

III. Compliance Metrics and Assessment Levels

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.

Note: For all assessment levels, enter total number of team leaders in reporting database.

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: Routine inspection frequency – Lower risk bridges*

Metric revised 3/19/12

650.311 (a) – Routine inspections – Have lower risk bridges been inspected at regular intervals not to exceed (NTE) 24 months, or NTE 48 months when adhering to FHWA approved criteria?

Population: Lower risk bridges for the entire state or selected geographic/owner subset that are open to traffic, and whose inspection dates have changed since the previous year’s State NBI submission or whose inspections are overdue. *Lower risk bridges are defined for this metric as those with superstructure and substructure, or culvert, condition ratings of fair or better, and not requiring state legal load restriction.

Compliance Levels

Compliance (C): All bridges in the population are inspected within the required NTE 24 or 48 month interval, as applicable, unless documented unusual circumstances have caused a 1-month delay for any inspections. All sampled 1-month delayed bridge inspections are documented for unusual circumstances.

Substantial Compliance (SC): At least 90% of bridges in the population are inspected within the required NTE 24 or 48 month interval plus one month, as applicable, and 100% are inspected within the required interval plus four months. All bridges with extended inspections conform to FHWA approved criteria.

Non-Compliance (NC): Substantial compliance criteria are not met.

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

Criteria: Percent of lower risk bridges in the population that are inspected in accordance with the NTE 24 or 48 month interval.

Assessment Levels

Regardless of planned assessment level, review of this metric is progressive beginning with the Minimum level.

Minimum: If a PCA is currently in effect, monitor the PCA. Otherwise, review Metric 6 ART Report, which may require detailed examination and resolution of results as explained below. Review current list of bridges approved for extended interval, as applicable.

Where a SC snapshot is indicated in the Report and all bridges are inspected within a 25 or 49 month interval, as applicable, randomly sample bridges with 25 and 49 month intervals using Intermediate criteria and review for documentation of unusual circumstances. Where substantial changes in procedures have occurred that may reasonably show improved performance, consider supplemental analysis using current data as described in the Intermediate level.

Intermediate: Randomly sample bridges with inspections at 25 and 49-month intervals using Intermediate criteria and review for documentation of unusual circumstances.

If appropriate after review of the Report, obtain current data for recently performed inspections from the State DOT and analyze frequency intervals. Data should include the most recent and previous inspections, previous frequency, other data as needed for the analysis, and must cover at least 6 consecutive months or 25% of the bridge population being reviewed.

In-depth: Similar to Intermediate, but use In-depth sampling criteria to randomly sample bridges with inspections at 25 and 49-month intervals.

Commentary for Metric #6

Population: The population is defined to eliminate reassessment of the same inspection interval for the same bridge in successive review years. It also includes bridges indicated by the submitted data to be overdue for inspection – those that were due prior to the NBI submission date but did not have a new inspection date submitted. The analysis includes the 90/180 day NBI allowance for entering data and an additional 30 days for State compiling of the submittal.

Risk classification is based on the bridge's super/substructure condition and required load restrictions, determined using NBI Items 41, 63, 64, and 70. Using these items will help identify posted bridges that do not require load restriction, and therefore are lower risk. All bridges meeting approved extended interval NTE 48 month criteria are considered lower risk. Criteria used:

Metric #6 – Lower risk bridges criteria: (NBI Item 59 and 60, or 62) >4 and either (NBI Item 70=5 and Item 63 \neq 5) or (Item 41 \neq B, P, or R)

Bridges adhering to FHWA approved extended frequency criteria are assumed to be lower risk.

Compliance levels: Compliance levels are based on several cumulative thresholds, which allow consideration of unusual circumstances that can make the completion of inspections within the required month impractical or inefficient. The percentages used in the summary of the Metric 6 ART Report are numerical representations of the compliance level thresholds.

For Compliance (C), while all bridges are expected to meet the meet the NTE 24/48 month interval, the summary uses 85% for that count, and 100% for 25/49 months. This allows 15% to have been inspected 1 month late without further analysis and still be assessed as C if the state has a process in place to document late inspections for unusual circumstances. However, if the 85% NTE 24/48 months is not met, a random sample of those bridges inspected in the 25th/49th month should be used to determine if unusual circumstances are documented. If all sampled bridges are documented, then the metric can be assessed as C.

As identified in the preamble of the NBIS regulation, severe weather, concern for inspector safety, concern for inspection quality, the need to optimize scheduling with other bridges, or other unique situations may be justifiable cause to push the inspection interval into the 25th/49th month. Such circumstances need to be documented. The thresholds also allow for flexibility so that structures previously inspected earlier than scheduled can get back on the original schedule.

An assessment of C can also be made if there are intervals that exceed the 25th/49th month and prior approval has been provided by FHWA.

For an assessment of Substantial Compliance (SC), the thresholds allow up to 10% of inspections to have been done after the 25th/49th month but 100% must be done by the 28th/52nd month. If these thresholds are exceeded as shown in the Metric 6 ART Report snapshot, further review of the data as described below may be necessary.

Also note that for SC, a 50% threshold is included in the Metric 6 ART Report for the NTE 24/48 month interval. The intent of this threshold is to convey an expectation that at least half of inspections should be done on time. Failure to meet the 50% threshold should not by itself result in a non-compliance determination; it may indicate other issues for which further investigation is needed.

Assessment Levels: Regardless of planned assessment level, the review of this metric begins at the Minimum level with the Metric 6 ART Report (described below). The Report must be reviewed and, at a minimum, the overdue inspections identified must be resolved. See below for additional Report review details.

For the Intermediate and In-depth levels, random sampling of 25/49 month interval inspections is required. This sampling is done to make sure that unusual circumstances leading to late inspections are documented.

Where warranted, the review can include obtaining the most recent inspection data from the state and performing a supplemental interval analysis. Such analysis should be done after consultation with the State DOT and if there is a reasonable chance that current inspections will reveal a higher level of compliance. BSE assistance is available if such an analysis is needed.

Metric 6 ART Report: The Report combines the “Push Button” delinquent inspection report that was included in ART for the 2011 review year and the frequency interval report (provided separately for the 2011 review). When accessed from within ART, the Report includes all bridges for the metric population, and is intended to be based on the most recent and previous April NBI submissions. The Report can also be run from the UPACS NBI reports page in Staffnet, where some filtering options for population subsets, such as State DOT or local agency bridges, are provided.

Depending on the summary result, the review may require detailed examination and resolution or overriding of the data. The Report is based on NBI data, which has some known limitations for determining compliance. A few of examples are border bridges where the other state has inspection responsibility, where the timing of submitting NBI data has missed an inspection, or the bridge has been replaced or work has been performed that changes the inspection schedule.

The interval and overdue status of individual bridges can be viewed on the data tab. Based on Division Office Bridge Staff review, the status of a bridge can be overridden using the appropriate code. This will usually be the result of the examples mentioned above. The snapshot on the summary tab will automatically update with the override codes.

The data tab includes generated random numbers that can be used to develop the 25th/49th month random sample.

Background/ changes for 2012: *This metric is revised to assess routine inspection intervals for lower risk bridges. Extended routine inspection interval bridges (2011 Metric #7), are considered lower risk and are included in this metric. Routine inspection intervals for higher risk bridges are assessed under revised Metric #7. These revisions allow for a simpler assessment process by combining similar risk inspections, and will allow a greater focus on higher risk bridges (Metric #7).*

Inspection interval thresholds used to determine compliance levels have been revised.

Review of the establishment of criteria to determine level and frequency for bridges that require inspection at less than 24 month intervals have been moved to Metric #11. Review of inspection dates to verify that bridge records match the data recorded in the NBI has been moved from this metric to Metric #22. Inspection quality (i.e. does the inspection meet acceptable routine inspection procedures as described in the MBE) is assessed under Metric #12 instead of this metric.

650.311 (a) – Routine inspections – Have higher risk bridges been inspected at regular intervals not to exceed (NTE) 24 months?

Population: Higher risk bridges for the entire state or selected geographic/owner subset that are open to traffic and whose inspection dates have changed since the previous year’s State NBI submission or whose inspections are overdue. *Higher risk bridges are defined for this metric as those with a superstructure or substructure, or culvert, condition rating of poor or worse, or are state legal load restricted.

Compliance Levels

Compliance (C): All bridges in the population are inspected within the required NTE 24 month interval, unless documented unusual circumstances have caused a 1-month delay for any inspections. All sampled 1-month delayed bridge inspections are documented for unusual circumstances.

Substantial Compliance (SC): At least 95% of bridges in the population are inspected within the required NTE 24 month interval plus one month, and 100% are inspected within the required interval plus four months.

Non-Compliance (NC): Substantial compliance criteria are not met.

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

Criteria: Percent of higher risk bridges in the population that are inspected in accordance with the NTE 24 month interval.

Assessment Levels

Regardless of planned assessment level, review of this metric is progressive beginning with the Minimum level.

Minimum: If a PCA is currently in effect, monitor the PCA. Otherwise, review Metric 7 ART Report, which may require detailed examination and resolution of results.

Where a SC snapshot is indicated in the Report and all bridges are inspected within a 25 month interval, randomly sample bridges with 25 month intervals using Intermediate criteria and review for documentation of unusual circumstances (explained further in commentary). Where substantial changes in procedures have occurred that may reasonably show improved performance, consider supplemental analysis using current data as described in the Intermediate level.

Intermediate: Randomly sample bridges with routine inspections at 25 month intervals using Intermediate criteria and review for documentation of unusual circumstances.

If appropriate after review of the Report, obtain current data for recently performed inspections from the State DOT and analyze frequency intervals. Data should include the most recent and previous inspections, previous frequency, other data as needed for the analysis, and must cover at least 6 consecutive months or 25% of the bridge population being reviewed.

In-depth: Similar to intermediate, but use In-depth sampling criteria to randomly sample bridges with inspections at 25 month intervals.

Commentary for Metric #7

Population: The population is defined to eliminate reassessment of the same inspection interval for the same bridge in successive review years. It also includes bridges indicated by the submitted data to be overdue for inspection – those that were due prior to the NBI submission date but did not have a new inspection date submitted. The analysis includes the 90/180 day NBI allowance for entering data and an additional 30 days for State compiling of the submittal.

Risk classification is based on the bridge's super/substructure condition and required load restrictions, determined using NBI Items 41, 63, 64, and 70. Using these items will help eliminate posted bridges that do not actually require load restriction, and therefore are lower risk. Criteria used:

Metric #7 – Higher risk bridges criteria: (NBI Item 59 or 60, or 62) < 5 or NBI Item 70 < 5 or Item 63 = 5 or (Item 41 = B, P, or R)

Bridges adhering to FHWA approved extended frequency criteria are assumed to be lower risk.

Compliance levels: Compliance levels are based on several cumulative thresholds, which allow factoring in unusual circumstances that can make the completion of inspections within the required month impractical or inefficient. The percentages used in the summary of the Metric 7 ART Report are numerical representations of the compliance level thresholds.

For Compliance (C), while all bridges are expected to meet the meet the NTE 24 month interval, the summary uses 95% for that count, and 100% for 25 months. This allows 5% to have been inspected one month late without further analysis and still be assessed as C if the state has a process in place to document late inspections for unusual circumstances. However, if the 95% threshold is not met, a random sample of those bridges inspected in the 25th month should be used to determine if unusual circumstances are documented. If all sampled bridges are documented, then the metric can be assessed as C.

As identified in the preamble of the NBIS regulation, severe weather, concern for inspector safety, concern for inspection quality, the need to optimize scheduling with other bridges, or other unique situations may be justifiable cause to push the inspection interval into the 25th month. Such circumstances need to be documented. The thresholds also allow for flexibility so that structures previously inspected earlier than scheduled can get back on the original schedule.

An assessment of C can also be made if there are intervals that exceed the 25th month and prior approval has been provided by FHWA.

For an assessment of Substantial Compliance (SC), the thresholds allow up to 5% of inspections to have been done after the 25th month but 100% must be done by the 28th month. If these thresholds are exceeded as shown in the Metric 7 ART Report snapshot, further review of the data as described below may be necessary.

Also note that for SC, a 50% threshold is included in the Metric 7 ART Report for the NTE 24 month interval. The intent of this threshold is to convey an expectation that at least half of inspections should be done on time. Failure to meet the 50% threshold should not by itself result in a non-compliance determination; it may indicate other issues for which further investigation is needed.

Assessment Levels: Regardless of planned assessment level, the review of this metric begins at the Minimum level with the Metric 7 ART Report (described below). The Report must be reviewed and, at a minimum, the overdue inspections identified must be resolved. See below for additional Report review details.

For the Intermediate and In-depth levels, random sampling of 25 month interval inspections is required. This sampling is done to make sure that unusual circumstances leading to late inspections are documented.

Where warranted, the review can include obtaining the most recent inspection data from the state and performing a supplemental interval analysis. Such analysis should be done after consultation with the State DOT's and if there is a reasonable chance that current inspections will reveal a higher level of compliance. BSE assistance is available if such an analysis is needed.

Metric 7 ART Report: The Report combines the "Push Button" delinquent inspection report that was included in ART for the 2011 review year and the frequency interval report (provided separately for the 2011 review). When accessed from within ART, the Report includes all bridges for the metric population, and is intended to be based on the most recent and previous April NBI submissions. The Report can also be run from the UPACS NBI reports page in Staffnet, where some filtering options for population subsets, such as State DOT or local agency bridges, are provided.

Depending on the summary result, the review may require detailed examination and resolution or overriding of the data. The Report is based on NBI data, which has some known limitations for determining compliance. A few of examples are border bridges where the other state has inspection responsibility, where the timing of submitting NBI data has missed an inspection, or the bridge has been replaced or work has been performed that changes the inspection schedule.

The interval and overdue status of individual bridges can be viewed on the data tab. Based on Division Office Bridge Staff review, the status of a bridge can be overridden using the appropriate code. This will usually be the result of the examples mentioned above. The snapshot on the summary tab will automatically update with the override codes.

The data tab includes generated random numbers that can be used to develop the 25th month random sample.

Background/ changes for 2012: *This metric is revised to assess routine inspection intervals for higher risk bridges. Extended routine inspection interval bridges (2011 Metric #7), are considered lower risk and are included in Metric #6. These revisions allow for a simpler assessment process by combining similar risk inspections, and will allow a greater focus on higher risk bridges.*

Inspection interval thresholds for used to determine compliance levels have been revised.

Review of the establishment of criteria to determine level and frequency for bridges that require inspection at less than 24 month intervals have been moved to Metric #11. Review of inspection dates to verify that bridge records match the data recorded in the NBI has been moved from this metric to Metric #22. Inspection quality (i.e. does the inspection meet acceptable routine inspection procedures as described in the MBE) is assessed under Metric #12 instead of this metric.

650.311 (b) – Underwater (UW) inspections – Have lower risk bridges that require an UW inspection (NBIS definition) been inspected at regular intervals not to exceed (NTE) 60 months, or NTE 72 months when adhering to FHWA approved UW criteria?

Population: Lower risk bridges for the entire state or selected geographic/owner subset that require UW inspections, are open to traffic, and whose inspection dates have changed since the previous year’s State NBI submission or whose inspections are overdue. *Lower risk bridges are defined for this metric as those with a substructure or culvert condition rating of fair or better, and evaluated as not scour critical.

Compliance Levels

Compliance (C): All bridges in the population are inspected within the required NTE 60 or 72 month interval, as applicable, unless documented unusual circumstances have caused a 1-month delay for any inspections. All sampled 1-month delayed inspections are documented for unusual circumstances.

Substantial Compliance (SC): At least 90% of bridges in the population are inspected within the required NTE 60 or 72 month interval plus one month, as applicable, and 100% are inspected within the required interval plus four months. All bridges with extended inspections conform to FHWA approved criteria.

Non-Compliance (NC): Substantial compliance criteria are not met.

Conditional Compliance (CC): Adhering to a FHWA approved PCA.

Criteria: Percent of lower risk UW inspection bridges in the population that are inspected in accordance with the NTE 60 or 72 month interval.

Assessment Levels

Regardless of planned assessment level, review of this metric is progressive beginning with the Minimum level.

Minimum: If a PCA is currently in effect, monitor the PCA. Otherwise, review Metric 8 ART Report, which may require detailed examination and resolution of results as explained below. Review current list of bridges approved for extended UW interval, as applicable.

Where a SC snapshot is indicated in the Report and all bridges are inspected within a 61 or 73 month interval, as applicable, randomly sample bridges with 61 or 73 month intervals using Intermediate criteria and review for documentation of unusual circumstances. Where substantial changes in procedures have occurred that may reasonably show improved performance, consider supplemental analysis using current data as described in the Intermediate level.

Intermediate: Randomly sample bridges with inspections at 61 or 73 month intervals using Intermediate criteria and review for documentation of unusual circumstances.

If appropriate after review of the Report, obtain current data for recently performed UW inspections from the state DOT and analyze frequency intervals. Data should include the most recent and previous inspections, previous frequency, other data as needed for the analysis, and must cover at least 12 consecutive months or 25% of the bridge population being reviewed.

In-depth: Similar to intermediate, but use In-depth sampling criteria to randomly sample bridges with UW inspections at 61 or 73 month intervals.

Commentary for Metric #8

Population: The population is defined to eliminate reassessment of the same inspection interval for the same bridge in successive review years. It also includes bridges indicated by the submitted data to be overdue for inspection – those that were due prior to the NBI submission date but did not have a new inspection date submitted. The analysis includes the 90/180 day NBI allowance for entering data and an additional 30 days for State compiling of the submittal.

Risk classification is based on substructure/culvert condition and scour vulnerability. All bridges meeting approved extended underwater interval NTE 72 month criteria are considered lower risk. Criteria used:

Metric #8 – Lower risk bridges criteria: (NBI Item 60 or 62)>4 and (NBI Item 113≠ 0, 1, 2, 3, or U)

Bridges adhering to FHWA approved extended frequency criteria are assumed to be lower risk.

Compliance levels: Compliance levels are based on several cumulative thresholds, which allow consideration of unusual circumstances that can make the completion of inspections within the required month impractical or inefficient. The percentages used in the summary of the Metric 8 ART Report are numerical representations of the compliance level thresholds.

For Compliance (C), while all bridges are expected to meet the meet the NTE 60/72 month interval, the summary uses 85% for that count, and 100% for 61/73 months. This allows 15% to have been inspected late without further analysis and still be assessed as C if the state has a process in place to document late inspections for unusual circumstances. However, if the 85% threshold is not met, a random sample of those bridges inspected in the 61st/73rd month should be used to determine if unusual circumstances are documented. If all sampled bridges are documented, then the metric can be assessed as C.

As identified in the preamble of the NBIS regulation, severe weather, concern for inspector safety, concern for inspection quality, the need to optimize scheduling with other bridges, or other unique situations may be justifiable cause to push the inspection interval into the 61st/73rd month. Such circumstances need to be documented. The thresholds also allow for flexibility so that structures previously inspected earlier than scheduled can get back on the original schedule.

An assessment of C can also be made if there are intervals that exceed the 61st/73rd month and prior approval has been provided by FHWA.

For an assessment of Substantial Compliance (SC), the thresholds allow up to 10% of inspections to have been done after the 61st/73rd month but 100% must be done by the 64th/76th month. If these thresholds are exceeded as shown in the Metric 8 ART Report snapshot, further review of the data as described below may be necessary.

Also note that for SC, a 50% threshold is included in the Metric 8 ART Report for the NTE 60/72 month interval. The intent of this threshold is to convey an expectation that at least half of inspections should be done on time. Failure to meet the 50% threshold should not by itself result in a non-compliance determination; it may indicate other issues for which further investigation is needed.

Assessment Levels: Regardless of planned assessment level, the review of this metric begins at the Minimum level with the Metric 8 ART Report (described below). The Report must be reviewed and, at a minimum, the overdue inspections identified must be resolved. See below for additional Report review details.

For the Intermediate and In-depth levels, random sampling of 61/73 month interval inspections is required. This sampling is done to make sure that unusual circumstances leading to late inspections are documented.

Where warranted, the review can include obtaining the most recent inspection data from the state and performing a supplemental interval analysis. Such analysis should be done after consultation with the State DOT's and if there is a reasonable chance that current inspections will reveal a higher level of compliance. BSE assistance is available if such an analysis is needed.

Metric 8 ART Report: The Report combines the "Push Button" delinquent inspection report that was included in ART for the 2011 review year and the frequency interval report (provided separately for the 2011 review). When accessed from within ART, the Report includes all bridges for the metric population, and is intended to be based on the most recent and previous April NBI submissions. The Report can also be run from the UPACS NBI reports page in Staffnet, where some filtering options for population subsets, such as State DOT or local agency bridges, are provided.

Depending on the summary result, the review may require detailed examination and resolution or overriding of the data. The Report is based on NBI data, which has some known limitations for determining compliance. A few of examples are border bridges where the other state has inspection responsibility, where the timing of submitting NBI data has missed an inspection, or the bridge has been replaced or work has been performed that changes the inspection schedule.

The interval and overdue status of individual bridges can be viewed on the data tab. Based on Division Office Bridge Staff review, the status of a bridge can be overridden using the appropriate code. This will usually be the result of the examples mentioned above. The snapshot on the summary tab will automatically update with the override codes.

The data tab includes generated random numbers that can be used to develop the 61st/73rd month random sample.

Background/ changes for 2012: This metric is revised to assess UW inspection intervals for lower risk bridges. Extended UW inspection interval bridges (2011 Metric #9), are considered lower risk and are included in this metric. UW inspection intervals for higher risk bridges are assessed under revised Metric #9. These revisions allow for a simpler assessment process by combining similar risk inspections, and will allow a greater focus on higher risk bridges (Metric #9).

Inspection interval thresholds for used to determine compliance levels have been revised.

Review of the establishment of criteria to determine level and frequency for bridges that require UW inspection at less than 60 month intervals have been moved to Metric #11. Review of inspection dates to verify that bridge records match the data recorded in the NBI has been moved from this metric to Metric #22. Inspection quality (i.e. does the inspection meet acceptable UW inspection procedures as described in the MBE) is assessed under Metric #12 instead of this metric.

650. 311 (b) – Underwater (UW) inspections – Have higher risk bridges that require an UW inspection (NBIS definition) been inspected at regular intervals not to exceed (NTE) 60-months?

Population: Higher risk bridges for the entire state or selected geographic/owner subset that require UW inspections, are open to traffic, and whose inspection dates have changed since the previous year’s State NBI submission or whose inspections are overdue. *Higher risk bridges are defined for this metric as those with a substructure or culvert condition rating of poor or worse, or evaluated as scour critical.

Compliance Levels

- Compliance (C):** All bridges in the population are inspected within the required NTE 60 month interval, unless documented **unusual circumstances** have caused a 1-month delay for any inspections. All sampled 1-month delayed inspections are documented for unusual circumstances.
- Substantial Compliance (SC):** At least 95% of bridges in the population are inspected within the required NTE 60 month interval plus one month, and 100% are inspected within the required interval plus four months.
- Non-Compliance (NC):** Substantial compliance criteria are not met.
- Conditional Compliance (CC):** Adhering to a FHWA approved plan of corrective action (PCA).

Criteria: Percent of higher risk UW inspection bridges in the population that are inspected in accordance with the NTE 60 month interval.

Assessment Levels

- Regardless of planned assessment level, review of this metric is progressive beginning with the Minimum level.
- Minimum:** If a PCA is currently in effect, monitor the PCA. Otherwise, review Metric 9 ART Report, which may require detailed examination and resolution of results.
- Where a SC snapshot is indicated in the Report and all bridges are inspected within a 61 month UW interval, randomly sample bridges with 61 month intervals using Intermediate criteria and review for documentation of unusual circumstances.
- Where substantial changes in procedures have occurred that may reasonably show improved performance, consider supplemental analysis using current data as described in the Intermediate level.
- Intermediate:** Randomly sample bridges with UW inspections at 61 month intervals using Intermediate criteria and review for documentation of unusual circumstances.
- If appropriate after review of the Report, obtain current data for recently performed UW inspections from the state DOT and analyze frequency intervals. Data should include the most recent and previous inspections, previous frequency, other data as needed for the analysis, and must cover at least 12 consecutive months or 25% of the bridge population being reviewed.
- In-depth:** Similar to intermediate, but use In-depth sampling criteria to randomly sample bridges with UW inspections at 61 month intervals.

Commentary for Metric #9

Population: The population is defined to eliminate reassessment of the same inspection interval for the same bridge in successive review years. It also includes bridges indicated by the submitted data to be overdue for inspection – those that were due prior to the NBI submission date but did not have a new inspection date submitted. The analysis includes the 90/180 day NBI allowance for entering data and an additional 30 days for State compiling of the submittal.

Risk classification is based on substructure/culvert condition and scour vulnerability. Criteria used:

Metric #9 – Higher risk bridges criteria: (NBI Item 60 or 62)<5 or (NBI Item 113= 0, 1, 2, 3, or U)

Bridges adhering to FHWA approved extended UW frequency criteria are assumed to be lower risk.

Compliance levels: Compliance levels are based on several cumulative thresholds, which allow factoring in unusual circumstances that can make the completion of inspections within the required month impractical or inefficient. The percentages used in the summary of the Metric 9 ART Report are numerical representations of the compliance level thresholds.

For Compliance (C), while all bridges are expected to meet the meet the NTE 60 month interval, the summary uses 95% for that count, and 100% for 61 months. This allows 5% to have been inspected late without further analysis and still be assessed as C if the state has a process in place to document late inspections for unusual circumstances. However, if the 95% threshold is not met, a random sample of those bridges inspected in the 61st month should be used to determine if unusual circumstances are documented. If all sampled bridges are documented, then the metric can be assessed as C.

As identified in the preamble of the NBIS regulation, severe weather, concern for inspector safety, concern for inspection quality, the need to optimize scheduling with other bridges, or other unique situations may be justifiable cause to push the inspection interval into the 61st month. Such circumstances need to be documented. The thresholds also allow for flexibility so that structures previously inspected earlier than scheduled can get back on the original schedule.

An assessment of C can also be made if there are intervals that exceed the 61st month and prior approval has been provided by FHWA.

For an assessment of Substantial Compliance (SC), the thresholds allow up to 5% of inspections to have been done after the 61st month but 100% must be done by the 64th month. If these thresholds are exceeded as shown in the Metric 9 ART Report snapshot, further review of the data as described below may be necessary.

Also note that for SC, a 50% threshold is included in the Metric 9 ART Report for the NTE 60 month interval. The intent of this threshold is to convey an expectation that at least half of inspections should be done on time. Failure to meet the 50% threshold should not by itself result in a non-compliance determination; it may indicate other issues for which further investigation is needed.

Assessment Levels: Regardless of planned assessment level, the review of this metric begins at the Minimum level with the Metric 9 ART Report (described below). The Report must be reviewed and, at a minimum, the overdue inspections identified must be resolved. See below for additional Report review details.

For the Intermediate and In-depth levels, random sampling of 61 month interval inspections is required. This sampling is done to make sure that unusual circumstances leading to late inspections are documented.

Where warranted, the review can include obtaining the most recent inspection data from the state and performing a supplemental interval analysis. Such analysis should be done after consultation with the State DOT's and if there is a reasonable chance that current inspections will reveal a higher level of compliance. BSE assistance is available if such an analysis is needed.

Metric 9 ART Report: The Report combines the "Push Button" delinquent inspection report that was included in ART for the 2011 review year and the frequency interval report (provided separately for the 2011 review). When accessed from within ART, the Report includes all bridges for the metric population, and is intended to be based on the most recent and previous April NBI submissions. The Report can also be run from the UPACS NBI reports page in Staffnet, where some filtering options for population subsets, such as State DOT or local agency bridges, are provided.

Depending on the summary result, the review may require detailed examination and resolution or overriding of the data. The Report is based on NBI data, which has some known limitations for determining compliance. A few of examples are border bridges where the other state has inspection responsibility, where the timing of submitting NBI data has missed an inspection, or the bridge has been replaced or work has been performed that changes the inspection schedule.

The interval and overdue status of individual bridges can be viewed on the data tab. Based on Division Office Bridge Staff review, the status of a bridge can be overridden using the appropriate code. This will usually be the result of the examples mentioned above. The snapshot on the summary tab will automatically update with the override codes.

The data tab includes generated random numbers that can be used to develop the 61st month random sample.

Background/ changes for 2012: *This metric is revised to assess UW inspection intervals for higher risk bridges. Extended UW inspection interval bridges (2011 Metric #9), are considered lower risk and are included in Metric #8. These revisions allow for a simpler assessment process by combining similar risk inspections, and will allow a greater focus on higher risk bridges.*

Inspection interval thresholds for used to determine compliance levels have been revised.

Review of the establishment of criteria to determine level and frequency for bridges that require UW inspection at less than 60 month intervals have been moved to Metric #11. Review of inspection dates to verify that bridge records match the data recorded in the NBI has been moved from this metric to Metric #22. Inspection quality (i.e. does the inspection meet acceptable routine inspection procedures as described in the MBE) is assessed under Metric #12 instead of this metric.

650. 311 (c) – Fracture critical member (FCM) – Have all FCMs been inspected at regular intervals not to exceed (NTE) 24 months?

Population: Bridges for the entire state or selected geographic/owner subset that have FCMs, are open to traffic, and whose inspection dates have changed since the previous year’s State NBI submission or whose inspections are overdue.

Compliance Levels

Compliance (C): All bridges in the population are inspected within the required NTE 24 month interval, unless documented unusual circumstances have caused a 1-month delay for any inspections. All sampled 1-month delayed bridge inspections are documented for unusual circumstances.

Substantial Compliance (SC): At least 95% of bridges in the population are inspected within the required NTE 24 month interval plus one month, and 100% are inspected within the required interval plus four months.

Non-Compliance (NC): Substantial compliance criteria are not met.

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

Criteria: Percent of FCM bridges in the population that are inspected in accordance with the NTE 24 month interval.

Assessment Levels

Regardless of planned assessment level, review of this metric is progressive beginning with the Minimum level.

Minimum: If a PCA is currently in effect, monitor the PCA.

Otherwise, review Metric 10 ART Report, which may require detailed examination and resolution of results.

Where a SC snapshot is indicated in the Report and all bridges are inspected within a 25 month interval, randomly sample bridges with 25 month intervals using Intermediate criteria and review for documentation of unusual circumstances (explained further in commentary).

Where substantial changes in procedures have occurred that may reasonably show improved performance, consider supplemental analysis using current data as described in the Intermediate level.

Intermediate: Randomly sample bridges with routine inspections at 25 month intervals using Intermediate criteria and review for documentation of unusual circumstances.

If appropriate after review of the Report, obtain current data for recently performed FCM inspections from the state DOT and analyze frequency intervals. Data should include the most recent and previous inspections, previous frequency, other data as needed for the analysis, and must cover at least 6 consecutive months or 25% of the bridge population being reviewed.

In-depth: Similar to intermediate, but use in-depth sampling criteria to randomly sample bridges with FCM inspections at 25 month intervals.

Commentary for Metric #10

Population: The population is defined to eliminate reassessment of the same inspection interval for the same bridge in successive review years. It also includes bridges indicated by the submitted data to be overdue for inspection – those that were due prior to the NBI submission date but did not have a new inspection date submitted. The analysis includes the 90/180 day NBI allowance for entering data and an additional 30 days for State compiling of the submittal.

Compliance levels: Compliance levels are based on several cumulative thresholds, which allow consideration of unusual circumstances that can make the completion of inspections within the required month impractical or inefficient. The percentages used in the summary of the Metric 10 ART Report are numerical representations of the compliance level thresholds.

For Compliance (C), while all bridges are expected to meet the meet the NTE 24 month interval, the summary uses 95% for that count, and 100% for 25 months. This allows 5% to have been inspected late without further analysis and still be assessed as C if the state has a process in place to document late inspections for unusual circumstances. However, if the 95% threshold is not met, a random sample of those bridges inspected in the 25th month should be used to determine if unusual circumstances are documented. If all sampled bridges are documented, then the metric can be assessed as C.

As identified in the preamble of the NBIS regulation, severe weather, concern for inspector safety, concern for inspection quality, the need to optimize scheduling with other bridges, or other unique situations may be justifiable cause to push the inspection interval into the 25th month. Such circumstances need to be documented. The thresholds also allow for flexibility so that structures previously inspected earlier than scheduled can get back on the original schedule.

An assessment of C can also be made if there are intervals that exceed the 25th month and prior approval has been provided by FHWA.

For an assessment of Substantial Compliance (SC), the thresholds allow up to 5% of inspections to have been done after the 25th month but 100% must be done by the 28th month. If these thresholds are exceeded as shown in the Metric 10 ART Report snapshot, further review of the data as described below may be necessary.

Also note that for SC, a 50% threshold is included in the Metric 10 ART Report for the NTE 24 month interval. The intent of this threshold is to convey an expectation that at least half of inspections should be done on time. Failure to meet the 50% threshold should not by itself result in a non-compliance determination; it may indicate other issues for which further investigation is needed.

Assessment Levels: Regardless of planned assessment level, the review of this metric begins at the Minimum level with the Metric 10 ART Report (described below). The Report must be reviewed and, at a minimum, the overdue inspections identified must be resolved. See below for additional Report review details.

For the Intermediate and In-depth levels, random sampling of 25 month interval inspections is required. This sampling is done to make sure that unusual circumstances leading to late inspections are documented.

Where warranted, the review can include obtaining the most recent inspection data from the state and performing a supplemental interval analysis. Such analysis should be done after consultation with the State DOT's and if there is a reasonable chance that current inspections will reveal a higher level of compliance. BSE assistance is available if such an analysis is needed.

Metric 10 ART Report: The Report combines the "Push Button" delinquent inspection report that was included in ART for the 2011 review year and the frequency interval report (provided separately for the 2011 review). When accessed from within ART, the Report includes all bridges for the metric population, and is intended to be based on the most recent and previous April NBI submissions. The Report can also be run from the UPACS NBI reports page in Staffnet, where some filtering options for population subsets, such as State DOT or local agency bridges, are provided.

Depending on the summary result, the review may require detailed examination and resolution or overriding of the data. The Report is based on NBI data, which has some known limitations for determining compliance. A few of examples are border bridges where the other state has inspection responsibility, where the timing of submitting NBI data has missed an inspection, or the bridge has been replaced or work has been performed that changes the inspection schedule.

The interval and overdue status of individual bridges can be viewed on the data tab. Based on Division Office Bridge Staff review, the status of a bridge can be overridden using the appropriate code. This will usually be the result of the examples mentioned above. The snapshot on the summary tab will automatically update with the override codes.

The data tab includes generated random numbers that can be used to develop the 25th month random sample.

Background/ changes for 2012: *Inspection interval thresholds for used to determine compliance levels have been revised.*

Review of the establishment of criteria to determine level and frequency for bridges that require inspection at less than 24 month intervals have been moved to Metric #11. Review of inspection dates to verify that bridge records match the data recorded in the NBI has been moved from this metric to Metric #22. Inspection quality (i.e. does the inspection meet acceptable routine inspection procedures as described in the MBE) is assessed under Metric #12 instead of this metric.

650.311 (a)(2),(b)(2),(c)2,(d) – Have criteria to determine level of inspection and frequency been established for less than 24-month intervals for 1) routine and 2) FCM inspections, and less than 60-month intervals for 3) underwater inspections. Have criteria to determine level of inspection and frequency been established for 4) damage, 5) in-depth and 6) special inspections?

Population: Bridges for the entire state or selected geographic/owner subset that meet State DOT established criteria, are open to traffic, and whose inspection dates have changed since the previous year’s State NBI submission.

Compliance Levels

Compliance (C): All level of inspection and frequency criteria are established. Records for all sampled bridges indicate the appropriate level of inspection and frequency in accordance with the State DOT established criteria.

Substantial Compliance (SC): All level of inspection and frequency criteria are established. Records for less than all sampled bridges indicate the appropriate level of inspection and frequency in accordance with the State DOT established criteria.

Non-Compliance (NC): Substantial compliance criteria are not met.

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

Criteria: Criteria to determine level of inspection and frequency established.

Assessment Levels

Minimum: If a PCA is currently in effect, monitor the PCA.

Based on previous review results and the Division Office Bridge staff’s knowledge and awareness of Agency’s level of inspection and frequency criteria. Division has a copy of the established and approved criteria.

Intermediate: Review State DOT established level of inspection and frequency criteria. Randomly sample bridges that meet the established criteria using Intermediate sampling criteria, and review bridge inspection records for adherence to State DOT established criteria.

In-depth: Similar as intermediate level, but use In-depth sampling criteria.

Commentary for Metric #11

Compliance levels: If sampled bridge records are found that do not adhere to the State DOT established level and frequency criteria, the State PM is to be notified of the finding in writing and the metric should be assessed as Substantial Compliance (SC) (review of sampled bridge records will not result in Non Compliance (NC)).

Reasonable documentation for not following the established State DOT criteria, if allowed by the State DOT criteria, is acceptable and should be counted as adhering to the criteria.

Assessment Levels: For the Intermediate and In-depth levels, a single random sample is to be developed from all 6 State DOT established criteria. The Division Office Bridge staff should attempt to independently use the State DOT established criteria to develop the metric population from NBI data. However, the portion of the population for bridges requiring damage, in-depth and special inspections, will likely need to be obtained from the State DOT and merged with the metric population developed from the other criteria. Where determining the metric population cannot be developed from NBI data, the Division Office Bridge staff should work with the State DOT to develop this population.

Background/ changes for 2012: *This metric is revised to add the review of the establishment of criteria to determine level and frequency for bridges that require more frequent 1) routine, 2) FCM inspections, and 3) underwater inspections.*

Sampling of bridges that adhere to the State DOT established criteria has been added.

650.313 (a) & (b) – Inspect each bridge in accordance with the procedures in the *Manual for Bridge Evaluation (MBE)*, and provide at least one team leader during each inspection.

Is each bridge inspected with nationally recognized acceptable inspection procedures, with the necessary quality of assessment, rating and documentation? Is one qualified team leader at the bridge at all times during each initial, routine, in-depth, fracture critical member and underwater inspection?

Population: The population for this metric is all bridges sampled in Metrics 13 through 23. The sample to use for evaluating this metric is all bridges selected for field review.

Compliance Levels

Compliance (C): At least 90% of inspection reports have condition codes within generally acceptable tolerances. All notable bridge deficiencies are identified on at least 90% of inspection reports. At least 90% of inspection reports have condition codes supported by narrative that appropriately justifies and documents the rating or condition state assignment. A qualified team leader is on site for 100% of initial, routine, in-depth, fracture critical member, or underwater inspections performed.

Substantial Compliance (SC): At least 80% of inspection reports have condition codes within generally acceptable tolerances. At least 80% of inspection reports have all notable bridge deficiencies identified on inspection reports. At least 80% of inspection reports have condition codes supported by narrative that appropriately justifies and documents the rating or condition state assignment. A qualified team leader is on site for 100% of initial, routine, in-depth, fracture critical member, or underwater inspections.

Non-Compliance (NC): Substantial compliance criteria are not met.

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

Criteria: Inspect bridges using nationally recognized acceptable inspection procedures, and provide quality inspection reports and condition assessments in accordance with the MBE. A qualified team leader is present at all initial, routine, in-depth, fracture critical member or underwater inspections.

Assessment Levels

Minimum: For all bridges selected for field reviews within the review year, perform field reviews to compare inspection reports with actual bridge conditions to evaluate: 1) accuracy of condition codes, 2) thoroughness of inspections to identify and accurately determine significance of deficiencies, and 3) adequacy of documentation and appropriate justification of determined ratings.

Intermediate: In addition to the minimum level, review selected bridge records and reports to ensure a qualified team leader, as approved by the program manager, was present at each inspection. Unannounced field verification of some ongoing inspections may be performed to observe team leader presence and inspection procedures used.

In-depth: Increase the number of records and bridges to review in the field in accordance with in-depth sampling criteria. Use unannounced field verification of some ongoing inspections to observe team leader presence and inspection procedures. Request information on inspection rates for each team leader and review for reasonableness.

Commentary for Metric #12

Metric 12 is assessing whether or not the bridge inspections being performed are thorough, yielding accurate results, well documented, and conducted by a qualified team leader. This is primarily intended to be assessed by reviewing inspection reports, and comparing those to the actual site conditions observed by the Division Office Bridge staff during the field reviews. It should be noted that Metric 22 is also assessed during every field review. Metric 12, as noted below, is focusing on the four main condition codes resulting from the inspection, whereas Metric 22 assesses other NBI data items associated with the bridge record (and intentionally excludes the condition items already assessed under Metric 12). Metric 12 is focused on inspection quality, whereas Metric 22 is focused on the quality of bridge data in the NBI.

Nationally recognized acceptable inspection procedures are listed in the MBE, and further detailed in the *Bridge Inspectors' Reference Manual (BIRM)*, and the comprehensive training course.

Population: The process for identifying bridges to be reviewed for this metric is further explained in the *Field Review Guidance* in Chapter 2 of the Bridge Program Manual.

Compliance Levels: *Generally acceptable tolerances* for condition assessments are when the inspector determined NBI condition codes are within one value of the review team's (FHWA/State), and/or the inspector determined element level data are in the proper conditions states, with elements and quantities properly determined. Properly determined element level data should identify at least 80% of the elements and quantities, be generally supportive of the NBI condition codes, and any actual Condition State 4 condition must be accounted for and described in the report. Until element level data is required for reporting to the NBI, only evaluate the main component NBI condition codes, Items 58, 59, 60 and 62, for this metric when determining compliance. Any findings in element level data should be discussed with the State, but should not influence the compliance determination.

Percentages for measuring compliance should be determined based on the number of bridges field reviewed. For example, one bridge may have current inspection reports for routine, fracture critical and underwater inspections. This package of three reports should be considered one data point. The result of the three inspections should yield one resulting superstructure condition code, for example. If the three reports are judged to have the four condition codes within acceptable tolerances, it would be a positive data point toward compliance.

In another scenario, if 20 bridges selected for field review had 25 current NBIS inspection reports (five are inspections other than routine), the denominator to use for the percentage calculation should be 20 (not 25). If 18 of the 20 bridges had condition codes within acceptable tolerances (18/20, or 90%), the determination for this factor would be compliant. Each of the factors associated with percentages – condition codes, identified notable deficiencies, suitable documentation, qualified team leader presence – should be calculated in this way, independent from each other. If three of the four factors met compliance thresholds, but all notable deficiencies were only identified on 16 of the 20 bridges (80%), the metric compliance level would be substantial compliance.

Notable bridge deficiencies are those leading to NBI component ratings of 5 or less, or require some kind of immediate action.

Appropriate justification of determined ratings means the lower the value of the condition code, the amount of documentation increases to thoroughly describe its location, extent and significance. While a condition code of 6 may normally warrant fairly concise narrative, as the condition worsens more is required, which will probably also include photos, sketches, measurements, etc., to fully document the identified deficiencies and support the assigned condition rating.

Assessment Levels: Information on the inspection rates of team leaders should be used to determine if there appears to be any evidence that inspection quality might be compromised. If it is determined that inspection team leaders are performing more than 10 inspections per day, it may be very difficult for them to provide a quality inspection. Therefore, their work may need to be targeted for more focused review. The review could be as simple as driving to each bridge to see if there is enough time in one day just to access all of them. If it can be determined it is impossible to inspect the number of bridges in a day that the team leader has signed for, then compliance with this metric should be questioned.

Comparing the team leader designated on the inspection report to an approved list of team leaders provided by the program manager will provide evidence that a qualified team leader was present. If you become aware that there is a problem with the qualifications of a team leader(s), this should be assessed under Metric 3 and explained accordingly.

Background for 2012 changes: Revised this metric to incorporate 650.313(a), which requires bridges to be inspected according to recognized standards, instead of just (b), which requires a team leader to be present during the inspection. This metric now considers the quality of inspections performed under the NBIS. Also, modified SC criteria to remove reduced qualifications of team leader as this is covered by Metric 3, and added a commentary section to give further insight into the intended meaning of certain terms or concepts. Sampling and assessments for this metric were changed to recognize that this metric can only be meaningfully assessed by reviewing bridges in the field, and also acknowledging the annual NBIP review expectation that a minimum number of field reviews are to be performed each year.

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.

Note: Higher risk bridge records include ones with NBI condition ratings of 4 or less for items 58, 59, 60, or 62, an appraisal rating of 3 or less for item 67, load restricted bridges, bridges with temporary supports or bridges with FCMs.

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.

Note: The same sample may be used when verifying the accuracy of the data during the assessment of metric #22 (650.3315(a)).

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.

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?

Population: All bridges requiring underwater inspections.

Compliance Levels

Compliance (C): All bridges requiring underwater inspections have written inspection procedures which clearly identify the location of all underwater elements, including physical scour countermeasures, specify the frequency of inspection, describe any specific risk factors, and clearly detail inspection methods and equipment to be employed. Those procedures are being followed which produce thorough inspections yielding accurate condition assessments.

Substantial Compliance (SC): 90% of all bridges requiring underwater inspections have written inspection procedures which clearly identify the location of all underwater elements, including physical scour countermeasures, specify the frequency of inspection, describe any specific risk factors, and clearly detail inspection methods and equipment to be employed. Those procedures are being followed which produce thorough inspections yielding accurate condition assessments.

Non-Compliance (NC): Substantial compliance criteria are not met.

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

Criteria: Bridges requiring underwater inspections have acceptable written underwater inspection procedures, and evidence that the procedures are being followed.

Assessment Levels

Minimum: Based on Division Office Bridge staff’s knowledge and awareness of the State’s written underwater inspection procedures, and how well they are being followed. Division requests a current list of bridges requiring underwater inspection, and requests verification from the State DOT whether procedures have been developed for each of those bridges and the procedures are being used.

Intermediate: Randomly sample the selected bridge population using intermediate assessment sampling criteria. The sample should include some bridges that are scour critical, have unknown foundations, have a substructure rating of 4 or less, as well as bridges that require inspection at less than 60 months, as applicable. Review records, procedures and inspection reports to ensure acceptable written inspection procedures have been developed for these bridges, and the inspection procedures are followed during underwater inspections as documented in the underwater inspection report. Include some field reviews.

In-depth: Randomly sample the selected bridge population using in-depth assessment sampling criteria. In addition to the Intermediate Assessment measures, field review some bridges during underwater inspections to ensure procedures are being followed. Review NBI bridge data to check independently if any bridges, currently not identified as requiring underwater inspections, may require underwater inspection.

Commentary for Metric #17

Compliance Levels: *Specific risk factors* include waterway features such as rapid stream flows, significant debris accumulation, constricted waterway openings, soft or unstable streambeds, meandering channels, etc., which may promote scour and undermining of substructure elements. Water conditions which may affect the inspection such as black water, or rapid stream flows should also be identified and accounted for in the inspection methods. Water environment and structural systems or materials which may combine for accelerated deterioration of the bridge elements should be identified such as highly corrosive water, unprotected steel members, timber piling in the presence of teredos or limnoria, etc. By identifying these conditions or risk factors, the underwater inspectors can appropriately prepare for, and perform, a thorough inspection. Accordingly, the Division Office Bridge staff should, for those bridges selected from this metric for field review, look for any evidence of risk factors or unique circumstances or conditions at each site. Then evaluate whether the underwater inspection procedures developed for these bridges adequately address these items, and also whether the inspection reports adequately address them, as appropriate. Bridges sampled, but not field reviewed, should have the inspection procedures and the inspection reports evaluated likewise, but recognizing that there is no field assessment in this case.

Criteria: *Acceptable written underwater inspection procedures* are those procedures required in the NBIS for specific types of more complex inspections, in this case for underwater elements, to address those items that need to be communicated to the inspection team leader to insure a successful inspection. These inspections must be planned and prepared for, taking into account identified underwater elements, physical scour countermeasures, needed access, inspection equipment, structural details, hydraulic features and characteristics, risk factors (as detailed above), inspection methods and frequencies, and the required qualifications of inspecting personnel. Other items that may be addressed, if applicable, are: special contracting procedures prior to inspection (Coast Guard, etc.), scheduling considerations (lake draw down, canal dry time, etc.). The AASHTO MBE, Section 4, has general considerations regarding inspection plans. An owner may have general overall inspection procedures in their bridge inspection manual which address common aspects of underwater inspections; however, each bridge with elements requiring underwater inspection must have written inspection procedures specific to each bridge which address items unique to that bridge. The prior inspection report, by itself, does not suffice for the required procedures. It is valuable to review for previous inspection findings, but does not serve the same purpose as the inspection procedures. The inspection report records what an inspector actually did, what was looked at, and what was found. Procedures lay out what should be done, looked at, etc. However, the required procedures may be incorporated into the report, many times as an introductory section, and this is certainly an acceptable practice. The assessment of this metric considers the risks of bridges which cross over waterways. The proper development of good inspection procedures, and concerted attention to follow those procedures, will mitigate most of those risks. In addition, the risk of scour for scour critical bridges, or bridges with unknown foundations, is mitigated by development and implementation of a scour plan of action (POA) for each bridge. This specific risk mitigation element is more specifically addressed in Metric 18, yet we recognize we considered this in developing how we evaluate this metric.

Background for 2012 changes: Risk is incorporated into this metric by reviewing the risk items associated with bridges having underwater elements, which includes scour. This change is made in conjunction with a change to modify the compliance threshold percentages used in the 2011 metrics

baseline for the risk categories in Metrics 8 & 9 (underwater inspection frequencies). The most significant risks are now being addressed under multiple metrics, as deemed appropriate depending on the type of risk. The risk associated with the underwater elements is assessed in this metric by looking at the bridge, examining whether the developed inspection procedures are adequate, and if the report documents a thorough inspection was done in accordance with the prescribed procedures. The 2011 metrics evaluated risk by assessing if 100% of inspections were done on time for the riskier bridges. This change more appropriately identifies risks and evaluates measures to mitigate those risks.

In addition, the Commentary section was added to give more specific insight into the intent of the metric, and incorporate the content from a relevant 2011 NBIP Q&A.

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.

Note: Intermediate and in-depth assessments for this metric require information from the intermediate or in-depth assessments performed on metric #2 & #3 (650.309 (a) & 650.309 (b)).

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.

650.315 (a) – Prepare and maintain an inventory - Does the State prepare and maintain an inventory of all bridges subject to the NBIS?

Population: The population of bridges for this metric is all bridges identified as sample bridges for Metrics 13 through 23. The sample to use for evaluating this metric is all bridges selected for field review.

Compliance Levels

Compliance (C): At least 95% of all the inventory items reviewed are within the acceptable tolerances. Identified items which are not within the acceptable tolerances have been corrected. Errors identified in the safety checks and persistent error reports have been resolved.

Substantial Compliance (SC): At least 90% of the inventory items reviewed are within the acceptable tolerances. Errors identified in the safety checks and persistent error reports have been resolved.

Non-Compliance (NC): Substantial compliance criteria are not met.

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

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 recorded 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. Verify Structure Inventory and Appraisal items in the NBI against the information in the bridge file and actual field conditions for the 15 NBI items identified on the Field Review Form. Review the safety related checks and persistent error reports generated during the NBI submittal process.

Intermediate: Same as the minimum level assessment with an additional 10 NBI items from the list of 60 NBI items selected by Division Office Bridge staff based on their knowledge and awareness of the program to evaluate the accuracy of the data. Review the safety related checks and persistent error reports generated during the NBI submittal process.

In-depth: Same as minimum level, but verify 20 additional items from the list of 60 (15 minimum + 20 intermediate) NBI data items against the information in the bridge file and actual field conditions to verify proper coding for the bridges which are selected for field review; or perform an intermediate level review on 30 bridges. Review the safety related checks and persistent error reports generated during the NBI submittal process.

Commentary for Metric #22

Metric 22 is focused on assessing the quality of bridge data in the NBI. This is primarily intended to be assessed by reviewing the NBI data and comparing it to the actual site conditions observed by the Division Office Bridge staff during the field reviews. It should be noted that Metric 12 is also assessed during every field review. Metric 12 is focusing on the four main condition codes resulting from the inspection, whereas Metric 22 assesses other NBI data items associated with the bridge record (and intentionally excludes the condition items already assessed under Metric 12).

Acceptable Tolerance is defined as the allowable variance for an NBI item as identified in the NBIP Field Review Form. These tolerances were developed for the NBIP assessment process based upon safety, access limitations and time constraints during the field review and are to be used in accessing compliance.

Population: The process for identifying bridges to be reviewed for this metric is further explained in the *Fields Review Guidance* in Chapter 2 of the Bridge Program Manual.

If more than 20 bridges are identified for field review, the Division Office Bridge staff may choose to review all of them for this metric or they may limit it to the minimum of 20.

Criteria: During the field review of each bridge, verify that the NBI data which is reported to FHWA is properly coded and reflects what is present in the field. If an item cannot be verified in the field, compare NBI data with available information in the bridge record components. An example of an item which may be difficult to verify in the field is Year Built.

Assessment Levels: The NBIP Field Review Checklist, identifies 15 items which are to be reviewed at the minimum level for each field reviewed bridge.

At the intermediate level the review will include the 15 items identified at the minimum level and 10 additional items. The 10 items to be selected are from the additional list of 60 SI&A items identified in the NBIP Field Review Form. The Division Office Bridge staff shall select the 10 items based upon their knowledge of the program.

Note from T. Everett added 4/12/12: This should say 20 instead of 30. It will be corrected in a future update.

At the in-depth level the review will include the 15 items identified at the minimum level and ~~30~~ additional items. The ~~30~~ items to be selected are from the additional list of 60 SI&A items identified in the NBIP Field Review Form. The Division Office Bridge staff shall select the ~~30~~ items based upon their knowledge of the program.

Regardless of assessment level, review the safety related checks and persistent error reports generated during the NBI submittal process. These reports were developed based on the following criteria in order to identify situations that may reflect an inconsistency in coding, a coding error, or situations that require follow-up:

- (1) Item 64 between 2.7 metric tons and 19.9, Item 41 = A, Item 43b <> 19, and Item 103 is blank; and
- (2) Any bridge with Item 41 coded B.

Errors in the current year file submittal report are expected to be addressed the following year, although a

more timely resolution is optimal. Significant errors and the errors in the two year persistent report are expected to be resolved immediately.

General: When calculating the percentage of items which are within tolerance identified in the NBIP Field Review Form, it is to be the total number of items properly coded divided by total number of items reviewed. For example, if you are performing a minimum level review (15 items) on 20 bridges and you find that after reviewing all the bridges 35 items were improperly coded, the percentage meeting the acceptable tolerance is 88 percent.

15 items per bridge x 20 bridges = 300 items

300 items - 35 items incorrectly coded = 265 item coded correctly

$265/300 * 100 = 88.3\%$

If it is determined that at least 95% of the items were coded within the acceptable tolerances, the compliance determination of ‘Compliant’ is appropriate if the state agrees to resolve all items found to be outside the acceptable tolerance and confirms that the issue is an isolated case. The intent is that all the NBI data is as accurate as possible, so even if a small percentage of errors are found, they should be corrected.

When field verifying NBI data, such as Item 54 – Minimum Vertical Underclearance, it is important not to jeopardize safety. If it is not practical to determine actual field measurements without additional resources, lane closures, flaggers, etc., use your judgment to determine if the measurement appears reasonable. For example, measure the vertical underclearance in the shoulder area of a busy roadway so that it can be compared to Item 54 to determine if it is reasonable. At no time should the review team’s or the traveling public’s safety be jeopardized.

Background for 2012 changes: The changes to this metric were implemented to improve the method used by the NBIP assessment process to assess the quality of the NBI data. A standardized field review checklist is now provided which will improve FHWA’s consistency of the field review. Sampling and assessments for this metric were changed to recognize that this metric can only be meaningfully assessed by reviewing bridges in the field, and also acknowledging the annual NBIP review expectation that a minimum number of field reviews are to be performed each year.

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.

Note: The 4 months include 30 days when concerns of severe weather, concern for bridge inspector safety, concern for inspection quality, the need to optimize scheduling with other bridges, and or other unique situations may be cause to adjust the scheduled inspection date.

Note: The criteria for the standard report for current data consider 90/180 days for data update. The criteria for the historic data report consider 10 years of NBI data comparing frequency and inspection dates. Standard report may only give an indicator there is a problem with this metric or metric #6, #7, #8, #9, #10, or #11. Further review may be needed to verify that a deficiency exists.

State Involvement in Review Process:

The NBIS compliance review is the responsibility of the FHWA. While it is FHWA's review, the State should be invited to participate, especially in the field portions. The involvement of State bridge inspection personnel, especially those in a leadership role, has proven over the years to benefit not only the review, but also the relationship between the FHWA Division and State DOT. Reviewing items together fosters a common understanding of the issues, and helps speed acceptance of results and implementation of any needed improvements in the program. It can also be informative to hold interviews with inspection personnel to discuss inspection practices, best practices, inspector needs, etc. Many parts of the review may not readily lend themselves to such cooperative participation, such as data or file reviews, but when it is feasible the State should participate. FHWA must maintain the leadership role in the review and be responsible for documenting the findings. State participation in the review should be acknowledged, but it should be clear that this is FHWA's assessment of NBIS compliance, not a joint FHWA/State assessment.

Because the metrics are assessed as discrete elements of the program, many times the assessment of one or more metrics may be completed well before another metric assessment has even begun. Whenever possible, share the results of each assessment as soon as possible during the year with the State personnel responsible for the bridge inspection program. Assessments are normally a somewhat iterative process. For example, the Division reviews NBI data that indicates some bridges weren't inspected on time. The DBE furnishes the information to the State to verify the data and determine the specific circumstances. The State may provide the DBE with documentation showing the bridges were inspected, but the dates were incorrectly entered. The DBE can then make any necessary corrections to the assessment. The intent here is to make sure the data and facts are clear, even if the State objects to the eventual compliance determination.

Another goal of this process is to allow the State time to respond to compliance determinations, and develop any necessary plans of corrective actions or implementation plans, before the end of the review year. Accordingly, plan to have all assessments finalized with compliance determinations at the 9-month mark, or December 31, as it is currently laid out in the performance year. That allows January through March to get all PCAs or IPs approved, which would move those metrics requiring PCAs to conditional compliance. This designation is significant because it indicates there is an agreed upon plan in place to accomplish the needed improvements in the program.