



NTIS – Update

SHRP2 Nondestructive Testing for Tunnel Linings (R06G) Showcase Event

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U.S. Department of Transportation
Federal Highway Administration

AMERICAN ASSOCIATION
OF STATE HIGHWAY AND
TRANSPORTATION OFFICIALS

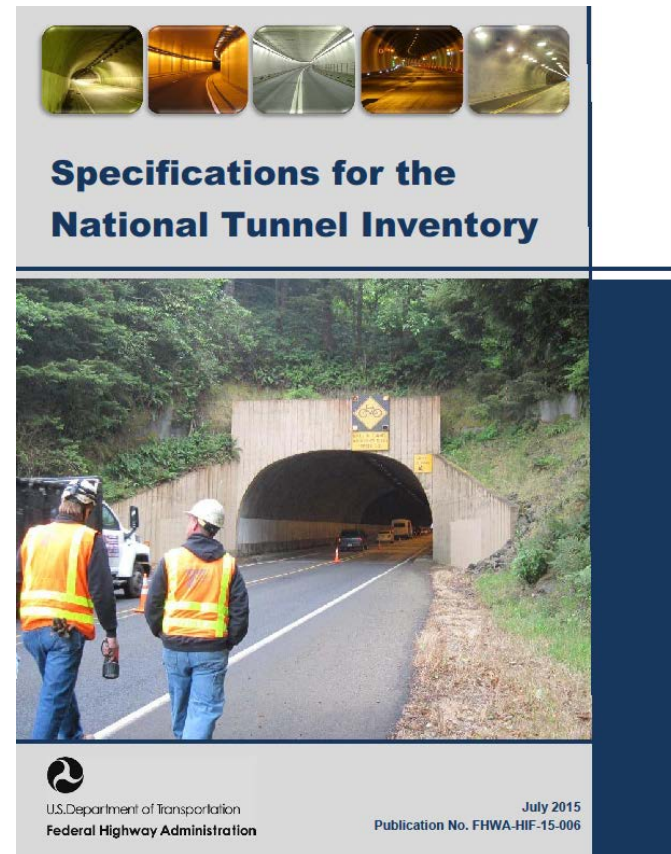
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NTIS - Update

- Regulation Published
 - July 13, 2015
- Early Implementation
 - Initial Training
 - Memorandums
 - Preliminary Tunnel Inventory
- Things Coming
 - Tunnel Refresher Training
 - Tunnel Inspection Oversight

Regulation Published

- Published July 13, 2015
- SNTI
 - Inventory Data
 - Element Data
- TOMIE
 - Chapter 4 Inspection
 - Procedures
 - Inspection Reporting



Early Implementation

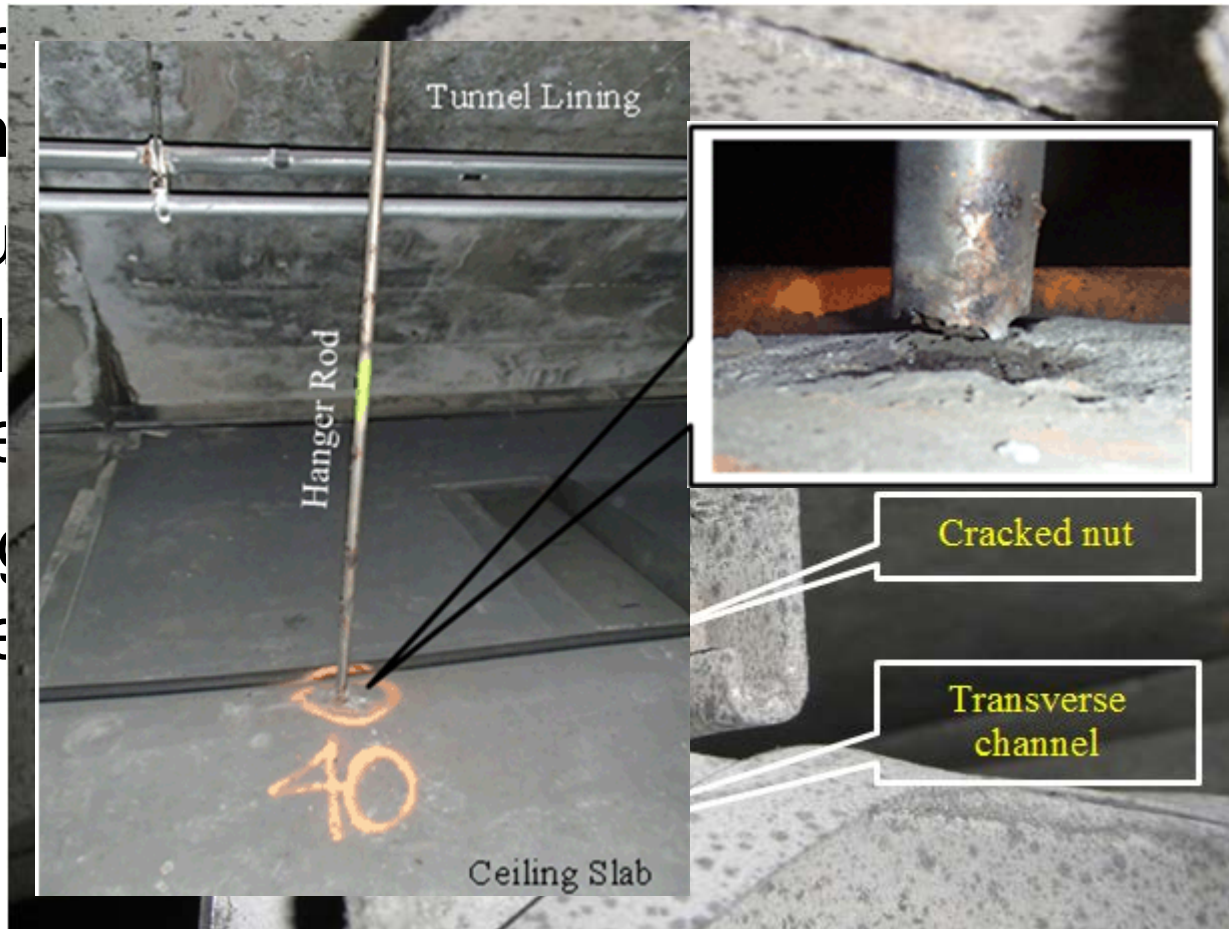
- Initial Training – NHI 130110
 - 8 FHWA Sponsored Sessions in 2015
 - Regional Focus (46 States)
 - 230 Participants
 - 33 DOT/Consultant Sponsored Sessions in 2016/2017
 - 21 States
 - 722 Participants

Early Implementation

- What is a Tunnel? Memorandum
 - October 27, 2015
 - Clarification on when NTIS applies to specific structures
 - Example structure for which NTIS does not apply
 - Recognition of structures that fit both NBIS and NTIS

Early Implementation

- Inspection Element
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Early Implementation

- Inspection of Bridges and Tunnels on Transit Highways Memorandum
 - Published August 23, 2016
 - Clarify applicability of NTIS to transit highways



Early Implementation

- Completion of initial inspection per NTIS by August 13, 2017
- Completion of load ratings based on initial inspection by November 13, 2017
- Request for full inspection data submittal in 2018



Early Implementation



- Preliminary Tunnel Inventory
 - December 11, 2015
 - 39 State DOTs and 4 Federal Agencies
 - 473 Total Tunnels Submitted in 41 States
 - Montana and Nebraska (Federal Only)
 - Two entities reported 64 tunnels
 - California
 - National Park Service

Things Coming

- Tunnel Refresher Training
 - 18 hours every 60 months
 - WBT – 4 hours
 - Regulation, Safety, Element Types
 - ILT – 15 hours
 - Procedures, Safety, Element Defect and Condition States
 - Incorporation of new information
 - SHRP2 R06G Report Findings

Things Coming

- Developing a process similar to Oversight of NBIS
- Challenges
 - Regulations are different
 - Number of tunnels is significantly smaller
 - Some State DOTs have no responsibility
 - Tunnels can be significantly more complex
- Team Make-up
 - HQ, RC, FLH, MA, MI, CO



Things Coming

- 15 Metrics
- Organization
 - Metric 1 - Organization
- Qualifications of Personnel
 - Metric 2 – Program Manager
 - Metric 3 – Team Leader(s)
- Interval
 - Metric 4 – Routine
 - Metric 5 – Damage, In-Depth & Special Inspections



Things Coming

- Tunnel Procedures
 - Metric 6 – Quality Inspections
 - Metric 7 – TOMIE & Tunnel Specific Inspection Procedures
 - Metric 8 – Functional System Testing
 - Metric 9 – Load Rating
 - Metric 10 – Post or Restrict
 - Metric 11 – Tunnel Files
 - Metric 12 – QC/QA
 - Metric 13 – Critical Findings



Things Coming

- Inventory
 - Metric 14 – Prepare and Maintain
 - Metric 15 – Timely Updating of Data



Things Coming

- Metric 1: Tunnel Inspection Organization

Metric #1: Tunnel inspection organization

NTIS Reference: 23 CFR 650.507 – Tunnel inspection organization

Criteria

- An organization is in place to inspect, or cause to inspect, all highway tunnels on public roads.
- Organizational roles and responsibilities are clearly defined and documented.
- Functions delegated to other agencies through a formal written agreement are clearly defined.
- Inspection responsibilities are determined through a formal written agreement for a jointly owned tunnel.
- A qualified program manager (PM) is assigned the responsibility for the NTIS.

Population: One.



Things Coming

- 5 Compliance Levels
 - NA for States without tunnels

Compliance Levels

Compliance (C): All of the following must be met for C:

- An organization is in place that effectively ensures that all highway tunnels on public roads are inspected.
- Organizational roles and responsibilities are clearly defined and documented.
- Delegated functions are clearly defined with the necessary authority established.
- Formal written agreements, as applicable, are in place and fully documented.
- Responsibility for the NTIS is assigned to a PM.

Substantial Compliance (SC): All of the following must be met for SC:

- An organization is in place that effectively ensures that all highway tunnels on public roads are inspected, but one or more tunnels that have been identified as subject to the NTIS are inspected under non-NTIS procedures.
- Organizational roles and responsibilities are clearly defined and documented; isolated deficiencies exist but do not adversely affect the overall effectiveness of the program.
- Delegated functions are defined with authority established to resolve safety issues.
- Formal agreements, as applicable, are in place but not fully documented.
- Responsibility for the NTIS is assigned to a PM.

Non-Compliance (NC): One or more SC criteria are not met.

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

Not Applicable (NA): There are no structures identified as a tunnel in the State's inventory.

- Verify no changes in inventory from previous year.



Things Coming

- **Metric 2: Qualifications of Program Manager**

Metric #2: Qualifications of personnel – Program Manager

NTIS Reference: 23 CFR 650.509 (a) – Program Manager; 650.507(e)(4) – Tunnel Inspection Organization Responsibilities; 650.509 (e) Nationally Certified Tunnel Inspector

Criteria

- The Program Manager (PM) is either a registered professional engineer or has ten years of tunnel or bridge inspection experience.
- In addition to the above qualification, PMs must be a nationally certified tunnel inspector:
 - Complete an FHWA-approved comprehensive tunnel inspection training course, scoring 70 percent or greater on an end-of-course assessment.
 - Complete a cumulative total of 18 hours of FHWA approved tunnel inspection refresher training over any 60 month period.
 - Maintain supporting documentation of training completed.
- Be able to determine when the team leader must meet additional requirements

Population: The individual designated as PM.



Things Coming

- Metric 4: Inspection Interval - Routine

Metric #4: Inspection interval – Routine

NTIS Reference: 23 CFR 650.511 (b) – Routine inspections

Criteria

- Routine inspections are initiated within 2 months before or after the established target start date.
- A policy for extended inspection intervals has been established and submitted to FHWA for review and comment prior to the policy be implemented.
- Inspection target start dates are established according to the extended inspection interval policy.

Population: Tunnels 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 NTI submission or whose inspections are overdue.



Things Coming

- Metric 8: Inspection Procedures – Functional System Testing

Metric # 8: Inspection procedures – Functional Systems Testing

NTIS Reference: 23 CFR 650.513 (d) Inspection procedures – Functional systems testing

Criteria

- Establish requirements for functional system testing, direct observation of critical system checks, and testing documentation in accordance with the inspection guidance in the Tunnel Operations, Maintenance, Inspection, and Evaluation (TOMIE) Manual

Population: Tunnels with functional systems.

Compliance Levels

Compliance (C): All of the following must be met for C:

- All functional systems were tested in accordance with the procedures at the required intervals.
- Testing logs exist and records are complete.

Substantial Compliance (SC): All of the following must be met for SC:

- Less than all testing for the functional system did not follow the required intervals or were not documented appropriately.
- One test was routinely missed but did not affect the safe operation of the tunnel.

Non-Compliance (NC): One or more SC criteria are not met.

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

Not Applicable (NA): The tunnels in the inventory do not have functional systems.



Things Coming

- Metric 15: Inventory – Updating data in the inventory

Metric #15: Inventory – Timely Updating of Data

NBIS Reference: 23 CFR 650.515 (c), (d) & (e) – Updating data in the inventory

Criteria

- Tunnel inventory data is submitted to the FHWA NTI as requested using FHWA established procedures.
- Tunnel inventory data is entered in the State's inventory within 3 months of the date for the following events:
 - Initial, routine, in-depth, damage and special inspections
 - existing tunnel modifications that alter previously recorded data and for new tunnels
 - load restriction or closure status

Population: Tunnels in the entire State or selected geographic/owner.

Things Coming



- Mini-Pilot in CO, MA, MI
- AASHTO Briefing (T-18/T-20 joint group)
- Targeted Pilot

Questions?

