



U.S. Department
of Transportation

**Federal Highway
Administration**

Memorandum

Subject: **INFORMATION**: Guidance on Structures
Subject to the National Tunnel Inspection
Standards (NTIS)

Date: October 27, 2015

From: */Original signed by/*
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In Reply Refer To: HIBS-30

To: Federal Lands Highway Division Engineers
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The National Tunnel Inspection Standards (NTIS) were published on July 13, 2015 and became effective on August 12, 2015. The regulation is part of a larger effort to implement a national tunnel inspection program for highway tunnels similar to the well-established program for highway bridges. The Office of Bridges and Structures has previously hosted webinars to share details in the regulation and the implementation timeline. Some State transportation departments and Federal agencies asked questions and express concerns during the webinars and afterwards. Several questions have centered on the definition of a tunnel and which types of structures are subject to the NTIS. This memo provides further guidance on different structure types that are or are not subject to the NTIS and can be used to guide efforts to inventory all highway tunnels by December 11, 2015 as required by the regulation. Guidance on how State transportation departments, federal agencies, and tribal governments should submit their preliminary inventory data will follow soon.

The NTIS defines a tunnel as "an enclosed roadway for motor vehicle traffic with vehicle access limited to portals, regardless of type of structure or method of construction, that requires, based on the owner's determination, special design considerations that may include lighting, ventilation, fire protection systems, and emergency egress capacity." The definition continues by saying that it does not include bridges or culverts inspected under the National Bridge Inspection Standards (NBIS). Therefore, if a structure simply carries one highway over another highway, it is typically considered a highway bridge that is to be inspected in accordance with the NBIS. However, all structures should be inspected using the regulation (NTIS or NBIS) that best fits their design, construction, operation, and inspection characteristics. To help in making that determination, examples of typical and atypical tunnels and other non-tunnel structures are included herein.

1. Traditional highway tunnel – A traditional highway tunnel is one that is bored, blasted, or otherwise constructed through existing rock, mountain, or hill; or under a waterway. The structure fully encloses the roadway with access to the highway limited to portals and may or may not include one or more of the following systems: lighting, ventilation, fire protection systems, and emergency egress capacity. However, a structure with a ventilation system is considered a tunnel. Figures 1-4 show examples of traditional highway tunnels.



Fig. 1 Tunnel through a mountain



Fig. 2 Tunnel under a waterway



Fig. 3 Bored tunnel with lining



Fig. 4 Bored tunnel without lining

2. Other highway tunnels – In certain situations, the highway becomes fully enclosed when a park, green space, buildings, or a structure supporting multiple facilities is over the highway which is normally depressed in an urban environment. The access to the highway under these structures is via portals, and the tunnel may or may not have lighting, ventilation, fire protection systems, and emergency egress capacity. Although length is not a defining criterion, the length of these structures along the highway is typically significantly greater than its width. Portals may or may not be identifiable structures, but access is limited to an entrance and an exit. Figures 5-6 show examples of these types of highway tunnels.



Fig. 5 Tunnel created by a park over a highway



Fig. 6 Tunnel created by multiple urban features over a highway

3. Railroad and other transportation related bridges – Some structures that carry a railroad, airport runway/taxiway, transit, or other facility over a highway may look like tunnels. In some situations these are on a grade to span over the highway or the highway is depressed. Some fill or overburden may be on the structure, such as sufficient ballast for railroad tracks. In other cases, a public road spans another public road, but the span is not greater than 20 feet and does not meet the definition of a highway bridge. If these structures do not align with the description and function of traditional highway tunnels (#1) or other highway tunnels (#2), they are considered non-highway bridges and neither the NTIS nor the NBIS is applicable. However, the FHWA strongly encourages these assets to be inspected at some regular interval in the interest of public safety. The inspections are eligible for Federal-aid funding under the National Highway Performance Program (NHPP) or the Surface Transportation Program (STP). Figures 7-10 show examples of non-highway bridges.



Fig. 7 Example of a railroad bridge



Fig. 8 Example of a railroad bridge



Fig. 9 Example of a non-NBIS bridge



Fig. 10 Example of an airport taxiway bridge (middle structure)

4. Pedestrian/wildlife bridges – Some structures are built with a singular purpose to provide passage for pedestrians or wildlife over a highway. These structures may or may not have fill on top of them. If these structures do not align with the description and function of traditional highway tunnels (#1) or other highway tunnels (#2), they are non-highway bridges and neither the NTIS nor the NBIS is applicable. However, the FHWA strongly encourages these assets be inspected at some regular interval in the interest of public safety. The inspections are eligible for Federal-aid funding under either the NHPP or the STP. Figures 11-12 show examples of pedestrian and wildlife bridges.



Fig. 11 Example of a pedestrian bridge

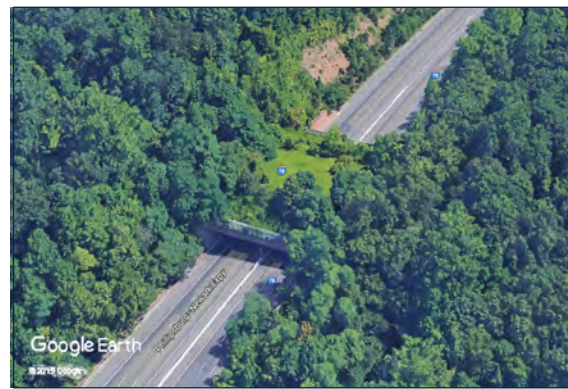


Fig. 12 Example of a wildlife bridge

5. Rock and snow sheds – Some structures, such as rock sheds and snow sheds, are built to protect the highway from falling debris. In addition, there are other three-sided structures that are similar to rock or snow sheds. If these structures do not align with the description and function of traditional highway tunnels (#1) or other highway tunnels (#2), they are not tunnels and the NTIS is not applicable to them even if they have lighting, ventilation, fire protection systems, or emergency egress capacity. However, the FHWA strongly encourages these assets be inspected at some regular interval in the interest of public safety. The inspections are eligible for Federal-aid funding under either the NHPP or the STP. Figures 13-14 show examples of three-sided structures.



Fig 13. Example of a rock shed



Fig 14. Example of a 3 sided structure

6. Existing highway bridges that could be tunnels – The NTIS states that the term “tunnel” does not include bridges or culverts inspected under the NBIS. The intent of including this statement in the definition is to prevent one structure from being considered both a highway bridge and a highway tunnel. Some structures that carry one highway over another highway may appear and function more like a tunnel than a bridge. The preamble to the NTIS discusses this topic, and it states that if a structure serves a dual purpose and is already being inspected under the NBIS, it will be the owner’s decision whether or not to reclassify the structure as a tunnel. The FHWA encourages owners to classify this type of structure as a tunnel if it is consistent with the tunnel descriptions above. If it is reclassified, the structure should be removed from the National Bridge Inventory (NBI) and included in the National Tunnel Inventory (NTI). Figures 15-17 show examples of structures that may be classified as a highway bridge or a highway tunnel.

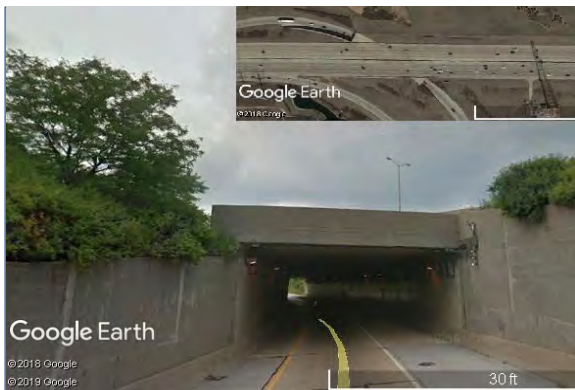


Fig. 15 Structure that can be classified as a highway bridge or highway tunnel



Fig. 16 Structure that may be more suitably classified as a highway tunnel



Fig. 17 Structure that can be classified as a highway bridge or highway tunnel

This memorandum is intended to offer an initial interpretation of what is and what is not a tunnel subject to the NTIS. There are many unique structures and situations on our highways and all of them cannot be represented in this guidance. If there is a question on the proper classification of a structure as a tunnel, the Division office should work with its Bridge Safety Engineer and the State transportation department, federal agency, or tribal government to make a determination that is in accordance with the NTIS. However, when this guidance indicates that a structure does not meet the definition of a highway tunnel, the State transportation department, federal agency, or tribal government has the discretion to classify the structures as a highway tunnel, inspect it according to the NTIS, and include it in the NTL. Finally, if a structure over a highway is not subject to either the NTIS or the NBIS, the FHWA strongly encourages it be inspected at some regular interval in the interest of public safety.

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