



# State of New Jersey Bridge Inspection Program Policy and Procedures

Prepared by Structural Evaluation and  
Bridge Management

Effective June 6, 2024

The following contains the State of New Jersey Policy and Procedures related to the 2022 National Bridge Inspection Standards 23 Code of Federal Regulations 650 – Bridges, Structures, and Hydraulics, Subpart C – National Bridge Inspection Standards (NBIS)

- This Policy and Procedure is Effective June 6, 2024
- All policies outlined are for the New Jersey Department of Transportation (NJDOT) Owned and Managed (State, County, Agency (Palisades Interstate Parkway, Department of Environmental Protection) etc.) bridges
- Individual agencies and owners within in the State and/or connected to New Jersey via border bridges are subject to, at a minimum, the Federal Requirements as outlined in the Code of Federal Regulations and any associated references or attachments
- NJDOT will be responsible for the data collection and submission of all bridges statewide as outlined in the policies and procedures
- For any Bridge Owners reporting data to New Jersey who develop additional policies or procedures, the NJDOT will act as the agencies liaison to the Federal Highway Administration – Division Bridge Engineer for any necessary communication regarding any deviation of these standards
- This document serves as a supplement to the NJDOT Departmental Policies and Procedures. As with the Department’s Procedures Manual, this manual is a “living document”. Note that all changes to the policies and procedures within this revision are effective as of the date of certification. It is anticipated that with the passage of time and with the implementation of new rule changes for SNBI, this manual will be amended as necessary. Suggestions for additions, corrections, and updates should be forwarded to the Manager, SEBM for review and approval

## Table of Contents

A.	Acronyms .....	5
1.	Introduction .....	6
2.	Organization .....	6
3.	Inventory.....	7
4.	Personnel and Qualifications .....	7
1.	Program Manager.....	7
2.	Team Leader .....	8
3.	Nonredundant Steel Tension Member (NSTM) Team Leader .....	9
4.	Underwater Bridge Inspection Diver .....	10
5.	Complex Feature Inspection .....	11
6.	Load Rating Engineer / Reviewer.....	11
7.	Nationally Certified Bridge Inspector (NCBI) .....	12
5.	Inspection Types and Intervals .....	12
1.	Initial Inspection Type .....	12
2.	Routine Inspection Type .....	13
i.	Routine Inspection – Regular Interval .....	14
ii.	Routine Inspection – Reduced Interval.....	14
iii.	Complex Feature Routine Inspection.....	15
3.	Underwater Inspection Type.....	15
i.	Underwater Inspection – Regular Interval.....	15
ii.	Underwater Inspection – Reduced Interval.....	16
4.	NSTM Inspection Type (Formerly Fracture Critical).....	16
i.	NSTM Inspection – Regular Interval.....	17
ii.	NSTM Inspection – Reduced Interval .....	17
5.	Damage Inspection Type .....	18
i.	Level 1 – Minor Damage Inspection .....	18
ii.	Level 2 – Moderate Damage Inspection .....	18
iii.	Level 3 – Major Damage Inspection.....	18
6.	In-Depth Inspection Type .....	19
i.	In-depth NSTM.....	19
ii.	Pin and Hanger.....	19

- iii. Other In-Depth Inspection Type Possibilities..... 20
  - 1. In-Depth Inspection Interval ..... 20
- 7. Special Inspection Type (Formerly NJDOT Interim)..... 20
  - i. Special Inspection Interval..... 20
- 8. Scour Monitoring Inspection Type ..... 20
  - i. Scour Monitoring Inspection Interval ..... 21
- 9. Service Inspection Type..... 21

## A. Acronyms

Acronym	Definition
AASHTO	American Association of State Highway and Transportation Officials
BIRM	(FHWA) Bridge Inspectors Reference Manual
CFR	Code of Federal Regulations
FAST Act	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
MAP 21	Moving Ahead for Progress in the 21st Century Act
MBE	(AASHTO) Manual for Bridge Evaluation
MBEG	Movable Bridge Engineering Group
NBE	National Bridge Element
NBI	National Bridge Inventory
NBIP	National Bridge Inspection Program
NBIS	National Bridge Inspection Standards
NCBI	Nationally Certified Bridge Inspector
NHI	National Highway Institute
NJDOT	New Jersey Department of Transportation
NSTM	Nonredundant Steel Tension Members (Fracture Critical Members)
PE	Professional Engineer (license)
POA	Plan of Action
SEBM	Structural Evaluation and Bridge Management
SNBI	Specifications for the National Bridge Inventory
SOW	Scope of Work
USGS	United States Geological Survey

## 1. Introduction

Bridges, as defined in the National Bridge Inspection Standards (NBIS), are a vital part of the national transportation infrastructure to ensure the safe and reliable movement of people, goods, and services, and they represent major economic investments. Timely and thorough inspections of highway bridges are critical to maintain safe operation for the travelling public and to prevent road closures and other hindrances due to unforeseen structural or operational deficiencies. A consistent and data-driven approach towards in-service bridge inspection aids Bridge Owners in making informed and economical repair and maintenance decisions as part of their asset management program to maintain a safe and dependable highway system.

In light of the “Federal Highway Act of 1968” and as mandated by the updated July 6<sup>th</sup>, 2012 Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) and FAST Act, the Federal Highway Administration (FHWA) updated the National Bridge Inspection Standards (NBIS) under 23 CFR 650 Subpart C. The Standards were published on May 6, 2022 and became effective on June 6, 2022. The NBIS mandate the safety inspection of highway-carrying bridges nationwide.

This document contains the New Jersey Department of Transportation (NJDOT) policies and procedures pertaining to the NBIS bridge inspection program to help ensure that New Jersey maintains compliance in accordance with the 23-oversight metrics described in the latest FHWA’s National Bridge Inspection Program Compliance Review Manual. The bridge owner is responsible for meeting the NBIS compliance requirements. However, the State is responsible for ensuring that the owner adheres to those requirements.

## 2. Organization

The NJDOT Bureau of Structural Evaluation and Bridge Management (SEBM) shall be responsible for administering the National Bridge Inspection Program (NBIP) within the State of New Jersey. Specifically, NJDOT SEBM shall be responsible for the following items as they relate to the NBIP:

- Assigning Program Manager (Manager, Bureau of Structural Evaluation and Bridge Management)
- Establishing written NBIS bridge inspection and load rating policies and procedures
- Ensuring all NBIS qualifying highway bridges on public roads are inspected in accordance with defined standards and meet NBIP requirements for compliance
- Ensuring all NBIS bridges are load rated, when applicable, in accordance with defined standards and load posted when required
- Maintaining NBIS bridge inventory and element data and reporting to the FHWA
- Reporting NBIS critical findings to the FHWA
- Maintaining qualification records of bridge inspection Team Leaders

- Establishing and implementing an effective quality control and quality assurance program
- Establishing formal agreements with border bridge-owning Agency/Toll Authorities as required by NBIS
- Performing oversight on other Bridge Owners' (Agency/Toll) compliance with NBIS

### 3. Inventory

All Bridge Owners are required to inspect NBIS structures and NJDOT is responsible for the annual submission of SNBI data for all NBIS structures in the State of New Jersey. (This does not include any Federally owned structures within the state.) NBIS structures will be inspected, the data collected, updated and verified for submission to FHWA on an annual basis or whenever requested, including temporary bridges open to traffic greater than 24 months.

The inventory of NBIS structures is comprised of approximately 95 discrete owners including the State of New Jersey, various counties, agencies and other owners. Each agency not owned or managed by NJDOT is responsible for either accepting the standards as outlined in this document or defining their own standards to meet the minimum requirements of the National Bridge Inspection Standards and Specifications for the National Bridge Inventory.

SEBM is available to help all delegated owners who do not have a full understanding of the NBIS functions that are delegated to them to keep the owner and the state in compliance with federal regulations.

### 4. Personnel and Qualifications

The following section details NJDOT personnel qualifications for roles required by NBIS. Note that the SEBM Manager can modify these requirements for case-by-case situations, as long as they still adhere to the NBIS requirements.

#### 1. Program Manager

##### A. Qualifications

- i. The New Jersey NBIS Program Manager shall meet the requirements established under 23 CFR 650.309 (a). NJDOT requires additional criteria for Program Manager beyond the criteria defined in the CFR to score 70 percent or greater on an end-of-course assessment for the Bridge Inspection Refresher Course training FHWA-NHI 130053.
- ii. The Program Manager shall, at a minimum, meet all of the following:
  1. Registered Professional Engineer **or** have a minimum of ten (10) years bridge inspection experience.

2. Completion of FHWA-NHI 130055 Safety Inspection of In-Service Bridges **or** FHWA-NHI 130056 Safety Inspection of In-Service Bridges for Professional Engineers comprehensive bridge inspection training course **and** score 70 percent or greater on an end-of-course assessment.
  - a. The previous Basic Course (13 Day) offered by PennDOT can meet this requirement **if** Pontis CoRe Elements or National Bridge Elements were included in the syllabus.
  - b. NJDOT plans to continue to accept the PennDOT 13 Day Basic Course upon its approval under the new regulations effective June 6, 2024.
3. Completion of FHWA-NHI 130053 Bridge Inspection Refresher Course training over each 60-month period **and** score 70 percent or greater on an end-of-course assessment.
- iii. The Program Manager must maintain supporting documentation of all completed training.

**B. Roles and responsibilities**

- i. The NBIS Program Manager will typically be the Executive Manager of NJDOT SEBM. The designated Program Manager is ultimately responsible for all aspects of the NBIP, though certain functions are delegated to bridge-owning agencies for NBIS structures under their jurisdiction.

**2. Team Leader**

**A. Qualifications**

- i. All Team Leaders operating in New Jersey shall, at a minimum, meet the requirements under 23 CFR 650.309 (b).
- ii. For NJDOT managed inspections, all Team Leaders shall, at a minimum, meet all of the following:
  1. A bachelor's degree in engineering from a college or university accredited or determined as substantially equivalent by the Accreditation Board for Engineering and Technology.
  2. Have five (5) years of bridge inspection experience **or** be a Registered New Jersey Professional Engineer with a minimum of three (3) years of bridge inspection experience.
  3. Completion of FHWA-NHI 130055 Safety Inspection of In-Service Bridges **or** FHWA-NHI 130056 Safety Inspection of In-Service Bridges for Professional Engineers comprehensive bridge inspection training course **and** score 70 percent or greater on an end-of-course assessment.



- a. The previous Basic Course (13 Day) offered by PennDOT can meet this requirement **if** Pontis CoRe Elements or National Bridge Elements were included in the syllabus.
- b. NJDOT plans to continue to accept the PennDOT 13 Day Basic Course upon its approval under the new regulations effective June 6, 2024.
4. Completion of FHWA-NHI 130053 Bridge Inspection Refresher Course training over each 60-month period **and** score 70 percent or greater on an end-of-course assessment.
5. NJDOT owned and managed specific requirement – Completion of FHWA-NHI 130078 Bridge Inspection Techniques for Nonredundant Steel Tension Members (NSTM) training course on the inspection of NSTMs **and** score 70 percent or greater on an end-of-course assessment.
- iii. All Team Leaders shall be a Nationally Certified Bridge Inspector (NCBI as defined in Section 4.7) and maintain supporting documentation of all completed training. All bridge inspection reports must clearly document the NCBI SNBI registry number assigned by SEBM of the Team Leader(s).

Note: NJDOT SEBM will maintain a registry of NCBIs that have been approved to function in the Team Leader role for a New Jersey bridge inspection. This registry shall be maintained by SEBM in accordance with the NBIS.

#### **B. Roles and Responsibilities**

- i. The Team Leader is the on-site NCBI in charge of an inspection team and responsible for planning, preparing, performing, and reporting on bridge field inspections (23 CFR 650.305). The Team Leader coordinates the day-to-day aspects of the inspection.
- ii. A Team Leader shall be present at all times during each initial, routine, in-depth, NSTM, underwater, and special inspection.
- iii. Agencies must meet minimum FHWA requirements and have documented policy and procedure.

### **3. Nonredundant Steel Tension Member (NSTM) Team Leader**

#### **A. Qualifications**

- i. All NSTM Team Leaders operating in New Jersey shall, at a minimum, meet the requirements under 23 CFR 650.309 (c).
- ii. For NJDOT managed inspections, all Team Leaders shall, at a minimum, meet all of the requirements listed in Section 4.2 of this document.

**B. Roles and Responsibilities**

- i. The NSTM Team Leader is the on-site NCBI in charge of a NSTM inspection team and responsible for planning, preparing, performing, and reporting on bridge NSTM field inspections. The NSTM Team Leader coordinates the day-to-day aspects of the NSTM inspection.
- ii. A NSTM Team Leader shall be present at all times during each NSTM inspection.
- iii. Agencies must meet minimum FHWA requirements and have documented policy and procedure.

**4. Underwater Bridge Inspection Diver**

**A. Qualifications**

- i. An Underwater Bridge Inspection Diver shall, at a minimum, meet all of the following:
  1. Completion of FHWA-NHI-130091 Underwater Bridge Inspection **and** score 70 percent or greater on an end-of-course assessment.

Note: Completion of FHWA-NHI 130055 Safety Inspection of In-Service Bridges **or** FHWA-NHI 130056 Safety Inspection of In-Service Bridges for Professional Engineers comprehensive bridge inspection training course prior to June 6, 2022 **and a** score of 70 percent or greater on an end-of-course assessment is acceptable.

The previous Basic Course (13 Day) offered by PennDOT can also meet this requirement **if** Pontis CoRe Elements or National Bridge Elements were included in the syllabus and the course was completed prior to June 6, 2022.

- ii. These are underwater diver requirements – an approved Team Leader must be on site if the diver is not a qualified Team Leader.

**B. Roles and Responsibilities**

- i. The underwater bridge inspection diver is responsible for inspecting the underwater components of the structure as defined in Underwater Inspection Type Section 5.3 below.
- ii. The diver is either the underwater Team Leader and on-site NCBI in charge of an underwater inspection team and responsible for planning, preparing, performing, and reporting on bridge underwater field inspections **or** reporting to an underwater Team Leader. The Team Leader, either diver or other, coordinates the day-to-day aspects of the underwater inspection.

- iii. A Team Leader shall be present at all times during each underwater inspection.
- iv. Agencies must meet minimum FHWA requirements and have documented policy and procedure.

## 5. Complex Feature Inspection

### A. Complex Feature

Bridge component(s) or member(s) with advanced or unique structural members or operational characteristics, construction methods, and/or requiring specific inspection procedures. This includes:

- i. Mechanical and electrical elements of movable spans
- ii. Cable-related members of suspension and cable-stayed superstructures

### B. Complex Feature Personnel

Additional criteria are established for NJDOT managed bridge inspections containing the following:

- i. Electrical components – when present, must be evaluated by a United States Registered Professional Engineer with a minimum of four (4) years of electrical movable bridge inspection experience **or** a bachelor's degree in electrical engineering from a college or university accredited or determined as substantially equivalent by the Accreditation Board for Engineering and Technology with a minimum of six (6) years electrical movable bridge inspection experience.
- ii. Mechanical and Hydraulic components – when present, must be evaluated by a United States Registered Professional Engineer with a minimum of four (4) years of mechanical movable bridge inspection experience **or** a bachelor's degree in mechanical engineering from a college or university accredited or determined as substantially equivalent by the Accreditation Board for Engineering and Technology with a minimum of six (6) years mechanical movable bridge inspection experience.
- iii. The intention is simply that the inspection team for complex bridges consists of at least one qualified member representing each applicable engineering discipline.
- iv. Specialty contractors may be required when specific skills, equipment, and/or experience beyond that of the inspection team is necessary to properly inspect complex features or components.

C. Though complex feature inspections are not considered a separate inspection type, a Team Leader must be on-site during all inspection activities, including mechanical and electrical inspection of movable bridges.

## 6. Load Rating Engineer / Reviewer

### A. Qualifications

- i. All load ratings performed in New Jersey shall, at a minimum, meet the requirements under 23 CFR 650.309 (d).
- ii. Refer to updated NJDOT Highway Bridge Load Rating Manual

**B. Roles and Responsibilities**

- i. Refer to updated NJDOT Highway Bridge Load Rating Manual

**7. Nationally Certified Bridge Inspector (NCBI)**

NJDOT will maintain a registry and assign unique Nationally Certified Bridge Inspector Identification Numbers (SNBI B.IE.04) specific to New Jersey for all bridge inspectors performing work as a Team Leader for any owners within the state meeting the minimum federal requirements as defined in 23 CFR 650.309 (b).

The registry will include the bridge inspector’s qualification records, current contact information, and any adverse actions prohibiting the individual from acting as a Team Leader in the state.

Requesting personnel must submit “Application for New Jersey Registry of Certified Bridge Inspectors” to NJDOT SEBM for review.

If other agencies maintain their own additional requirements, they must at a minimum meet FHWA requirements and must be tracked outside the registry.

**5. Inspection Types and Intervals**

As defined in NBIS Method 1 inspection intervals are determined by a simplified assessment of risk to classify each bridge into one of three categories. Method 2 inspection intervals are determined by a more rigorous assessment of risk.

NJDOT has elected to follow Method 1 as outlined in the regulations based on simplified assessment of risk corresponding to the bridge characteristics and SNBI coding for Routine, Underwater and NSTM inspections.

As required in the regulation, an agency is responsible to define the reduced and extended intervals under Method 1 in their policy and procedure to meet minimum requirements. If an agency or owner prefers to explore Method 2 for an inspection type interval, then a risk assessment must be developed by the requesting agency and submitted to NJDOT Manager, Structural Evaluation and Bridge Management for conveyance to obtain FHWA approval.

As required by the regulations, the following inspection types and intervals are established:

**1. Initial Inspection Type**

Per NBIS, an initial inspection is “the first inspection of a new, replaced, or rehabilitated bridge. This inspection serves to record required bridge inventory data, establish baseline conditions, and establish the intervals for other inspection types.”

The initial inspection serves as the first routine inspection and must document all National Bridge Inventory (NBI) and National Bridge Element (NBE) data in accordance with all federal and state specifications including the FHWA's Specifications for the National Bridge Inventory (SNBI) manual, identify any critical findings and/or priority repairs, and record baseline observations and measurements of the bridge and its components.

The date on which the initial inspection is complete shall establish the next routine inspection completion date.

For newly constructed, replaced or rehabilitated bridges and for temporary bridges, an initial inspection shall be conducted after all construction is completed and within three (3) months of the bridge opening to traffic in accordance with the NBIS.

Note: Rehabilitation includes deck or superstructure replacement, structure widening, or major modification to substantial portions of the bridge. Performing maintenance, repairs, or preservation work would not trigger a need to perform an initial inspection.

For instances of staged construction where certain portions of the structure are constructed and opened to traffic at different times, an initial inspection shall be performed within three (3) months of completion of each portion of a bridge which is opened to traffic.

A qualified Team Leader in accordance with [Section 4.2](#) must be on site at all times during an initial inspection.

## 2. Routine Inspection Type

Per NBIS, a routine inspection is a “regularly scheduled comprehensive inspection consisting of observations and measurements needed to determine the physical and functional condition of the bridge and identify changes from previously recorded conditions.”

Routine inspections serve to update all NBI and NBE data, identify any critical findings and/or priority repairs, utilize observations and measurements of the bridge and its components to document any changes from the initial or previous routine inspections, and to ensure that the bridge and its components satisfy all present safety and service requirements.

A qualified Team Leader in accordance with [Section 4.2](#) must be on site at all times during a routine inspection.

i. Routine Inspection – Regular Interval

Subsequent routine inspections must be conducted on a 24-month interval from completion of the previous inspection date (initial or routine) to completion of the next routine inspection. Any change to the agreed upon inspection frequency must be discussed with and approved by the SEBM Project Engineer or above.

ii. Routine Inspection – Reduced Interval

At a minimum, bridges meeting any of the following criteria, as recorded in the National Bridge Inventory (NBI), must be inspected at intervals not to exceed 12 months:

1. Transitional requirements for reduced routine inspection interval:

- a. Deck Condition Rating (Item 58)  $\leq 3$
- b. Superstructure Condition Rating (Item 59)  $\leq 3$
- c. Substructure Condition Rating (Item 60)  $\leq 3$
- d. Culvert Condition Rating (Item 62)  $\leq 3$
- e. Scour Critical Bridges (Item 113)  $\leq 3$  **and** notable scour observed as documented in the report
  - i. For structures located in waterways with  $< 4'$  water depth an inspection of the waterway and substructure foundation will be conducted including probing and soundings.
  - ii. For structures located in waterways with  $> 4'$  water depth an inspection of the waterway and substructure will be conducted including probing and soundings from a boat as feasible. Visual cues will be reviewed but an Underwater Inspection (diver) is not required unless determined by engineering judgment.
- f. Special inspections limited to monitoring localized deficiencies in accordance with 23 CFR 650.313(h), may be conducted in lieu of full routine inspection, when one or more condition ratings are coded 3 or less solely due to the localized deficiencies.

2. SNBI requirements for reduced routine inspection interval:

- a. Deck Condition Rating (Item B.C.01)  $\leq 3$
- b. Superstructure Condition Rating (Item B.C.02)  $\leq 3$
- c. Substructure Condition Rating (Item B.C.03)  $\leq 3$
- d. Culvert Condition Rating (Item B.C.04)  $\leq 3$

- e. Scour Condition Rating (Item B.C.11)  $\leq 3$
- f. Special inspections limited to monitoring localized deficiencies in accordance with 23 CFR 650.313(h), may be conducted in lieu of full routine inspection, when one or more condition ratings are coded 3 or less solely due to the localized deficiencies.

iii. Complex Feature Routine Inspection

Typical Mechanical and Electrical inspections will be done every 24 months with either a Regular (Type III), Intermediate (Type II) or In-Depth Type I) scope.

- a. Refer to NJDOT Movable Bridge Engineering Group scope of work as needed

3. Underwater Inspection Type

Per NBIS, an underwater inspection is the “inspection of the underwater portion of a bridge substructure and the surrounding channel, which cannot be inspected visually at low water or by wading or probing, and generally requiring diving or other appropriate techniques.”

For NJDOT’s detailed procedures for underwater inspections, refer to the NJDOT Underwater Inspection and Evaluation of New Jersey Bridges Guidelines Manual.

A qualified Team Leader in accordance with Section 4.2 must be on site at all times during an underwater inspection.

Where diver safety is a concern the use of underwater imaging must be approved by the Program Manager and documented in the bridge specific inspection plan.

i. Underwater Inspection – Regular Interval

Per NBIS, the first underwater inspection must occur within 12 months of the structure opening to traffic. NJDOT prefers to align the underwater inspection with the routine inspection and recommends the first underwater inspection be completed within three (3) months of construction completion and the structure opening to traffic.

Note that the NBIS allow a maximum of 60 months for regular underwater intervals and 72 months for extended underwater intervals while NJDOT’s maximum interval is defined as 48 months.

NJDOT has set their subsequent underwater inspections on a  $\leq 48$ -month interval from completion of the previous inspection date (first or regular) to completion of the next underwater inspection to better align with the routine inspection cycle ( $\leq 24$  months). Any change to the agreed upon

inspection frequency must be discussed with and approved by the SEBM Project Engineer or above. Agencies must meet minimum FHWA requirements and have documented policy and procedure.

For structures with low freeboard and/or access issues NJDOT performs underwater inspections on a  $\leq 24$  months interval. NJDOT defines Low Freeboard as  $\leq 3'$  from the bottom of the superstructure to the water surface.

## ii. Underwater Inspection – Reduced Interval

At a minimum, bridges meeting any of the following criteria as recorded in the National Bridge Inventory (NBI) must be inspected at intervals not to exceed 24 months:

1. Transitional requirements for reduced underwater inspection interval:
  - a. Substructure Condition Rating (Item 60)  $\leq 3$
  - b. Channel and Channel Protection Condition Rating (Item 61)  $\leq 5$  **and** notable scour.
    - i. Indications of scour and/or channel deterioration are within structure limits, or close enough to threaten the bridge or approach roadway as documented in the report.
  - c. Scour Critical Bridges (Item 113)  $\leq 3$
  - d. Special inspections limited to monitoring localized deficiencies in accordance with 23 CFR 650.313(h), may be conducted in lieu of full underwater inspection, when one or more condition ratings are coded 3 or less solely due to the localized deficiencies.
2. SNBI requirements for reduced underwater inspection interval:
  - a. Channel Condition Rating (Item B.C.09)  $\leq 3$
  - b. Channel Protection Condition Rating (Item B.C.10)  $\leq 3$
  - c. Scour Condition Rating (Item B.C.11)  $\leq 3$
  - d. Underwater Inspection Condition (Item B.C.15)  $\leq 3$
  - e. Special inspections limited to monitoring localized deficiencies in accordance with 23 CFR 650.313(h), may be conducted in lieu of full underwater inspection, when one or more condition ratings are coded 3 or less solely due to the localized deficiencies.

## 4. NSTM Inspection Type (Formerly Fracture Critical)

Per NBIS, a NSTM inspection is “a hands-on inspection of a nonredundant steel tension member.”



NSTM inspections must identify the locations of NSTM's in the bridge files. For NJDOT this is completed via the report in the NSTM checklist and sketch as well as the Conclusions and Recommendations.

NJDOT only considers load path redundancy when determining if a member is a NSTM. NJDOT is more conservative than NBIS and considers structures with 3 or fewer load paths to be NSTM. Agencies must document policies and procedures for consideration of internal or system redundancy.

A qualified Team Leader in accordance with Section 4.2 must be on site at all times during a NSTM inspection.

i. NSTM Inspection – Regular Interval

Per NBIS, the first NSTM inspection must occur within 12 months of the structure opening to traffic. NJDOT prefers to align the NSTM inspection with the routine inspection and recommends the first NSTM inspection be completed within three (3) months of construction completion and the structure opening to traffic.

Subsequent NSTM inspections must be conducted on a 24-month interval. NJDOT prefers to align the NSTM inspection with the routine inspection. For more information regarding in-depth inspection interval criteria refer to the in-depth inspection criteria Section 5.6.

Any change to the agreed upon inspection frequency must be discussed with and approved by the SEBM Project Engineer or above. Agencies must meet minimum FHWA requirements and have documented policy and procedure.

ii. NSTM Inspection – Reduced Interval

At a minimum, bridges meeting any of the following criteria as recorded in the National Bridge Inventory (NBI) must be inspected at intervals not to exceed 12 months:

1. Transitional requirements for reduced NSTM inspection interval
  - a. Superstructure Condition Rating (Item 59) or Substructure Condition Rating (Item 60)  $\leq 4$  and Critical Feature Inspection, Fracture Critical Details (Item 92A)  $\leq Y##$
  - b. NJDOT Conclusion and Recommendation and NSTM Checklist utilized for NSTM condition where available
2. SNBI requirements for reduced NSTM inspection interval
  - a. NSTM Inspection Condition (SNBI Item B.C.14)  $\leq 4$

## 5. Damage Inspection Type

Per NBIS, a damage inspection is “an unscheduled inspection to assess structural damage resulting from environmental factors or human actions” Damage may occur by motor vehicle impact, fire, flood, earthquake, vandalism, explosion, or other means and inspections occur when the Bridge Owner is notified.

Bridge Owners are permitted to designate their own emergency inspection criteria. NJDOT defines three (3) levels of damage inspection for bridges based on the magnitude of the damage:

- i. **Level 1 – Minor Damage Inspection**

Damage is visually evaluated by onsite personnel. The bridge remains in service after any initial cleanup or emergency personnel response is completed. At the discretion of the Program Manager or Bridge Owner, a qualified engineer may be called in to complete a follow-up assessment. Examples include minor collision damage or nuisance fire or flood events.
- ii. **Level 2 – Moderate Damage Inspection**

Damage is visually evaluated by a qualified Team Leader. The bridge may or may not require repairs, temporary measures or closures, or other remedial actions following this initial damage evaluation at the discretion of the Program Manager or Bridge Owner. Examples include significant collision damage or a moderate fire, flood, or seismic event.
- iii. **Level 3 – Major Damage Inspection**

The bridge is closed until a complete thorough inspection is performed by a qualified Team Leader (and possibly other specialized personnel as deemed appropriate by the Program Manager or Bridge Owner). Structural analysis and/or load rating may be required, and necessary repairs (either temporary or permanent) are designed and implemented. Examples include serious collision damage, a major fire, flood, or seismic event.

i. Damage Inspection Interval

Damage inspections do not have a defined inspection interval and should be performed on an as-needed basis.

6. In-Depth Inspection Type

Per NBIS, an in-depth inspection is “A close-up, detailed inspection of one or more bridge members located above or below water, using visual or nondestructive evaluation techniques as required to identify any deficiencies not readily detectable using routine inspection procedures. Hands-on inspection may be necessary at some locations. In-depth inspections may occur more or less frequently than routine inspections, as outlined in bridge specific inspection procedures.”

As the need for in-depth inspections varies from bridge to bridge, any warranted in-depth inspections are to be documented within the bridge-specific inspection procedures.

In-depth inspections may be defined in the future based on need as identified by bridge inspection with the concurrence of the Program Manager and/or the Bridge Owner.

A qualified Team Leader in accordance with Section 4.2 must be on site at all times during an in-depth inspection. Bridge Owners must document their own standards for in-depth inspections.

Bridge Owners are permitted to designate their own in-depth inspection criteria. NJDOT defines two different in-depth inspections for bridges based on the construction:

i. In-depth NSTM

Inspection performed on structures with welded steel pier caps / cross girders. These inspections occur on a 48-month interval and include special testing. Steel boxes should be entered every in-depth inspection.

ii. Pin and Hanger

Inspections performed on a 48-month interval and include special testing. Removal of pins should be defined in the individual bridge inspection plan and/or project Scope of Work.

### iii. Other In-Depth Inspection Type Possibilities

If the State builds additional structures requiring in-depth inspections additional in-depth inspection types will be defined. Agencies must define in-dept criteria for structures such as cable stayed and suspension bridges and other signature structures in their inventory.

#### 1. In-Depth Inspection Interval

In-depth inspections are typically performed on a 48-month interval but may be defined in bridge specific inspection procedures.

## 7. Special Inspection Type (Formerly NJDOT Interim)

Per NBIS, a special inspection is “an inspection scheduled at the discretion of the Bridge Owner, used to monitor a particular known or suspected deficiency, or to monitor special details or unusual characteristics of a bridge that does not necessarily have defects.”

Special inspections may be performed if recommended by the inspector based on observed condition or calculated capacity that warrant more frequent inspections other than the criteria defined in reduced routine and reduced underwater inspection intervals.

A qualified Team Leader in accordance with Section 4.2 must be on site at all times during a special inspection.

Agencies may conduct special inspections limited to monitoring localized deficiencies in accordance with 23 CFR 650.313(h), in lieu of full routine or underwater inspections, when one or more condition ratings are coded 3 or less solely due to the localized deficiencies.

#### i. Special Inspection Interval

Special inspections must be conducted on a 12-month or less interval from the previous interim or routine inspection date.

Although typically 12 months, these inspections could be reduced to three (3) months or six (6) months based on the severity of any defects based on engineering judgement.

## 8. Scour Monitoring Inspection Type

Per SNBI, scour monitoring inspection is “an inspection performed during or after a triggering storm event as required by a Scour Plan of Action (POA)”. These inspections are triggered with a rise in the flood stage on United States Geological Survey (USGS) National Flood Monitoring stream gauges at scour critical bridges

(Item 113  $\leq$  3.) These inspections are typically performed by NJDOT Operations personnel. Documentation completed during the scour monitoring inspection should be retained in the bridge file as part of the flood history for the bridge.

At the discretion of the Program Manager or Bridge Owner, a qualified engineer may be called in to complete a follow-up assessment.

Agencies are responsible for establishing documented policy and personnel qualifications for scour monitoring inspections.

i. **Scour Monitoring Inspection Interval**

Scour Monitoring inspections do not have a defined inspection interval and should be performed on an as-needed basis.

**9. Service Inspection Type**

Per NBIS, a service inspection is “an inspection to identify major deficiencies and safety issues, performed by personnel with general knowledge of bridge maintenance or bridge inspection. Service inspections are performed midway between routine inspections, with extended intervals approved greater than 48 months.

Service inspections are not explored for Method 1 implemented by NJDOT. If an agency or owner decides to explore Method 2 risk-based inspection intervals they will need to document their service inspection policy.

Agencies are responsible for establishing documented personnel qualifications for service inspections, which apply when risk-based routine inspection intervals exceed 48 months (23 CFR 309 (g)).