procedures – Post or Restrict

650.313 (c) – Post or restrict the bridge

Have all bridges been posted or restricted in accordance with the AASHTO Manual or in accordance with State law, when the maximum unrestricted legal loads or State routine permit loads exceed that allowed under the operating rating or equivalent rating factor?

Compliance (C): Yes.

Substantial Compliance (SC): From the sample reviewed, posting deficiencies are limited to acts of sign vandalism or impact damage.

Non-Compliance (NC): Bridges requiring load restrictions are not properly posted and posting deficiencies are not addressed.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Proper posting of bridges and promptly addressing posting deficiencies.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's load posting practices and the consistency of the practices with posting laws and regulations. Generate standard NBI reports related to load postings and review results. Division should have a list of posted bridges and what the posting or restriction for load signing is at the bridge site.

Intermediate: Generate standard NBI reports related to load postings and review results. Randomly sample using a MOE of 15% and a LOC of 80% to review bridge records for confirmation that the load posting signs are in place and match the posting levels in the calculations and SI&A. May perform site visits of some sampled bridges to verify the posting signs exist and match the current load rating information.

In-depth: Generate standard NBI reports related to load postings and review results. Randomly sample using a MOE of 15% and a LOC of 90% to review bridge records for confirmation that the load posting signs are in place and match the posting levels in the calculations and SI&A. Perform site visits of some sampled bridges to verify the posting signs exist and match the current load rating information.

Metric #15: 23 CFR 650.313 Inspection procedures – Bridge Files

650.313 (d) – Prepare bridge files

Have bridge files been prepared as described in the AASHTO Manual i.e., maintain reports on the results of bridge inspections together with notations of any action taken to address the findings of such inspections, maintain relevant maintenance and inspection data to allow assessment of current bridge condition, and record the findings and results of bridge inspections on standard forms.

Compliance (C): Yes.

Substantial Compliance (SC): All bridges selected for sampling have files and include the most recent bridge inspection on the standard form. At least 90% of files sampled have significant bridge file components as listed in the metric.

Non-Compliance (NC): Any bridge selected for sampling does not have a file or the file does not include the most recent bridge inspection on the standard form. Less than 90% of files sampled have significant bridge file components.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Percent of bridge files missing significant bridge file components that include:

- Inspection History

- SI&A sheets

- Bridge load rating & posting recommendations, including load rating calculations or load test data, dates and signing recommendations, traffic data

- Photographs

- Maintenance & repair history

- Inspection requirements and procedures - special equipment needed or features to be inspected.

- Flood data, waterway adequacy, channel cross sections, underwater inspection reports, scour data and assessments, POAs.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's practices.

Intermediate: Randomly sample using a MOE of 15% and a LOC of 80% to review bridge records to ensure the significant bridge record components exist. May perform site visits to verify bridge record contents.

In-depth: Randomly sample using a MOE of 15% and a LOC of 90% to review bridge records to ensure the significant bridge record components exist. Must perform site visits of some bridges to verify the accuracy of bridge file components.

Metric #16: 23 CFR 650.313 Inspection procedures – Fracture Critical Members

650.313 (e) (1) – Bridges with fracture critical members (FCMs)

Are the location of FCMs identified and the FCM inspection frequency and procedures described in the inspection records for each bridge requiring a fracture critical member inspection? Are FCMs inspected according to these procedures?

Compliance (C): Yes.

Substantial Compliance (SC): At least 95% of files sampled of bridges with FCMs have the FCMs properly identified and the inspection frequencies, procedures and conditions of FCMs described.

Non-Compliance (NC): Less than 95% of files sampled of bridges with FCMs have the FCMs properly identified and the inspection frequencies, procedures and conditions of FCMs described.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Bridges with the locations of FCMs identified and inspection frequencies, procedures and conditions of FCMs described. Refer back to Metric 10 if not following the procedures as inspections would not be valid and therefore inspection frequency is not met.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's identification of FCMs and inspection procedures. Division has the list of bridges with FCMs and identifies bridges with written procedures.

Intermediate: Randomly sample using a MOE of 15% and a LOC of 80% to review records of bridges with FCMs to ensure they are properly identified, inspection frequency is listed, procedures are complete, conditions are described, and procedures are followed during FCM inspections.

In-depth: Randomly sample using a MOE of 15% and a LOC of 90% to review records of bridges with FCMs to ensure they are properly identified, inspection frequency is listed, procedures are complete, conditions are described, and procedures are followed during FCM inspections. Site review some bridges with FCMs and/or observe some FCM inspections to ensure procedures are being followed.

Metric #17: 23 CFR 650.313 Inspection procedures - Underwater

650.313 (e) (2) - Bridges requiring underwater inspections

Are the location of underwater elements identified and the underwater elements, the inspection frequency, and the procedures described in the inspection records for each bridge requiring an underwater inspection? Are those elements requiring underwater inspections inspected according to these procedures?

Compliance (C): Yes.

Substantial Compliance (SC): At least 95% of bridges requiring underwater inspections have the location of underwater elements properly identified, and the elements, frequency, procedures and conditions described and procedures are being followed.

Non-Compliance (NC): Less than 95% of bridges requiring underwater inspections have the location of underwater elements properly identified and the elements, frequency, procedures and conditions described and procedures are being followed.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Bridges with the locations of underwater elements identified and frequencies and procedures for inspection identified and procedures are being followed. Refer back to Metrics 8 or 9 if not following the procedures as inspections would not be valid and therefore inspection frequency is not met.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of State's identification of underwater elements, inspection procedures, and description of underwater bridge element conditions. Division has a list of bridges requiring underwater inspection and procedures for each are identified as completed.

Intermediate: Randomly sample using a MOE of 15% and a LOC of 80% to review records of bridges requiring underwater inspection to ensure the location of underwater elements is identified and the inspection frequency and the procedures described in the inspection records are followed during underwater inspections.

In-depth: Randomly sample using a MOE of 15% and a LOC of 90% to review records of bridges requiring underwater inspection to ensure the location of underwater elements is identified and the inspection frequency and the procedures described in the inspection records are followed during underwater inspections. Site review some bridges requiring underwater inspection and/or observe some underwater inspections to ensure procedures are being followed.

Metric #18: 23 CFR 650.313 Inspection procedures – Scour Critical Bridges

650.313 (e) (3) - Bridges that are scour critical

Has a plan of action (POA) been prepared to monitor known and potential deficiencies and to address critical findings? Have bridges that are scour critical been monitored in accordance with the plan?

Compliance (C): Yes.

Substantial Compliance (SC): NA.

Non-Compliance (NC): Less than 100%.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Bridges with POAs.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's identification of scour critical bridges and POA status. Generate standard NBI reports related to scour critical bridges and review results considering knowledge of the POA status for scour critical bridges. Division has a list of scour critical bridges which describes if there is a developed and implemented POA in the bridge record.

Intermediate: Generate standard NBI reports related to scour critical bridges and review results considering knowledge of the POA status for scour critical bridges. Randomly sample using a MOE of 15% and a LOC of 80% to review records of scour critical bridges to ensure a scour analysis exists and POAs are developed and implemented. Review monitoring procedures.

In-depth: Generate standard NBI reports related to scour critical bridges and review results. Randomly sample using a MOE of 15% and a LOC of 90% to review records of scour critical bridges. Review monitoring procedures. Verify through interviews and/or site visits that some of the sampled scour critical bridges have monitoring procedures and the POA is implemented.

Metric #19: 23 CFR 650.313 Inspection procedures – Complex Bridges

650.313 (f) – Complex bridges

Have specialized inspection procedures, and additional inspector training and experience required to inspect complex bridges been identified? Are complex bridges inspected according to those procedures?

Compliance (C): Yes.

Substantial Compliance (SC): At least 95% of complex bridges have specialized procedures and additional inspector training and experience required to inspect complex bridges have been identified.

Non-Compliance (NC): Less than 95% of complex bridges have specialized procedures and additional inspector training and experience required to inspect complex bridges have been identified.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Complex bridges have documented inspection procedures and are inspected in accordance with those procedures.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's complex bridge inspection procedures. The Division has a list of complex bridges and completed procedures are in the bridge record.

Intermediate: Generate and review list of complex bridges. Randomly sample using a MOE of 15% and a LOC of 80% to review records of complex bridges to ensure specialized inspection procedures, training, and experience required to inspect complex bridges are identified. Review inspection procedures in the records which should include some site review verification.

In-depth: Generate and review list of complex bridges. Randomly sample using a MOE of 15% and a LOC of 90% to review records of complex bridges to ensure specialized inspection procedures, training, and experience required to inspect complex bridges are identified. Review procedures of some of the sampled complex bridges. Perform some site reviews or observe complex bridge inspection(s) to ensure established procedures are being followed.

Metric #20: 23 CFR 650.313 Inspection procedures – QC/QA

650.313 (g) – Quality control and quality assurance

Are systematic quality control (QC) and quality assurance (QA) procedures used to maintain a high degree of accuracy and consistency in the inspection program? Are periodic field review of inspection teams, periodic bridge inspection refresher training for program managers and team leaders, and independent review of inspection reports and computations included in the procedures?

Compliance (C): Yes.

Substantial Compliance (SC): Periodic field reviews of inspection teams, as required by the QC/QA procedures, were documented for at least 90% of the bridge records sampled. At least 80% of program managers and team leaders have attended periodic bridge inspection refresher training as defined in State's QC/QA procedures or will complete the necessary training within 12 months. At least 95% of inspection reports and load rating computations sampled were reviewed in accordance with the QC/QA procedures.

Non-Compliance (NC): No QC/QA policy and procedures exist. Periodic field reviews of inspection teams, as required by the QC/QA procedures, were documented for less than 90% of the bridge records sampled. Less than 80% of program managers and team leaders have attended periodic bridge inspection refresher training as defined in State's QC/QA procedures or are delinquent by more than 12 months. Less than 95% of inspection reports and load rating computations sampled are reviewed in accordance with the QC/QA procedures.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Documented QC/QA policies and procedures. Percent of periodic field reviews of inspection teams documented. Percent of staff receiving refresher training. Percent of inspection reports and load rating computations sampled.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's QC/QA program. The Division has a current copy of the state's QC/QA procedures.

Intermediate: Request list of bridge inspection records that were reviewed in the field by the Agency and compare to established sampling rate in their procedures. Review QC/QA procedures. Request list of Program Manager and all Team Leaders, including dates of latest refresher training and compare with frequency established. Randomly sample using a MOE of 15% and a LOC of 80% to review records to ensure inspection reports and load ratings are independently reviewed per established QC/QA procedures.

In-depth: Request list of bridge inspection records that were reviewed in the field by the Agency and compare to established sampling rate in their procedures. Review QC/QA procedures. Request list of Program Manager and all Team Leaders, including dates of latest refresher training and compare with frequency established. Randomly sample using a MOE of 15% and a LOC of 90% to review records to ensure inspection reports and load ratings are independently

reviewed per established QC/QA procedures. Participate in QA reviews on some bridges to ensure established procedures are being followed.

Metric #21: 23 CFR 650.313 Inspection procedures – Critical Findings

650.313 (h) – Follow-up on critical findings

Has a statewide procedure been established to assure that critical findings are addressed in a timely manner? Is FHWA periodically notified of the actions taken to resolve or monitor critical findings?

Compliance (C): Yes.

Substantial Compliance (SC): Critical finding procedures are followed 100% of the time for NHS bridges. Critical finding procedures are followed for at least 95% of the time for non-NHS bridges. These include notifying the FHWA.

Non-Compliance (NC): No procedures developed. Critical finding procedures are followed less than 100% of the time for NHS bridges. Critical finding procedures are followed for less than 95% of the time for non-NHS bridges. FHWA is not periodically notified.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: Documented policies and procedures. Methods for monitoring critical findings and inspection reviews of resolutions. Frequency of notification adhered to.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's critical finding procedures. Review actions taken to resolve or monitor critical findings that have been submitted. Verify notification frequency matches the established procedures.

Intermediate: Review actions taken to resolve or monitor critical findings that have been submitted periodically. Verify notification frequency matches the established criteria. Review established critical finding procedures. Randomly sample using a MOE of 15% and a LOC of 80% to review records, including NHS and non-NHS bridges with critical findings, to ensure issues are properly documented and addressed. There should be some site visits of critical findings to verify status of documentation and if procedures were followed.

In-depth: Review actions taken to resolve or monitor critical findings that have been submitted periodically. Verify notification frequency and documentation follows established critical finding procedures. Randomly sample using a MOE of 15% and a LOC of 90% to review records, including NHS and non-NHS bridges with critical findings, to ensure issues are properly documented and addressed. Perform some site visits of critical findings to verify status of documentation and if procedures were followed.

Metric #22: 23 CFR 650.315 Inventory – Prepare and Maintain

650.315 (a) – Prepare and maintain an inventory

Does the State prepare and maintain an inventory of all bridges subject to the NBIS?

Compliance (C): Yes.

Substantial Compliance (SC): NA.

Non-Compliance (NC): No.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: An inventory of all bridges subject to the NBIS is maintained. Data collected matches what is required for the Structure Inventory and Appraisal. Data is reported according to FHWA procedures and is available for collection by FHWA as requested.

Assessment Levels

Minimum: Based on Division Office Bridge staff's knowledge and awareness of Agency's program. Generate standard NBI reports related to data consistency and review results.

Intermediate: Generate standard NBI reports related to data consistency and review results. Randomly sample using a MOE of 15% and a LOC of 80% to review Structure Inventory and Appraisal sheets and compare with information from bridge record components. There should be some site visits to verify data in both the bridge records and NBI.

In-depth: Generate standard NBI reports related to data consistency and review results. Randomly sample using a MOE of 15% and a LOC of 90% to review Structure Inventory and Appraisal sheets and compare with information from bridge record components. Verify by some site visits of the sample of bridge inspection records and the Agency's inventory matches the data in the NBI. Special attention should be given to the NBI items that affect deficiency status.

Metric #23: 23 CFR 650.315 Inventory – Update Data

650.315 (b), (c) & (d) – Updating data in the inventory

Does the State enter the SI&A data in the inventory within 90 days of the date for State bridges and within 180 days of the date for all other bridges for inspections, bridge modifications and load restriction or closure status?

Compliance (C): Yes.

Substantial Compliance (SC): At least 98% of all bridges have had inventory data updated in the State's inventory in accordance with NBIS criteria. At most 2% of all bridges have had inventory data updated in the State's inventory no more than 4 months beyond the NBIS criteria.

Non-Compliance (NC): Greater than 2% of all bridges have had inventory data updated in the State's inventory beyond the NBIS criteria. Any bridge delinquent for being updated in the State's inventory by more than 4 months beyond the NBIS criteria.

Conditional Compliance (CC): Adhering to approved plan of corrective action.

Criteria: An inventory of all bridges subject to the NBIS is maintained. Data collected matches what is required for the Structure Inventory and Appraisal. Data is reported according to FHWA procedures and is available for collection by FHWA as requested.

Assessment Levels

Minimum: Based on Division Office Bridge Staff's knowledge and awareness of Agency's program. Generate standard reports on current data and review results.

Intermediate: Generate standard reports on current data and review results. Randomly sample using a MOE of 15% and a LOC of 80% to review records of State-owned and other-owned bridges, and verify data is input into the State's inventory within 90 days for State bridges and 180 days for other bridges.

In-depth: Generate standard reports on current data and review results. Randomly sample using a MOE of 15% and a LOC of 90% to review records of State-owned and other-owned bridges, and verify data is input into the State's inventory within 90 days for State bridges and 180 days for other bridges. Should check year built and initial inspection dates to verify reporting times meet regulation requirements.